QUALITY MANAGEMENT FOR ORGANIZATIONAL EXCELLENCE

Introduction to Total Quality

Ninth Edition

David L. Goetsch

Stanley B. Davis
BRIEF CONTENTS

I PHILOSOPHY AND CONCEPTS 1
1 The Total Quality Approach to Quality Management: Achieving Organizational Excellence 2
2 Quality and Global Competitiveness 19
3 Strategic Management: Planning and Execution for Competitive Advantage 34
4 Quality Management, Ethics, and Corporate Social Responsibility 50
5 Partnering and Strategic Alliances 66
6 Quality Culture: Changing Hearts, Minds, and Attitudes 80
7 Customer Satisfaction, Retention, and Loyalty 94
8 Employee Empowerment 111
9 Leadership and Change 122
10 Team Building and Teamwork 145
11 Effective Communication 162
12 Education and Training 180
13 Overcoming Politics, Negativity, and Conflict in the Workplace 203
14 ISO 9000 and Total Quality: The Relationship 226

II TOOLS AND TECHNIQUES 237
15 Overview of Total Quality Tools 238
16 Problem Solving and Decision Making 271
17 Quality Function Deployment 289
18 Optimizing and Controlling Processes Through Statistical Process Control 305
19 Continual Improvement Methods with Six Sigma, Lean, Lean Six Sigma, and More 333
20 Benchmarking 359
21 Just-in-Time/Lean Manufacturing (JIT/Lean) 374
22 Implementing Total Quality Management 404
Index 429
## CONTENTS

Preface xi  
Acknowledgments xii  
About the Authors xiii  

1 PHILOSOPHY AND CONCEPTS 1  
1 The Total Quality Approach to Quality Management: Achieving Organizational Excellence 2  
   What Is Quality? 2  
   The Total Quality Approach Defined 3  
   Quality and Competitive Advantage 5  
   Two Views of Quality 6  
   Key Elements of Total Quality 7  
   Total Quality Pioneers 8  
   Updating Deming’s Fourteen Points 10  
   Feigenbaum’s Contributions 12  
   Managers, Quality, and Organizational Excellence 13  
   Keys to Total Quality Success 13  
   The Future of Quality Management in the Twenty-First Century 14  
   Quality Certifications 15  
   Other Quality Certifications 16  
   Summary 17  
   Key Terms and Concepts 17  
   Factual Review Questions 17  
   Critical Thinking Activity 17  
   Discussion Assignment 1.1 17  
   Discussion Assignment 1.2 18  
   Endnotes 18  

2 Quality and Global Competitiveness 19  
   The Relationship Between Quality and Competitiveness 19  
   Cost of Poor Quality 20  
   Competitiveness and the U.S. Economy 21  
   Factors Inhibiting Competitiveness 22  
   Comparisons of International Competitors 26  
   Human Resources and Competitiveness 26  
   Characteristics of World-Class Organizations 27  
   Management-by-Accounting: Antithesis of Total Quality 29  
   U.S. Companies: Global Strengths and Weaknesses 29  
   Quality Management Practices in Asian Countries 31  
   Summary 31  
   Key Terms and Concepts 32  
   Factual Review Questions 32  
   Critical Thinking Activity 32  
   Discussion Assignment 2.1 33  
   Discussion Assignment 2.2 33  
   Endnotes 33  

3 Strategic Management: Planning and Execution for Competitive Advantage 34  
   What Is Strategic Management? 34  
   Competitive Strategy 34  
   Core Competencies and Competitive Advantage 35  
   Components of Strategic Management 35  
   Strategic Planning Overview 35  
   Executing the Strategic Plan 44  
   Strategic Planning in Action: A “Real-World” Case 46  
   Summary 48  
   Key Terms and Concepts 49  
   Factual Review Questions 49  
   Critical Thinking Activity 49  
   Endnote 49
# Contents

## 4 Quality Management, Ethics, and Corporate Social Responsibility  
50
- Definition and Overview of Ethics  
50
- Trust and Total Quality 52
- Values and Total Quality 54
- Integrity and Total Quality 54
- Responsibility and Total Quality 54
- Manager’s Role in Ethics 55
- Organization’s Role in Ethics 55
- Handling Ethical Dilemmas 56
- Ethics Training and Codes of Business Conduct 56
- Models for Making Ethical Decisions 57
- Beliefs Versus Behavior: Why the Disparity? 58
- Ethical Dilemmas: Cases 59
- Corporate Social Responsibility Defined 62
- **Summary** 63
- **Key Terms and Concepts** 64
- **Factual Review Questions** 64
- **Critical Thinking Activity** 64
- **Discussion Assignment 4.1** 64
- **Endnotes** 65

## 5 Partnering and Strategic Alliances  
66
- Partnering or Strategic Alliances 66
- Innovative Alliances and Partnerships 69
- Internal Partnering 70
- Partnering with Suppliers 70
- Partnering with Customers 73
- Partnering with Potential Competitors 74
- Global Partnering 76
- Education and Business Partnerships 77
- **Summary** 77
- **Key Terms and Concepts** 78
- **Factual Review Questions** 78
- **Critical Thinking Activity** 78
- **Discussion Assignment 5.1** 79
- **Discussion Assignment 5.2** 79
- **Endnotes** 79

## 6 Quality Culture: Changing Hearts, Minds, and Attitudes  
80
- Understanding What a Quality Culture Is 80
- Quality Culture Versus Traditional Cultures 81
- Activating Cultural Change 83
- Changing Leaders to Activate Change 83
- Laying the Foundation for a Quality Culture 84
- Learning What a Quality Culture Looks Like 85
- Countering Resistance to Cultural Change 85
- Establishing a Quality Culture 88
- Maintaining a Quality Culture 90
- Behavior-Based Quality Culture 91
- **Summary** 91
- **Key Terms and Concepts** 92
- **Factual Review Questions** 92
- **Critical Thinking Activity** 92
- **Discussion Assignment 6.1** 93
- **Endnotes** 93

## 7 Customer Satisfaction, Retention, and Loyalty  
94
- Understanding Who Is a Customer 94
- Understanding Customer-Defined Quality 95
- Identifying External Customer Needs 96
- Communicating with Customers 97
- Customer Satisfaction Process 99
- Customer-Defined Value 99
- Customer Retention 100
- Establishing a Customer Focus 102
- Recognizing the Customer-Driven Organization 103
- Value Perception and Customer Loyalty 103
- Customer Loyalty Model 103
- Customer Loyalty Versus Customer Profitability 104
- Customers as Innovation Partners 105
- Strategies for Customer Loyalty and Retention 106
- Product Innovation Model for Customer Retention 107
- **Summary** 108
- **Key Terms and Concepts** 109
- **Factual Review Questions** 109
- **Critical Thinking Activity** 109
- **Discussion Assignment 7.1** 109
- **Discussion Assignment 7.2** 110
- **Endnotes** 110
8 Employee Empowerment 111
Employee Empowerment Defined 111
Rationale for Empowerment 112
Inhibitors of Empowerment 113
Management’s Role in Empowerment 115
Implementing Empowerment 116
How to Recognize Empowered Employees 118
Empowerment Errors to Avoid 118
Beyond Empowerment to Enlistment 119
Summary 120
Key Terms and Concepts 120
Factual Review Questions 120
Critical Thinking Activity 120
Discussion Assignment 8.1 121
Discussion Assignment 8.2 121
Discussion Assignment 8.3 121
Endnotes 121

9 Leadership and Change 122
Leadership Defined 122
Leadership for Quality 125
Leadership Styles 127
Building and Maintaining a Following 128
Leadership Versus Management 130
Restructuring and Change 131
How to Lead Change 132
Leading for Innovation in a Quality Culture 135
Lessons from Distinguished Leaders 135
Servant Leadership and Stewardship 140
Negative Influences on Leaders: How to Counter Them 140
Leaders as Mentors 141
Summary 143
Key Terms and Concepts 143
Factual Review Questions 143
Critical Thinking Activity 144
Discussion Assignment 9.1 144
Discussion Assignment 9.2 144
Endnotes 144

10 Team Building and Teamwork 145
Overview of Team Building and Teamwork 145
Building Teams and Making Them Work 147
Four-Step Approach to Team Building 149
Character Traits and Teamwork 151
Teams Are Coached—Not Bossed 152
Handling Conflict in Teams 154
Structural Inhibitors of Teamwork 156
Rewarding Team and Individual Performance 157
Recognizing Teamwork and Team Players 159
Leading Multicultural Teams 159
Summary 160
Key Terms and Concepts 161
Factual Review Questions 161
Critical Thinking Activity 161
Discussion Assignment 10.1 161
Endnotes 161

11 Effective Communication 162
Defining Communication 162
Understanding the Role of Communication in Total Quality 163
Understanding Communication as a Process 164
Recognizing Inhibitors of Communication 164
Establishing a Conducive Communication Climate 166
Communicating by Listening 166
Understanding Nonverbal Communication Factors 170
Communicating Verbally 171
Communicating in Writing 172
Communicating Corrective Feedback 174
Improving Communication 175
How Interpersonal Skills Affect Communication 176
Personality and Communication 177
Summary 178
Key Terms and Concepts 178
Factual Review Questions 179
Critical Thinking Activity 179
Discussion Assignment 11.1 179
Endnotes 179

12 Education and Training 180
Overview of Education, Training, and Learning 180
Rationale for Training 184
Training Needs Assessment 186
Providing Training 188
Evaluating Training 189
Managers as Trainers 191
Workforce Literacy 195
Why Training Sometimes Fails 197
Quality Training Curriculum 197
### Contents

Orientation Training 197  
Customer Training 198  
Ethics Training 199  
Making E-Learning Work 199  
**Summary** 199  
Key Terms and Concepts 200  
Factual Review Questions 200  
Critical Thinking Activity 201  
Discussion Assignment 12.1 201  
Discussion Assignment 12.2 201  
Endnotes 201  

13 Overcoming Politics, Negativity, and Conflict in the Workplace 203  
Internal Politics Defined 203  
Organizational Structure and Internal Politics 205  
Internal Politics in Action 207  
Internal Politicians and Their Methods 210  
Impact of Internal Politics on Quality 213  
Controlling Internal Politics in Organizations 214  
Overcoming Negativity in Organizations 219  
Overcoming Territorial Behavior in Organizations 220  
Managing Conflict in Organizations 221  
**Summary** 224  
Key Terms and Concepts 224  
Factual Review Questions 224  
Critical Thinking Activity 224  
Discussion Assignment 13.1 225  
Discussion Assignment 13.2 225  
Endnotes 225  

14 ISO 9000 and Total Quality: The Relationship 226  
ISO 9000’s Objective 227  
How ISO 9000 Is Applied to Organizations 227  
ISO 9000 Quality Management System: A Definition 228  
Authority for Certification/Registration 229  
ISO 9001 and Industry-Specific Applications 230  
Organizational Registration to ISO 9001 230  
The Benefits of ISO 9000 231  
The Origin of ISO 9000 231  
Comparative Scope of ISO 9000 and Total Quality Management 231  
Management Motivation for Registration to ISO 9001 233  
ISO 9000 and Total Quality Management Working Together 233  
The Future of ISO 9000 234  
ISO 9000: Past Versions 235  
**Summary** 235  
Key Terms and Concepts 236  
Factual Review Questions 236  
Critical Thinking Activity 236  
Discussion Assignment 14.1 236  

15 Overview of Total Quality Tools 238  
Total Quality Tools Defined 238  
Pareto Charts 239  
Cause-and-Effect Diagrams 241  
Check Sheets 243  
Histograms 246  
Scatter Diagrams 252  
Run Charts and Control Charts 255  
Stratification 256  
Some Other Important Tools Introduced 258  
Management’s Role in Tool Deployment 264  
Selecting the Right Tool for the Job 266  
**Summary** 267  
Key Terms and Concepts 267  
Factual Review Questions 268  
Critical Thinking Activities 268  
Discussion Assignment 15.1 269  
Endnotes 270  

16 Problem Solving and Decision Making 271  
Problem Solving for Total Quality 271  
Two Models for Solving and Preventing Problems 272  
Human Error as a Root Cause 278  
Problem-Solving and Decision-Making Tools 278  
Common Errors in Problem Solving 278  
Decision Making for Total Quality 279  
The Decision-Making Process 279  
Objective Versus Subjective Decision Making 281
19 Continual Improvement Methods with Six Sigma, Lean, Lean Six Sigma, and More 333

Rationale for Continual Improvement 333
Management’s Role in Continual Improvement 334
Essential Improvement Activities 334
Structure for Quality Improvement 335
The Scientific Approach 335
Identification of Improvement Needs 336
Development of Improvement Plans 336
Common Improvement Strategies 337
The Kaizen Approach 340
The CEDAC Approach 343
The Lean Approach 345
The Six Sigma Approach 347
The Lean Six Sigma Approach 353
Why Some Lean Six Sigma Projects Succeed While Others Fail 354
Future of Six Sigma: Version 2.0 354
The Theory of Constraints and Integrated TOC, Lean, Six Sigma (ITLS) Approach 354
Risk Priority Numbers and Continual Improvement 355

Summary 356
Key Terms and Concepts 356
Factual Review Questions 357
Critical Thinking Activity 357
Discussion Assignment 18.1 358
Discussion Assignment 18.2 358
Discussion Assignment 18.3 358
Endnotes 358

20 Benchmarking 359

Benchmarking Defined 359
Prerequisites to Benchmarking 362
Obstacles to Successful Benchmarking 363
Role of Management in Benchmarking 364
Benchmarking Approach and Process 365
Making Full Use of Benchmarking Data 368
21 Just-in-Time/Lean Manufacturing (JIT/Lean) 374
JIT/Lean Defined 374
Rationale for JIT/Lean 376
Development of JIT/Lean 377
Relationship of JIT/Lean to Total Quality and World-Class Manufacturing 381
Benefits of JIT/Lean 383
Requirements of JIT/Lean 389
Automation and JIT/Lean 401
Summary 401
Key Terms and Concepts 402
Factual Review Questions 402
Critical Thinking Activities 402
Discussion Assignment 21.1 403
Endnotes 403

22 Implementing Total Quality Management 404
Rationale for Change 405
Requirements for Implementation 407
Role of Top Management: Leadership 414
Implementation Variation Among Organizations 416
Implementation Approaches to Be Avoided 418
An Implementation Approach that Works 419
Getting on with It 423
What to Do in the Absence of Commitment from the Top 423
Implementation Strategies: ISO 9000 and Baldrige 424
Summary 426
Key Terms and Concepts 426
Factual Review Questions 426
Critical Thinking Activities 427
Discussion Assignment 22.1 427
Endnotes 428

Index 429
BACKGROUND

At one time in history, Great Britain was the world’s leader in commerce and industry. Eventually, the United States emerged as a major friendly competitor. Then, following World War II, the United States took over as the undisputed world leader of commerce and industry. During these post-war years, while the United States was enjoying unparalleled prosperity, Japan and Germany were rebuilding from the ashes of the war. With a great deal of help from the United States, Japan was able to rebound and during the 1970s began to challenge the United States in such key manufacturing sectors as automobiles, computers, and consumer electronics. By 1980, Japan had emerged as a world-class competitor and a global leader in selected areas of commerce and industry. German industry had also reemerged by this time. By 2000, Korea, China, and the Pacific Rim nations had also emerged as global competitors.

As a result, the United States found itself losing market share in economic sectors it had dominated (and taken for granted) for decades. At first, industrialists in the United States turned their backs on the lesson their counterparts in other industrialized nations had learned. This lesson was that the key to competing in the international marketplace was to simultaneously improve quality and productivity on a continual basis. However, as more and more market share slipped away, the message started to sink in for the United States. This belated awareness gave rise to a quality movement that began to take hold. Its progress was slow at first. However, an approach to doing business known as quality management has caught on and is now widely practiced as a way to achieve organizational excellence. Organizational excellence is a combination of peak performance, superior quality, and continual improvement.

This book advocates an approach to doing business that focuses all the resources of an organization on the continual and simultaneous improvement of quality and productivity. The purpose of this approach is to continually improve the organization’s performance and, in turn, competitiveness.

WHY WAS THIS BOOK WRITTEN AND FOR WHOM?

This book was written in response to the need for a practical teaching resource that encompasses all of the various elements of quality management, including Lean, Six Sigma, and Lean Six Sigma, and pulls them together in a coherent format that allows the reader to understand both the big picture and the specific details of quality management. It is intended for use in universities, colleges, community colleges, corporate environments, and any other settings in which people want to learn to be effective agents of quality management. Students enrolled in technology, engineering, and management programs will find this book both valuable and easy to use. Practitioners in corporate settings will find it a valuable guide in understanding and implementing quality management.

The direct, straightforward presentation of material focuses on making the theories and principles of quality management practical and useful in a real-world setting. Up-to-date research has been integrated throughout in a down-to-earth manner.

ORGANIZATION OF THIS BOOK

The text consists of 22 chapters, organized in two parts. Part I explains the philosophy and concepts of quality management. Part II covers the tools and techniques of quality management. A standard format is used throughout the book. Each chapter begins with a list of objectives and provides a comprehensive summary. Key terms and concepts, factual review questions, a critical thinking activity, discussion assignments, and endnotes are found at the end. The endnotes provide readers with comprehensive lists of additional reading and research material that can be pursued at the discretion of the student and/or the instructor. The other materials encourage review, stimulate additional thought, promote discussion, and facilitate additional research.

USING THIS BOOK FOR ONE COURSE OR TWO

Some professors use this book for one course and some use it for two courses. Those who use the book for one course cover all or most of the chapters and make decisions concerning any chapters that are not covered on the basis of local considerations. Those who use the book for two courses typically cover Chapters 1–14 in the first course and Chapters 15–22 in the second course. Although this approach to dividing the content is not balanced in terms of the number of chapters, it is balanced in terms of the time required to cover the material. Feedback from most professors indicates that the degree of difficulty of the content of Chapters 15–22 requires them to spend more time...
on these chapters than is required to cover any of the first 14 chapters. Consequently, in terms of time requirements, dividing the book at Chapter 14 results in two courses of equal length. Feedback from the classroom has been positive concerning both of these approaches.

HOW THIS BOOK DIFFERS FROM OTHERS

Most books in the market deal with one of the several elements of quality management, such as teamwork, just-in-time manufacturing, scientific measurement (SPC or quality tools), continual improvement, and employee involvement. Many of the books available were developed with the advanced-level practitioner in mind rather than the beginner. Few of the books in the market were formatted for use in a classroom setting. This book was written to provide both comprehensive and in-depth coverage of quality management. All the elements of quality management are covered, including several that receive little or no attention in other quality management books (e.g., peak performance, continual improvement, superior value, partnering, manufacturing networks, quality culture, and how to implement total quality). These subjects are covered in sufficient depth to allow a beginner to learn everything necessary to understand and implement total quality without having to look to any other source of information.

New in the Ninth Edition

The ninth edition contains major improvements that reflect the ongoing evolution of quality management, as well as recommendations from reviewers and users of the text. These improvements include the following:

- Chapter 1: Added new content on quality and competitiveness, Deming’s 14 points as updated for contemporary times, Armand V. Feigenbaum’s pioneering contribution to quality management, role of managers in achieving organizational excellence, and the impact of technology on the future of quality management.
- Chapter 2: Added new content on inhibitors of competitiveness.
- Chapter 4: Expanded the section of corporate social responsibility including coverage of “greenwashing.”
- Chapter 6: Added a new section on behavior-based quality culture.
- Chapter 7: Added a new section on customer loyalty and retention strategies.
- Chapter 9: Added a new section on ensuring compatibility of quality and innovation.
- Chapter 14: Rewritten to bring it up to date with ISO 9000-2015.
- Chapter 15: Added a seven-step process for implementing Design of Experiments (DOE).
- Chapter 16: Added material to the section on applying the Five Whys to problem solving, explaining contributing versus root causes, a new section of human error as a root cause and applicable cautions, and common errors made in problem solving.
- Chapter 19: Added a new section on why some Lean Six Sigma projects fail when other succeed and a new section on Risk Priority Numbers (RPNs) and continual improvement. Download Instructor Resources from the Instructor Resource Center.

To access supplementary materials online, instructors need to request an instructor access code. Go to www.pearsonhighered.com/irc to register for an instructor access code. Within 48 hours of registering, you will receive a confirming e-mail including an instructor access code. Once you have received your code, locate your text in the online catalog and click on the Instructor Resources button on the left side of the catalog product page. Select a supplement, and a login page will appear. Once you have logged in, you can access instructor material for all Pearson textbooks. If you have any difficulties accessing the Web site or downloading a supplement, please contact Customer Service at http://247pearsoned.custhelp.com/.

ACKNOWLEDGMENTS

The authors would like to thank the following reviewers for the helpful insights:

Kristopher Blanchard
Upper Iowa University

Lynda Fuller
Wilmington University

Melissa Weathersby
Alamo Colleges District
ABOUT THE AUTHORS

David L. Goetsch is the Vice President Emeritus and Professor at Northwest Florida State College. Prior to entering higher education full time, Dr. Goetsch had a career in the private sector that included positions in quality management, safety management, and project management with engineering, manufacturing, and construction firms. Dr. Goetsch is the founder of The Quality Institute, a partnership of Northwest Florida State College and the Okaloosa Economic Development Council, and the Leadership Institute of Northwest Florida State College. Dr. Goetsch has been selected as Professor of the Year at Northwest Florida State College and the Emerald Coast Campus of the University of West Florida (five times). He was selected as Florida’s Outstanding Technical Instructor of the Year and his program at Northwest Florida State College was selected as the recipient of the U.S. Secretary of Education’s Outstanding Technical Program in the United States for Region 10.

Stanley B. Davis was a manufacturing executive with Harris Corporation until his retirement in 1992. He was the founding managing director of The Quality Institute and is a well-known expert in the areas of total quality management and its implementation, statistical process control, just-in-time manufacturing, Six Sigma, benchmarking, quality management systems, and environmental management systems. He currently serves as Professor of Quality at the institute and heads his own consulting firm, Stan Davis Consulting, which is dedicated to assisting private industry and public organizations throughout North America achieve world-class performance and competitiveness.