Managerial Accounting for Managers

Fifth Edition

Noreen
Brewer
Garrison

McGraw Hill Education

©stevecoleimages/Getty Images

Managerial Accounting for Managers

©stevecoleimages/Getty Images

Managerial Accounting for Managers

Fifth Edition

Eric W. Noreen, Ph.D., CMA
Professor Emeritus
University of Washington

Peter C. Brewer, Ph.D.
Wake Forest University

Ray H. Garrison, D.B.A., CPA
Professor Emeritus
Brigham Young University

Mc Graw Hill Education

MANAGERIAL ACCOUNTING FOR MANAGERS, FIFTH EDITION

Published by McGraw-Hill Education, 2 Penn Plaza, New York, NY 10121.

This book is printed on acid-free paper.

1 2 3 4 5 6 7 8 9 LWI 21 20 19

ISBN 978-1-259-96948-5 (bound edition)
MHID 1-259-96948-7 (bound edition)
ISBN 978-1-260-48079-5 (loose-leaf edition)
MHID 1-260-48079-8 (loose-leaf edition)

Portfolio Manager: *Tim Vertovec*
Product Developers: *Erin Quinones* and *Danielle Andries*
Marketing Manager: *Katherine Wheeler*
Content Project Managers: *Pat Frederickson* and *Angela Norris*
Buyer: *Laura Fuller*
Design: *Jessica Cuevas*
Content Licensing Specialist: *Shawntel Schmitt*
Cover Image: ©*stevecoleimages/Getty Images*
Compositor: *SPi Global*

Library of Congress Cataloging-in-Publication Data

Names: Noreen, Eric W., author. | Brewer, Peter C., author. | Garrison, Ray H., author.
Title: Managerial accounting for managers / Eric W. Noreen, Ph.D., CMA, Professor Emeritus, University of Washington, Peter C. Brewer, Ph.D., Wake Forest University, Ray H. Garrison, D.B.A., CPA, Professor Emeritus, Brigham Young University.
Description: Fifth edition. | New York, NY : McGraw-Hill Education, [2019]
Identifiers: LCCN 2018038749 | ISBN 9781259969485 (alk. paper)
Subjects: LCSH: Managerial accounting.
Classification: LCC HF5657.4 .N668 2019 | DDC 658.15/11—dc23
LC record available at https://lccn.loc.gov/2018038749

mheducation.com/highered

About the Authors

Courtesy of Eric W. Noreen

Eric W. Noreen has taught at INSEAD in France and the Hong Kong Institute of Science and Technology and is emeritus professor of accounting at the University of Washington. Currently, he is the Accounting Circle Professor of Accounting, Fox School of Business, Temple University.

He received his BA degree from the University of Washington and MBA and PhD degrees from Stanford University. A Certified Management Accountant, he was awarded a Certificate of Distinguished Performance by the Institute of Certified Management Accountants.

Professor Noreen has served as associate editor of *The Accounting Review* and the *Journal of Accounting and Economics.* He has numerous articles in academic journals including: the *Journal of Accounting Research; The Accounting Review;* the *Journal of Accounting and Economics; Accounting Horizons; Accounting, Organizations and Society; Contemporary Accounting Research;* the *Journal of Management Accounting Research;* and the *Review of Accounting Studies.*

Professor Noreen has won a number of awards from students for his teaching. ■

Courtesy of Peter C. Brewer

Peter C. Brewer is a Lecturer in the Department of Accountancy at Wake Forest University. Prior to joining the faculty at Wake Forest, he was an accounting professor at Miami University for 19 years. He holds a BS degree in accounting from Penn State University, an MS degree in accounting from the University of Virginia, and a PhD from the University of Tennessee. He has published more than 40 articles in a variety of journals including: *Management Accounting Research;* the *Journal of Information Systems; Cost Management; Strategic Finance;* the *Journal of Accountancy; Issues in Accounting Education;* and the *Journal of Business Logistics.*

Professor Brewer has served on the editorial boards of the *Journal of Accounting Education* and *Issues in Accounting Education.* His article "Putting Strategy into the Balanced Scorecard" won the 2003 International Federation of Accountants' Articles of Merit competition, and his articles "Using Six Sigma to Improve the Finance Function" and "Lean Accounting: What's It All About?" were awarded the Institute of Management Accountants' Lybrand Gold and Silver Medals in 2005 and 2006. He has received Miami University's Richard T. Farmer School of Business Teaching Excellence Award.

Prior to joining the faculty at Miami University, Professor Brewer was employed as an auditor for Touche Ross in the firm's Philadelphia office. He also worked as an internal audit manager for the Board of Pensions of the Presbyterian Church (U.S.A.). ■

Courtesy of Ray H. Garrison

Ray H. Garrison is emeritus professor of accounting at Brigham Young University, Provo, Utah. He received his BS and MS degrees from Brigham Young University and his DBA degree from Indiana University.

As a certified public accountant, Professor Garrison has been involved in management consulting work with both national and regional accounting firms. He has published articles in *The Accounting Review, Management Accounting,* and other professional journals. Innovation in the classroom has earned Professor Garrison the Karl G. Maeser Distinguished Teaching Award from Brigham Young University. ■

Dedication

To our families and to our many colleagues who use this book.

—Eric W. Noreen, Peter C. Brewer, and Ray H. Garrison

Focus on the Future Manager

with Noreen/Brewer/Garrison

©steveoleimages/Getty Images

In ***Managerial Accounting for Managers,*** the authors have crafted a streamlined managerial accounting book that is perfect for non-accounting majors who intend to move into managerial positions. The traditional Process Costing, Statement of Cash Flows, and Financial Statement Analysis chapters have been dropped to enable instructors to **focus their attention on the bedrocks of managerial accounting**—planning, control, and decision making. Noreen/Brewer/Garrison focuses on the fundamentals, allowing students to develop the conceptual framework managers need to succeed.

In its fifth edition, *Managerial Accounting for Managers* continues to adhere to three core standards:

FOCUS. Noreen/Brewer/Garrison pinpoint the key managerial concepts students will need in their future careers. With no journal entries or financial accounting topics to worry about, students can focus on the fundamental principles of managerial accounting. The manager approach in Noreen allows students to develop the conceptual framework needed to succeed, with a focus on decision making and analytical skills.

RELEVANCE. Building student interest with its insightful Business Focus vignettes opening each chapter, current In Business examples throughout the text, and tried-and-true end-of-chapter material, students will always see the real-world applicability of Noreen/Brewer/Garrison.

BALANCE. There is more than one type of business, and so Noreen/Brewer/Garrison covers a variety of business models, including non-profit, retail, service, wholesale, and manufacturing organizations. Service company examples are highlighted with icons in the margins of the text.

"At Calvin College, managerial accounting is taken prior to financial accounting. Thus, the managerial concepts are not discussed in the context of debit/credits but how financial information is used for decision making. This text does an excellent job of discussing the topics without and expectation that students understand financial accounting concepts"

—Debra Snyder, Calvin College

"I have described it as a very well-written, "approachable" book with comprehensive resources. I have touted its topical coverage, the quality of the EOC material, and the extensive resources available via Connect. It has a nice balance on difficulty- not too easy and not too hard."

—Kay Poston, Francis Marion University, Florence, SC

"Not strictly for accountants, this text meets the needs of the greater business community- all business majors. It does not scare the non-accountants away from managerial accounting and students learn how managerial accounting applies to their chosen business career."

—Nancy Jones, San Diego State University

New in the 5th Edition

Faculty feedback helps us continue to improve *Managerial Accounting*. In response to reviewer suggestions, the authors have made the following changes to the text:

- We overhauled the job-order costing chapter to better explain how companies use multiple overhead rates to apply overhead costs to individual jobs. This chapter now has a stronger managerial accounting orientation because it focuses more on managerial decision making and less on financial statement preparation.
- We reviewed all end-of-chapter exercises and problems and revised them as appropriate to better function within Connect.
- We added eight Integration Exercises in the back of the book to help students connect the concepts. These exercises are suitable for both a flipped classroom model and in-class active learning environment as they engage students and encourage critical thinking.
- In-Business boxes are updated throughout to provide relevant and current real-world examples for use in classroom discussion and to support student understanding of key concepts as they read through a chapter.

Prologue

The Prologue has added coverage of the CGMA exam and an updated summary of the CMA exam content specifications. It also contains the updated Institute of Management Accountants' Statement of Ethical Professional Practice.

Chapter 1

The high-low method has been removed from this chapter. We added an exhibit to visually depict product and period cost flows. We also made various changes to further emphasize the chapter's unifying theme of *different cost classifications for different purposes*. We have created 11 new end-of-chapter exercises/problems.

Chapter 2

We added a new appendix that explains how to analyze mixed costs using the high-low method and the least-squares regression method.

Chapter 3

This is a new chapter that explains how to use a job-order costing system to calculate unit product costs. It describes how to use plantwide and multiple overhead rates to apply overhead costs to individual jobs. The chapter has a strong managerial accounting orientation because it looks at how job-order costing systems serve the needs of internal managers.

Chapter 4

We added new text that better highlights this chapter's reliance on actual costing and contrasts it with the job-order costing chapters' reliance on normal costing.

Chapter 5

This chapter has a new appendix titled Time-Driven Activity-Based Costing: A Microsoft Excel-Based Approach.

Chapter 6

We revised the front-end of the chapter to better highlight the six key concepts that provide the foundation for effective decision making. We also revised the end-of-chapter exercises and problems to better dovetail with Connect and streamlined the coverage of sell or process further decisions to aid student comprehension. In addition, we relocated the Pricing appendix to this chapter and added new coverage of customer latitude and pricing and value-based pricing.

Chapter 7

We revised many end-of-chapter exercises and problems and extensively revised the formatting within Connect throughout all the chapters (not just Chapter 7) to allow students greater flexibility when choosing their preferred approach for solving problems. For example, students can now use whatever discount factors they wish (single sums or annuities) to calculate net present values.

Chapter 8

The end-of-chapter materials include three new exercises/problems (8-17, 8-18, and 8-27).

Chapter 9

We revised numerous end-of-chapter exercises and problems to better align them with Connect.

Chapter 10

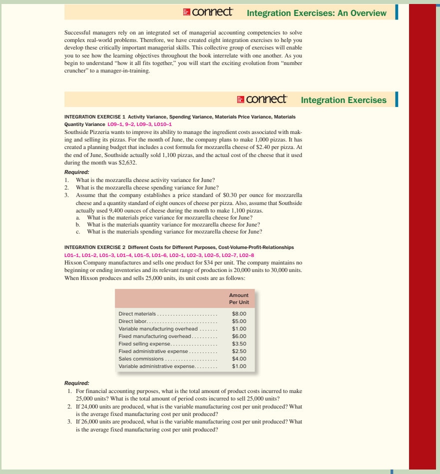
This chapter includes four new In Business boxes.

Chapter 11

This chapter includes four new In Business boxes.

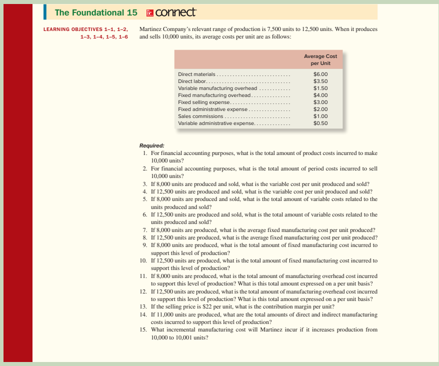
Noreen's Powerful Pedagogy

Managerial Accounting for Managers includes pedagogical elements that engage and instruct students without cluttering the pages or interrupting student learning. Noreen's key pedagogical tools enhance and support students' understanding of the concepts rather than compete with the narrative for their attention.



NEW* Integration Exercises

We have added eight new exercises (located in the back of the book) that integrate learning objectives across chapters. These exercises will increase the students' level of interest in the course because they forge the connections across chapters. Rather than seeing each chapter as an isolated set of learning objectives, students begin to see how "it all fits together" to provide greater managerial insight and more effective planning, controlling, and decision making. The integration exercises also are tailor-made for flipping the classroom because they offer challenging questions that require students to work in teams to derive solutions that synthesize what they have learning throughout the semester.



The Foundational 15

Each chapter contains one Foundational 15 exercise that includes 15 "building-block" questions related to one concise set of data. These exercises can be used for in-class discussion or as homework assignments. They are found before the Exercises and are available in **Connect.**

"This is my favorite part of the text. Its really helps students to go through all the concepts in the chapters with the same data. Shorter exercises that only do one step are okay but as a wrap up, the Foundational 15 is much better."

Sandra Copa, North Hennepin Community College

Opening Vignette

Each chapter opens with a **Business Focus** feature that provides a real-world example for students, allowing them to see how the chapter's information and insights apply to the world outside the classroom. **Learning Objectives** alert students to what they should expect as they progress through the chapter.

"It is a good readable book for non-accounting majors who are taking a managerial accounting course. The book is seasoned and generally pleasing to the eye and error free. Publisher provides very good support."

Jan Duffy, Iowa State University

"Very thorough coverage of common managerial accounting topics."

Marco Lam, Western Carolina University

"This textbook would be very useful to our students because it helps them apply common business concepts to real-world situations."

Karen Bradshaw McCarron, Ph.D., Georgia Gwinnett College

Concept Overview Videos

New for the 5th edition of Noreen, the Concept Overview Videos cover each learning objective through narrated, animated presentations. Formerly Interactive Presentations, each Concept Overview Video has been enhanced for improved accessibility and includes both the visual animations and transcript to accommodate all types of learners. The Concept Overview Videos also pause frequently to check for comprehension with assignable, auto-graded Knowledge Check questions.

In Business Boxes

These helpful boxed features offer a glimpse into how real companies use the managerial accounting concepts discussed within the chapter. Each chapter contains multiple current examples.

IN BUSINESS

© Monty Rakusen/Getty Images

CHEAP PART COSTS GENERAL MOTORS A FORTUNE

A direct material component part, called a detent plunger, is used by General Motors (GM) in the manufacture of its automobile ignition switches. The part, which can be installed by direct laborers in a matter of minutes, costs GM between $2.00 and $5.00 per unit to manufacture. However, when this seemingly trivial component part caused ignition system failures that killed 12 people, its legal and financial impacts on GM became front-page news.

GM's troubles include a federal criminal probe that is investigating why the company did not act sooner to redesign, recall, and replace the flawed detent plunger. It appears as though GM learned of ignition switch failures in its Chevy Cobalt in 2004, but it did not redesign the detent plunger to eliminate the problem until 2007. Furthermore, the company did not issue a recall for cars that contained the faulty ignition switches until 2014. Beyond its legal matters, GM expects to spend $8 million replacing the ignition switches of 1.6 million recalled vehicles.

Source: Jeff Bennett, "For GM, Cheap Part Now a Pricey Fix," *The Wall Street Journal,* March 13, 2014, pp. B1–B2.

Managerial Accounting in Action Vignettes

These vignettes depict cross-functional teams working together in real-life settings, working with the products and services that students recognize from their own lives. Students are shown step-by-step how accounting concepts are implemented in organizations and how these concepts are applied to solve everyday business problems. First, "The Issue" is introduced through a dialogue; the student then walks through the implementation process; finally, "The Wrap-up" summarizes the big picture.

MANAGERIAL ACCOUNTING IN ACTION
The Issue

ACOUSTIC concepts inc

Prem, who was a graduate student in engineering at the time, started Acoustic Concepts, Inc., to market a radical new speaker he had designed for automobile sound systems. The speaker, called the Sonic Blaster, uses an advanced microprocessor and proprietary software to boost amplification to awesome levels. Prem contracted with a Taiwanese electronics manufacturer to produce the speaker. With seed money provided by his family, Prem placed an order with the manufacturer and ran advertisements in auto magazines.

The Sonic Blaster was an immediate success, and sales grew to the point that Prem moved the company's headquarters out of his apartment and into rented quarters in a nearby industrial park. He also hired a receptionist, an accountant, a sales manager, and a small sales staff to sell the speakers to retail stores. The accountant, Bob Luchinni, had worked for several small companies where he had acted as a business advisor as well as accountant and bookkeeper. The following discussion occurred soon after Bob was hired:

Prem: Bob, I've got a lot of questions about the company's finances that I hope you can help answer.

Bob: We're in great shape. The loan from your family will be paid off within a few months.

Prem: I know, but I am worried about the risks I've taken on by expanding operations. What would happen if a competitor entered the market and our sales slipped? How far could sales drop without putting us into the red? Another question I've been trying to resolve is how much our sales would have to increase to justify the big marketing campaign the sales staff is pushing for.

Bob: Marketing always wants more money for advertising.

Prem: And they are always pushing me to drop the selling price on the speaker. I agree with them that a lower price will boost our sales volume, but I'm not sure the increased volume will offset the loss in revenue from the lower price.

"The chapter opening material focuses students' attention on the topics each chapter covers. It provides the students real-world examples to aid in their understanding of business concepts."

Karen Bradshaw McCarron, Ph.D., Georgia Gwinnett College

Applying Excel connect

LEARNING OBJECTIVES 2–4, 2–5, 2–7, 2–8

The Excel worksheet form that appears below is to be used to recreate portions of the Review Problem relating to Voltar Company. Download the workbook containing this form from Connect, where you will also receive instructions about how to use this worksheet form.

	A	B	C	D
1	Chapter 2: Applying Excel			
2				
3	**Data**			
4	Unit sales	20,000	units	
5	Selling price per unit	$60	per unit	
6	Variable expenses per unit	$45	per unit	
7	Fixed expenses	$240,000		
8				
9	*Enter a formula into each of the cells marked with a ? below*			
10	**Review Problem: CVP Relationships**			
11				
12	***Compute the CM ratio and variable expense ratio***			
13	Selling price per unit	?	per unit	
14	Variable expenses per unit	?	per unit	

Exercises connect

EXERCISE 2–1 The Effect of Changes in Activity on Net Operating Income LO2–1

Whirly Corporation's contribution format income statement for the most recent month is shown below:

	Total	Per Unit
Sales (10,000 units)	$350,000	$35.00
Variable expenses	200,000	20.00
Contribution margin	150,000	$15.00
Fixed expenses	135,000	
Net operating income	$ 15,000	

Problems connect

PROBLEM 3–16 Plantwide Predetermined Overhead Rates; Pricing LO3–1, LO3–2, LO3–3

Landen Corporation uses a job-order costing system. At the beginning of the year, the company made the following estimates:

Direct labor-hours required to support estimated production	140,000
Machine-hours required to support estimated production	70,000
Fixed manufacturing overhead cost	$784,000
Variable manufacturing overhead cost per direct labor-hour	$2.00
Variable manufacturing overhead cost per machine-hour	$4.00

Case connect

CASE 3–22 Plantwide versus Departmental Overhead Rates; Pricing LO3–1, LO3–2, LO3–3, LO3–4

"Blast it!" said David Wilson, president of Teledex Company. "We've just lost the bid on the Koopers job by $2,000. It seems we're either too high to get the job or too low to make any money on half the jobs we bid."

Teledex Company manufactures products to customers' specifications and uses a job-order costing system. The company uses a plantwide predetermined overhead rate based on direct labor cost to apply its manufacturing overhead (assumed to be all fixed) to jobs. The following estimates were made at the beginning of the year:

	Department			
	Fabricating	Machining	Assembly	Total Plant
Manufacturing overhead	$350,000	$400,000	$90,000	$840,000
Direct labor	$200,000	$100,000	$300,000	$600,000

Author-Written Supplements

Unlike other managerial accounting texts, the book's authors write the major supplements such as the test bank and solution files, ensuring a perfect fit between text and supplements.

End-of-Chapter Material

Managerial Accounting for Managers has earned a reputation for the best end-of-chapter practice material of any text on the market. Our problem and case material continues to conform to AACSB recommendations and makes a great starting point for class discussions and group projects. When the authors first wrote *Managerial Accounting for Managers,* they started with the end-of-chapter material, then wrote the narrative in support of it. This unique approach to textbook authoring not only ensured consistency between the end-of-chapter material and text content but also underscored the fundamental belief in the importance of applying theory through practice. It is not enough for students to read, they must also understand. To this day, the guiding principle of that first edition remains, and Noreen's superior end-of-chapter material continues to provide accurate, current, and relevant practice for students.

Assurance of Learning Ready

Many educational institutions today are focused on the notion of assurance of learning, an important element of some accreditation standards. *Managerial Accounting for Managers,* 5e, is designed specifically to support your assurance of learning initiatives with a simple, yet powerful, solution.

Each question for *Managerial Accounting for Managers,* 5e, maps to a specific chapter learning outcome/objective listed in the text. The reporting features of **Connect** can aggregate student to make the collection and presentation of assurance of learning data simple and easy.

Utilizing the Icons

To reflect our service-based economy, the text is replete with examples from service-based businesses. A helpful icon distinguishes service-related examples in the text.

The IFRS icon highlights content that may be affected by the impending change to IFRS and possible convergence between U.S. GAAP and IFRS.

Ethics assignments and examples serve as a reminder that good conduct is vital in business. Icons call out content that relates to ethical behavior for students.

The writing icon denotes problems that require students to use critical thinking as well as writing skills to explain their decisions.

AACSB Statement

McGraw-Hill Education is a proud corporate member of AACSB International. Recognizing the importance and value of AACSB accreditation, we have sought to recognize the curricula guidelines detailed in AACSB standards for business accreditation by connecting selected questions in *Managerial Accounting for Managers,* 5e, to the general knowledge and skill guidelines found in the AACSB standards. The statements contained in *Managerial Accounting for Managers,* 5e, are provided only as a guide for the users of this text. The AACSB leaves content coverage and assessment clearly within the realm and control of individual schools, the mission of the school, and the faculty. The AACSB does also charge schools with the obligation of doing assessment against their own content and learning goals. While *Managerial Accounting for Managers,* 5e, and its teaching package make no claim of any specific AACSB qualification or evaluation, we have, within *Managerial Accounting for Managers,* 5e, tagged questions according to the six general knowledge and skills areas. The labels or tags within *Managerial Accounting for Managers,* 5e, are as indicated. There are, of course, many more within the test bank, the text, and the teaching package which might be used as a "standard" for your course. However, the labeled questions are suggested for your consideration.

Students—study more efficiently, retain more and achieve better outcomes. Instructors—focus on what you love—teaching.

SUCCESSFUL SEMESTERS INCLUDE CONNECT

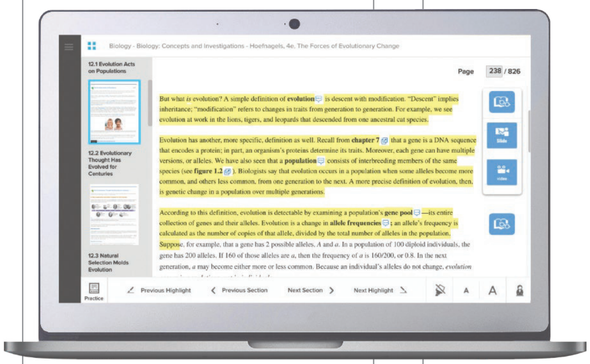
For Instructors

You're in the driver's seat.

Want to build your own course? No problem. Prefer to use our turnkey, prebuilt course? Easy. Want to make changes throughout the semester? Sure. And you'll save time with Connect's auto-grading too.

65%

Less Time Grading



They'll thank you for it.

Adaptive study resources like SmartBook® help your students be better prepared in less time. You can transform your class time from dull definitions to dynamic debates. Hear from your peers about the benefits of Connect at **www.mheducation.com/highered/connect**

Make it simple, make it affordable.

Connect makes it easy with seamless integration using any of the major Learning Management Systems—Blackboard®, Canvas, and D2L, among others—to let you organize your course in one convenient location. Give your students access to digital materials at a discount with our inclusive access program. Ask your McGraw-Hill representative for more information.

©Hill Street Studios/Tobin Rogers/Blend Images LLC

Solutions for your challenges.

A product isn't a solution. Real solutions are affordable, reliable, and come with training and ongoing support when you need it and how you want it. Our Customer Experience Group can also help you troubleshoot tech problems—although Connect's 99% uptime means you might not need to call them. See for yourself at **status.mheducation.com**

For Students

Effective, efficient studying.

Connect helps you be more productive with your study time and get better grades using tools like SmartBook, which highlights key concepts and creates a personalized study plan. Connect sets you up for success, so you walk into class with confidence and walk out with better grades.

"I really liked this app—it made it easy to study when you don't have your text-book in front of you."

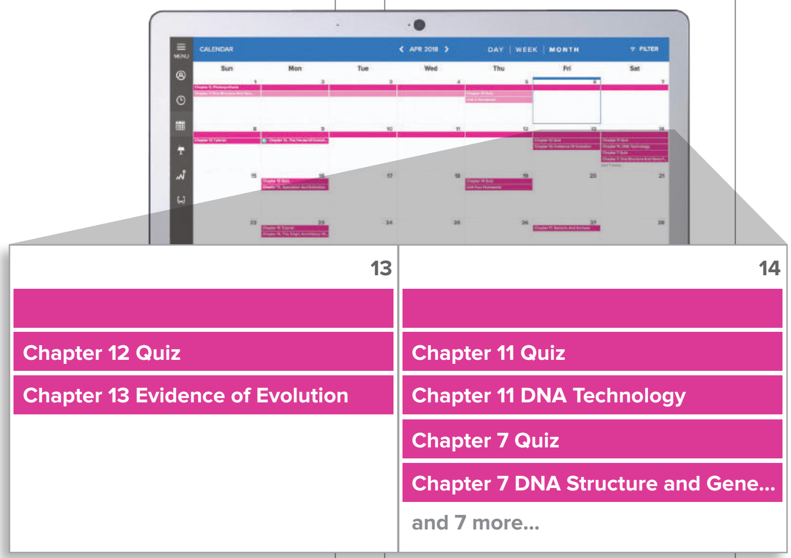
- Jordan Cunningham,
Eastern Washington University

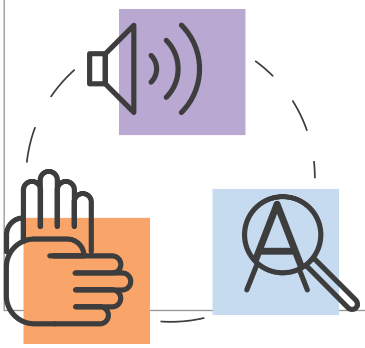
Study anytime, anywhere.

Download the free ReadAnywhere app and access your online eBook when it's convenient, even if you're offline. And since the app automatically syncs with your eBook in Connect, all of your notes are available every time you open it. Find out more at **www.mheducation.com/readanywhere**

No surprises.

The Connect Calendar and Reports tools keep you on track with the work you need to get done and your assignment scores. Life gets busy; Connect tools help you keep learning through it all.





Learning for everyone.

McGraw-Hill works directly with Accessibility Services Departments and faculty to meet the learning needs of all students. Please contact your Accessibility Services office and ask them to email accessibility@mheducation.com, or visit **www.mheducation.com/about/accessibility.html** for more information.

Acknowledgments

Suggestions have been received from many of our colleagues throughout the world. Each of those who have offered comments and suggestions has our thanks.

The efforts of many people are needed to develop and improve a text. Among these people are the reviewers and consultants who point out areas of concern, cite areas of strength, and make recommendations for change. In this regard, the following professors provided feedback that was enormously helpful in preparing the fifth edition of ***Managerial Accounting for Managers:***

Wagdy Abdallah, *Seton Hall University*
Linda Abernathy, *Kirkwood Community College*
James Andrews, *Central New Mexico Community College*
Rick Andrews, *Sinclair Community College*
Frank Aquilino, *Montclair State University*
Jane Austin, *Oklahoma City University*
Kashi R. Balachandran, *New York University*
Linda Benz, *Jefferson Technical College*
Sheila Betz, *J. Sargeant Reynolds Community College*
Surasakdi Bhamornsiri, *University of North Carolina–Charlotte*
Larry N. Bitner, *Shippensburg University*
Jorja Bradford, *Alabama State University*
Janet Butler, *Texas State University–San Marcos*
Jennifer Cainas, *University of South Florida*
Rusty Calk, *New Mexico State University*
Dana Carpenter, *MATC Truax*
Chiaho Chang, *Montlcair State University*
Cathy Claiborne, *University of Colorado–Colorado Springs*
Robert Clarke, *Brigham Young University–Idaho*
Darlene Coarts, *University of Northern Iowa*
Elizabeth Connors, *University of Massachusetts–Boston*
Sandy Copa, *North Hennepin Community College*
Deb Cosgrove, *University of Nebraska–Lincoln*
Nancy Coulmas, *Bloomsburg University of Pennsylvania*
Jean Crawford, *Alabama State University*
Patricia Doherty, *Boston University*
David L. Doyon, *Southern New Hampshire University*
Andrea Drake, *Louisiana Tech University*
Jan Duffy, *Iowa State University*
Cindy Easterwood, *Virginia Tech*
Gene Elrod, *University of North Texas*
Rebecca Evans, *Florida State College–Jacksonville*
Amanda Farmer, *University of Georgia*
Janice Fergusson, *University of South Carolina*
Annette Fisher, *Glendale Community College*
Ananda Ganguly, *Claremont College*
J. Marie Gibson, *University of Nevada Reno*
Olen Greer, *Missouri State University*
Cynthia Greeson, *Ivy Tech Community College*
Robert Hammond, *Camden County College*
Richard O. Hanson, *Southern New Hampshire University*
Ken Harmon, *Kennesaw State University*
Christine Haynes, *University of West Georgia*
David Henderson, *College of Charleston*
Kathy Ho, *Niagara University*
Mark Holtzman, *Seton Hall University*
Maggie Houston, *Wright State University*
Tom Hrubec, *Franklin University*
Chuo-Hsuan Lee, *SUNY–Plattsburgh*
Ronald Huefner, *SUNY Buffalo*
Yousef Jahmani, *Savannah State University*
Robyn Jarnagin, *Montana State University*
Iris Jenkel, *St. Norbert College*
Randy Johnston, *Michigan State University*
Nancy Jones, *San Diego State University*
Jai Kang, *San Francisco State University*
Catherine Katagiri, *College of Saint Rose*
Carl Keller, *Indiana Purdue University/Fort Wayne*
Cynthia Khanlarian, *University of North Carolina–Greensboro*
James Kinard, *Ohio State University–Columbus*
Gary Kleinman, *Montclair State University*
Leon Korte, *The University of South Dakota*
Wikil Kwak, *University of Nebraska at Omaha*
Marco Lam, *Western Carolina University*

Christy Land, *Catawba Valley Community College*
Ron Lazer, *University of Houston*
Candace Leuck, *Clemson University*
Natasha Librizzi, *Milwaukee Area Technical College*
William R. Link, *University of Missouri–St. Louis*
Kathy Long, *University of Tennessee–Chattanooga*
Patti Lopez, *Valencia Community College East*
Mary Loretta *Manktelow, James Madison University*
Jim Lukawitz, *University of Memphis*
Anna Lusher, *Slippery Rock University*
Linda Malgeri, *Kennesaw State University*
Steve Markoff, *Montclair State University*
Melissa Martin, *Arizona State University–Tempe*
Christian Mastilak, *Xavier University*
Karen Bardshaw McCarron, Ph.D., *Georgia Gwinnett College*
Gary McCombs, *College of Charleston*
Noel McKeon, *Florida State College–Jacksonville*
Jim McKittrick, *University of Portland*
Laurie McWhorter, *Mississippi State University*
James Meddaugh, *Ohio University*
Tammy Metzke, *Milwaukee Area Technical College–West Allis*
Tony Mifsud, *Catawba Valley Community College*
Tim Mills, *Eastern Illinois University*
Mark E. Motluck, *Anderson University*
Dennis Mullen, *City College of San Francisco*
Gerald M. Myers, *Pacific Lutheran University*
Michael Newman, *University of Houston–Houston*
Joseph M. Nicassio, *Westmoreland County Community College*
Alfonso R. Oddo, *Niagara University*
Tamara Phelan, *Northern Illinois University*
JoAnn Pinto, *Montclair State University*
Terence Pitre, *University of St. Thomas*
Shirley Polejewski, *University of St. Thomas*
Kay Poston, *Francis Marion University*
Les Price, *Pierce College*
Kamala Raghavan, *Robert Morris University*
Raul Ramos, *Lorain County Community College*
John Reisch, *East Carolina University*
Michelle Reisch, *East Carolina University*
Therese Rice, *North Hennepin Community College*
Luther L. Ross, *Sr., Central Piedmont Community College*
Pamela Rouse, *Butler University*
Amy Santos, *Manatee Community College*
Rex Schildhouse, *Miramar College*
Ann E. Selk, *University of Wisconsin–Green Bay*
Daniel Sevall, *Lincoln University*
Ken Snow, *Florida State College–Jacksonville*
Debra Snyder, *Calvin College*
Vic Stanton, *University of California–Berkeley*
Dennis Stovall, *Grand Valley State University*
Ellen Sweatt, *Georgia Perimeter College*
Rick Tabor, *Auburn University*
Diane Tanner, *University of North Florida*
Samantha Ternes, *Kirkwood Community College*
Chuck Thompson, *University of Massachusetts*
Dorothy Thompson, *North Central Texas College*
Terri Walsh, *Seminole State College of Florida*
James White, *Boston University*
Michael Wilson, *University of Indianapolis*
Janet Woods, *Macon State College*
Christine Wright, *Seminole State College of Florida*
James Yang, *Montclair State University*
Marjorie Yuschak, *Rutgers University*
Ronald Zhao, *Monmouth University*
Kiran Verma, *University of Massachusetts–Boston*
Jeffrey Wong, *University of Nevada–Reno*
Peter Woodlock, *Youngstown State University*

We are grateful for the outstanding support from McGraw-Hill. In particular, we would like to thank Tim Vertovec, Director; Patricia Plumb, Brand Manager; Erin Quinones, Core Product Developer; Danielle Andries, Senior Digital Product Developer; Kevin Moran, Director of Digital Content; Pat Frederickson and Angela Norris, Lead Content Project Managers; Katherine Wheeler, Marketing Manager; Jessica Cuevas, Designer; Laura Fuller, Buyer and Shawntel Schmitt, Content Licensing Specialists.

Thank you to Julie Hankins for acting as Lead subject matter expert on Connect content. Teri Zuccaro (Clarke University) and Beth Kobylarz for their efforts as subject matter experts and accuracy check reviews on Connect EOC and Test Bank content. Patti Lopez (Valencia College) for her efforts as lead subject matter expert on LearnSmart.

We are grateful to the Institute of Certified Management Accountants for permission to use questions and/or unofficial answers from past Certificate in Management Accounting (CMA) examinations. Likewise, we thank the American Institute of Certified Public Accountants, the Society of Management Accountants of Canada, and the Chartered Institute of Management Accountants (United Kingdom) for permission to use (or to adapt) selected problems from their examinations. These problems bear the notations CPA, SMA, and CIMA respectively.

Eric W. Noreen · Peter C. Brewer · Ray H. Garrison

Brief Contents

Table of Contents

Chapter 2

Cost-Volume-Profit Relationships 67

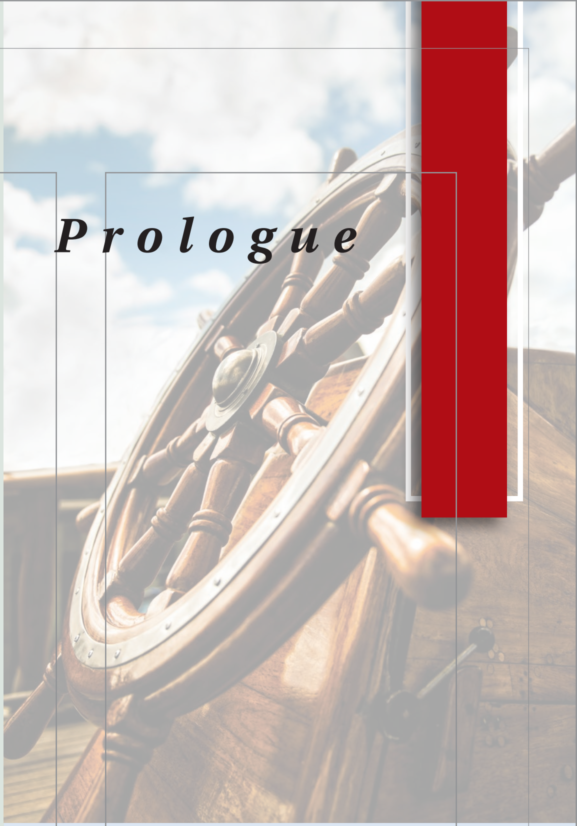
Chapter 3

Job-Order Costing: Calculating Unit Product Costs 129

Chapter 10

Chapter 11

Prologue



©stevecoleimages/Getty Images

Managerial Accounting: An Overview

BUSINESS FOCUS

Managerial Accounting: It's More Than Just Crunching Numbers

©LuckyImages/Shutterstock.com

"Creating value through values" is the credo of today's management accountant. It means that management accountants should maintain an unwavering commitment to ethical values while using their knowledge and skills to influence decisions that create value for organizational stakeholders. These skills include managing risks and implementing strategy through planning, budgeting and forecasting, and decision support. Management accountants are strategic business partners who understand the financial and operational sides of the business. They report and analyze financial as well as nonfinancial measures of process performance and corporate social performance. Think of these responsibilities as relating to profits (financial statements), processes (customer focus and satisfaction), people (employee learning and satisfaction), and the planet (environmental stewardship). ■

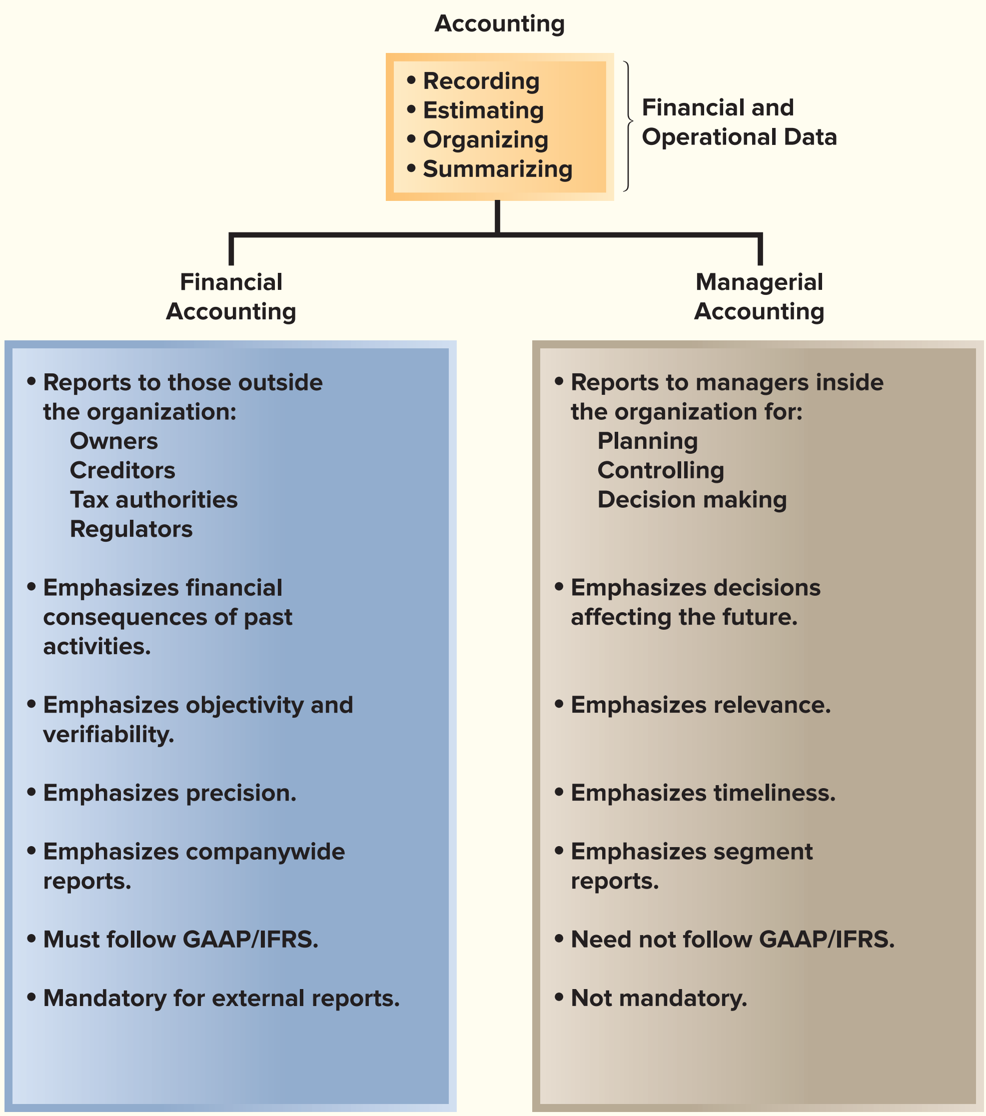
Source: Conversation with Jeff Thomson, president and CEO of the Institute of Management Accountants.

What Is Managerial Accounting?

The prologue explains why managerial accounting is important to the future careers of all business students. It begins by answering two questions: (1) What is managerial accounting? and (2) Why does managerial accounting matter to your career? It concludes by discussing six topics—ethics, strategic management, enterprise risk management, corporate social responsibility, process management, and leadership—that define the business context for applying the quantitative aspects of managerial accounting.

Many students enrolled in this course will have recently completed an introductory *financial accounting* course. **Financial accounting** is concerned with reporting financial information to external parties, such as stockholders, creditors, and regulators. **Managerial accounting** is concerned with providing information to managers for use within the organization. Exhibit P–1 summarizes seven key differences between financial and managerial accounting. It recognizes that the fundamental difference between financial and managerial accounting is that financial accounting serves the needs of those *outside* the organization, whereas managerial accounting serves the needs of managers employed *inside* the organization. Because of this fundamental difference in users, financial accounting emphasizes the financial consequences of past activities, objectivity and

EXHIBIT P–1
Comparison of Financial and Managerial Accounting



verifiability, precision, and companywide performance, whereas managerial accounting emphasizes decisions affecting the future, relevance, timeliness, and *segment* performance. A **segment** is a part or activity of an organization about which managers would like cost, revenue, or profit data. Examples of business segments include product lines, customer groups (segmented by age, ethnicity, gender, volume of purchases, etc.), geographic territories, divisions, plants, and departments. Finally, financial accounting is mandatory for external reports and it needs to comply with rules, such as generally accepted accounting principles (GAAP) and international financial reporting standards (IFRS), whereas managerial accounting is not mandatory and it does not need to comply with externally imposed rules.

As mentioned in Exhibit P–1, managerial accounting helps managers perform three vital activities—*planning, controlling,* and *decision making.* **Planning** involves establishing goals and specifying how to achieve them. **Controlling** involves gathering feedback to ensure that the plan is being properly executed or modified as circumstances change. **Decision making** involves selecting a course of action from competing alternatives. Now let's take a closer look at these three pillars of managerial accounting.

Planning

Assume that you work for Procter & Gamble (P&G) and that you are in charge of the company's campus recruiting for all undergraduate business majors. In this example, your planning process would begin by establishing a goal such as: our goal is to recruit the "best and brightest" college graduates. The next stage of the planning process would require specifying how to achieve this goal by answering numerous questions such as:

- How many students do we need to hire in total and from each major?
- What schools do we plan to include in our recruiting efforts?
- Which of our employees will be involved in each school's recruiting activities?
- When will we conduct our interviews?
- How will we compare students to one another to decide who will be extended job offers?
- What salary will we offer our new hires? Will the salaries differ by major?
- How much money can we spend on our recruiting efforts?

As you can see, there are many questions that need to be answered as part of the planning process. Plans are often accompanied by a *budget.* A **budget** is a detailed plan for the future that is usually expressed in formal quantitative terms. As the head of recruiting

IN BUSINESS

THE FINANCIAL SIDE OF RUNNING A COMMUNITY THEATRE

Formulating plans and creating budgets is an important part of running a community theater. For example, the Manatee Players is a theater group from Bradenton, Florida, that has seen its annual operating budget grow from $480,000 to $1.5 million over the last 10 years. The theater's ticket sales cover about 77% of its operating costs, with additional financial support coming from individual and corporate donors.

In addition to managing its revenues, the theater also seeks to control its costs in various ways—such as saving $3,000 per year by bringing the production of its programs in-house. Rather than promoting individual shows, the group has decided to focus its marketing dollars on touting the entire season of shows. It also shifted a portion of its marketing budget away from traditional methods to more cost-effective social-media outlets.

Source: Kevin Brass, "Let's Put on a Show," *The Wall Street Journal,* November 3, 2014, p. D7.

©McGraw-Hill Education/Christopher Kerrigan, photographer at P&G, your budget would include two key components. First, you would have to work with other senior managers inside the company to establish a budgeted amount of total salaries that can be offered to all new hires. Second, you would have to create a budget that quantifies how much you intend to spend on your campus recruiting activities.

Controlling

Once you established and started implementing P&G's recruiting plan, you would transition to the control process. This process would involve gathering, evaluating, and responding to feedback to ensure that this year's recruiting process meets expectations. It would also include evaluating the feedback in search of ways to run a more effective recruiting campaign next year. The control process would involve answering questions such as:

- Did we succeed in hiring the planned number of students within each major and at each school?
- Did we lose too many exceptional candidates to competitors?
- Did each of our employees involved in the recruiting process perform satisfactorily?
- Is our method of comparing students to one another working?
- Did the on-campus and office interviews run smoothly?
- Did we stay within our budget in terms of total salary commitments to new hires?
- Did we stay within our budget regarding spending on recruiting activities?

As you can see, there are many questions that need to be answered as part of the control process. When answering these questions your goal would be to go beyond simple yes or no answers in search of the underlying reasons why performance exceeded or failed to meet expectations. Part of the control process includes preparing *performance reports.* A **performance report** compares budgeted data to actual data in an effort to identify and learn from excellent performance and to identify and eliminate sources of unsatisfactory performance. Performance reports can also be used as one of many inputs to help evaluate and reward employees.

Although this example focused on P&G's campus recruiting efforts, we could have described how planning enables FedEx to deliver packages across the globe overnight, or how it helped Apple develop and market the iPad. We could have discussed how the control process helps Pfizer, Eli Lilly, and Abbott Laboratories ensure that their pharmaceutical drugs are produced in conformance with rigorous quality standards, or how Kroger relies on the control process to keep its grocery shelves stocked. We also could have looked at planning and control failures such as Takata's recall of more than 30 million defective driver-side air bags installed by a variety of automakers such as Honda, Ford, Toyota, and Subaru. In short, all managers (and that probably includes you someday) perform planning and controlling activities.

Decision Making

Perhaps the most basic managerial skill is the ability to make intelligent, data-driven decisions. Broadly speaking, many of those decisions revolve around the following three questions. *What* should we be selling? *Who* should we be serving? *How* should we execute? Exhibit P–2 provides examples of decisions pertaining to each of these three categories.

The left-hand column of Exhibit P–2 suggests that every company must make decisions related to the products and services that it sells. For example, each year Procter & Gamble must decide how to allocate its marketing budget across numerous brands that each generates over $1 billion in sales as well as other brands that have promising growth potential. Mattel must decide what new toys to introduce to the market. Southwest Airlines must decide what ticket prices to establish for each of its thousands of flights per day. General Motors must decide whether to discontinue certain models of automobiles.

The middle column of Exhibit P–2 indicates that all companies must make decisions related to the customers that they serve. For example, Sears must decide how to

EXHIBIT P–2
Examples of Decisions

What should we be selling?	Who should we be serving?	How should we execute?
What products and services should be the focus of our marketing efforts?	Who should be the focus of our marketing efforts?	How should we supply our parts and services?
What new products and services should we offer?	Who should we start serving?	How should we expand our capacity?
What prices should we charge for our products and services?	Who should pay price premiums or receive price discounts?	How should we reduce our capacity?
What products and services should we discontinue?	Who should we stop serving?	How should we improve our efficiency and effectiveness?

allocate its marketing budget between products that tend to appeal to male versus female customers. FedEx must decide whether to expand its services into new markets across the globe. Lenovo must decide what price discounts to offer corporate clients that purchase large volumes of its products. A bank must decide whether to discontinue customers that may be unprofitable.

The right-hand column of Exhibit P–2 shows that companies also make decisions related to how they execute. For example, Boeing must decide whether to rely on outside vendors such as Honeywell, Saab, and Rolls-Royce to manufacture many of the parts used to make its airplanes. Cintas must decide whether to expand its laundering and cleaning capacity in a given geographic region by adding square footage to an existing facility or by constructing an entirely new facility. In an economic downturn, a manufacturer might have to decide whether to eliminate one 8-hour shift at three plants or to close one plant. Finally, all companies have to decide among competing improvement opportunities. For example, a company may have to decide whether to implement a new software system, to upgrade a piece of equipment, or to provide extra training to its employees.

This portion of the prologue has explained that the three pillars of managerial accounting are planning, controlling, and decision making. This book helps prepare you to become an effective manager by explaining how to make intelligent data-driven decisions, how to create financial plans for the future, and how to continually make progress toward achieving goals by obtaining, evaluating, and responding to feedback.

Why Does Managerial Accounting Matter to Your Career?

Many students feel anxious about choosing a major because they are unsure if it will provide a fulfilling career. To reduce these anxieties, we recommend deemphasizing what you cannot control about the future; instead focusing on what you can control right now. More specifically, concentrate on answering the following question: What can you do now to prepare for success in an unknown future career? The best answer is to learn skills that will make it easier for you to adapt to an uncertain future. You need to become adaptable!

Whether you end up working in the United States or abroad, for a large corporation, a small entrepreneurial company, a nonprofit organization, or a governmental entity, you'll need to know how to plan for the future, how to make progress toward achieving goals, and how to make intelligent decisions. In other words, managerial accounting skills are useful in just about any career, organization, and industry. If you commit energy to this course, you'll be making a smart investment in your future—even though you cannot clearly envision it. Next, we will elaborate on this point by explaining how managerial accounting relates to the future careers of business majors and accounting majors.

Business Majors

Exhibit P–3 provides examples of how planning, controlling, and decision making affect three majors other than accounting—marketing, supply chain management, and human resource management.

The left-hand column of Exhibit P–3 describes some planning, controlling, and decision-making applications in the marketing profession. For example, marketing managers make planning decisions related to allocating advertising dollars across various communication mediums and to staffing new sales territories. From a control standpoint, they may closely track sales data to see if a budgeted price cut is generating an anticipated increase in unit sales, or they may study inventory levels during the holiday shopping season so that they can adjust prices as needed to optimize sales. Marketing managers also make many important decisions such as whether to bundle services together and sell them for one price or to sell each service separately. They may also decide whether to sell products directly to the customer or to sell to a distributor, who then sells to the end consumer.

The middle column of Exhibit P–3 states that supply chain managers have to plan how many units to produce to satisfy anticipated customer demand. They also need to budget for operating expenses such as utilities, supplies, and labor costs. In terms of control, they monitor actual spending relative to the budget, and closely watch operational measures such as the number of defects produced relative to the plan. Supply chain managers make numerous decisions, such as deciding whether to transfer production of a component part to an overseas supplier. They also decide whether to invest in redesigning a manufacturing process to reduce inventory levels.

The right-hand column of Exhibit P–3 explains how human resource managers make a variety of planning decisions, such as budgeting how much to spend on occupational safety training and employee recruitment advertising. They monitor feedback related to numerous management concerns, such as employee retention rates and the timely completion of employee performance appraisals. They also help make many

EXHIBIT P–3
Relating Managerial Accounting to Three Business Majors

	Marketing	Supply Chain Management	Human Resource Management
Planning	How much should we budget for TV, print, and Internet advertising?	How many units should we plan to produce next period?	How much should we plan to spend for occupational safety training?
	How many salespeople should we plan to hire to serve a new territory?	How much should we budget for next period's utility expense?	How much should we plan to spend on employee recruitment advertising?
Controlling	Is the budgeted price cut increasing unit sales as expected?	Did we spend more or less than expected for the units we actually produced?	Is our employee retention rate exceeding our goals?
	Are we accumulating too much inventory during the holiday shopping season?	Are we achieving our goal of reducing the number of defective units produced?	Are we meeting our goal of completing timely performance appraisals?
Decision Making	Should we sell our services as one bundle or sell them separately?	Should we transfer production of a component part to an overseas supplier?	Should we hire an on-site medical staff to lower our health care costs?
	Should we sell directly to customers or use a distributor?	Should we redesign our manufacturing process to lower inventory levels?	Should we hire temporary workers or full-time employees?

important decisions such as whether to hire on-site medical staff in an effort to lower health care costs, and whether to hire temporary workers or full-time employees in an uncertain economy.

For brevity, Exhibit P–3 does not include all business majors, such as finance, management information systems, and economics. Can you explain how planning, controlling, and decision-making activities would relate to these majors?

Accounting Majors

Many accounting graduates begin their careers working for public accounting firms that provide a variety of valuable services for their clients. Some of these graduates will build successful and fulfilling careers in the public accounting industry; however, most will leave public accounting at some point to work in other organizations. In fact, the Institute of Management Accountants (IMA) estimates that more than 80% of professional accountants in the United States work in nonpublic accounting environments (**www.imanet.org/about_ima/our_mission.aspx**).

The public accounting profession has a strong financial accounting orientation. Its most important function is to protect investors and other external parties by assuring them that companies are reporting historical financial results that comply with applicable accounting rules. Managerial accountants also have strong financial accounting skills. For example, they play an important role in helping their organizations design and maintain financial reporting systems that generate reliable financial disclosures. However, the primary role of managerial accountants is to partner with their co-workers within the organization to improve performance.

Given the 80% figure mentioned above, if you are an accounting major there is a very high likelihood that your future will involve working for a nonpublic accounting employer. Your employer will expect you to have strong financial accounting skills, but more importantly, it will expect you to help improve organizational performance by applying the planning, controlling, and decision-making skills that are the foundation of managerial accounting.

IN BUSINESS

A NETWORKING OPPORTUNITY

The Institute of Management Accountants (IMA) is a network of more than 70,000 accounting and finance professionals from over 120 countries. Every year the IMA hosts a student leadership conference that attracts 300 students from over 50 colleges and universities. Guest speakers at past conferences have discussed topics such as leadership, advice for a successful career, how to market yourself in a difficult economy, and excelling in today's multigenerational workforce. One student who attended the conference said, "I liked that I was able to interact with professionals who are in fields that could be potential career paths for me." For more information on this worthwhile networking opportunity, contact the IMA at the phone number and website shown below.

Source: Conversation with Jodi Ryan, the Institute of Management Accountants' Director, Education/Corporate Partnerships. (201) 474-1556 or visit its website at www.imanet.org.

Professional Certification—A Smart Investment If you plan to become an accounting major, the Certified Management Accountant (CMA) and Chartered Global Management Accountant (CGMA) designations are globally respected credentials that will increase your credibility, upward mobility, and compensation.

The CMA exam is sponsored by the Institute of Management Accountants (IMA) in Montvale, New Jersey. To become a CMA requires membership in the IMA, a bachelor's degree from an accredited college or university, two continuous years of relevant professional experience, and passage of the CMA exam. Exhibit P–4 summarizes the topics covered in the IMA's two-part CMA exam. For brevity, we are not going to define

EXHIBIT P–4
CMA Exam Content Specifications

Part 1	*Financial Reporting, Planning, Performance and Control*
	External financial reporting decisions
	Planning, budgeting, and forecasting
	Performance management
	Cost management
	Internal controls
Part 2	*Financial Decision Making*
	Financial statement analysis
	Corporate finance
	Decision analysis
	Risk management
	Investment decisions
	Professional ethics

all the terms included in this exhibit. Its purpose is simply to emphasize that the CMA exam focuses on the planning, controlling, and decision-making skills that are critically important to all managers. Information about becoming a CMA is available on the IMA's website (www.imanet.org) or by calling 1-800-638-4427.

The CGMA designaton is co-sponsored by the American Institute of Certified Public Accountants (AICPA) and the Chartered Institute of Management Accountants (CIMA), each of whom provides a distinct pathway to becoming a CGMA. The AICPA pathway requires a bachelor's degree in accounting (accompanied by a total of 150 college credit-hours), passage of the Certified Public Accountant (CPA) exam, membership in the AICPA, three years of relevant management accounting work experience, and passage of the CGMA exam—which is a case-based exam that focuses on technical skills, business skills, leadership skills, people skills, and ethics, integrity, and professionalism. Notice that the AICPA's pathway to becoming a CGMA requires passage of the multi-part CPA exam, which emphasizes rule-based compliance—assurance standards, financial accounting standards, business law, and the tax code. Information on becoming a CGMA is available at www.cgma.org.

IN BUSINESS

HOW'S THE PAY?

The Institute of Management Accountants has created the following table that allows individuals to estimate what their salary would be as a management accountant.

			Your Calculation
Start with this base amount.		$47,990	$47,990
If you are top-level management	ADD	$54,648	
OR, if you are senior-level management	ADD	$35,416	
OR, if you are middle-level management. . . .	ADD	$15,441	
Number of years in the field ______.	TIMES	$1,086	
If you have an advanced degree	ADD	$9,990	
If you hold the CMA.	ADD	$18,442	
If you hold the CPA.	ADD	$11,279	______
Your estimated salary level			______

For example, if you make it to top-level management in 10 years, have an advanced degree and a CMA, your estimated salary would be $141,930 [$47,990 + $54,648 + (10 × $1,086) + $9,990 + $18,442].

Source: Shannon Charles, "IMA's Global Salary Survey," *Strategic Finance* March 2018, pp. 28–39.

Managerial Accounting: Beyond the Numbers

Exhibit P–5 summarizes how each chapter of the book teaches measurement skills that managers use on the job every day. For example, Chapter 8 teaches you the measurement skills that managers use to answer the question—how should I create a financial plan for next year? Chapters 9 and 10 teach you the measurement skills that managers use to answer the question—how well am I performing relative to my plan? Chapter 5 teaches you measurement skills related to product, service, and customer profitability. However, it is vitally important that you also understand managerial accounting involves more than just "crunching numbers." To be successful, managers must complement their measurement skills with six business management perspectives that "go beyond the numbers" to enable intelligent planning, control, and decision making.

EXHIBIT P–5
Measurement Skills: A Manager's Perspective

Chapter Number	The Key Question from a Manager's Perspective
Chapter 1	What cost classifications do I use for different management purposes?
Chapter 2	How will my profits change if I change my selling price, sales volume, or costs?
Chapter 3	How much does it cost us to manufacture customized jobs for each of our customers?
Chapter 4	How should the income statement be presented?
Chapter 5	How profitable is each of our products, services, and customers?
Chapter 6	How do I quantify the financial impact of pursuing one course of action versus another?
Chapter 7	How do I make long-term capital investment decisions?
Chapter 8	How should I create a financial plan for next year?
Chapters 9 & 10	How well am I performing relative to my plan?
Chapter 11	What performance measures should we monitor to ensure that we achieve our strategic goals?

An Ethics Perspective

Ethical behavior is the lubricant that keeps the economy running. Without that lubricant, the economy would operate much less efficiently—less would be available to consumers, quality would be lower, and prices would be higher. In other words, without fundamental trust in the integrity of business, the economy would operate much less efficiently. Thus, for the good of everyone—including profit-making companies—it is vitally important that business be conducted within an ethical framework that builds and sustains trust.

Code of Conduct for Management Accountants The Institute of Management Accountants (IMA) of the United States has adopted an ethical code called the *Statement of Ethical Professional Practice* that describes in some detail the ethical responsibilities of management accountants. Even though the standards were developed specifically for management accountants, they have much broader application. The standards consist of two parts that are presented in full in Exhibit P–6. The first part provides general guidelines for ethical behavior. In a nutshell, a management accountant has ethical responsibilities in four broad areas: first, to maintain a high level of professional competence; second, to treat sensitive matters with confidentiality; third, to maintain personal integrity; and fourth, to disclose information in a credible fashion. The second part of the standards specifies what should be done if an individual finds evidence of ethical misconduct.

The ethical standards provide sound, practical advice for management accountants and managers. Most of the rules in the ethical standards are motivated by a very practical consideration—if these rules were not generally followed in business, then the economy

EXHIBIT P–6
Institute of Management Accountants (IMA) Statement of Ethical Professional Practice

Members of IMA shall behave ethically. A commitment to ethical professional practice includes: overarching principles that express our values, and standards that guide our conduct.

PRINCIPLES

IMA's overarching ethical principles include: Honesty, Fairness, Objectivity, and Responsibility. Members shall act in accordance with these principles and shall encourage others within their organizations to adhere to them.

STANDARDS

IMA members have a responsibility to comply with and uphold the standards of Competence, Confidentiality, Integrity, and Credibility. Failure to comply may result in disciplinary action.

I. COMPETENCE

1. Maintain an appropriate level of professional leadership and expertise by enhancing knowledge and skills.
2. Perform professional duties in accordance with relevant laws, regulations, and technical standards.
3. Provide decision support information and recommendations that are accurate, clear, concise, and timely. Recognize and help manage risk.

II. CONFIDENTIALITY

1. Keep information confidential except when disclosure is authorized or legally required.
2. Inform all relevant parties regarding appropriate use of confidential information. Monitor to ensure compliance.
3. Refrain from using confidential information for unethical or illegal advantage.

III. INTEGRITY

1. Mitigate actual conflicts of interest. Regularly communicate with business associates to avoid apparent conflicts of interest. Advise all parties of any potential conflicts of interest.
2. Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
3. Abstain from engaging in or supporting any activity that might discredit the profession.
4. Contribute to a positive ethical culture and place integrity of the profession above personal interests.

IV. CREDIBILITY

1. Communicate information fairly and objectively.
2. Provide all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.
3. Report any delays or deficiencies in information, timeliness, processing, or internal controls in conformance with organization policy and/or applicable law.
4. Communicate professional limitations or other constraints that would preclude responsible judgment or successful performance of an activity.

RESOLVING ETHICAL ISSUES

In applying the Standards of Ethical Professional Practice, the member may encounter unethical issues or behavior. In these situations, the member should not ignore them, but rather should actively seek resolution of the issue. In determining which steps to follow, the member should consider all risks involved and whether protections exist against retaliation.

When faced with unethical issues, the member should follow the established policies of his or her organization, including use of an anonymous reporting system if available.

If the organization does not have established policies, the member should consider the following courses of action:

- The resolution process could include a discussion with the member's immediate supervisor. If the supervisor appears to be involved, the issue could be presented to the next level of management.
- IMA offers an anonymous helpline that the member may call to request how key elements of the *IMA Statement of Ethical Professional Practice* could be applied to the ethical issue.
- The member should consider consulting his or her own attorney to learn of any legal obligations, rights, and risks concerning the issue.

If resolution efforts are not successful, the member may wish to consider disassociating from the organization.

and all of us would suffer. Consider the following specific examples of the consequences of not abiding by the standards:

- Suppose employees could not be trusted with confidential information. Then top managers would be reluctant to distribute such information within the company and, as a result, decisions would be based on incomplete information and operations would deteriorate.
- Suppose employees accepted bribes from suppliers. Then contracts would tend to go to the suppliers who pay the highest bribes rather than to the most competent suppliers. Would you like to fly in aircraft whose wings were made by the subcontractor who paid the highest bribe? Would you fly as often? What would happen to the airline industry if its safety record deteriorated due to shoddy workmanship on contracted parts and subassemblies?
- Suppose the presidents of companies routinely lied in their annual reports and financial statements. If investors could not rely on the basic integrity of a company's financial statements, they would have little basis for making informed decisions. Suspecting the worst, rational investors would pay less for securities issued by companies and may not be willing to invest at all. As a consequence, companies would have less money for productive investments—leading to slower economic growth, fewer goods and services, and higher prices.

Not only is ethical behavior the lubricant for our economy, it is the foundation of managerial accounting. The numbers that managers rely on for planning, controlling, and decision making are meaningless unless they have been competently, objectively, and honestly gathered, analyzed, and reported. As your career unfolds, you will inevitably face decisions with ethical implications. Before making such decisions, consider performing the following steps. First, define your alternative courses of action. Second, identify all of the parties that will be affected by your decision. Third, define how each course of action will favorably or unfavorably impact each affected party. Once you have a complete understanding of the decision context, seek guidance from external sources such as the IMA Statement of Ethical Professional Practice (see Exhibit P–6), the IMA Ethics Helpline at (800) 245-1383, or a trusted confidant. Before executing your decision ask yourself one final question—would I be comfortable disclosing my chosen course of action on the front page of *The Wall Street Journal?*

A Strategic Management Perspective

Companies do not succeed by sheer luck; instead, they need to develop a *strategy* that defines how they intend to succeed in the marketplace. A **strategy** is a "game plan" that enables a company to attract customers by distinguishing itself from competitors. The focal point of a company's strategy should be its target customers. A company can only succeed if it creates a reason for its target customers to choose it over a competitor. These reasons, or what are more formally called *customer value propositions,* are the essence of strategy.

Customer value propositions tend to fall into three broad categories—*customer intimacy, operational excellence,* and *product leadership.* Companies that adopt a *customer intimacy* strategy are in essence saying to their customers, "You should choose us because we can customize our products and services to meet your individual needs better than our competitors." Ritz-Carlton, Nordstrom, and Virtuoso (a premium service travel agency) rely primarily on a customer intimacy value proposition for their success. Companies that pursue the second customer value proposition, called *operational excellence,* are saying to their target customers, "You should choose us because we deliver products and services faster, more conveniently, and at a lower price than our competitors." Southwest Airlines, Walmart, and Google are examples of companies that succeed first and foremost because of their operational excellence. Companies pursuing the third customer value proposition, called *product leadership,* are saying to their target customers, "You should choose us because we offer higher quality products than our competitors." Apple, Cisco Systems, and W.L. Gore (the creator of GORE-TEX® fabrics) are examples of companies that succeed because of their product leadership.[1]

[1] These three customer value propositions were defined by Michael Treacy and Fred Wiersema in "Customer Intimacy and Other Value Disciplines," *Harvard Business Review,* Volume 71 Issue 1, pp. 84–93.

The plans managers set forth, the variables they seek to control, and the decisions they make are all influenced by their company's strategy. For example, Walmart would not make plans to build ultraexpensive clothing boutiques because these plans would conflict with the company's strategy of operational excellence and "everyday low prices." Apple would not seek to control its operations by selecting performance measures that focus solely on cost-cutting because those measures would conflict with its product leadership customer value proposition. Finally, it is unlikely that Rolex would decide to implement drastic price reductions for its watches even if a financial analysis indicated that establishing a lower price might boost short-run profits. Rolex would oppose this course of action because it would diminish the luxury brand that forms the foundation of the company's product leadership customer value proposition.

An Enterprise Risk Management Perspective

Every strategy, plan, and decision involves risks. **Enterprise risk management** is a process used by a company to identify those risks and develop responses to them that enable it to be reasonably assured of meeting its goals. The left-hand column of Exhibit P–7 provides 10 examples of the types of business risks that companies face. They range from risks that relate to the weather to risks associated with computer hackers, complying with the law, supplier strikes, and products harming customers. The right-hand column of Exhibit P–7 provides an example of a control that could be implemented to help reduce each of the risks mentioned in the left-hand column of the exhibit.[2] Although these types of controls cannot completely eliminate risks, they enable companies to proactively manage their risks rather than passively reacting to unfortunate events that have already occurred.

In managerial accounting, companies use controls to reduce the risk that their plans will not be achieved. For example, if a company plans to build a new manufacturing facility within a predefined budget and time frame, it will establish and monitor control measures

EXHIBIT P–7
Identifying and Controlling Business Risks

Examples of Business Risks	Examples of Controls to Reduce Business Risks
• Intellectual assets being stolen from computer files	• Create firewalls that prohibit computer hackers from corrupting or stealing intellectual property
• Products harming customers	• Develop a formal and rigorous new product testing program
• Losing market share due to the unforeseen actions of competitors	• Develop an approach for legally gathering information about competitors' plans and practices
• Poor weather conditions shutting down operations	• Develop contingency plans for overcoming weather-related disruptions
• A website malfunctioning	• Thoroughly test the website before going "live" on the Internet
• A supplier strike halting the flow of raw materials	• Establish a relationship with two companies capable of providing needed raw materials
• A poorly designed incentive compensation system causing employees to make bad decisions	• Create a balanced set of performance measures that motivates the desired behavior
• Poor environmental stewardship causing reputational and financial damage	• Create a reporting system that tracks key environmental performance indicators
• Inaccurate budget estimates causing excessive or insufficient production	• Implement a rigorous budget review process
• Failing to comply with equal employment opportunity laws	• Create a report that tracks key metrics related to compliance with the laws

[2] Besides using controls to reduce risks, companies can also choose other risk responses, such as accepting or avoiding a risk.

to ensure that the project is concluded on time and within the budget. Risk management is also a critically important aspect of decision making. For example, when a company quantifies the labor cost savings that it can realize by sending jobs overseas, it should complement its financial analysis with a prudent assessment of the accompanying risks. Will the overseas manufacturer use child labor? Will the product's quality decline, thereby leading to more warranty repairs, customer complaints, and lawsuits? Will the elapsed time from customer order to delivery dramatically increase? Will terminating domestic employees diminish morale within the company and harm perceptions within the community? These are the types of risks that managers should incorporate into their decision-making processes.

Companies also use controls in financial accounting to safeguard assets and minimize the risk of financial reporting errors. Exhibit P–8 describes seven types of controls that companies use to safeguard their assets and to reduce their financial reporting risks. Each item in the exhibit is labeled as a *preventive control* and/or a *detective control*. A **preventive control** deters undesirable events from occurring. A **detective control** detects undesirable events that have already occurred.

As shown in Exhibit P–8, requiring *authorizations* for certain types of transactions is a preventive control. For example, companies frequently require that a specific senior manager sign all checks above a particular dollar amount to reduce the risk of an inappropriate cash disbursement. *Reconciliations* are a detective control. If you have ever compared a bank statement to your checkbook to resolve any discrepancies, then you have performed a type of reconciliation known as a bank reconciliation. This is a detective control because you are seeking to identify any mistakes already made by the bank or existing mistakes in your own records. Another type of reconciliation occurs when a company performs a physical count of its inventory. The value of the physical inventory on hand is compared to the accounting records so that any discrepancies can be identified and resolved.

Exhibit P–8 also mentions *segregation of duties,* which is a preventive control that separates responsibilities for authorizing transactions, recording transactions, and maintaining custody of the related assets. For example, the same employee should not have the ability to authorize inventory purchases, account for those purchases, and manage the inventory storeroom. *Physical safeguards* prevent unauthorized employees from having access to assets such as inventories and computer equipment. *Performance reviews* are a detective control performed by employees in supervisory positions to ensure that actual results are reasonable when compared to relevant benchmarks. If actual results unexpectedly deviate from expectations, then it triggers further analysis to determine the

EXHIBIT P–8

Types of Internal Controls for Financial Reporting

Type of Control	Classification	Description
Authorizations	Preventive	Requiring management to formally approve certain types of transactions.
Reconciliations	Detective	Relating data sets to one another to identify and resolve discrepancies.
Segregation of duties	Preventive	Separating responsibilities related to authorizing transactions, recording transactions, and maintaining custody of the related assets.
Physical safeguards	Preventive	Using cameras, locks, and physical barriers to protect assets.
Performance reviews	Detective	Comparing actual performance to various benchmarks to identify unexpected results.
Maintaining records	Detective	Maintaining written and/or electronic evidence to support transactions.
Information systems security	Preventive/Detective	Using controls such as passwords and access logs to ensure appropriate data restrictions.

root cause of the deviation. Companies *maintain records* to provide evidence that supports each transaction. For example, companies use serially numbered checks (a detective control) so that they can readily track all of their cash disbursements. Finally, companies maintain *information systems security* by using passwords (a preventive control) and access logs (a detective control) to restrict electronic data access as appropriate.

It bears reemphasizing that these types of controls may help a company reduce its risks, but they cannot guarantee that a company will achieve its objectives. For example, two or more employees may collude to circumvent the control system, or a company's senior leaders may manipulate financial results by intentionally overriding prescribed policies and procedures. This reality highlights the importance of having senior leaders (including the chief executive officer and the chief financial officer) who are committed to creating an ethical "tone at the top" of the organization.

IN BUSINESS

MANAGING RISKS WHEN PATIENTS GO UNDER THE KNIFE

A study by researchers at Johns Hopkins University estimated that more than 4,000 claims are filed each year for what it referred to as never events—surgical errors that should never happen, such as operating on the wrong body part. The study found that over a 20-year period these never events led to death in 6.6% of patients and permanent injury in almost 33% of patients. The total payout from the ensuing lawsuits in these cases topped $1.3 billion.

Given these statistics, it is not surprising that many hospitals are paying greater attention to identifying risks and implementing controls to reduce those risks. For example, to reduce the risk that surgical objects are left inside a patient after the surgery concludes, hospitals are introducing controls such as counting instruments, needles, and sponges before and after each surgical procedure. Radio frequency identification tags are also being used to detect instruments inside a patient before wound closure.

Source: Laura Landro, "How to Make Surgery Safer," *The Wall Street Journal,* February 17, 2015, pp. R1–R2.

A Corporate Social Responsibility Perspective

Companies are responsible for creating strategies that produce financial results that satisfy stockholders. However, they also have a *corporate social responsibility* to serve other stakeholders—such as customers, employees, suppliers, communities, and environmental and human rights advocates—whose interests are tied to the company's performance. **Corporate social responsibility** (CSR) is a concept whereby organizations consider the needs of all stakeholders when making decisions. CSR extends beyond legal compliance to include voluntary actions that satisfy stakeholder expectations. Numerous companies, such as Procter & Gamble, 3M, Eli Lilly and Company, Starbucks, Microsoft, Genentech, Johnson & Johnson, Baxter International, Abbott Laboratories, KPMG, PNC Bank, Deloitte, Southwest Airlines, and Caterpillar, prominently describe their corporate social performance on their websites.

Exhibit P–9 presents examples of corporate social responsibilities that are of interest to six stakeholder groups.[3] If a company fails to meet the needs of these six stakeholder groups it can adversely affect its financial performance. For example, if a company pollutes the environment or fails to provide safe and humane working conditions for its employees, the negative publicity from environmental and human rights activists could cause the company's customers to defect and its "best and brightest" job candidates to apply elsewhere—both of which are likely to eventually harm financial performance. This explains why in managerial accounting a manager must establish plans, implement controls, and make decisions that consider impacts on all stakeholders.

---

[3] Many of the examples in Exhibit P-9 were drawn from Terry Leap and Misty L. Loughry, "The Stakeholder-Friendly Firm," *Business Horizons,* March/April 2004, pp. 27–32.

EXHIBIT P–9
Examples of Corporate Social Responsibilities

Companies should provide *customers* with:
- Safe, high-quality products that are fairly priced.
- Competent, courteous, and rapid delivery of products and services.
- Full disclosure of product-related risks.
- Easy-to-use information systems for shopping and tracking orders.

Companies should provide *suppliers* with:
- Fair contract terms and prompt payments.
- Reasonable time to prepare orders.
- Hassle-free acceptance of timely and complete deliveries.
- Cooperative rather than unilateral actions.

Companies should provide *stockholders* with:
- Competent management.
- Easy access to complete and accurate financial information.
- Full disclosure of enterprise risks.
- Honest answers to knowledgeable questions.

Companies and their suppliers should provide *employees* with:
- Safe and humane working conditions.
- Nondiscriminatory treatment and the right to organize and file grievances.
- Fair compensation.
- Opportunities for training, promotion, and personal development.

Companies should provide *communities* with:
- Payment of fair taxes.
- Honest information about plans such as plant closings.
- Resources that support charities, schools, and civic activities.
- Reasonable access to media sources.

Companies should provide *environmental and human rights advocates* with:
- Greenhouse gas emissions data.
- Recycling and resource conservation data.
- Child labor transparency.
- Full disclosure of suppliers located in developing countries.

IN BUSINESS

EVACUATION PLANNING: AN UNFORTUNATE BUT NECESSARY CORPORATE SOCIAL RESPONSIBILITY

Companies have responsibilities for their employees above and beyond paying them for services rendered. For example, when a company's globally dispersed employees are threatened by events such as a violent uprising due to political unrest, a terror attack, or an outbreak of Ebola, it has a responsibility to look out for their safety. To assist employers in this endeavor, companies such as Global Rescue and International SOS specialize in designing and executing contingency plans to remove (by air, land, or sea) employees from dangerous situations. In recognition of the seriousness of this corporate responsibility, the United Kingdom has passed a law that makes corporate manslaughter a criminal offense.

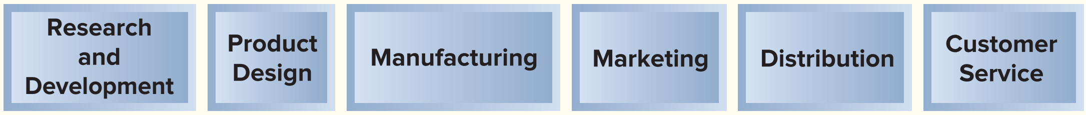
Source: Erika Fry, "The Great Escape Business," *Fortune,* December 1, 2014, p. 16.

©Phil Wills/Alamy

A Process Management Perspective

Most companies organize themselves by functional departments, such as the Marketing Department, the Research and Development Department, and the Accounting Department. These departments tend to have a clearly defined "chain of command" that specifies superior and subordinate relationships. However, effective managers understand that *business processes,* more so than functional departments, serve the needs of a company's most important stakeholders—its customers. A **business process** is a series of steps that are followed in order to carry out some task in a business. These steps often span departmental boundaries, thereby requiring managers to cooperate across functional departments. The term *value chain* is often used to describe how an organization's functional departments interact with one another to form business processes. A **value chain**, as shown in Exhibit P–10, consists of the major business functions that add value to a company's products and services.

EXHIBIT P–10
Business Functions Making Up the Value Chain



Managers need to understand the value chain to be effective in terms of planning, control, and decision making. For example, if a company's engineers plan to design a new product, they must communicate with the Manufacturing Department to ensure that the product can actually be produced, the Marketing Department to ensure that customers will buy the product, the Distribution Department to ensure that large volumes of the product can be cost-effectively transported to customers, and the Accounting Department to ensure that the product will increase profits. From a control and decision-making standpoint, managers also need to focus on process excellence instead of functional performance. For example, if the Purchasing Department focuses solely on minimizing the cost of purchased materials, this narrowly focused attempt at cost reduction may lead to greater scrap and rework in the Manufacturing Department, more complaints in the Customer Service Department, and greater challenges in the Marketing Department because dissatisfied customers are turning their attention to competitors.

Managers frequently use a process management method known as *lean thinking,* or what is called *Lean Production* in the manufacturing sector. **Lean Production** is a management approach that organizes resources such as people and machines around the flow of business processes and that only produces units in response to customer orders. It is often called *just-in-time* production (or *JIT*) because products are only manufactured in response to customer orders and they are completed just-in-time to be shipped to customers. Lean thinking differs from traditional manufacturing methods that organize work departmentally and that encourage departments to maximize their output even if it exceeds customer demand and bloats inventories. Because lean thinking only allows production in response to customer orders, the number of units produced tends to equal the number of units sold, thereby resulting in minimal inventory. The lean approach also results in fewer defects, less wasted effort, and quicker customer response times than traditional production methods.

A Leadership Perspective

An organization's employees bring diverse needs, beliefs, and goals to the workplace. Therefore, an important role for organizational leaders is to unite the behaviors of their fellow employees around two common themes—pursuing strategic goals and making optimal decisions. To fulfill this responsibility, leaders need to understand how *intrinsic motivation, extrinsic incentives,* and *cognitive bias* influence human behavior.

Intrinsic Motivation Intrinsic motivation refers to motivation that comes from within us. Stop for a moment and identify the greatest accomplishment of your life. Then ask yourself what motivated you to achieve this goal? In all likelihood, you achieved it because you wanted to, not because someone forced you to do it. In other words, you were intrinsically motivated. Similarly, an organization is more likely to prosper when its employees are intrinsically motivated to pursue its interests. A leader, who employees perceive as *credible* and *respectful* of their value to the organization, can increase the extent to which those employees are intrinsically motivated to pursue strategic goals. As your career evolves, to be perceived as a credible leader you'll need to possess three attributes—technical competence (that spans the value chain), personal integrity (in terms of work ethic and honesty), and strong communication skills (including oral presentation skills and writing skills). To be perceived as a leader who is respectful of your co-workers' value to the organization, you'll need to possess three more attributes—strong mentoring skills (to help others realize their potential), strong listening skills (to learn from your co-workers and be responsive to their needs), and personal humility (in terms of deferring recognition to all employees who contribute to the organization's success). If you possess these six traits, then you'll have the potential to become a leader who inspires others to readily and energetically channel their efforts toward achieving organizational goals.

Extrinsic Incentives Many organizations use *extrinsic incentives* to highlight important goals and to motivate employees to achieve them. For example, assume a company establishes the goal of reducing the time needed to perform a task by 20%. In addition, assume the company agrees to pay bonus compensation to its employees if they achieve the goal within three months. In this example, the company is using a type of extrinsic incentive known as a bonus to highlight a particular goal and to presumably motivate employees to achieve it.

While proponents of extrinsic incentives rightly assert that these types of rewards can have a powerful influence on employee behavior, many critics warn that they can also produce dysfunctional consequences. For example, suppose the employees mentioned above earned their bonuses by achieving the 20% time reduction goal within three months. However, let's also assume that during those three months the quality of the employees' output plummeted, thereby causing a spike in the company's repair costs, product returns, and customer defections. In this instance, did the extrinsic incentive work properly? The answer is yes and no. The bonus system did motivate employees to attain the time reduction goal; however, it also had the unintended consequences of causing employees to neglect product quality, thereby increasing repair costs, product returns, and customer defections. In other words, what may have seemed like a well-intended extrinsic incentive actually produced dysfunctional results for the company. This example highlights an important leadership challenge that you are likely to face someday—designing financial compensation systems that fairly reward employees for their efforts without inadvertently creating extrinsic incentives that motivate them to take actions that harm the company.

Cognitive Bias Leaders need to be aware that all people (including themselves) possess *cognitive biases,* or distorted thought processes, that can adversely affect planning, controlling, and decision making. To illustrate how cognitive bias works, let's consider the scenario of a television "infomercial" where someone is selling a product with a proclaimed value of $200 for $19.99 if viewers call within the next 30 minutes. Why do you think the seller claims that the product has a $200 value? The seller is relying on a cognitive bias called *anchoring bias* in an effort to convince viewers that a $180 discount is simply too good to pass up. The "anchor" is the false assertion that the product is actually worth $200. If viewers erroneously attach credibility to this contrived piece of information, their distorted analysis of the situation may cause them to spend $19.99 on an item whose true economic value is much less than that amount.

While cognitive biases cannot be eliminated, effective leaders should take two steps to reduce their negative impacts. First, they should acknowledge their own susceptibility to cognitive bias. For example, a leader's judgment might be clouded by optimism bias (being overly optimistic in assessing the likelihood of future outcomes) or self-enhancement bias (overestimating ones strengths and underestimating ones weaknesses relative to others). Second, they should acknowledge the presence of cognitive bias in others and introduce techniques to minimize their adverse consequences. For example, to reduce the risks of confirmation bias (a bias where people pay greater attention to information that confirms their preconceived notions, while devaluing information that contradicts them) or groupthink bias (a bias where some group members support a course of action solely because other group members do), a leader may routinely appoint independent teams of employees to assess the credibility of recommendations set forth by other individuals and groups.

Summary

The prologue defined managerial accounting and explained why it is relevant to business and accounting majors. It also discussed six topics—ethics, strategic management, enterprise risk management, corporate social responsibility, process management, and leadership—that define the context for applying the quantitative aspects of managerial accounting. The most important goal of the prologue was to help you understand that managerial accounting matters to your future career regardless of your major. Accounting is the language of business and you'll need to speak it to communicate effectively with and influence fellow managers.

Glossary

Budget A detailed plan for the future that is usually expressed in formal quantitative terms. (p. 3)
Business process A series of steps that are followed in order to carry out some task in a business. (p. 15)
Controlling The process of gathering feedback to ensure that a plan is being properly executed or modified as circumstances change. (p. 3)
Corporate social responsibility A concept whereby organizations consider the needs of all stakeholders when making decisions. (p. 14)
Decision making Selecting a course of action from competing alternatives. (p. 3)
Detective control A control that detects undesirable events that have already occurred. (p. 13)
Enterprise risk management A process used by a company to identify its risks and develop responses to them that enable it to be reasonably assured of meeting its goals. (p. 12)
Financial accounting The phase of accounting that is concerned with reporting historical financial information to external parties, such as stockholders, creditors, and regulators. (p. 2)
Lean Production A management approach that organizes resources such as people and machines around the flow of business processes and that only produces units in response to customer orders. (p. 16)
Managerial accounting The phase of accounting that is concerned with providing information to managers for use within the organization. (p. 2)
Performance report A report that compares budgeted data to actual data to highlight instances of excellent and unsatisfactory performance. (p. 4)
Planning The process of establishing goals and specifying how to achieve them. (p. 3)
Preventive control A control that deters undesirable events from occurring. (p.13)
Segment Any part or activity of an organization about which managers seek cost, revenue, or profit data. (p. 3)
Strategy A company's "game plan" for attracting customers by distinguishing itself from competitors. (p. 11)
Value chain The major business functions that add value to a company's products and services, such as research and development, product design, manufacturing, marketing, distribution, and customer service. (p. 15)

Questions

P–1 How does managerial accounting differ from financial accounting?
P–2 Pick any major television network and describe some planning and control activities that its managers would engage in.
P–3 If you had to decide whether to continue making a component part or to begin buying the part from an overseas supplier, what quantitative and qualitative factors would influence your decision?
P–4 Why do companies prepare budgets?
P–5 Why is managerial accounting relevant to business majors and their future careers?
P–6 Why is managerial accounting relevant to accounting majors and their future careers?
P–7 Pick any large company and describe its strategy using one of the three customer value propositions defined in the prologue.

P–8 Why do management accountants need to understand their company's strategy?

P–9 Pick any large company and describe three risks that it faces and how it responds to those risks.

P–10 Pick three industries and describe how the risks faced by companies within those industries can influence their planning, controlling, and decision-making activities.

P–11 Pick any large company and explain three ways that it could segment its companywide performance.

P–12 Locate the website of any company that publishes a corporate social responsibility report (also referred to as a sustainability report). Describe three nonfinancial performance measures included in the report. Why do you think the company publishes this report?

P–13 Why do companies that implement Lean Production tend to have minimal inventories?

P–14 Why are leadership skills important to managers?

P–15 Why is ethical behavior important to business?

P–16 If you were a restaurant owner, what internal controls would you implement to help maintain control of your cash?

P–17 As a form of internal control, what documents would you review prior to paying an invoice received from a supplier?

P–18 What internal controls would you implement to help maintain control of your credit sales and accounts receivable?

P–19 Why do companies take a physical count of their inventory on hand at least once per year?

P–20 Why do companies use sequential prenumbering for documents such as checks, sales invoices, and purchase orders?

connect Exercises

EXERCISE P–1 Planning and Control

Many companies use budgets for three purposes. First, they use them to plan how to deploy resources to best serve customers. Second, they use them to establish challenging goals, or stretch targets, to motivate employees to strive for exceptional results. Third, they use them to evaluate and reward employees.

Assume that you are a sales manager working with your boss to create a sales budget for next year. Once the sales budget is established, it will influence how other departments within the company plan to deploy their resources. For example, the manufacturing manager will plan to produce enough units to meet budgeted unit sales. The sales budget will also be instrumental in determining your pay raise, potential for promotion, and bonus. If actual sales exceed the sales budget, it bodes well for your career. If actual sales are less than budgeted sales, it will diminish your financial compensation and potential for promotion.

Required:

1. Do you think it would be appropriate for your boss to establish the sales budget without any input from you? Why?
2. Do you think the company would be comfortable with allowing you to establish the sales budget without any input from your boss? Why?
3. Assume the company uses its sales budget for only one purpose—planning to deploy resources in a manner that best serves customers. What thoughts would influence your estimate of future sales as well as your boss's estimate of future sales?
4. Assume the company uses its sales budget for only one purpose—motivating employees to strive for exceptional results. What thoughts would influence your estimate of future sales as well as your boss's estimate of future sales?
5. Assume the company uses its sales budget for only one purpose—to determine your pay raise, potential for promotion, and bonus. What thoughts would influence your estimate of future sales as well as your boss's estimate of future sales?
6. Assume the sales budget is used for all three purposes described in questions 3–5. Describe any conflicts or complications that might arise when using the sales budget for these three purposes.

EXERCISE P–2 Controlling

Assume that you work for an airline unloading luggage from airplanes. Your boss has said that, on average, each airplane contains 100 pieces of luggage. Furthermore, your boss has stated that you should be able to unload 100 pieces of luggage from an airplane in 10 minutes. Today an airplane arrived with 150 pieces of luggage and you unloaded all of it in 13 minutes. After finishing with the 150 pieces of luggage, your boss yelled at you for exceeding the 10 minute allowance for unloading luggage from an airplane.

Required:

How would you feel about being yelled at for taking 13 minutes to unload 150 pieces of luggage? How does this scenario relate to the larger issue of how companies design control systems?

EXERCISE P–3 Decision Making

Exhibit P–2 from within the Prologue includes 12 questions related to 12 types of decisions that companies often face. In the prologue, these 12 decisions were discussed within the context of for-profit companies; however, they are also readily applicable to nonprofit organizations. To illustrate this point, assume that you are a senior leader, such as a president, provost, or dean, in a university setting.

Required:

For each of the 12 decisions in Exhibit P–2, provide an example of how that type of decision might be applicable to a university setting.

EXERCISE P–4 Ethics and the Manager

Richmond, Inc., operates a chain of 44 department stores. Two years ago, the board of directors of Richmond approved a large-scale remodeling of its stores to attract a more upscale clientele.

Before finalizing these plans, two stores were remodeled as a test. Linda Perlman, assistant controller, was asked to oversee the financial reporting for these test stores, and she and other management personnel were offered bonuses based on the sales growth and profitability of these stores. While completing the financial reports, Perlman discovered a sizable inventory of outdated goods that should have been discounted for sale or returned to the manufacturer. She discussed the situation with her management colleagues; the consensus was to ignore reporting this inventory as obsolete because reporting it would diminish the financial results and their bonuses.

Required:

1. According to the IMA's Statement of Ethical Professional Practice, would it be ethical for Perlman *not* to report the inventory as obsolete?
2. Would it be easy for Perlman to take the ethical action in this situation?

(CMA, adapted)

EXERCISE P–5 Strategy

The table below contains the names of six companies.

Required:

For each company, categorize its strategy as being focused on customer intimacy, operational excellence, or product leadership. If you wish to improve your understanding of each company's customer value proposition before completing the exercise, review its most recent annual report. To obtain electronic access to this information, perform an Internet search on each company's name followed by the words "annual report."

Company	Strategy
1. Deere	?
2. FedEx	?
3. State Farm Insurance	?
4. BMW	?
5. Amazon.com	?
6. Charles Schwab	?

EXERCISE P–6 Enterprise Risk Management

The table below refers to seven industries.

Required:

For each industry, provide an example of a business risk faced by companies that compete within that industry. Then, describe an example of a control that could be used to reduce the business risk that you have identified.

Industry	Example of Business Risk	Example of Control to Reduce the Business Risk
1. Airlines (e.g., Delta Airlines)		
2. Pharmaceutical drugs (e.g., Merck)		
3. Package delivery (e.g., United Parcel Service).		
4. Banking (e.g., Bank of America)		
5. Oil & gas (e.g., ExxonMobil).		
6. E-commerce (e.g., eBay)		
7. Automotive (e.g., Toyota)		

EXERCISE P–7 Ethics in Business

Consumers and attorney generals in more than 40 states accused a prominent nationwide chain of auto repair shops of misleading customers and selling them unnecessary parts and services, from brake jobs to front-end alignments. Lynn Sharpe Paine reported the situation as follows in "Managing for Organizational Integrity," *Harvard Business Review,* Volume 72 Issue 3:

> In the face of declining revenues, shrinking market share, and an increasingly competitive market . . . management attempted to spur performance of its auto centers. . . . The automotive service advisers were given product-specific sales quotas—sell so many springs, shock absorbers, alignments, or brake jobs per shift—and paid a commission based on sales. . . . [F]ailure to meet quotas could lead to a transfer or a reduction in work hours. Some employees spoke of the "pressure, pressure, pressure" to bring in sales.
>
> This pressure-cooker atmosphere created conditions under which employees felt that the only way to satisfy top management was by selling products and services to customers that they didn't really need.

Suppose all automotive repair businesses routinely followed the practice of attempting to sell customers unnecessary parts and services.

Required:

1. How would this behavior affect customers? How might customers attempt to protect themselves against this behavior?
2. How would this behavior probably affect profits and employment in the automotive service industry?

EXERCISE P–8 Cognitive Bias

In the 1970s, one million college-bound students were surveyed and asked to compare themselves to their peers. Some of the key findings of the survey were as follows:

a. 70% of the students rated themselves as above average in leadership ability, while only 2% rated themselves as below average in this regard.
b. With respect to athletic skills, 60% of the students rated their skills as above the median and only 6% of students rated themselves as below the median.
c. 60% of the students rated themselves in the top 10% in terms of their ability to get along with others, while 25% of the students felt that they were in the top 1% in terms of this interpersonal skill.

Required:

1. What type of cognitive bias reveals itself in the data mentioned above?
2. How might this cognitive bias adversely influence a manager's planning, controlling, and decision-making activities?
3. What steps could managers take to reduce the possibility that this cognitive bias would adversely influence their actions?

Source*:* Dan Lovallo and Daniel Kahneman, "Delusions of Success: How Optimism Undermines Executives' Decisions," *Harvard Business Review,* July 2003, pp. 56–63.

EXERCISE P–9 Ethics and Decision Making

Assume that you are the chairman of the Department of Accountancy at Mountain State University. One of the accounting professors in your department, Dr. Candler, has been consistently and uniformly regarded by students as an awful teacher for more than 10 years. Other accounting professors within your department have observed Dr. Candler's classroom teaching and they concur that his teaching skills are very poor. However, Dr. Candler was granted tenure 12 years ago, thereby ensuring him life-long job security at Mountain State University.

Much to your surprise, today you received a phone call from an accounting professor at Oregon Coastal University. During this phone call you are informed that Oregon Coastal University is on the verge of making a job offer to Dr. Candler. However, before extending the job offer, the faculty at Oregon Coastal wants your input regarding Dr. Candler's teaching effectiveness while at Mountain State University.

Required:

How would you respond to the professor from Oregon Coastal University? What would you say about Dr. Candler's teaching ability? Would you describe your answer to this inquiry as being ethical? Why?

EXERCISE P–10 Corporate Social Responsibility

In his book *Capitalism and Freedom,* economist Milton Friedman wrote on page 133: "There is one and only one social responsibility of business—to use its resources and engage in activities designed to increase its profits so long as it . . . engages in open and free competition, without deception or fraud."

Required:

Explain why you agree or disagree with this quote.

EXERCISE P–11 Intrinsic Motivation and Extrinsic Incentives

In a *Harvard Business Review* article titled "Why Incentive Plans Cannot Work," (Volume 71, Issue 5) author Alfie Kohn wrote: "Research suggests that, by and large, rewards succeed at securing one thing only: temporary compliance. When it comes to producing lasting change in attitudes and behavior, however, rewards, like punishment, are strikingly ineffective. Once the rewards run out, people revert to their old behaviors. . . . Incentives, a version of what psychologists call extrinsic motivators, do not alter the attitudes that underlie our behaviors. They do not create an enduring *commitment* to any value or action. Rather, incentives merely—and temporarily—change what we do."

Required:

1. Do you agree with this quote? Why?
2. As a manager, how would you seek to motivate your employees?
3. As a manager, would you use financial incentives to compensate your employees? If so, what would be the keys to using them effectively? If not, then how would you compensate your employees?

EXERCISE P–12 Cognitive Bias and Decision Making

During World War II, the U.S. military was studying its combat-tested fighter planes to determine the parts of the plane that were most vulnerable to enemy fire. The purpose of the study was to identify the most vulnerable sections of each plane and then take steps to reinforce those sections to improve pilot safety and airplane durability. The data gathered by the U.S. military showed that certain sections of its combat-tested fighter planes were consistently hit more often with enemy fire than other sections of the plane.

Required:

1. Would you recommend reinforcing the sections of the plane that were hit most often by enemy fire, or would you reinforce the sections that were hit less frequently by enemy fire? Why?
2. Do you think cognitive bias had the potential to influence the U.S. military's decision-making process with respect to reinforcing its fighter planes?

Source*:* Jerker Denrell, "Selection Bias and the Perils of Benchmarking," *Harvard Business Review,* Volume 83, Issue 4, pp. 114–119.

EXERCISE P–13 Ethics and Decision Making

Assume that you just completed a December weekend vacation to a casino within the United States. During your trip you won $10,000 gambling. When the casino exchanged your chips for cash they did not record any personal information, such as your driver's license number or social security number. Four months later while preparing your tax returns for the prior year, you stop to contemplate the fact that the Internal Revenue Service requires taxpayers to report all gambling winnings on Form 1040.

Required:

Would you report your gambling winnings to the Internal Revenue Service so that you could pay federal income taxes on those winnings? Do you believe that your actions are ethical? Why?

©stevecoleimages/Getty Images

Chapter 1

Managerial Accounting and Cost Concepts

BUSINESS FOCUS

Curbing Administrative Expenses

©Raymond Boyd/Getty Images

When Eric Kaler was appointed as the University of Minnesota's President he promised to cut administrative expenses. Over an 11-year period, the university's administrative headcount had climbed by 1,000 employees, or 37%. This growth rate practically doubled the faculty and student growth rates during the same time period. Beyond the disparity in headcount growth rates, the executive administrators' pay raises exceeded the pay raises given to faculty members, while at the same time the university's in-state tuition and fees more than doubled.

Dr. Kaler's cost cutting efforts included closing dozens of extension school offices, freezing or reducing salaries, eliminating 14 car allowances, restructuring healthcare and retirement benefits, and eliminating the Office of Academic Administration—a move that cut 5.5 full-time positions, including a senior vice-president who earned more than $300,000. ■

Source: Douglas Belkin and Scott Thurm, "Dean's List: Hiring Spree Fattens College Bureaucracy—And Tuition," *The Wall Street Journal,* December 29–30, 2012, pp. A1 and A10.

LEARNING OBJECTIVES

After studying Chapter 1, you should be able to:

LO 1–1 Understand cost classifications used for assigning costs to cost objects: direct costs and indirect costs.

LO 1–2 Identify and give examples of each of the three basic manufacturing cost categories.

LO 1–3 Understand cost classifications used to prepare financial statements: product costs and period costs.

LO 1–4 Understand cost classifications used to predict cost behavior: variable costs, fixed costs, and mixed costs.

LO 1–5 Understand cost classifications used in making decisions: differential costs, sunk costs, and opportunity costs.

LO 1–6 Prepare income statements for a merchandising company using the traditional and contribution formats.

LO 1–7 *(Appendix 1A) Identify the four types of quality costs and explain how they interact.*

LO 1–8 *(Appendix 1A) Prepare and interpret a quality cost report.*

In accounting, costs can be classified differently depending on the needs of management. For example, the Prologue mentioned that **financial accounting** is concerned with reporting financial information to external parties, such as stockholders, creditors, and regulators. In this context, costs are classified in accordance with externally imposed rules to enable the preparation of financial statements. Conversely, **managerial accounting** is concerned with providing information to managers within an organization so that they can formulate plans, control operations, and make decisions. In these contexts, costs are classified in diverse ways that enable managers to predict future costs, to compare actual costs to budgeted costs, to assign costs to segments of the business (such as product lines, geographic regions, and distribution channels), and to properly contrast the costs associated with competing alternatives.

The notion of *different cost classifications for different purposes* is the most important unifying theme of this chapter and one of the key foundational concepts of the entire textbook. Exhibit 1–1 summarizes five types of cost classifications that will be used throughout the textbook, namely cost classifications (1) for assigning costs to cost objects, (2) for manufacturing companies, (3) for preparing financial statements, (4) for predicting cost behavior, and (5) for making decisions. As we begin defining the cost terminology related to each of these cost classifications, please refer back to this exhibit to help improve your understanding of the overall organization of the chapter.

EXHIBIT 1-1
Summary of Cost Classifications

Purpose of Cost Classification	Cost Classifications
Assigning costs to cost objects	• Direct cost (can be easily traced) • Indirect cost (cannot be easily traced)

Accounting for costs in manufacturing companies	• Manufacturing costs
	  • Direct materials
	  • Direct labor
	  • Manufacturing overhead
	• Nonmanufacturing costs
	  • Selling costs
	  • Administrative costs

Preparing financial statements	• Product costs (inventoriable) • Period costs (expensed)
Predicting cost behavior in response to changes in activity	• Variable cost (proportional to activity) • Fixed cost (constant in total) • Mixed cost (has variable and fixed elements)
Making decisions	• Differential cost (differs between alternatives) • Sunk cost (should be ignored) • Opportunity cost (foregone benefit)

Cost Classifications for Assigning Costs to Cost Objects

LEARNING OBJECTIVE 1–1
Understand cost classifications used for assigning costs to cost objects: direct costs and indirect costs.

Costs are assigned to cost objects for a variety of purposes including pricing, preparing profitability studies, and controlling spending. A **cost object** is anything for which cost data are desired—including products, customers, and organizational subunits. For purposes of assigning costs to cost objects, costs are classified as either *direct* or *indirect.*

Direct Cost

A **direct cost** is a cost that can be easily and conveniently traced to a specified cost object. For example, if Adidas is assigning costs to its various regional and national sales offices, then the salary of the sales manager in its Tokyo office would be a direct cost of that office. If a printing company made 10,000 brochures for a specific customer, then the cost of the paper used to make the brochures would be a direct cost of that customer.

Indirect Cost

An **indirect cost** is a cost that cannot be easily and conveniently traced to a specified cost object. For example, a Campbell Soup factory may produce dozens of varieties of canned soups. The factory manager's salary would be an indirect cost of a particular variety such as chicken noodle soup. The reason is that the factory manager's salary is incurred as a consequence of running the entire factory—it is not incurred to produce any one soup variety. *To be traced to a cost object such as a particular product, the cost must be caused by the cost object.* The factory manager's salary is called a *common cost* of producing the various products of the factory. A **common cost** is a cost that is incurred to support a number of cost objects but cannot be traced to them individually. A common cost is a type of indirect cost.

A particular cost may be direct or indirect, depending on the cost object. While the Campbell Soup factory manager's salary is an *indirect* cost of manufacturing chicken noodle soup, it is a *direct* cost of the manufacturing division. In the first case, the cost object is chicken noodle soup. In the second case, the cost object is the entire manufacturing division.

IN BUSINESS

THE HIGH PRICE OF SELLING ON MANHATTAN'S FIFTH AVENUE

The cost to buy retail real estate on Manhattan's Fifth Avenue exceeds $15,000 per square foot. Investors are willing to pay such a high price because they can turn around and rent their space to high-end retailers (such as Dolce & Gabbana, Tommy Bahama, and Massimo Dutti) for as much as $3,000 per square foot per year. Abercrombie & Fitch's store at 720 Fifth Avenue is its single most profitable store—bringing in $100 million in annual sales while incurring annual rent of $12.5 million. When Abercrombie measures the profits earned at its Fifth Avenue location, the rental expense of $12.5 million is a direct cost of operating that particular store.

Source: Kris Hudson and Dana Mattioli, "Fifth Avenue's Eye-Popping Rents," *The Wall Street Journal,* November 21, 2012, pp. C1 and C10.

Cost Classifications for Manufacturing Companies

Manufacturing companies such as Texas Instruments, Ford, and DuPont separate their costs into two broad categories—manufacturing and nonmanufacturing costs.

Manufacturing Costs

LEARNING OBJECTIVE 1–2
Identify and give examples of each of the three basic manufacturing cost categories.

Most manufacturing companies further separate their manufacturing costs into two direct cost categories, direct materials and direct labor, and one indirect cost category, manufacturing overhead. A discussion of these three categories follows.

Direct Materials The materials that go into the final product are called **raw materials**. This term is somewhat misleading because it seems to imply unprocessed natural resources like wood pulp or iron ore. Actually, raw materials refer to any materials that are used in the final product; and the finished product of one company can become the raw materials of another company. For example, the microprocessors produced by Intel are a raw material used by Lenovo in its personal computers.

Direct materials refers to raw materials that become an integral part of the finished product and whose costs can be conveniently traced to the finished product. This would include, for example, the seats that Airbus purchases from subcontractors to install in its commercial aircraft, the electronic components that Apple uses in its iPhones, and the doors that Whirlpool installs on its refrigerators.

IN BUSINESS

©Monty Rakusen/Getty Images

CHEAP PART COSTS GENERAL MOTORS A FORTUNE

A direct material component part, called a detent plunger, is used by General Motors (GM) in the manufacture of its automobile ignition switches. The part, which can be installed by direct laborers in a matter of minutes, costs GM between $2.00 and $5.00 per unit to manufacture. However, when this seemingly trivial component part caused ignition system failures that killed 12 people, its legal and financial impacts on GM became front-page news.

GM's troubles include a federal criminal probe that is investigating why the company did not act sooner to redesign, recall, and replace the flawed detent plunger. It appears as though GM learned of ignition switch failures in its Chevy Cobalt in 2004, but it did not redesign the detent plunger to eliminate the problem until 2007. Furthermore, the company did not issue a recall for cars that contained the faulty ignition switches until 2014. Beyond its legal matters, GM expects to spend $8 million replacing the ignition switches of 1.6 million recalled vehicles.

Source: Jeff Bennett, "For GM, Cheap Part Now a Pricey Fix," *The Wall Street Journal,* March 13, 2014, pp. B1–B2.

Direct Labor **Direct labor** consists of labor costs that can be easily traced to individual units of product. Direct labor is sometimes called *touch labor* because direct labor workers typically touch the product while it is being made. Examples of direct labor include assembly-line workers at Toyota, carpenters at the home builder KB Home, and electricians who install equipment on aircraft at Bombardier Learjet.

Managers occasionally refer to their two direct manufacturing cost categories as *prime costs*. **Prime cost** is the sum of direct materials cost and direct labor cost.

Manufacturing Overhead **Manufacturing overhead**, the third manufacturing cost category, includes all manufacturing costs except direct materials and direct labor. For example, manufacturing overhead includes a portion of raw materials know as *indirect materials* as well as *indirect labor.* **Indirect materials** are raw materials, such as the solder used to make electrical connections in a Samsung HDTV and the glue used to assemble an Ethan Allen chair, whose costs cannot be easily or conveniently traced to finished products. **Indirect labor** refers to employees, such as janitors, supervisors, materials handlers, maintenance workers, and night security guards, that play an essential role in running a manufacturing facility; however, the cost of compensating these people cannot be easily or conveniently traced to specific units of product. Since indirect materials and indirect labor are difficult to trace to specific products, their costs are included in manufacturing overhead.

Manufacturing overhead also includes other indirect costs that cannot be readily traced to finished products such as depreciation of manufacturing equipment and the utility costs, property taxes, and insurance premiums incurred to operate a manufacturing facility. Although companies also incur depreciation, utility costs, property taxes, and insurance premiums to sustain their nonmanufacturing operations, these costs are not included as part of manufacturing overhead. Only those indirect costs associated with *operating the factory* are included in manufacturing overhead.

In practice, managers use various names for manufacturing overhead, such as *indirect manufacturing cost, factory overhead,* and *factory burden.* All of these terms are synonyms for manufacturing overhead. Another term that managers frequently use in practice is *conversion cost.* **Conversion cost** refers to the sum of direct labor and manufacturing overhead. The term conversion cost is used to describe direct labor and manufacturing overhead because these costs are incurred to *convert* direct materials into finished products.

Nonmanufacturing Costs

Nonmanufacturing costs are often divided into two categories: (1) *selling costs* and (2) *administrative costs.* **Selling costs** include all costs that are incurred to secure customer orders and get the finished product to the customer. These costs are sometimes called *order-getting* and *order-filling costs.* Examples of selling costs include advertising, shipping, sales travel, sales commissions, sales salaries, and costs of finished goods warehouses. Selling costs can be either direct or indirect costs. For example, the cost of an advertising campaign dedicated to one specific product is a direct cost of that product, whereas the salary of a marketing manager who oversees numerous products is an indirect cost with respect to individual products.

Administrative costs include all costs associated with the *general management* of an organization rather than with manufacturing or selling. Examples of administrative costs include executive compensation, general accounting, secretarial, public relations, and similar costs involved in the overall, general administration of the organization *as a whole.* Administrative costs can be either direct or indirect costs. For example, the salary of an accounting manager in charge of accounts receivable collections in the East region is a direct cost of that region, whereas the salary of a chief financial officer who oversees all of a company's regions is an indirect cost with respect to individual regions.

Nonmanufacturing costs are also often called selling, general, and administrative (SG&A) costs or just selling and administrative costs.

Cost Classifications for Preparing Financial Statements

LEARNING OBJECTIVE 1–3
Understand cost classifications used to prepare financial statements: product costs and period costs.

When preparing a balance sheet and an income statement, companies need to classify their costs as *product costs* or *period costs.* To understand the difference between product costs and period costs, we must first discuss the matching principle from financial accounting.

Generally, costs are recognized as expenses on the income statement in the period that benefits from the cost. For example, if a company pays for liability insurance in advance for two years, the entire amount is not considered an expense of the year in which the payment is made. Instead, one-half of the cost would be recognized as an expense each year. The reason is that both years—not just the first year—benefit from the insurance payment. The unexpensed portion of the insurance payment is carried on the balance sheet as an asset called prepaid insurance.

The *matching principle* is based on the *accrual* concept that *costs incurred to generate a particular revenue should be recognized as expenses in the same period that the revenue is recognized.* This means that if a cost is incurred to acquire or make something that will eventually be sold, then the cost should be recognized as an expense only when the sale takes place—that is, when the benefit occurs. Such costs are called *product costs.*

Product Costs

For financial accounting purposes, **product costs** include all costs involved in acquiring or making a product. Product costs "attach" to a unit of product as it is purchased or manufactured and they stay attached to each unit of product as long as it remains in inventory awaiting sale. When units of product are sold, their costs are released from inventory as expenses (typically called cost of goods sold) and matched against sales on the income statement. Because product costs are initially assigned to inventories, they are also known as **inventoriable costs**.

For manufacturing companies, product costs include direct materials, direct labor, and manufacturing overhead.[1] A manufacturer's product costs flow through three inventory accounts on the balance sheet—*Raw Materials, Work in Process,* and *Finished Goods*—prior to being recorded in cost of goods sold on the income statement. Raw materials include any materials that go into the final product. **Work in process** consists of units of product that are only partially complete and will require further work before they are ready for sale to the customer. **Finished goods** consist of completed units of product that have not yet been sold to customers.

[1] For internal management purposes, product costs may exclude some manufacturing costs. For example, see the discussion in Chapter 4.

When direct materials are used in production, their costs are transferred from Raw Materials to Work in Process. Direct labor and manufacturing overhead costs are added to Work in Process to convert direct materials into finished goods. Once units of product are completed, their costs are transferred from Work in Process to Finished Goods. When a manufacturer sells its finished goods to customers, the costs are transferred from Finished Goods to Cost of Goods Sold.

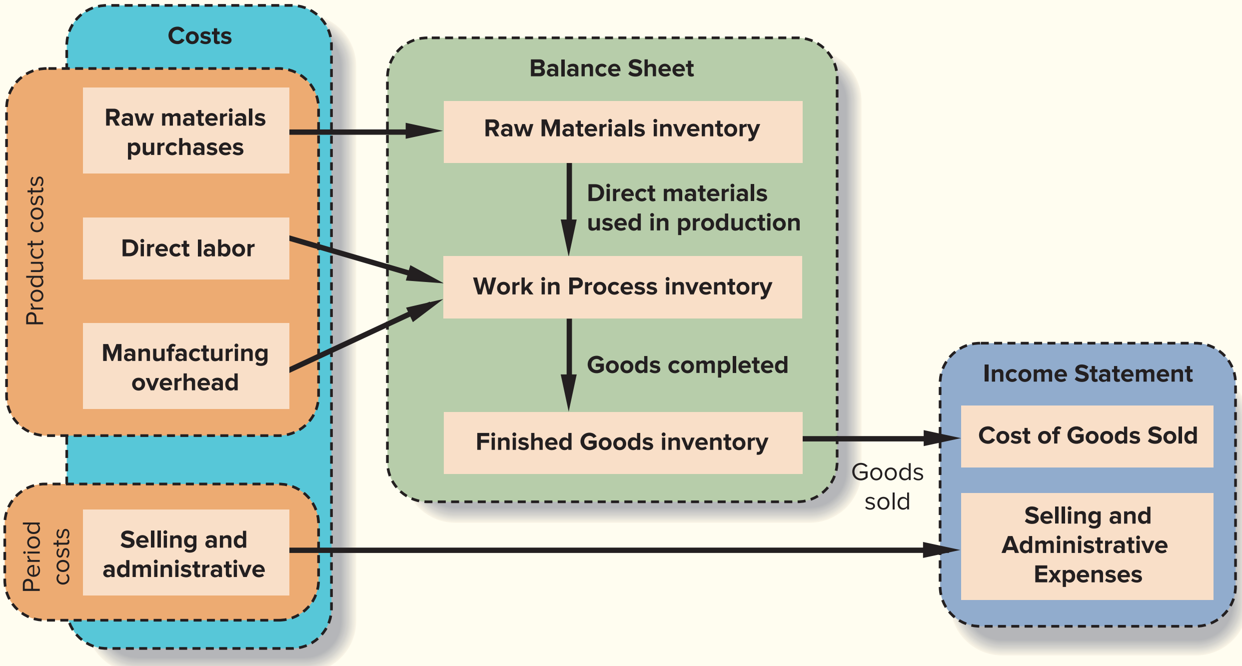
We want to emphasize that product costs are not necessarily recorded as expenses on the income statement in the period in which they are incurred. Rather, as explained above, they are recorded as expenses in the period in which the related products *are sold.*

Period Costs

Period costs are all the costs that are not product costs. *All selling and administrative expenses are treated as period costs.* For example, sales commissions, advertising, executive salaries, public relations, and the rental costs of administrative offices are all period costs. Period costs are not included as part of the cost of either purchased or manufactured goods; instead, period costs are expensed on the income statement in the period in which they are incurred using the usual rules of accrual accounting. Keep in mind that the period in which a cost is incurred is not necessarily the period in which cash changes hands. For example, as discussed earlier, the cost of liability insurance is spread across the periods that benefit from the insurance—regardless of the period in which the insurance premium is paid.

Exhibit 1–2 summarizes the product and period cost flows for manufacturers that were just discussed. Notice that product costs flow through three inventory accounts on the balance sheet prior to being recognized as part of cost of goods sold in the income statement. Conversely, period costs do not flow through the inventory accounts on the balance sheet and they are not included in cost of goods sold in the income statement. Instead, they are recorded as selling and administrative expenses in the income statement during the period incurred.

EXHIBIT 1–2
Cost Flows and Classifications in a Manufacturing Company



Cost Classifications for Predicting Cost Behavior

LEARNING OBJECTIVE 1–4
Understand cost classifications used to predict cost behavior: variable costs, fixed costs, and mixed costs.

It is often necessary to predict how a certain cost will behave in response to a change in activity. For example, a manager at Under Armour may want to estimate the impact a 5% increase in unit sales would have on the company's total direct materials cost. **Cost behavior** refers to how a cost reacts to changes in the level of activity. As the activity level rises and falls, a particular cost may rise and fall as well—or it may remain constant. For planning purposes, a manager must be able to anticipate which of these will happen; and if a cost can be expected to change, the manager must be able to estimate how much it will change. To help make such distinctions, costs are often categorized as *variable, fixed,* or *mixed.* The relative proportion of each type of cost in an organization is known as its **cost structure**. For example, an organization might have many fixed costs but few variable or mixed costs. Alternatively, it might have many variable costs but few fixed or mixed costs.

Variable Cost

A **variable cost** varies, in total, in direct proportion to changes in the level of activity. Common examples of variable costs include cost of goods sold for a merchandising company, direct materials, direct labor, variable elements of manufacturing overhead, such as indirect materials, supplies, and power, and variable elements of selling and administrative expenses, such as commissions and shipping costs.[2]

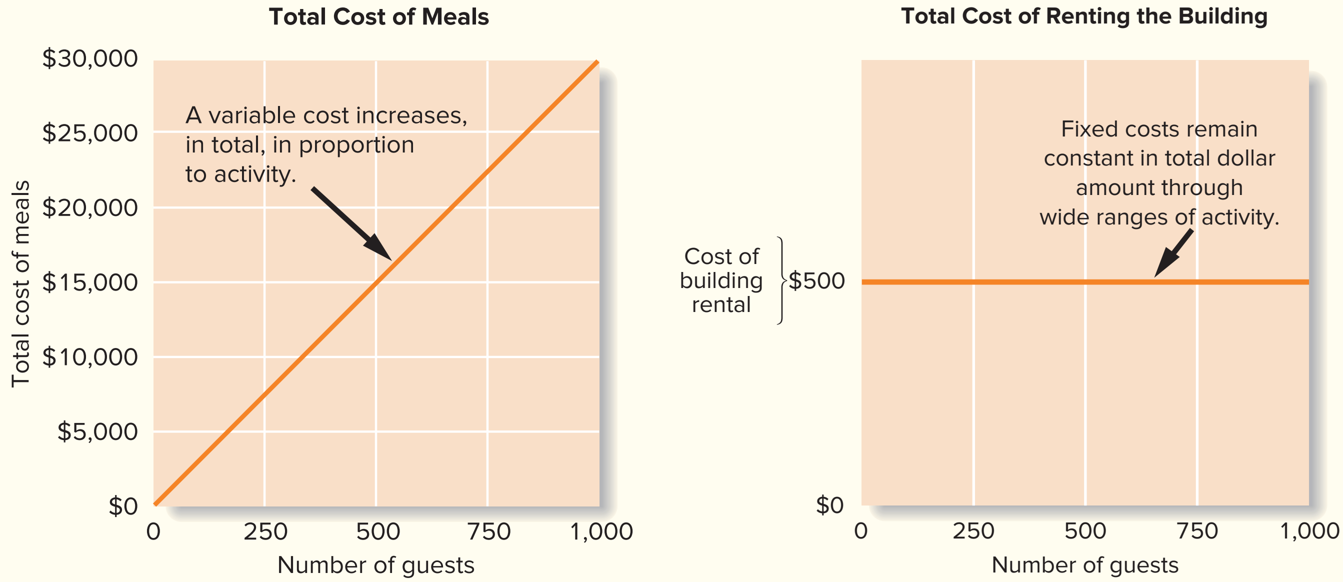
For a cost to be variable, it must be variable *with respect to something.* That "something" is its *activity base.* An **activity base** is a measure of whatever causes the incurrence of a variable cost. An activity base is sometimes referred to as a *cost driver.* Some of the most common activity bases are direct labor-hours, machine-hours, units produced, and units sold. Other examples of activity bases (cost drivers) include the number of miles driven by salespersons, the number of pounds of laundry cleaned by a hotel, the number of calls handled by technical support staff at a software company, and the number of beds occupied in a hospital. *While there are many activity bases within organizations, throughout this textbook, unless stated otherwise, you should assume that the activity base under consideration is the total volume of goods and services provided by the organization. We will specify the activity base only when it is something other than total output.*

To provide an example of a variable cost, consider Nooksack Expeditions, a small company that provides daylong whitewater rafting excursions on rivers in the North Cascade Mountains. The company provides all of the necessary equipment and experienced guides, and it serves gourmet meals to its guests. The meals are purchased from a caterer for $30 a person for a daylong excursion. The behavior of this variable cost, on both a per unit and a total basis, is shown below:

Number of Guests	Cost of Meals per Guest	Total Cost of Meals
250	$30	$7,500
500	$30	$15,000
750	$30	$22,500
1,000	$30	$30,000

[2] Direct labor costs often can be fixed instead of variable for a variety of reasons. For example, in some countries, such as France, Germany, and Japan, labor regulations and cultural norms may limit management's ability to adjust the labor force in response to changes in activity. In this textbook, always assume that direct labor is a variable cost unless you are explicitly told otherwise.

EXHIBIT 1–3
Variable and Fixed Cost Behavior



While total variable costs change as the activity level changes, it is important to note that a variable cost is constant if expressed on a *per unit* basis. For example, the per unit cost of the meals remains constant at $30 even though the total cost of the meals increases and decreases with activity. The graph on the left-hand side of Exhibit 1–3 illustrates that the total variable cost rises and falls as the activity level rises and falls. At an activity level of 250 guests, the total meal cost is $7,500. At an activity level of 1,000 guests, the total meal cost rises to $30,000.

IN BUSINESS

FOOD COSTS AT A LUXURY HOTEL

The Sporthotel Theresa (http://www.theresa.at/), owned and operated by the Egger family, is a four star hotel located in Zell im Zillertal, Austria. The hotel features access to hiking, skiing, biking, and other activities in the Ziller alps as well as its own fitness facility and spa.

Three full meals a day are included in the hotel room charge. Breakfast and lunch are served buffet-style while dinner is a more formal affair with as many as six courses. The chef, Stefan Egger, believes that food costs are roughly proportional to the number of guests staying at the hotel; that is, they are a variable cost. He must order food from suppliers two or three days in advance, but he adjusts his purchases to the number of guests who are currently staying at the hotel and their consumption patterns. In addition, guests make their selections from the dinner menu early in the day, which helps Stefan plan which foodstuffs will be required for dinner. Consequently, he is able to prepare just enough food so that all guests are satisfied and yet waste is held to a minimum.

©Sandee Noreen

Fixed Cost

A **fixed cost** is a cost that remains constant, in total, regardless of changes in the level of activity. Manufacturing overhead usually includes various fixed costs such as depreciation, insurance, property taxes, rent, and supervisory salaries. Similarly, selling and administrative costs often include fixed costs such as administrative salaries, advertising, and depreciation of nonmanufacturing assets. Unlike variable costs, fixed costs are not affected by changes in activity. Consequently, as the activity level rises and falls, total