

MANAGEMENT CONTROL SYSTEMS

ELEVENTH EDITION

ROBERT N. ANTHONY
VIJAY GOVINDARAJAN

Management Control Systems

Eleventh Edition

Robert N. Anthony

*Ross Graham Walker
Professor of Management Control, Emeritus
Graduate School of Business Administration
Harvard University*

Vijay Govindarajan

*Earl C. Daum
Professor of International Business
Director, William F. Ahtmeier
Center for Global Leadership
The Tuck School of Business
Dartmouth College*



Boston Burr Ridge, IL Dubuque, IA Madison, WI New York San Francisco St. Louis
Bangkok Bogotá Caracas Kuala Lumpur Lisbon London Madrid Mexico City
Milan Montreal New Delhi Santiago Seoul Singapore Sydney Taipei Toronto



MANAGEMENT CONTROL SYSTEMS

Published by McGraw-Hill/Irwin, a business unit of The McGraw-Hill Companies, Inc., 1221 Avenue of the Americas, New York, NY 10020. Copyright © 2004, 2001, 1998, 1995, 1992, 1989, 1984, 1980, 1976, 1972, 1965 by The McGraw-Hill Companies, Inc. All rights reserved. No part of this publication may be reproduced or distributed in any form or by any means, or stored in a database or retrieval system, without the prior written consent of The McGraw-Hill Companies, Inc., including, but not limited to, in any network or other electronic storage or transmission, or broadcast for distance learning. Some ancillaries, including electronic and print components, may not be available to customers outside the United States.

This book is printed on acid-free paper.

2 3 4 5 6 7 8 9 0 PBT/PBT 0 9 8 7 6 5 4 3

ISBN 0-07-281931-6

Publisher: *Brent Gordon*
Executive editor: *Stewart Mattson*
Sponsoring editor: *Steve DeLancey*
Developmental editor: *Emily Wong*
Marketing manager: *Katherine Mattison*
Senior producer, Media technology: *David Barrick*
Project manager: *Jim Labeots*
Production supervisor: *Debra R. Sylvester*
Designer: *Kami Carter*
Supplement producer: *Matthew Perry*
Senior digital content specialist: *Brian Nacik*
Cover design: *Kami Carter*
Typeface: *10/12 Century Schoolbook*
Compositor: *Carlisle Communications, Ltd.*
Printer: *Phoenix Book Technology*

Library of Congress Cataloging-in-Publication Data

Anthony, Robert Newton, 1916-

Management control systems / Robert N. Anthony, Vijay Govindarajan. --11th ed.
p. cm.

Includes bibliographical references and index.

ISBN 0-07-281931-6 (alk. paper)

1. Industrial management. 2. Industrial management--Case studies. 3. Cost control. I. Govindarajan, Vijay. II. Title.

HD31.A589 2004

658.15--dc21

2003046317

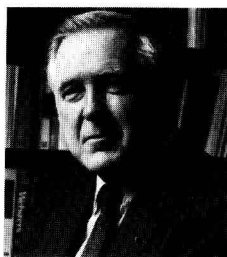
To our wives: Katherine and Kirthi

—Bob and VG

With special appreciation to my parents
and to Ammanji and Athanga, my most
important supporters and personal
anchors.

—VG

About the Authors

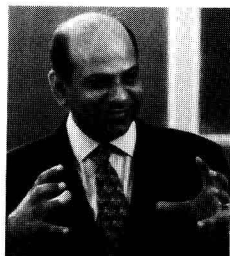


Robert N. Anthony is the Ross Graham Walker Professor Emeritus of Management Control at Harvard Business School. Harvard has been his home base, except between 1940 and 1946 when he was in the Navy Supply Corps, and between 1965 and 1968 when he was Assistant Secretary of Defense, Controller.

Professor Anthony is the author or coauthor of 27 books; they have been translated into 14 languages. He has been an Irwin author since 1956 and consulting editor of Irwin's Robert N. Anthony/Willard J. Graham series in Accounting. His *Essentials of Accounting* (Addison-Wesley), now in its eighth edition (co-authored with Leslie Breitner), is a widely used programmed text.

Professor Anthony has been a director of Carborundum Company and Warrnaco, Inc., both Fortune 500 companies, and for 30 years has been a trustee of Colby College, including five years as chairman of the board. He has been a consultant to many companies and government agencies, including General Motors Corporation, American Telephone & Telegraph Company, Eastman Kodak Company, the General Accounting Office, and the Cost Accounting Standards Board. He has also participated in short educational programs in North America, South America, Europe, Australia, and Asia.

Among Professor Anthony's awards are honorary MA and LHD degrees from Colby College, election to the Accounting Hall of Fame, the Distinguished Accounting Educator Award from the American Accounting Association, Lifetime Contribution Award in the Management Accounting Section of the AAA, the Accounting Educator of the Year Award from Beta Alpha Psi, the Meritorious Service Award from the Executive Office of the President, the Distinguished Public Service Medal of the Department of Defense, Comptroller General's Award of the U.S. General Accounting Office, and Distinguished Service Award of the Harvard Business School Association.



Vijay Govindarajan (known as VG) is the Earl C. Daum 1924 Professor of International Business and the Founding Director of the William F. Achtmeyer Center for Global Leadership at the Tuck School of Business at Dartmouth College. He is also the Faculty Co-Director for the Tuck Global Leadership 2020 Program. For two consecutive years, the *Wall Street Journal* ranked Tuck as the number one business school in the world and the number two school for strategy.

VG's area of expertise is strategy, with particular emphasis on strategic innovation, industry transformation, and global strategy and organization. Professional credits include: Outstanding Faculty, named by *Business Week* in its Guide to Best B-Schools; Top Ten Business School Professor in Corporate Executive Education, named by *Business Week*; and Outstanding Teacher of the Year, voted by MBA students. He was named among the Top 50 Non-Resident Indians of the Year in the January 2002 issue of *NRI World*, the lifestyle and business magazine for Indians living abroad.

Prior to joining the faculty at Tuck, VG was on the faculties of Ohio State University and the Indian Institute of Management (Ahmedabad, India). He has also served as a visiting professor at Harvard Business School, INSEAD

(Fontainebleau, France), the International University of Japan (Urasa, Japan), and Helsinki School of Economics (Helsinki, Finland).

VG was ranked by *Management International Review* as one of the Top 20 North American Superstars for research in strategy and organization. One of his papers was recognized as “one of the ten most-often cited articles” in the entire 40-year history of the prestigious *Academy of Management Journal*. VG has also received numerous other scholarly awards, including the Glueck Best Research Paper Award in Business Policy and Strategy from the Academy of Management. He was invited to deliver the Fifteenth Annual Presidential Lecture at Dartmouth College.

More than 60 articles by VG on strategy and organization have appeared as book chapters and in journals such as *Academy of Management Journal*; *Academy of Management Review*; *Strategic Management Journal*; *Accounting, Organizations and Society*; *Decision Sciences*; *Journal of Business Strategy*; *Strategy and Business*; *Business Horizons*; and *Sloan Management Review*. He has published six books, including *The Quest for Global Dominance* (San Francisco: Jossey-Bass, 2001).

VG works with CEOs and top management teams in Global Fortune 500 firms to discuss, challenge, and escalate their thinking about strategy. He is often called to be the keynote speaker at events, conferences, CEO forums, and leadership development programs. Representative clients include: Boeing, British Telecom, Chevron Texaco, Chubb, Colgate, Corning, Hewlett-Packard, IBM, International Paper, J.P. Morgan Chase, Johnson & Johnson, New York Times, Price Waterhouse Coopers, Sony, and UBS. He has been a keynote speaker at the Business Week CEO Forum, the Economist Conference, Confederation of Indian Industry Conference, and Human Resource Planning Society National Conference.

VG received his doctorate from the Harvard Business School and was awarded the Robert Bowne Prize for the best thesis proposal. He also received his MBA with distinction from the Harvard Business School where he was included in the Dean's Honor List. Prior to this, VG received his Chartered Accountancy degree in India, where he was awarded the President's Gold Medal for obtaining the first rank nationwide.

For additional information about VG and his work with the Center for Global Leadership please visit the following websites: www.vg-tuck.com and www.tuck.dartmouth.edu/cgl.

Preface

The 11th edition of Management Control Systems provides concepts, text, and cases for a course in management control systems. The book is designed to allow students to gain knowledge, insights, and analytical skills related to how a firm's managers go about designing, implementing, and using planning and control systems to implement a firm's strategies. It does not deal extensively with topics such as cost accounting and budgeting procedures, which are discussed in separate accounting courses. The book gives roughly equal emphasis to: the techniques of the management control process, such as transfer pricing, budget preparation, and management compensation; and the behavioral considerations involved in the use of these techniques, such as motivation, goal congruence, and relative roles of superiors and subordinates.

The book is organized into three main parts, with Chapter 1 introducing the overall conceptual framework for the book. Part One (Chapters 2 to 7) describes the environment in which management control takes place, called responsibility centers. Part Two (Chapters 8 to 12) describes the sequential steps in the typical management control process: strategic planning, budget preparation, operations, and analysis of operations. Part Three (Chapters 13 to 16) describes variations in management control systems: controls for differentiated strategies, service organizations, multinational organizations, and project control.

CHANGES TO TEXT MATERIAL

While retaining the strengths of the 10th edition, we have made a number of changes in both text and case material that we hope will increase their usefulness. In undertaking this revision, we surveyed users and nonusers of the 10th edition. Their constructive comments and suggestions have been beneficial to this revision.

Several improvements have been made to assist student learning. These include: expanded chapter introductions, more diagrams and exhibits, real-world examples, consistent terminology, expanded chapter summaries, and an up-to-date reference list in each chapter. In particular, we have reorganized the chapters so that Chapter 2 now discusses the strategy formulation process that provides the context for the design of management control systems, which is the subject matter of the book.

We are confident that you will find the text material in this 11th edition well organized, concisely written, laden with current examples, and consistent with the current theory and practice of management control.

CHANGES IN CASES

A key strength of this book is the collection of cases that emphasize actual practice. The cases come from Harvard Business School, the Tuck School of Business at Dartmouth, and a number of other schools, both in the United States

and abroad. The cases not only require the student to analyze situations, but also give the student a feel for what actually happens in companies, a feeling that cannot be conveyed adequately in the theoretical text. In this sense, the cases can be viewed as extended examples of practice.

The cases are not necessarily intended to illustrate either correct or incorrect handling of management problems. As in most cases of this type there are no right answers. The educational value of the cases comes from the practice the student receives in analyzing management control problems and in discussing and defending his or her analysis before the class.

We have retained those cases that users have found most helpful in accomplishing the objective of their course. Of the 77 cases in this edition, 16 are copyrighted by Harvard Business School, 25 are copyrighted by the Tuck School at Dartmouth, and the remaining 36 cases come from other sources. The 11th edition has 14 (20 percent) new or revised cases.

Instructors will find that this case collection does an excellent job of meeting classroom needs for several reasons:

- Many cases are based on major corporations such as General Electric, Champion International, Xerox, ITT, Skandia, 3M, Texas Instruments, Hewlett-Packard, General Motors, Nestlé, Motorola, Lincoln Electric, Nucor, Citibank, Chemical Bank, Nordstrom, Wal-Mart, Southwest Airlines, Dell Computer, and Emerson Electric.
- The collection offers a rich diversity of domestic, foreign, and international companies.
- These cases expose students to varied contexts: small organizations, large organizations, manufacturing organizations, service organizations, and non-profit organizations.
- The collection presents many familiar, contemporary cases, providing students with interesting situations that they will enjoy, and from which they will learn.
- We have given significant attention to case length. A major effort has been made to ensure that a majority of the cases are short. We still include a few medium to long cases, “two-day” cases, and “two-part” cases.
- The case collection is flexible in terms of course sequencing, and the cases are comfortably teachable.

TARGET AUDIENCE

This book is intended for any of the following uses:

- A one-semester or one-quarter course for graduate students who have had a course in management accounting and who wish to study management control in greater depth.
- A one-semester or one-quarter course for undergraduate juniors or seniors who have already had one or two courses in management accounting.
- Executive development programs.
- A handbook for general managers, management consultants, computer-based systems designers, and controllers—those who are involved in or are affected by the management control process.

ACKNOWLEDGMENTS

Many people have aided in the evolution of this book over 11 editions. Students, adopters, colleagues, and reviewers have generously supplied an untold number of insightful comments, helpful suggestions, and contributions that have progressively enhanced this book.

The course from which the material in this book was drawn was originally developed at the Harvard Business School by the late Ross G. Walker. We wish to acknowledge his pioneering work in the development of both the concepts underlying the courses and the methods of teaching these concepts. We thank the following members and former members of the Harvard Business School faculty who have contributed much to the development of this book: Francis J. Aguilar, Robert H. Caplan, Charles J. Christenson, Robin Cooper, Russell H. Hassler, Julie H. Hertenstein, Regina E. Herzlinger, Robert A. Howell, Gerard G. Johnson, Robert S. Kaplan, Warren F. McFarlan, Kenneth Merchant, Krishna G. Palepu, John K. Shank, Robert Simons, Richard F. Vancil, and John R. Yeager.

In addition, we wish to acknowledge the assistance provided by Robert H. Deming, James S. Hekiman, John Maureil, Chei-Min Paik, and Jack L. Treynor. We also wish to thank the reviewers who responded to our survey: Ida Robinson-Backmon, University of Baltimore; Bernard Beatty, Wake Forest University; Otto B. Martinson, Old Dominion University; Henry C. Smith III, Otterbein College; Tim Redmer, Regent University; Tom Madison, St. Mary's University; Mary Fleming, California State University–Fullerton; Surendra P. Agrawal, University of Memphis; Patricia Elliot Williams, Friends University; Ralph Dtrina, Rollins College; Seymour Kaplan, Polytechnic University; and Barbara McElroy, Berry College. A special thanks to Rajeev Parlikar, Tuck '02, who helped with research on examples.

Joseph Fisher, Indiana University, contributed the material on agency theory included in Chapter 12. Anant K. Sundaram, the Tuck School, contributed the material on exchange rates and performance evaluation included in Chapter 15. Our sincere thanks to both for their fine contributions.

The selection of cases is always vital to a successful management control systems course. In this context, our sincere appreciation goes to the supervisors and authors who are responsible for case development. Each has been recognized in the citations to the cases. We are particularly indebted to the companies whose cooperation made the cases possible.

Permission requests to use Harvard copyrighted cases should be directed to the Permissions Manager, Harvard Business School Publishing, 300 North Beacon Street, Watertown, MA 02472. Requests to reproduce cases copyrighted by Osceola Institute or the Tuck School should be directed to Professor Vijay Govindarajan.

The organization and development of vast amounts of material necessary to complete this project was no small task. A special note of thanks to Ms. Marcia Diefendorf, Academic Assistant to Professor Govindarajan, who professionally managed thousands of pages of original text and revisions with secretarial and computer skills that were invaluable. We also wish to thank Steve DeLancey and Emily Wong at our publisher, McGraw-Hill/Irwin, for their help and commitment to our project.

In writing this text, we hope that you will share our enthusiasm both for the rich subject of management control and for the learning approach that we have taken. As always, we value your recommendations and thoughts about the book. Your comments regarding coverage and content will be most welcome, as will your calling our attention to any specific errors. Please contact: Vijay Govindarajan, Earl C. Daum 1924 Professor of International Business, The Tuck School of Business, Hanover, NH 03755; Phone (603) 646-2156; Fax (603) 646-1308; E-mail VG@dartmouth.edu.

Robert N. Anthony

Vijay Govindarajan

November 2002

Hanover, NH

Table of Contents

Preface ix

Chapter 1

The Nature of Management Control Systems 1

- Basic Concepts 2
- Boundaries of Management Control 6
- Road Map for the Reader 14
- Summary 17
- Case 1-1: Nucor Corporation (A) 19
- Case 1-2: Wal-Mart Stores, Inc. 31
- Case 1-3: Stewart Box Company 34
- Case 1-4: Xerox Corporation (A) 41

PART ONE

THE MANAGEMENT CONTROL ENVIRONMENT 49

Chapter 2

Understanding Strategies 51

- Goals 51
- The Concept of Strategy 54
- Corporate Level Strategy 56
- Business Unit Strategies 60
- Summary 68
- Case 2-1: Cisco Systems (A) 71
- Case 2-2: Cisco Systems (B) 73
- Case 2-3: Technology Note: Internetworking Products 78
- Case 2-4: Texas Instruments and Hewlett-Packard 80
- Case 2-5: Motorola, Inc. 84

Chapter 3

Behavior in Organizations 93

- Goal Congruence 93
- Informal Factors That Influence Goal Congruence 94
- The Formal Control System 98
- Types of Organizations 100
- Functions of the Controller 105

Summary 107

- Case 3-1: Southwest Airlines Corporation 109
- Case 3-2: Nucor Corporation (B) 112
- Case 3-3: General Motors Corporation 114
- Case 3-4: Rendell Company 121
- Case 3-5: Digital Equipment Corporation 131
- Case 3-6: National Tractor and Equipment Company 138

Chapter 4

Responsibility Centers: Revenue and Expense Centers 147

- Responsibility Centers 147
- Revenue Centers 151
- Expense Centers 151
- Administrative and Support Centers 157
- Research and Development Centers 159
- Marketing Centers 161
- Summary 163
- Case 4-1: Vershire Company 164
- Case 4-2: New Jersey Insurance Company 170
- Case 4-3: NYPRO, Inc. 178
- Case 4-4: Whiz Calculator Company 189
- Case 4-5: Westport Electric Corporation 194
- Case 4-6: Grand Jean Company 200

Chapter 5

Profit Centers 204

- General Considerations 204
- Business Units as Profit Centers 208
- Other Profit Centers 210
- Measuring Profitability 213
- Summary 217
- Case 5-1: Profit Center Problems 219
- Case 5-2: North Country Auto, Inc. 220
- Case 5-3: Boise Cascade Corporation 228
- Case 5-4: Abrams Company 238

Chapter 6

Transfer Pricing 243

- Objectives of Transfer Prices 243
- Transfer Pricing Methods 243

Pricing Corporate Services	252
Administration of Transfer Prices	255
Summary	257

Appendix

Some Theoretical Considerations	258
---------------------------------	-----

Case 6-1: Transfer Pricing Problems	261
Case 6-2: Birch Paper Company	267
Case 6-3: General Appliance Corporation	269
Case 6-4: Strider Chemical Company	280
Case 6-5: Medoc Company	283

Chapter 7

Measuring and Controlling Assets Employed 286

Structure of the Analysis	287
Measuring Assets Employed	289
EVA versus ROI	299
Additional Considerations in Evaluating Managers	304
Evaluating the Economic Performance of the Entity	305
Summary	306
Case 7-1: Investment Center Problems (A)	308
Case 7-2: Investment Center Problems (B)	312
Case 7-3: Quality Metal Service Center	317
Case 7-4: Aloha Products	326
Case 7-5: Dell Computer Corporation	332
Case 7-6: Industrial Products Corporation	335
Case 7-7: Marden Company	343
Case 7-8: Lemfert Company	344

PART TWO

THE MANAGEMENT CONTROL PROCESS 347

Chapter 8

Strategic Planning 349

Nature of Strategic Planning	349
Analyzing Proposed New Programs	355
Analyzing Ongoing Programs	358
Strategic Planning Process	362
Summary	365

Appendix

Merck's Research Planning Model	366
---------------------------------	-----

Case 8-1: Allied Office Products	369
Case 8-2: Copley Manufacturing Company	376
Case 8-3: DairyPak	384
Case 8-4: Emerson Electric Company	396

Chapter 9

Budget Preparation 409

Nature of a Budget	409
Other Budgets	415
Budget Preparation Process	416
Behavioral Aspects	420
Quantitative Techniques	422
Summary	423
Case 9-1: Sound Dynamics, Inc.	425
Case 9-2: Boston Creamery, Inc.	440
Case 9-3: Riverview	451

Chapter 10

Analyzing Financial Performance Reports 458

Calculating Variances	458
Variations in Practice	465
Limitations of Variance Analysis	470
Summary	471
Case 10-1: Variance Analysis Problems	473
Case 10-2: Solartronics, Inc.	477
Case 10-3: Galvor Company	479

Chapter 11

Performance Measurement 493

Performance Measurement Systems	493
Interactive Control	504
Summary	508

Appendix

Dell Computer Corporation	508
---------------------------	-----

Case 11-1: Analog Devices, Inc. (A)	512
Case 11-2: Analog Devices, Inc. (B)	528
Case 11-3: CUP Corporation	536
Case 11-4: Enager Industries, Inc.	544
Case 11-5: Warren Insurance Company	549
Case 11-6: General Electric Company	557

Chapter 12

Management Compensation 565

Research Findings on Organizational Incentives	565
Characteristics of Incentive Compensation Plans	566
Incentives for Corporate Officers	572
Incentives for Business Unit Managers	573
Agency Theory	581
Summary	585
Case 12-1: Lincoln Electric Company (A)	587
Case 12-2: Crown Point Cabinetry	604
Case 12-3: Worthington Industries	611
Case 12-4: Anita's Apparel	626
Case 12-5: Wayside Inns, Inc.	623

PART THREE

VARIATIONS IN MANAGEMENT CONTROL 633

Chapter 13

Controls for Differentiated Strategies 635

Corporate Strategy	636
Business Unit Strategy	640
Top Management Style	648
Summary	650
Case 13-1: Pelican Instruments, Inc.	652
Case 13-2: 3M Corporation	654
Case 13-3: New York Times	656
Case 13-4: Texas Instruments	668

Chapter 14

Service Organizations 684

Service Organizations in General	684
Professional Service Organizations	686
Financial Service Organizations	691
Health Care Organizations	694
Nonprofit Organizations	696
Summary	699

Case 14-1: O'Reilley Associates	701
Case 14-2: Williamson and Oliver	706
Case 14-3: Harlan Foundation	716
Case 14-4: Piedmont University	719
Case 14-5: Chemical Bank	723
Case 14-6: Metropolitan Bank	738
Case 14-7: Citibank Indonesia	747

Chapter 15

Multinational Organizations 755

Cultural Differences	755
Transfer Pricing	757
Exchange Rates	762
Summary	771

Appendix

SFAS No. 52 Foreign Currency Translation	771
--	-----

Case 15-1: AB Thorsten	775
Case 15-2: Lincoln Electric Company (B)	783
Case 15-3: Hindustan Lever	788
Case 15-4: Nestlé S. A.	796
Case 15-5: Xerox Corporation (B)	805

Chapter 16

Management Control of Projects 809

Nature of Projects	809
The Control Environment	812
Project Planning	816
Project Execution	819
Project Evaluation	824
Summary	828
Case 16-1: Northeast Research Laboratory	830
Case 16-2: Modern Aircraft Company	839

Company Index 841

Subject Index 845

Chapter 1

The Nature of Management Control Systems

The central focus of this book is strategy implementation. In particular, the book provides knowledge, insight, and analytical skills related to how a corporation's senior executives design and implement the ongoing management systems that are used to plan and control the firm's performance. Elements of management control systems include strategic planning; budgeting; resource allocation; performance measurement, evaluation, and reward; responsibility center allocation; and transfer pricing. The book builds on concepts from strategy, organizational behavior, human resources, and managerial accounting.

Management control is a must in any organization that practices decentralization. One view argues that management control systems must fit the firm's strategy. This implies the strategy is *first* developed through a formal and rational process, and this strategy then *dictates* the design of the firm's management systems. An alternative perspective is that strategies *emerge* through experimentation, which are influenced by the firm's management systems. In this view, management control systems can *impact* the development of strategies. We will consider both points of view, as well as their implications in terms of the design and operation of management control systems.

When firms operate in industry contexts where environmental changes are predictable, they can use a formal and rational process to develop the strategy *first* and then design management control systems to execute that strategy. However, in a rapidly changing environment, it is difficult for a firm to formulate the strategy first and then design management systems to execute the chosen strategy. Perhaps in such contexts, strategies emerge through experimentation and ad hoc processes that are significantly influenced by the firm's management control systems.

The importance of the subject matter covered in this book is captured in the widely accepted truism that **over 90 percent of businesses** (as well as nonprofit organizations) founder on the rocks of implementation; either the strategies

never come into being or get distorted, or the implementation is much more costly and time-consuming than anticipated. However laudable strategic intentions may be, if they do not become reality, they usually are not worth the paper on which they are written. Conversely, high-performing companies excel at execution. This book provides concepts, frameworks, and tools to help the reader gain that “execution advantage.”

Consider the collapse of companies such as Tyco, Global Crossing, WorldCom, and Enron. Part of the reason for their demise was the lapse in controls. CEO and top management compensation in these companies was so heavily tied to stock options that executives were motivated to manipulate financials to buoy the short-term stock price.

Consider world-class companies such as Emerson Electric, Lincoln Electric, New York Times, Worthington Industries, 3M Corporation, Nucor Corporation, Dell Computer, Wal-Mart, Southwest Airlines, Cisco Systems, and Analog Devices. Their long-term success is not just because they have developed good strategies, but, more importantly, they have designed systems and processes that energize their employees to execute those strategies effectively. The book includes case studies on these companies to drive home the power of these companies’ implementation capabilities.

The bias for paying too much attention to developing strategies and too little to executing them is also evident in the prevailing dotcom autopsy. Three short years ago, innovative business models were cheap. With so many new business models currently under scrutiny, perhaps it was only natural that in diagnosing dotcom demises, failure was quickly equated with failed business models. But many of the Internet experiments were not so much based on bad ideas as they were premature. There were limits to the rate at which infrastructure was constructed, and limits to the rate at which consumers would change their habits. In the end, far too much was invested, far too soon. As corporations prepare for their second generation of Internet initiatives, they should pay more attention to resource allocation, budgeting, performance assessment, and other key management control levers in implementing strategies.

We begin this chapter by defining the three terms in the book’s title: control, management, and systems. In the second section of the chapter, we distinguish the management control function, which is our focus, from two other functions that also involve planning and control: strategy formulation and task control. The third section of this chapter contains a road map providing an overview of the whole book and a brief description of the contents of each chapter.

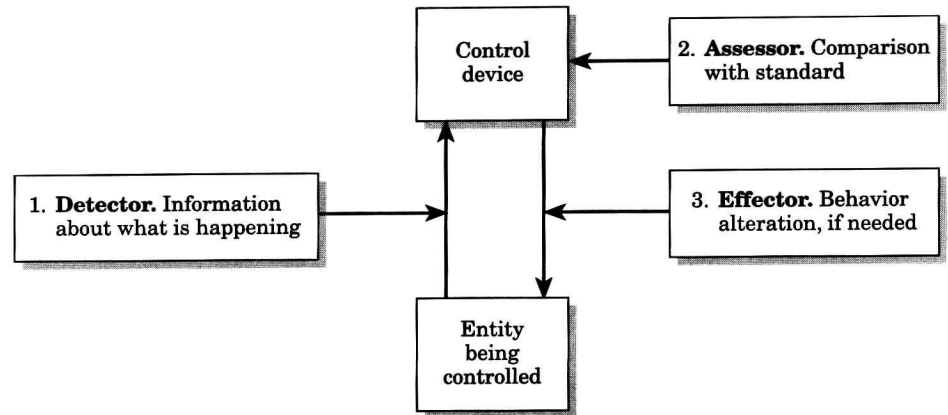
Basic Concepts

Control

Press the accelerator, and your car goes faster. Rotate the steering wheel, and it changes direction. Press the brake pedal, and the car slows or stops. With these devices, you *control* speed and direction; if any of them is inoperative, the car does not do what you want it to. In other words, it is out of control.

An organization must also be controlled; that is, devices must be in place to ensure that its strategic intentions are achieved.[®] But controlling an organization is much more complicated than controlling a car. We will begin by describing the control process in simpler systems.

EXHIBIT 1.1 Elements of the Control Process



Elements of a Control System

Every control system has at least four elements:

1. A *detector* or *sensor*—a device that measures what is actually happening in the process being controlled.
2. An *assessor*—a device that determines the significance of what is actually happening by comparing it with some standard or expectation of what *should* happen.
3. An *effector*—a device (often called “feedback”) that alters behavior if the assessor indicates the need to do so.
4. A *communications network*—devices that transmit information between the detector and the assessor and between the assessor and the effector.

These four basic elements of any control system are diagrammed in Exhibit 1.1. We shall describe their functioning in three examples of increasing complexity: the thermostat, which regulates room temperature; the biological process that regulates body temperature; and the driver of an automobile, who regulates the direction and speed of the vehicle.

Thermostat The components of the thermostat are: (1) a thermometer (the detector), which measures the current temperature of a room; (2) an assessor, which compares the current temperature with the accepted standard for what the temperature should be; (3) an effector, which prompts a furnace to emit heat (if the actual temperature is lower than the standard) or activates an air conditioner (if the actual temperature is higher than the standard) and which also shuts off these appliances when the temperature reaches the standard level; and (4) a communications network, which transmits information from the thermometer to the assessor and from the assessor to the heating or cooling element.

Body Temperature Most mammals are born with a built-in standard of desirable body temperature; in humans that standard is 98.6°F. The elements of the control mechanism by which the body strives to maintain that standard are: (1) the sensory nerves (detectors) scattered throughout the body; (2) the hypothalamus center in the brain (assessor), which compares information received from detectors with the 98.6°F standard; (3) the muscles and organs (effectors) that reduce the temperature when it exceeds the standard (via panting and

sweating, and opening the skin pores) and raise the temperature when it falls below the standard (via shivering and closing the skin pores); and (4) the overall communications system of nerves.

This biological control system is homeostatic—that is, self-regulating. If the system is functioning properly, it automatically corrects for deviations from the standard without requiring conscious effort.

The body temperature control system is more complex than the thermostat, with body sensors scattered throughout the body and hypothalamus directing actions that involve a variety of muscles and organs. It is also more mysterious; scientists know *what* the hypothalamus does but not *how* it does it.

Automobile Driver Assume you are driving on a highway where the legal (i.e., standard) speed is 65 mph. Your control system acts as follows: (1) your eyes (sensors) measure actual speed by observing the speedometer; (2) your brain (assessor) compares actual speed with desired speed, and, upon detecting a deviation from the standard, (3) directs your foot (effector) to ease up or press down on the accelerator; and (4) as in body temperature regulation, your nerves form the communication system that transmits information from eyes to brain and brain to foot.

But just as body temperature regulation is more complicated than the thermostat, so the regulation of a car is more complicated than the regulation of body temperature. This is because there can be no certainty as to what action the brain will direct after receiving and evaluating information from the detector. For example, once they determine that the car's actual speed exceeds 65 mph, some drivers, wanting to stay within the legal limit, will ease up on the accelerator, while others, for any number of reasons, will not. In this system, control is not automatic; one would have to know something about the personality and circumstances of the driver to predict what the actual speed of the automobile would be at the end point of the process.

Management

An organization consists of a group of people who work together to achieve certain common *goals* (in a business organization a major goal is to earn a satisfactory profit). Organizations are led by a hierarchy of managers, with the chief executive officer (CEO) at the top, and the managers of business units, departments, sections, and other subunits ranked below him or her in the organizational chart. The complexity of the organization determines the number of layers in the hierarchy. All managers other than the CEO are both superiors and subordinates; they supervise the people in their own units, and they are supervised by the managers to whom they report.

The CEO (or, in some organizations, a team of senior managers) decides on the overall *strategies* that will enable the organization to meet its goals. Subject to the approval of the CEO, the various business unit managers formulate additional *strategies* that will enable their respective units to further these goals. *The management control process is the process by which managers at all levels ensure that the people they supervise implement their intended strategies.*

Contrast with Simpler Control Processes

The control process used by managers contains the same elements as those in the simpler control systems described above: detectors, assessors, effectors, and