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Garrison Noreen Brewer



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Managerial Accounting

Seventeenth Edition

Ray H. Garrison, D.B.A., CPA

Professor Emeritus
Brigham Young University

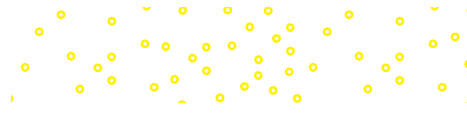
Eric W. Noreen, Ph.D., CMA

Professor Emeritus
University of Washington

Peter C. Brewer, Ph.D.

Wake Forest University

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MANAGERIAL ACCOUNTING

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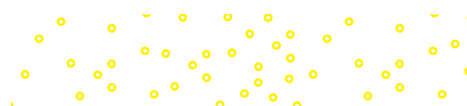
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About the

Authors



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.

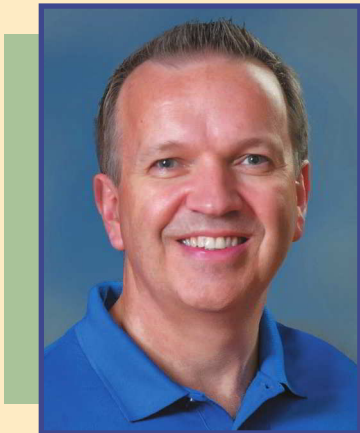
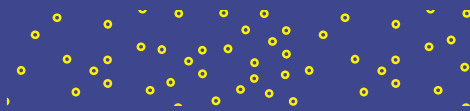


Eric W. Noreen has taught at INSEAD in France and the Hong Kong Institute of Science and Technology and is emeritus professor of accounting at the University of Washington. Currently, he is the Accounting Circle Professor of Accounting, Fox School of Business, Temple University.

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.



©Louise St. Romain—Fast Cat Studios

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.).

Dedication

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



Let **Garrison** be Your Guide



For centuries, the lighthouse has provided guidance and safe passage for sailors. Similarly, Garrison/Noreen/Brewer has successfully guided millions of students through managerial accounting, lighting the way and helping them sail smoothly through the course.

Decades ago, lighthouses were still being operated manually. In these days of digital transformation, lighthouses are run using automatic lamp changers and other modern devices. In much the same way, Garrison/Noreen/Brewer has evolved over the years. Today, this edition of the Garrison book affirms its tradition of guiding students—accounting majors and other business majors alike—safely through the course while also embracing innovation through the incorporation of **Data Analytics Exercises**. These exercises teach students how to use the power of Excel to derive managerial insights and then communicate those findings in visually compelling ways. They also provide students with the opportunity to interpret data visualizations within Tableau—one of the most popular data visualization software packages used in business today. These innovative features build on a tradition of inventive, powerful tools created to augment student learning and increase student motivation.

Connect

The seventeenth edition of Garrison's learning system features the following: **Connect**, **SmartBook 2.0's** adaptive learning and reading experience, **Concept Overview Videos**, **Guided Examples**, **Audio Hints**, **NEW Data Analytics Content**, **Excel® Simulations**, **Applying Excel** and more. Quality assessment continues to be a focus of Connect, with over 9,300 questions available for assignment, including more than 1600 new test bank questions.

I have used the Garrison textbook for many years and can say that the textbook is by far one of my favorite textbooks in terms of content, exercises and problems, and online resources. As instructors we are being asked more and more to provide students with critical thinking exercises. Some of the Garrison problems are quite comprehensive and require great problem solving skills. . .

Stacy Kline, Drexel University

It is one of the best texts for Managerial Accounting available. It covers desired materials and allows choices about how to cover the data. I really like this text.

Pamela Baker, Texas Women's University

This is a total learning system that provides the student with a vast variety of ways to learn the material and concepts. It's almost entertaining.

Rhonda K Thomas, Butler Community College

The text makes the subject matter practical and interesting. It also does not get bogged down in complicated explanations, but rather provides simple and easy to follow explanations. The supporting textbook problems are also well-written and work well for assigning homework.

Kari Olsen, Utah State University

I feel this is the strongest textbook on the market for managerial accounting. It provides the needed depth for accounting majors yet is accessible for the non-accounting major. The book blends theory and practice successfully in a well-integrated and useful way.

Joseph Gerard, University of Wisconsin-Whitewater

LOVE IT! best managerial book out there. I cannot imagine using anything else at this point based on my reviews.

Jerrilyn Eisenhauer, Tulsa Community College

It is very difficult to create a textbook that will satisfy the needs of students and faculty. This book is very well done, and each instructor can utilize the materials they deem the most important. Classroom time is limited, the more resources available to students to utilize on their own the better opportunity for full understanding of the materials.

Jacklyn Collins, University of Miami

Just as the lighthouse continues to provide reliable guidance to seafarers, the Garrison/Noreen/Brewer book continues its tradition of leading the way and helping students sail successfully through managerial accounting by always focusing on three important qualities: **relevance**, **accuracy**, and **clarity**.

RELEVANCE. Every effort is made to help students relate the concepts in this book to the decisions made by working managers. The Garrison author team also ensures that Managerial Accounting stays current with the latest pedagogy and digital tools. New to the 17th edition is the incorporation of **Data Analytics Exercises** that allow students to analyze, interpret, and visualize accounting data using Excel and Tableau with auto-graded questions assignable within Connect. These exercises enable students to develop both analytical and communication skills within an accounting context that are highly valued in the marketplace.

ACCURACY. The Garrison book continues to set the standard for accurate and reliable material in its seventeenth edition. With each revision, the authors evaluate the book and its supplements in their entirety, working diligently to ensure that the end-of-chapter material, solutions manual, and test bank are consistent, current, and accurate.

CLARITY. Generations of students have praised Garrison for the friendliness and readability of its writing, but that's just the beginning. In the seventeenth edition, the authors have rewritten various chapters with input and guidance from instructors around the country to ensure that teaching and learning from Garrison remains as easy as it can be.

The authors' steady focus on these three core elements has led to tremendous results. *Managerial Accounting* has consistently led the market, being used by over two million students and earning a reputation for reliability that other texts aspire to match.

Garrison's Powerful Pedagogy

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

This text allows the text to be utilized as an introductory course with availability to expand the course with a higher level pedagogy.

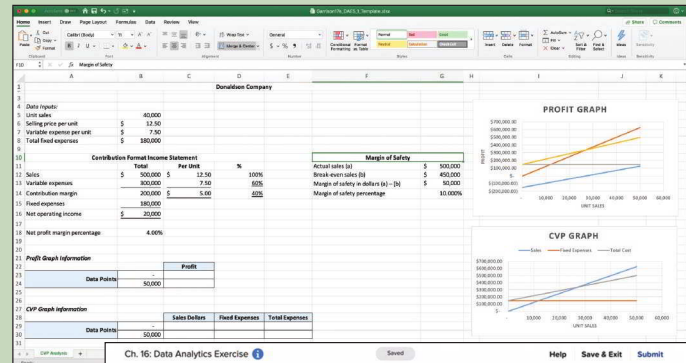
David Laurel, South Texas College

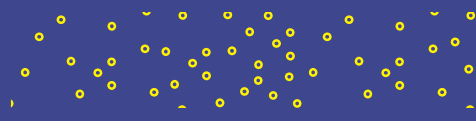
NEW* Data Analytics Exercises

New **Data Analytics Exercises** teach students how to use software tools to derive managerial insights and communicate them to stakeholders. These new exercises, which appear in Connect, are linked to a diverse range of learning objectives that span numerous chapters. Some of these exercises require students to use various Microsoft Excel-based tools, such as Goal Seek, Pivot Tables, and Solver to analyze data sets to derive solutions. Other exercises also teach students how to use a variety of **Data Visualization** techniques, such as charts, graphs, and maps, to communicate their findings in succinct and compelling ways. Students will also be given the opportunity to acquire the value-add skill of interpreting Tableau data visualizations.

NEW* Connect-Only Test Bank

A new online-only test bank is now available in Connect, containing more than **1,600 new multiple-choice** test bank questions. These new, author-created **Connect-only Test Bank** questions were written in such a way to prevent students from finding answers on external sites. The questions are presented in a combination of static and algorithmic (both quantitative and qualitative algo) modes and they cover all learning objectives in all of the chapters. The questions are qualitative and quantitative in nature and they span the entire "degree-of-difficulty" continuum, including easy, medium, and hard.





Test Builder in Connect

Available within Connect, Test Builder is a cloud-based tool that enables instructors to format tests that can be printed or administered within a LMS. Test Builder offers a modern, streamlined interface for easy content configuration that matches course needs, without requiring a download.

Test Builder allows you to:

- access all test bank content from a particular title.
- easily pinpoint the most relevant content through robust filtering options.
- manipulate the order of questions or scramble questions and/or answers.
- pin questions to a specific location within a test.
- determine your preferred treatment of algorithmic questions.
- choose the layout and spacing.
- add instructions and configure default settings.

Test Builder provides a secure interface for better protection of content and allows for just-in-time updates to flow directly into assessments.

Integration Exercises

We have added 7 new exercises to the 17th edition for a total of 20 **Integration Exercises**. These exercises, which are located in the back of the book, integrate learning objectives across more than one chapter. They help increase the students' level of interest in the course by forging 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** are also 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 are learning throughout the semester.

The Integration Exercises provide a significant opportunity to keep specific concepts on the forefront of a student's comprehension. This exposure is essential for critical thinking ability.

Rhonda Thomas, Butler Community College

This (Integration Exercises) is an exciting addition, it is missing from most texts and definitely not included in the one we are using now. These are the types of problems that I write for myself so that students are given the opportunity to review and continue working with concepts throughout the text. . .

Kim Lyons, University of Wisconsin-LaCrosse

Study Mode: Ch. 2, 6 & 7: Integration... Saved Help Save & Exit Submit

1 Check my work

Complete this question by entering your answers in the tabs below.

Req 1A Req 1B Req 2A Req 2B Req 2C Req 3A Req 3B Req 3C Req 4

10 points

Using your departmental overhead cost allocations, redo the controller's segmented income statement (continue selling and administrative expenses based on sales dollars). (Round your intermediate calculations to 2 decimal)

	Basic	Advanced
Sales		
Cost of goods sold		
Gross margin		
Selling and administrative expenses		
Net operating income		

< Req 2B Req 3A >

McGraw Hill < Prev 1 of 1 Next >

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**.

Required Information
The Foundational 15 (LO2-1, LO2-2, LO2-3, LO2-4)
 [The following information applies to the questions displayed below.]

Sweeten Company had no jobs in progress at the beginning of March and no beginning inventories. The company has two manufacturing departments—Molding and Fabrication. It started, completed, and sold only two jobs during March—Job P and Job Q. The following additional information is available for the company as a whole and for Jobs P and Q (all data and questions relate to the month of March):

	Molding	Fabrication	Total
Estimated total machine-hours used	2,500	1,500	4,000
Estimated total fixed manufacturing overhead	\$12,750	\$14,650	\$27,400
Estimated variable manufacturing overhead per machine-hour	\$ 2.50	\$ 3.30	

	Job P	Job Q
Direct materials	\$24,000	\$13,500
Direct labor cost	\$39,000	\$11,500
Actual machine-hours used		
Molding	2,000	1,000
Fabrication	1,100	2,000
Total	3,100	3,000

Sweeten Company had no underapplied or overapplied manufacturing overhead costs during the month.

Required:
 For questions 15, assume that Sweeten Company uses a plantwide predetermined overhead rate with machine-hours as the allocation base. For questions 9-15, assume that the company uses departmental predetermined overhead rates with machine-hours as the allocation base in both departments.

Foundational 2-15
 15. What was Sweeten Company's cost of goods sold for March? (Do not round intermediate calculations.)

Cost of goods sold:

Concept Overview Videos

Concept Overview Videos available within Connect, these videos teach the core concepts of the content in an animated, narrated, and interactive multimedia format, bringing the key learning objectives of the course to life. Checkpoint questions allow instructors to assign points to knowledge checks and grade for accuracy, not just completion. **Concept Overview Videos** are particularly helpful for online courses and for those audio and visual learners who struggle reading the textbook page by page.

Required Information
LO 2-4: Compute the total cost and the unit product cost of a job using multiple predetermined overhead rates

In this learning objective we compute the total cost and the unit product cost of a job using multiple predetermined overhead rates. We address the fact that the amount of overhead applied to all jobs during a period typically differs from the actual amount of overhead costs incurred during the period and address how that situation affects the income statement. We also explain how the job cost sheets form a subsidiary ledger, which is an underlying set of financial records relating to the amounts reported in the inventory accounts on the balance sheet.

Job-Order Costing—An External Reporting Perspective

Knowledge Check 01
 What is the term used when a company applies less overhead to production than it actually incurs?

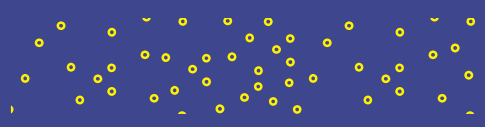
Misapplied
 Overapplied
 Unadjusted

Excel Simulations

Simulated Excel questions, assignable within Connect, allow students to practice their Excel skills, such as basic formulas and formatting, within the context of Managerial Accounting. These questions feature animated, narrated “Help and Show Me tutorials (when enabled), as well as automatic feedback and grading for both students and professors.

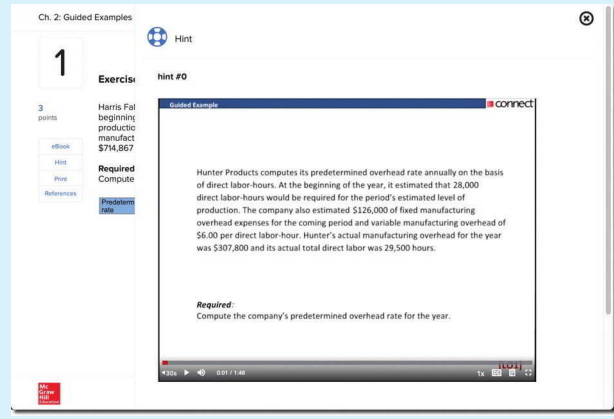
Stanford Enterprises uses job-order costing.

1 Stanford Enterprises uses job-order costing.		
2 The allocation base for overhead is direct labor hours.		
3		
4 Data for the year just ended:		
5 Estimated total manufacturing overhead cost		\$ 275,000
6 Estimated total direct labor hours		25,000
7 Actual total direct labor hours		27,760
8		
9 Actual costs for the year:		
10 Purchase of raw materials (all direct)		\$375,000
11 Direct labor cost		\$536,300
12 Manufacturing overhead costs		\$302,750
13		
14 Inventories:	Beginning	Ending
15 Raw materials (all direct)	\$ 15,000	\$ 11,375
16 Work in process	\$ 27,875	\$ 22,350
17 Finished goods	\$ 34,600	\$ 26,450
18		
19 Use the data to answer the following.		
20		
21 i. Compute applied overhead and determine the amount of underapplied or overapplied overhead:		
22 Actual manufacturing overhead cost		
23 Predetermined overhead rate		
24 Actual direct labor hours		



Guided Examples/Hint Videos

Guided Example/Hint Videos provide an animated walk-through with narration of select exercises similar to those assigned. These short presentations, which can be turned on or off by instructors, provide reinforcement when students need it most.



Tegrity: Lectures 24/7

Tegrity in Connect is a tool that makes class time available 24/7 by automatically capturing every lecture. With a simple one-click start-and-stop process, you capture all computer screens and corresponding audio in a format that is easy to search, frame by frame. Students can replay any part of any class with easy-to-use, browser-based viewing on a PC, Mac, iPod, or other mobile device.

Educators know that the more students can see, hear, and experience class resources, the better they learn. In fact, studies prove it. Tegrity's unique search feature helps students efficiently find what they need, when they need it, across an entire semester of class recordings. Help turn your students' study time into learning moments immediately supported by your lecture. With Tegrity, you also increase intent listening and class participation by easing students' concerns about note-taking. Using Tegrity in Connect will make it more likely you will see students' faces, not the tops of their heads.

Chapter Opener Features

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.

The vignettes do a good job of highlighting to students the practical application of concepts. In other words, it helps them see why the concepts matter.

Andrew Felo, Nova Southeastern University

I believe the real world examples at the start of the chapter get the students to see the real world application and “buy-in” to the learning process because it makes the information more “real” and relevant.

Elizabeth Cannata, Johnson and Wales University

Variable Costing and Segment Reporting: Tools for Management



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Microsoft Shifts Its Attention to Cloud Computing

BUSINESS FOCUS

For decades **Microsoft Corporation** and its iconic franchise Windows were synonymous. Even today more than 1.5 billion devices still use some version of Windows software. Nonetheless, the company has diversified beyond Windows given the industry's “irreversible migration from personal computing to mobile devices and the web.” Now Microsoft is placing greater emphasis on Azure, its cloud computing operation, as well as its Office 365 and Dynamics business-software services segments.

While Microsoft's personal computing business, which includes Windows, still accounts for 42 percent of the company's total revenue, the revenue growth rate in this segment is only 2 percent. Conversely, Azure's revenue has jumped by 98 percent and Office 365's sales have grown by 41 percent. ■

Source: Jay Greene, “Microsoft Looks Beyond Windows,” *The Wall Street Journal*, March 30, 2018, pp. B1-B2.

Chapter 6




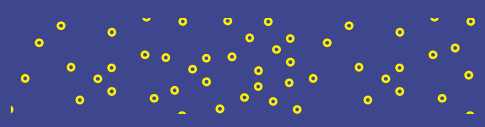
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LEARNING OBJECTIVES

After studying Chapter 6, you should be able to:

- LO6-1** Explain how variable costing differs from absorption costing and compute unit product costs under each method.
- LO6-2** Prepare income statements using both variable and absorption costing.
- LO6-3** Reconcile variable costing and absorption costing net operating incomes and explain why the two amounts differ.
- LO6-4** Prepare a segmented income statement that differentiates traceable fixed costs from common fixed costs and use it to make decisions.
- LO6-5** Compute companywide and segment break-even points for a company with traceable fixed costs.
- LO6-6** (Appendix 6A) Prepare an income statement using super-variable costing and reconcile this approach with variable costing.

 Data Analytics Exercise available in Connect to complement this chapter



IN BUSINESS



©Monty Rakusen/Getty Images

STANDARD COST SYSTEM USAGE IN THE TURKISH AUTOMOTIVE INDUSTRY

Survey results from the Turkish automotive industry indicate that 74 percent of the companies surveyed use standard costing. About 55 percent of the companies that use standard costing base their standards on average past performance, 24 percent base their standards on maximum efficiency, and 21 percent set standards that are achievable but difficult to attain. Rather than investigating all variances, 70 percent of the companies only investigate variances that exceed either a dollar or percentage threshold and 27 percent rely on statistical control charts to determine which variances warrant further attention.

Source: A. Cemkut Badem, Emre Ergin, and Colin Drury, "Is Standard Costing Still Used? Evidence from Turkish Automotive Industry," *International Business Research*, Vol. 6, No. 7, 2013, pp. 79–90

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.

“Managerial Accounting in Action” and “In Business” boxes are also really nice additional features in the text. These insights into how the concepts I the chapter relate to real business help the information come alive to students.

Amy Bentley, Tallahassee Community College

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.

MANAGERIAL ACCOUNTING IN ACTION
THE ISSUE



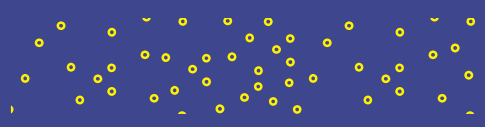
Managerial Accounting in Action Vignettes

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.

I think the “In Business” boxes are very helpful—they are short, concise and on point. I think it is helpful they appear throughout the chapter.

Elizabeth Cannata, Johnson and Wales University





End-of-Chapter Material

Managerial Accounting 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 Ray Garrison first wrote *Managerial Accounting*, he 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 Garrison's 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 Garrison's superior end-of-chapter material continues to provide accurate, current, and relevant practice for students.

Utilizing the Icons



This icon indicates **Data Analytic Exercises** in Connect tied to chapter learning objectives.



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.

Applying Excel This exercise relates to the Double Diamond Ski's Shaping and Milling Department that was discussed earlier in the chapter. The Excel worksheet form that appears below consolidates data from Exhibits 4-3 and 4-4. The workbook, and instructions on how to complete the file, can be found in Connect.

Chapter 4: Applying Excel			
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Exercises **EXERCISE 4-1 Process Costing: Journal Entries LO4-1**
Quality Brick Company produces bricks in two processing departments—Molding and Firing—information relating to the company's operations in March follows:
a. Raw materials used in production: Molding Department, \$20,000, and Firing Department, \$0,000.
b. Direct labor costs incurred: Molding Department, \$12,000, and Firing Department, \$7,000.
c. Manufacturing overhead was applied: Molding Department, \$25,000; and Firing Department, \$27,000.
d. Unfired, molded bricks were transferred from the Molding Department to the Firing Department. According to the company's process costing system, the cost of the unfired, molded bricks was \$57,000.
e. Finished bricks were transferred from the Firing Department to the finished goods warehouse. According to the company's process costing system, the cost of the finished bricks was \$103,000.
f. Finished bricks were sold to customers. According to the company's process costing system, the cost of the finished bricks sold was \$108,000.
Required:
Prepare journal entries to record items (a) through (f) above.

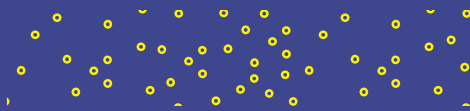
Problems **PROBLEM 4-13 Comprehensive Problem: Second Production Department—Weighted-Average Method LO4-2, LO4-3, LO4-4, LO4-5**
Old Country Liqueur, Inc., produces saunas in three production departments—Mixing, Casing and Curing, and Packaging. In the Mixing Department, meats are prepared and ground and then mixed with spices. The spiced meat mixture is then transferred to the Casing and Curing Department, where the mixture is forced into casings and then hung and cured in climate-controlled smoking chambers. In the Packaging Department, the cured sausages are sorted, packed, and labeled. The company uses the weighted-average method in its process costing system. Data for September for the Casing and Curing Department follows:

	Units	Percent Completed		
		Mixing	Materials	Conversion
Work in process inventory, September 1	1	100%	80%	80%
Work in process inventory, September 30	1	100%	80%	70%

Cases **CASE 4-19 Second Department—Weighted-Average Method LO4-2, LO4-3, LO4-4**
"I think we goofed when we hired that new assistant controller," said Ruth Scarpiano, president of Prowest Industries. "She took a look at this report that he prepared for last month for the Finished Department. I can't understand it."

Finishing Department costs:	
Work in process inventory, April 1, 450 units; materials 100% complete, conversion 60% complete	\$ 8,208
Costs transferred in during the month from the preceding department, 1,950 units	17,940
Materials cost added during the month	6,210
Conversion costs incurred during the month	13,550
Total departmental costs	\$46,918

Finishing Department costs assigned to:	
Units completed and transferred to finished goods, 1,800 units at \$25.71 per unit	\$46,278
Work in process inventory, April 30, 600 units; materials 0% complete, conversion 35% complete	0
Total departmental costs assigned	\$46,278



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.

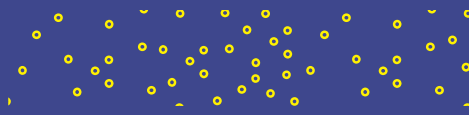
Assurance of Learning Ready

Many educational institutions today are focused on the notion of assurance of learning, an important element of some accreditation standards. *Managerial Accounting, 17e*, is designed specifically to support your assurance of learning initiatives with a simple, yet powerful, solution.

Each question for *Managerial Accounting, 17e*, 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.

AACSB Statement

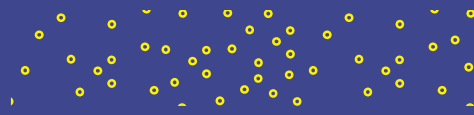
McGraw-Hill Education is a proud corporate member of AACSB International. Recognizing the importance and value of AACSB accreditation, we have sought to recognize the curricula guidelines detailed in AACSB standards for business accreditation by connecting selected questions in *Managerial Accounting, 17e*, to the general knowledge and skill guidelines found in the AACSB standards. The statements contained in *Managerial Accounting, 17e*, 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, 17e*, and its teaching package make no claim of any specific AACSB qualification or evaluation, we have, within *Managerial Accounting, 17e*, tagged questions according to the six general knowledge and skills areas. The labels or tags within *Managerial Accounting, 17e*, 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.



Seventeenth 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:

- New, auto-graded **Excel Data Analytics Exercises** help prepare students with career-ready skills and an analytical mindset. These exercises teach students how to analyze data using Excel-based tools such as Goal Seek, Solver, and Pivot Tables, while also teaching them how to communicate their resulting insights using a variety of Excel's charting capabilities.
- New, auto-graded **Tableau Data Visualization Exercises** that introduce students to this widely-used data visualization software package, which they will likely encounter during their careers.
- A **Data Analytics Implementation Guide** (in Connect) to help instructors integrate **Data Analytics Exercises** into their managerial accounting class and a **Data Analytics Exercise Tutorial**, to help students as they work through Excel exercises.
- Over 1,600 new multiple-choice test bank questions are now included in **Connect**. These questions include a variety of conceptual and computational formats as well as static and algorithmic formats.
- The chapter previously titled “Performance Measurement in Decentralized Organizations” has been split into two chapters. One of those two chapters, titled Strategic Performance Measurement, greatly expands our coverage of the balanced scorecard—a topic that is pervasive in practice. This chapter also provides more than 70 examples of scorecard measures that will enrich your students’ understanding of nonfinancial performance measurement within the learning and growth, internal business process, and customer perspectives of the scorecard. This chapter also extends our coverage of how companies measure their performance with respect to corporate social responsibility.
- The **Integration Exercises**, included in the back of the book, have been expanded from 13 to 20. These exercises help students see how the learning objectives across chapters integrate with one another. They are also suitable for both a flipped classroom model and an in-class active learning environment as they engage students and encourage critical thinking.
- **Audio Hints** have been added to certain problems in **Connect** and offer brief explanations of the key steps students need to solve a specific end-of-chapter problem. With callouts to individual chapter learning objectives, audio hints are both a helpful tool for completing an assignment as well as an additional opportunity for students to link their work back to the chapter content.
- **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 a lengthy discussion of Big Data and Data Analytics. It also has added coverage of the CSCA exam and provided an updated version of the IMA's Statement of Ethical Professional Practice. It also includes a new In Business box that introduces students to the IMA's Management Accounting Competency Framework.

Chapter 1

LO 1-5 was restated to focus on relevant and irrelevant costs. The terms controllable and uncontrollable costs as well as value-added and non-value-added costs were added to the chapter. Four new In Business boxes were added. The Cost of Quality appendix was deleted and a subset of the deleted material was move to Chapter 12 (Strategic Performance Measurement).

Chapter 2

Added three new In Business boxes.

Chapter 3

Revised the format of the schedule of cost of goods manufactured. Added one new In Business box.

Chapter 4

Added one new In Business box.

Chapter 5

Tweaked the discussion of operating leverage to better highlight its emphasis on analyzing changes in sales volume. Revised Problems 5-19, 5-24, and 5-25. Added a new Business Focus feature and one new In Business box.

Chapter 6

Added a new Business Focus feature.

Chapter 7

Added a new Business Focus feature and two new In Business boxes.

Chapter 8

Cut in half the discussion of “Why and How Organizations Create Budgets” while retaining all the key insights. Added two new In Business boxes.

Chapter 9

Replaced the learning objective related to “common errors” with a learning objective that focuses on preparing a flexible budget performance report with more than one cost driver.

Chapter 10

Added three new In Business boxes

Chapter 11

Changed the chapter title to Responsibility Accounting Systems. Removed coverage of operating performance measures and the balanced scorecard. Moved the subject matter from what were Appendices 11A (Transfer Pricing) and 11B (Service Department Charges) to the main body of the chapter.

Chapter 12

This is a new chapter titled Strategic Performance Measurement. It greatly expands our coverage of the balanced scorecard and corporate social responsibility. The chapter includes nine new end-of-chapter exercises and problems.

Chapter 13

Added three new In Business boxes.

Chapter 14

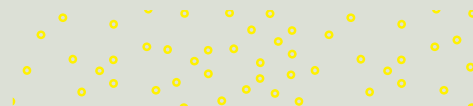
Revised the formula for the profitability index to become “Present value of cash inflows ÷ Investment required.” Added a footnote that explains how to use Microsoft Excel's IRR functionality to compute the internal rate of return. Also added a new Business Focus feature and two new In Business boxes.

Chapter 15

Added two new In Business boxes.

Chapter 16

Added a new Business Focus feature and three new In Business boxes.



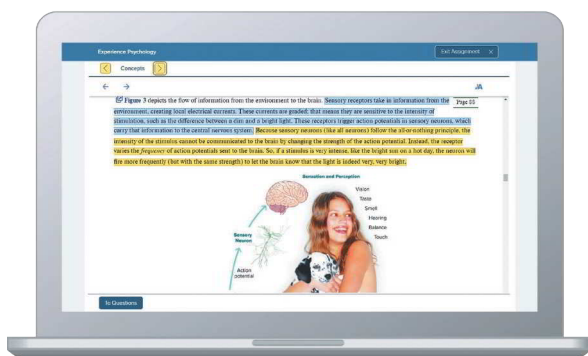
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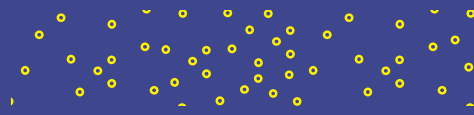


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Suggestions from professors, students, and the professional accounting community continue to drive the excellence and refinement of each edition of this book. Each of those who have offered comments and suggestions has our immense gratitude and thanks.

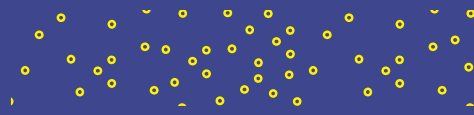
The efforts of many people are needed to continually refine a text and maintain its excellence. Among these people are the reviewers and consultants who point out areas of concern, cite areas of strength, and make recommendations for change. In this regard, the following academics have provided feedback that was enormously helpful in preparing the sixteenth edition of *Managerial Accounting*:

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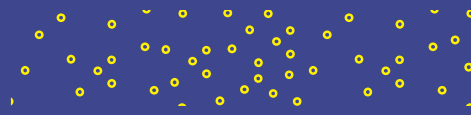
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Ray Garrison • Eric Noreen • Peter Brewer



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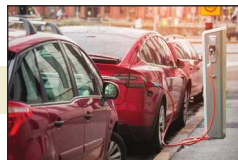
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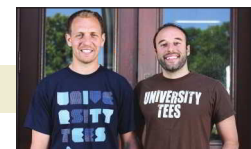
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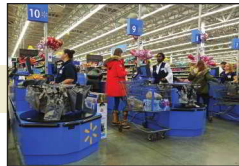
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Credits for Chapter Openers

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Managerial Accounting: An Overview



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Managerial Accounting: Understanding the Broader Context

BUSINESS FOCUS

“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 data science including advanced analytics, visualization, and story-telling. Management accountants are strategic business partners who understand the financial, operational, and market-facing perspectives of the business. They report and analyze financial as well as nonfinancial measures of performance 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.

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Data Analytics Exercise available in Connect to complement this chapter

PROLOGUE

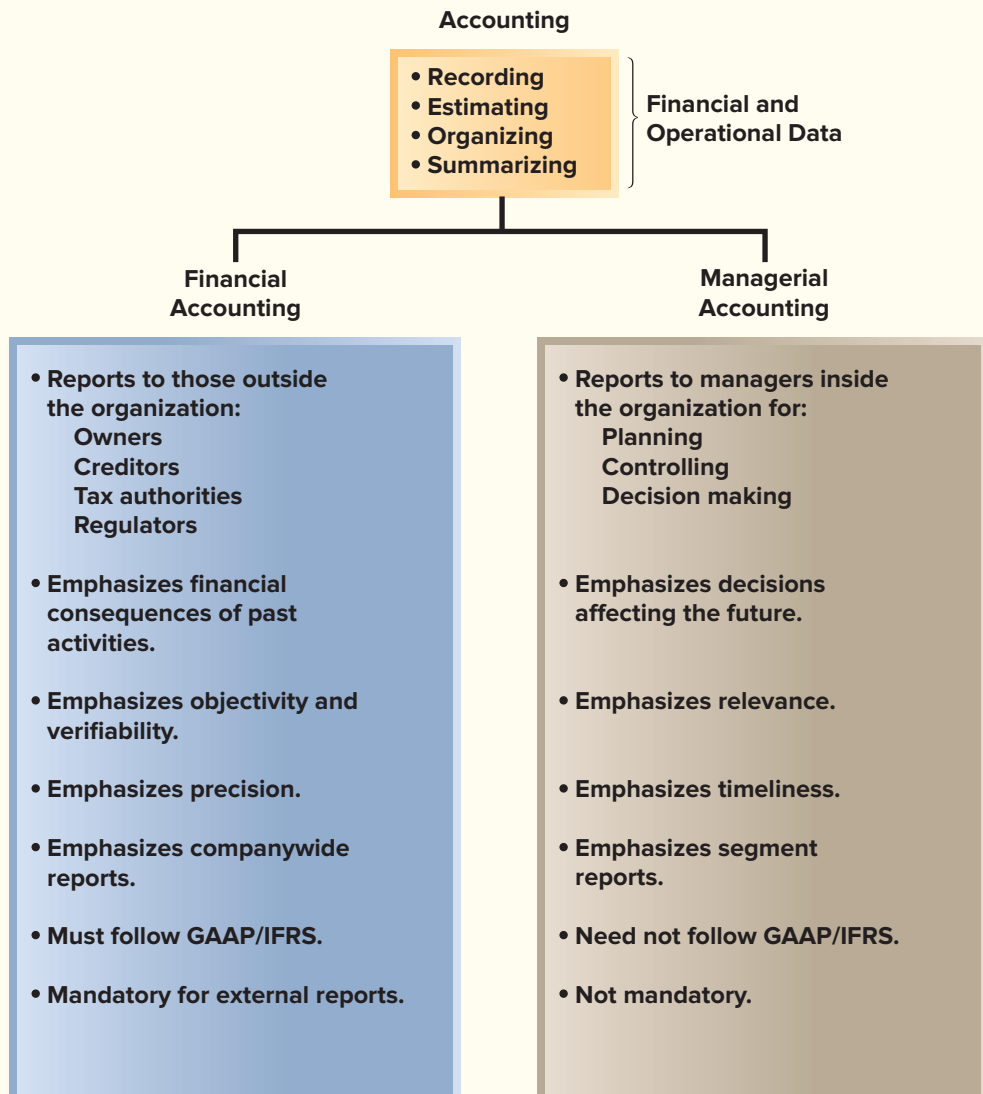


What Is Managerial Accounting?

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 seven topics—Big Data, ethics, strategy, enterprise risk management, corporate social responsibility, process management, and leadership—that define the business context within which managerial accounting operates.

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 verifiability, precision, and companywide performance, whereas managerial accounting emphasizes

EXHIBIT P-1
Comparison of Financial and
Managerial Accounting



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 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.

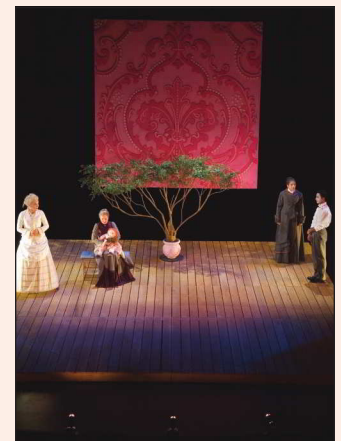
THE FINANCIAL SIDE OF RUNNING A COMMUNITY THEATRE

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 percent 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.

IN BUSINESS



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 helps **Apple** develop and market successive generations of the iPhone. 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.

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?

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 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. **HP** 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 **Goodrich, 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

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?

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 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, information technology, 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 percent of professional accountants in the United States work in nonpublic accounting environments.¹

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 percent 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.

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A NETWORKING OPPORTUNITY

The **Institute of Management Accountants** (IMA) is a network of more than 100,000 accounting and finance professionals from over 140 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 shown below or visit <https://www.imastudentconference.org>.

Source: Conversation with Jodi Ryan, the Institute of Management Accountants' Director, Student & Academic Relations. She can be contacted at (201) 474-1556.

Professional Certification—A Smart Investment If you plan to become an accounting major, the Certified Management Accountant (CMA), Certified in Strategy and Competitive Analysis (CSCA), 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 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 IMA also sponsors the CSCA exam, which is a three-hour exam that includes 60 multiple-choice questions and one case study. The exam covers three content areas:

¹ This statistic was provided by Raef Lawson, the Institute of Management Accountants Vice-President of Research & Policy and Professor in Residence.

EXHIBIT P-4
 CMA Exam Content Specifications

<i>Part 1</i>	<i>Financial Planning, Performance, and Analytics</i>
	External financial reporting decisions
	Planning, budgeting, and forecasting
	Performance management
	Cost management
	Internal controls
	Technology and Analytics
<i>Part 2</i>	<i>Strategic Financial Management</i>
	Financial statement analysis
	Corporate finance
	Decision analysis
	Risk management
	Investment decisions
	Professional ethics

strategic analysis, creating competitive advantage, and strategy implementation and performance evaluation. It is intended for people who have earned the CMA designation and hold positions ranging from staff accountant to chief financial officer (CFO).

The CGMA designation 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.

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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		\$48,722	\$48,722
If you are top-level management	ADD	\$50,462	
OR, if you are senior-level management	ADD	\$34,665	
OR, if you are middle-level management	ADD	\$15,758	
Number of years in the field _____	TIMES	\$968	
If you have an advanced degree	ADD	\$16,050	
If you hold the CMA	ADD	\$15,788	
If you hold the CPA	ADD	\$10,447	_____
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 \$140,702 [$\$48,722 + \$50,462 + (10 \times \$968) + \$16,050 + \$15,788$].

Source: Shannon Charles, "IMA's Global Salary Survey," *Strategic Finance* March 2019, pp. 29–39.

Managerial Accounting: Understanding the Broader Context

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 7 teaches you measurement skills related to product, service, and customer profitability. However, it is vitally important that you also understand that managers need to apply these measurement skills in a broader business context to enable intelligent planning, control, and decision making. This context includes topics such as Big Data, ethics, strategy, enterprise risk management, and corporate social responsibility, as well as process management and leadership.

Big Data

Experts estimate that every second of every day, we are creating 1.7 megabytes of new information per person. Given our global population of more than 7.5 billion people, this is a truly astonishing rate of data generation. However, less than 0.5% of this data is currently being analyzed and used to support decision-making², thereby suggesting that business managers have an extraordinary opportunity to harness what is known as the *Big Data* phenomenon. **Big Data** refers to large collections of data that are gathered from

Chapter Number	The Key Question from a Manager's Perspective	EXHIBIT P-5 Measurement Skills: A Manager's Perspective
Chapter 1	What cost classifications do I use for different management purposes?	
Chapter 2	How much does it cost us to manufacture customized jobs for each of our customers?	
Chapters 3 & 4	What is the value of our ending inventory and cost of goods sold for external reporting purposes?	
Chapter 5	How will my profits change if I change my selling price, sales volume, or costs?	
Chapter 6	How should the income statement be presented?	
Chapter 7	How profitable is each of our products, services, and customers?	
Chapter 8	How should I create a financial plan for next year?	
Chapters 9 & 10	How well am I performing relative to my plan?	
Chapters 11 & 12	How should I implement a performance measurement system to help ensure that we achieve our strategic goals?	
Chapter 13	How do I quantify the financial impact of pursuing one course of action versus another?	
Chapter 14	How do I make long-term capital investment decisions?	
Chapter 15	What cash inflows and outflows explain the change in our cash balance?	
Chapter 16	How can we analyze our financial statements to better understand our performance?	

² Source: Bernard Marr, "Big Data: 20 Mind-Boggling Facts Everyone Must Read," Forbes, September 30, 2015.