Solutions Manual for Horngrens Cost Accounting 17th Datar

Instructor's Solutions Manual

Horngren's Cost Accounting

17th Edition

Srikant M. Datar
Harvard University
Madhav V. Rajan
University of Chicago

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PREFACE

The keys to the success of a course in cost accounting are the assignment and discussion of provocative problem material. The gathering of high-quality assignment material has been a crucial phase of this book's preparation—not a painful afterthought.

Please review the preface in the text in conjunction with examining the suggestions in this *Instructor's Solutions Manual*. Please also read all the front matter of this manual.

Mark Awada, Connie Belden, Caitlin Bowler, Molly Brown, Renee Castrigano, Tom Clausen, Barbara Dunham, Merle Ederhof, Paul Hamilton, Anna Jensen, and Ashley Shea assisted us greatly with contributing, critiquing, and checking of the problems and their solutions. We thank them for their many wonderful contributions.

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SRIKANT M. DATAR
MADHAV V. RAJAN

In memory of Charles T. Horngren 1926–2011

Chuck Horngren revolutionized cost and management accounting. He loved new ideas and introduced many new concepts. He had the unique gift of explaining these concepts in simple and creative ways. He epitomized excellence and never tired of details, whether it was finding exactly the right word or working and reworking assignment materials.
He combined his great intellect with genuine humility and warmth and a human touch that inspired others to do their best. He taught us many lessons about life through his amazing discipline, his ability to make everyone feel welcome, and his love of family.
It was a great privilege, pleasure, and honor to have known Chuck Horngren. Few individuals will have the enormous influence that Chuck had on the accounting profession. Fewer still will be able to do it with the class and style that was his hallmark. He was unique, special, and amazing in many, many ways and, at once, a role model, teacher, mentor, and friend.
He will be deeply missed.

Srikant M. Datar
Harvard University
Madhav V. Rajan
University of Chicago

SUPPLEMENTS AVAILABLE FOR THE 17TH EDITION

A complete package of supplements is available to assist students and instructors in using Horngren, *Cost Accounting*, 17th edition.

MyLab Accounting

MyLab Accounting is an online homework and assessment tool designed to help students practice cost accounting problems and concepts and to give their instructors feedback on student performance. It lets cost accounting professors assign a homework deliverable that is automatically graded but that also serves as a tutorial experience for students.

Based on Pearson's MathXL platform, which has graded millions of assignments, MyLab Accounting provides a strong, reliable platform with a rock solid performance history. To learn more, visit **pearsonmylabandmastering.com**.

For Instructors

Instructor Resource Center (IRC)
These password-protected resources are accessible from **www.pearsonhighered.com** for *Cost Accounting*, 17th ed. Resources include the following:

- Instructor's Solutions Manual
- Test Bank in Word and in TestGen, including algorithmic questions
- Instructor's Resource Manual
- PowerPoint Presentations
- Image Library

Instructor's Solutions Manual
© 2021 | 978-0-13562849-2 | Online
This manual contains the fully worked-out and accuracy-checked solutions for every question, exercise, and problem in the text.

Test Bank
By Michael Griffin
© 2021 | 978-0-13-562855-3 | Online
This collection of tests for each chapter offers an array of questions ranging from easy to difficult. The *Test Bank* supports Association to Advance Collegiate Schools of Business (AACSB) International Accreditation and is available in MS Word.

TestGen
© 2021 | 978-0-13-563256-7 | Online
This test-generating program allows instructors to add, edit, or delete questions from the test bank; analyze test results; and organize a database of exams and student results.

Instructor's Resource Manual
By Donna McGovern
© 2021 | 978-0-13-562856-0 | Online
The chapter-by-chapter manual offers helpful classroom suggestions and teaching tips.

PowerPoint Presentations
By Jinhee Trone
© 2021 | 978-0-13-563282-6 | Online
These chapter-by-chapter presentations provide you with a slide show ready for classroom use. Use the slides as they are or edit them to meet your classroom needs.

Image Library
© 2021 | 978-0-13-563253-6 | Online
The image library contains all photos, tables, exhibits and figures from the text, so that instructors can use them in their custom presentations.

ALTERNATIVE SUGGESTED CHAPTER SEQUENCES

The Preface to *Cost Accounting* noted that our aim in organizing the material was to present a modular, flexible organization that permits a course to be custom tailored. This section presents six possible sequences for a first course in cost accounting. For each of these six sequences, we also present the sequence of a second course that would result in coverage of many or all of the topics in *Cost Accounting*. Outlines I–V all include Chapters 1 to 9 in varying orders of sequence. Outline VI has a strong (almost exclusive) focus on the decision making role of cost accounting.

We analyzed the sequences of chapters assigned by many users of the 16th edition. Although many instructors tended to follow the sequence in the text, other instructors tailored sequences to fit their particular desires. These tailored sequences varied considerably. By far the most popular departure was to assign the chapter on process costing (Chapter 18) immediately after the coverage of job costing (Chapter 4) and activity-based costing (Chapter 5). The next most popular departure was to assign Chapter 10 after Chapter 2 or 3. All the accompanying alternative assignment schedules have an optional provision to facilitate tailoring a course. Obviously, instructors should alter any suggested sequence to suit their preferences.

OUTLINE I: This basic course provides a balance of topics between the major purposes of cost accounting:

1. Calculating the cost of products, services, and other cost objects
2. Obtaining information for planning and control and performance evaluation
3. Analyzing relevant information for making decisions

Finishing the first course with Chapters 12 and 13 means that topics with less procedural emphasis are highlighted in the last weeks of the course; these two chapters also introduce topics covered in more detail in a second course. Some instructors may assign Chapter 10 without using the Appendix on “Regression Analysis,” preferring to delay use of the Appendix until the second course (especially if many students have not been exposed to regression analysis at the time of the basic course). Chapter 11 covers data science applications to management accounting. Instructors may choose to cover this in the first or the second course.

OUTLINE II: This basic course covers the same chapters as Outline I but assigns Chapter 10 (Determining How Costs Behaves) immediately after Chapter 3 (Cost Volume-Profit Analysis). It also replaces Chapter 14 on Pricing Decisions and Cost Management with Chapter 13 on Strategy, Balanced Scorecard, and Strategic Profitability Analysis. This first part of the second course emphasizes cost management and performance evaluation before covering the six chapters (15–21) on cost allocation and other aspects of costing systems.

OUTLINE III: After covering Chapters 1 to 9 and 12 in the basic course, this sequence finishes with a chapter on strategic issues (Chapter 13) and two chapters on cost allocation topics (Chapters 15 and 16). Some instructors view it as important that students who take only one cost accounting course become aware of how pervasive cost allocation issues are in practice.

OUTLINE IV: This basic course is similar to Outline II with one key exception: Chapter 18 (Process Costing) is covered immediately after Chapter 5. Many instructors prefer to cover job costing and process costing in sequence so that their differences are highlighted.

OUTLINE V: This basic course emphasizes technical cost accounting topics and data analysis more than the other five outlines. Chapters 18 and 19 extend Chapters 4 and 5; covering 4, 5, 18, and 19 as a single section of the course provides students with a solid understanding of product costing alternatives.

OUTLINE VI: This basic course is adopted by instructors who wish to put most emphasis on the decision making and performance evaluation aspects of cost accounting. Finishing the basic course with Chapters 23 and 24 means that behavioral issues are highlighted in the final weeks of the course.

	OUTLINE I		OUTLINE II		OUTLINE III	
BASIC COURSE	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**
	1	(1)	1	(1)	1	(1)
	2	(2)	2	(2)	2	(2)
	3	(2)	3	(2)	3	(2)
	4	(2)	10	(2)	4	(3)
	5	(3)	4	(3)	5	(3)
	6	(2)	5	(3)	6	(2)
	7	(2)	6	(2)	7	(2)
	8	(2)	7	(2)	8	(2)
	9	(2)	8	(2)	9	(2)
	10	(2)	9	(2)	12	(2)
	11	(2)	11	(2)	13	(2)
	12	(2)	12	(2)	15	(2)
	14	(2)	13	(2)	16	(2)
	Tests	(3)	Tests	(3)	Tests	(3)
	Optional	(3)	Optional	(2)	Optional	(2)
		32		32		32

SECOND COURSE	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**
	13	(3)	22	(3)	10	(2)
	15	(2)	23	(2)	11	(3)
	16	(2)	24	(2)	14	(2)
	17	(2)	14	(3)	22	(3)
	18	(2)	15	(2)	17	(2)
	19	(2)	16	(2)	18	(2)
	20	(2)	17	(3)	19	(2)
	21	(2)	18	(2)	20	(3)
	22	(2)	19	(2)	21	(2)
	23	(2)	20	(2)	23	(2)
	24	(2)	21	(2)	24	(2)
	Tests	(3)	Tests	(3)	Tests	(3)
	Optional	(6)	Optional	(4)	Optional	(4)
		32		32		32

	OUTLINE IV		OUTLINE V		OUTLINE VI	
BASIC COURSE	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**
	1	(1)	1	(1)	1	(1)
	2	(2)	2	(2)	2	(2)
	3	(2)	3	(2)	3	(2)
	10	(2)	4	(2)	10	(2)
	4	(2)	5	(3)	4	(2)
	5	(2)	18	(2)	5	(2)
	18	(2)	19	(2)	6	(2)
	6	(2)	6	(3)	12	(2)
	7	(2)	7	(2)	13	(2)
	8	(2)	8	(2)	14	(3)
	9	(2)	9	(2)	23	(2)
	12	(2)	10	(2)	24	(2)
	13	(2)	11	(2)		
	Tests	(3)	Tests	(3)	Tests	(3)
	Optional	(4)	Optional	(2)	Optional	(5)
		32		32		32

SECOND COURSE	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**	**Chapter**	**Number of Sessions**
	11	(3)	12	(2)	7	(2)
	14	(3)	13	(2)	8	(2)
	22	(2)	22	(2)	9	(2)
	23	(2)	14	(3)	11	(3)
	24	(3)	15	(3)	18	(2)
	15	(2)	16	(2)	19	(2)
	16	(2)	17	(2)	20	(2)
	17	(2)	20	(2)	21	(3)
	19	(2)	21	(2)	22	(2)
	20	(2)	23	(2)	15	(2)
	21	(2)	24	(2)	16	(2)
					17	(2)
	Tests	(3)	Tests	(3)	Tests	(3)
	Optional	(4)	Optional	(5)	Optional	(3)
		32		32		32

CATEGORIZATION OF ASSIGNMENT MATERIAL

The assignment material in the 17th edition has been developed to offer instructors a broad range of options in developing a challenging and interesting course. The following exhibits assist instructors in selecting assignment material.

Exhibits P-l and P-2 show assignment material that is based on service or nonprofit and on merchandising (retail, wholesale, or distribution) sectors of the economy. Although many of the assignments in the 17th edition are based in the manufacturing sector, Exhibits P-l and P-2 provide many examples for instructors who wish to either select assignment material from a broad range of sectors or intend to concentrate on sectors outside manufacturing.

1. SERVICE AND NONPROFIT SECTORS: These assignments include settings such as law, accounting, and management consulting firms, healthcare providers, advertising agencies and market research firms, bank and finance companies, internet and phone service providers, lodging companies, transportation companies, and government agencies

2. MERCHANDISING SECTORS: These assignments include settings such as distributors, wholesalers, and retailers

There is growing demand from instructors for assignment material in three specific areas—ethics, global or international, and modern cost management. Exhibits P-3 to P-5 show assignment material in the 17th edition on these three topics.

3. ETHICS. The second-to-last problem of many chapters incorporates an ethical issue facing a management accountant or a manager. Examples include pressure for "managing" cost numbers, deliberately overstating budget estimates, and conflicts of interest between management interests and incentives and the best interests of the company, customers, and employees. Many of these problems require students to consider the IMA Statement of Ethical Professional Practice on p.17 of the text.

4. GLOBAL AND INTERNATIONAL DIMENSIONS. These assignments include material based outside the United States or problems pertaining to companies with operations in more than one country.

5. MODERN COST MANAGEMENT FRONTIER IDEAS. These assignments include material that an instructor can use to highlight areas such as customer focus, key success factors, balanced scorecard, value-chain analysis, strategic analysis of operating income, JIT, and continuous improvement. Assignment material related to activity-based costing (ABC), activity-based management (ABM), and cost drivers is found in many chapters. Chapter 11 on Data Analytic Thinking and Prediction describes how machine learning models are an important tool to gain management accounting insights.

EXHIBIT P-1
ASSIGNMENT MATERIAL FROM SERVICE AND NOT-FOR-PROFIT SECTORS

Chapter	Number	Context
1	1-19	Fast-food restaurants; value chain, cost classification
	1-20	Consultation services; key success factors
	1-21	Transportation, trucking services
	1-23	Landscaping services
	1-27	Windshield replacement; professional ethics
	1-28	Internet company; planning and control
	1-36	Publishing company; ethics; end-of-year actions
2	2-23	Marketing research; classification of costs
	2-26	Restaurant; fixed, variable, and total costs
	2-31	Corporate training services; total costs and unit costs
3	3-23	Travel agency; CVP analysis
	3-24	Restaurant; CVP analysis
	3-27	Restaurant; CVP analysis
	3-38	Tourism; CVP analysis
	3-39	Daycare; CVP analysis, target operating income
	3-40	Marketing; CVP analysis, margin of safety
	3-45	Printing Company; Alternative cost structures and sensitivity analysis
	3-52	Museum; gross margin and contribution margin
4	4-23	Residential construction; job costing, normal, actual
	4-26	Management consulting firm, job costing
	4-29	University press; job costing, journal entries
	4-31	Home assembly; job costing, journal entries
	4-33	Canadian accounting firm; job costing, actual, normal and variation of normal costing
	4-34	Web-design firm; job costing, actual, normal, and variation of normal costing
	4-37	Law firm; job costing
	4-38	Law firm; job costing
	4-44	Printing; allocation and proration of overhead
	4-46	Market Research; Job costing
5	5-19	Testing labs; activity-based costing, cost hierarchy
	5-20	Tax advisory firm; alternative allocation bases
	5-24	Architectural firm; department costing based on activities
	5-25	Printing company; activity-based costing
	5-29	Custom framing company; activity-based costing
	5-30	Banking; activity-based costing, product costing, cross-subsidization
	5-31	Law firm; job costing, single direct- and indirect-cost categories
	5-32	Law firm; job costing, multiple direct- and single indirect-cost categories
	5-33	Law firm; job costing, multiple direct- and indirect-cost categories

EXHIBIT P-1 (Continued)

Chapter	Number	Context
5	5-35	Lawn care/landscaping company; first-stage allocation, time-driven ABC
	5-36	Radiology center; department, activity-cost rates
	5-39	Medical clinic; activity-based costing system
6	6-21	Environmental testing; sales budget
	6-28	Snow-removal; budgeted cost of jobs
	6-33	Tour company; responsibility accounting, stretch targets
	6-39	Food-service trucks; purchasing agent responsibility accounting
7	7-33	Student loan financing; static and flexible budgets
	7-35	Cleaning service; variance analysis
	7-46	Day spa; mixed and yield variance analysis
8	8-29	Food delivery service; overhead variances
	8-32	Financial services; overhead variances
	8-45	Food inspection; non-financial variances
	8-46	Computer services provider; overhead variances
9	9-44	Hospital chain; cost allocation, downward demand spiral
	9-45	Hospital chain; cost allocation, responsibility accounting, ethics
10	10-21	Delivery; linear cost function
	10-22	Car rental contracts; variable-, fixed- and mixed-cost functions
	10-27	Travel services; estimating a cost function, high-low method
	10-28	Customer service; estimating a cost function, high-low method
	10-29	Physician services; linear cost approximation
	10-31	Professional services; regression analysis
	10-36	Produce club; high-low method, regression analysis
	10-37	Sports stadium; high-low method, regression analysis
	10-38	Hotel chain; activity-based costing, choosing cost drivers
	10-39	Agricultural transportation; interpreting regression analysis
	10-42	Nonprofit hospital; regression, choosing among models
	10-43	Nonprofit hospital; multiple regression
11	11-21	Bank; Gini impurity
	11-22	Bank; Gini impurity
	11-23	Investment company; loan classification, decision trees
	11-24	Mobile phone services; stay or leave, decision trees
	11-25	Mobile phone services; stay or leave, decision trees and pruning
	11-26	Consumer credit; detecting fraudulent activity, maximum likelihood
	11-27	Receiver operating characteristic (ROC) curve
	11-31	Investment management; predicting loan default, exploring data
	11-32	Investment management; predicting loan defaults, decision trees
	11-33	Investment management; predicting loan defaults, decision trees and

EXHIBIT P-1 (Continued)

Chapter	Number	Context
		pruning
11	11-34	Investment management; predicting loan defaults, likelihood values
	11-35	Investment management; predicting loan defaults, payoff matrix and choosing cutoff values
	11-39	Bank; loan classification, model thresholds, and payoff matrices
	11-40	Bank; loan classification, model thresholds, payoff matrices, and sensitivity analysis
12	12-30	Convenience store; relevant costs, decision on closing stores
	12-31	Printing press; choosing customers
	12-32	Bakery; relevance of equipment costs
	12-38	Painting service; opportunity costs, relevant costs
	12-47	City tours; dropping and adding tours
13	13-29	Architectural firm; strategy, balanced scorecard
	13-30	Architectural firm; strategic analysis of operating income
	13-31	Architectural firm; analysis of growth, price-recovery, and productivity components
	13-32	Architectural firm; identifying and managing unused capacity
	13-41	Cable and internet provider; balanced scorecard, social performance
	13-42	Airline; balanced scorecard, environmental and social performance
14	14-17	Tool repair shop; value-added, nonvalue-added costs
	14-18	Architectural firm; target operating income, value-added costs
	14-22	Hotel management; cost-plus target return on investment pricing
	14-25	Hotel; price discrimination
	14-28	Amusement park; target costing, value-engineering, ABC
	14-30	Repair services; cost-plus, time and materials, ethics
	14-31	Temp labor agency; cost-plus and market-based pricing
	14-32	Testing labs; cost-plus and market-based pricing
	14-33	Recycling firm; life-cycle costing
	14-34	Airline; price discrimination
15	15-18	Hospitals; cost allocation
	15-20	Repair service; customer profitability
	15-22	Travel services; cost allocation and decision-making
	15-23	Casino; cost allocation to divisions
	15-25	Sports team; variance analysis, multiple products
	15-33	Architecture and interior design; customer-cost hierarchy and profitability analysis
	15-36	Internet, phone and TV services; cost-hierarchy income statement, allocation of corporate costs
16	16-17	Trucking operations; single-rate method, budgeted versus actual costs

EXHIBIT P-1 (Continued)

Chapter	Number	Context
16	16-18	Trucking operations; dual-rate method, budgeted versus actual costs
	16-19	Management consulting; direct and step-down support department cost allocation
	16-20	Management consulting; reciprocal method support department cost allocation
	16-23	Internet and phone services; allocation of common living costs
	16-24	Consulting services; allocation of common travel costs
	16-29	University; fixed cost allocation
	16-35	Hotel; revenue allocation, bundled products
	16-36	Service; direct, step-down, reciprocal support department allocation
18	18-33	Spa; Operation costing
20	20-24	University – registration advisor; waiting time
	20-25	University – registration advisor; waiting time, relevant costs, student satisfaction
	20-29	Pizza delivery; quality improvement, Pareto diagram, cause-and-effect diagram
22	22-23	Hospital; capital budgeting methods, no income taxes
	22-24	Hospital; capital budgeting methods, income taxes
	22-27	Construction company; payback and NPV methods, no income taxes
	22-28	Laboratory; DCF, accrual accounting rate of return, working capital, evaluation of performance, no income taxes
	22-31	Dermatology clinic; project choice, taxes
	22-38	Laundromat; payback methods, even and uneven cash flows
	22-40	Entertainment center; recognizing cash flows for capital investment projects
23	23-36	Composting service; full cost and market-based transfer prices
24	24-22	Educational services; analysis of return on invested assets, comparison of two divisions, DuPont method
	24-26	Reinsurance and financial services; ROI, RI, EVA
	24-30	Venture capital; Capital budgeting, RI
	24-35	Coffee shops; ROI performance measures based on historical and current cost
	24-38	Media group; ROI, RI, DuPont method, investment decisions, balanced scorecard
	24-39	Media group; division managers' compensation, levers of control
	24-43	Health spas; RI, EVA, measurement alternatives, goal congruence

EXHIBIT P-2
ASSIGNMENT MATERIAL FROM MERCHANDISING SECTORS

Chapter	Number	Context
2	2-24	College store; classification of costs
	2-35	Department store; cost of goods purchased, cost of goods sold, and income statement
	2-36	Retail outlet store; cost of goods purchased, cost of goods sold, and income statement
3	3-24	Deli sub shop; CVP
	3-28	Jeans wholesaler; CVP and sensitivity analysis
	3-31	Rug dealer; space rental terms, operating leverage
	3-35	Men's clothing retailer; contribution margin, decision making
	3-37	Retail store; decision making under uncertainty, expected value
	3-43	Shoe store; sales commissions, CVP analysis
	3-44	Shoe store; sales commissions, CVP analysis
	3-46	Cell phone covers; CVP, alternative cost structures
	3-51	Luggage carrier retailer; sales mix, CVP analysis
5	5-27	Supermarket; ABC, product-line profitability
	5-28	Furniture wholesaler; ABC, customer profitability
	5-37	Pharmaceuticals distributor; ABC
	5-43	Retail store; activity-based costing and activity-based management
6	6-30	Convenience store chain; activity-based budgeting
	6-31	Convenience store chain; activity-based budgeting, kaizen budgeting
	6-34	Retail store; cash flow, sensitivity analysis
10	10-46	Fashion store; interpreting regression results, matching time periods
	10-47	Department store chain; cost drivers, ABC, simple regression analysis
	10-48	Department store chain; cost drivers, ABC, multiple regression analysis
11	11-28	TV retailer; segmenting customers, confusion matrices, payoff matrix, and choosing cutoff values
	11-38	Retail store; predicting customer segments, receiver operating characteristic (ROC) curve
12	12-27	Food store; Relevant costs, contribution margin, product emphasis
	12-30	Convenience stores; relevant costs, closing and opening stores
	12-49	Restaurant supply; Dropping a customer, ABC, ethics
13	13-21	T-shirts distributor; strategy, balanced scorecard
	13-22	T-shirts distributor; strategic analysis of operating income
	13-23	T-shirts distributor; analysis of growth, price-recovery, and productivity components

EXHIBIT P-2 (Continued)

Chapter	Number	Context
13	13-24	T-shirts distributor; identifying and managing unused capacity
14	14-19	Distributor; target prices, target costs, ABC
	14-21	Solar-heating systems vendor; target costs, process-design changes
	14-30	Vendor; cost-plus, time and materials, ethics
15	15-19	Environmental products distributor; customer profitability, customer-cost hierarchy
	15-21	Pharmaceutical distributor; customer profitability
	15-26	Wine glass retailer; variance analysis, multiple products
	15-31	Paper distributor; customer profitability
16	16-21	Online book retailer; direct and step-down support department cost allocation
	16-22	Online book retailer; reciprocal method support department cost allocation
	16-25	Retailer; revenue allocation
	16-26	Auto sales; allocation of common costs
	16-27	Department store; single-rate, dual-rate and practical capacity allocation
	16-33	Furniture retailer; revenue allocation
20	20-22	Flower store; quality improvement, relevant costs, relevant revenues
21	21-21	Sporting goods retailer; EOQ
	21-22	Sporting goods retailer; EOQ, effect of parameter changes
	21-23	Textile retailer; EOQ
	21-25	Retailer; sensitivity of EOQ to changes in relevant ordering and carrying costs, cost of prediction error
	21-33	Outdoor equipment retailer; effect of management evaluation criteria on EOQ model
22	22-25	Soda distributor; Capital budgeting with uneven cash flows, no income taxes
	22-41	Grocery store; NPV, inflation, income taxes
24	24-27	Fashion retailer; ROI, loss-making division

EXHIBIT P-3
ASSIGNMENT MATERIAL ON ETHICS

Chapter	Number	Context
1	1-26	Division performance
	1-27	Division performance
	1-34	Pharmaceutical company, budgeting
	1-35	Snack foods division; End-of-year actions
	1-36	Consumer magazines; End-of-year actions
	1-37	Furniture manufacturing global company, end-of-year actions
2	2-47	Cost classification; ethics
3	3-53	Environmental costs, CVP analysis, ethics
4	4-45	Job costing, ethics
5	5-42	Electronics; ABC, implementation, ethics
6	6-46	Manufacturer; slack, ethics
7	7-47	GPS manufacturer; price and efficiency variances, benchmarking, ethics
8	8-48	Overhead variances, ethics
9	9-45	Cost allocation, responsibility accounting, ethics
12	12-49	Dropping a customer, activity-based costing, ethics
14	14-30	Cost-plus, time and materials, ethics
15	15-42	Writing smaller orders; customer profitability and ethics
18	18-47	Laminate-flooring plants; benchmarking, ethics
19	19-45	Job costing, classifying spoilage, ethics
20	20-19	Costs of quality ethics
	20-36	Ethics and quality
21	21-41	JIT production, relevant benefits, relevant costs, ethics
23	23-33	Transfer pricing, goal congruence, ethics
24	24-42	Ethics, levers of control

EXHIBIT P-4
ASSIGNMENT MATERIAL WITH GLOBAL OR INTERNATIONAL SETTING

Chapter	Number	Context
1	1-37	Contract bidding, ethical and cultural issues
3	3-23	Travel agency, CVP analysis
	3-32	International cost structure differences, CVP analysis
4	4-33	Canadian accounting firm; job costing, actual, normal and variation of normal costing
5	5-20	Tax advice for multinational firms; Alternative allocation bases for a professional services firm
6	6-25	Mexico bicycle manufacturer; revenues, production and purchases budgets
8	8-28	Telecommunications company; manufacturing overhead, standard-costing system
10	10-39	Agricultural transportation in Canada; interpreting regression results
12	12-36	International outsourcing; relevant costs, exchange rates
22	22-34	Prototype chip manufacturer based in Ireland; equipment replacement, no income taxes
23	23-20	Computer manufacturing; Multinational transfer pricing, effect of alternative transfer-pricing methods, global income tax minimization
	23-22	Chainsaw manufacturer; Multinational transfer pricing, global tax minimization
	23-23	Chainsaw manufacturer; Multinational transfer pricing, goal congruence
	23-30	High-end fertilizers; Multinational transfer pricing, global tax minimization
	23-32	Component manufacturer; International transfer pricing, taxes, goal congruence
24	24-31	Manufacturing, U.S. and Norway; Multinational performance measurement, ROI, RI
	24-37	Multinational firm, U.S., France, and Australia; Differing risk, comparison of profit, ROI, and RI

EXHIBIT P-5
ASSIGNMENT MATERIAL USING MODERN COST MANAGEMENT FRONTIER IDEAS

Chapter	Number	Context
1	1-17	Computer company; value chain, cost classification
	1-18	Pharmaceutical company; value chain, cost classification
	1-19	Fast food restaurant; value chain, cost classification
	1-20	Key success factors
	1-21	Key success factors
	1-29	Making strategic decisions
	1-30	Making strategic decisions
2	2-30	Technology company; value chain, cost drivers
	2-31	Cost drivers and functions
5	5-18	Cost hierarchy at manufacturer
	5-19	Testing labs; ABC, cost hierarchy
	5-21	Automotive products; plantwide, department, ABC costing
	5-22	Trophies manufacturer; plantwide, department, ABC costing
	5-23	Calculator manufacturer; ABC, process costing
	5-24	Architectural firms; Department costing based on activities
	5-25	Printing company; activity-based costing
	5-26	Door manufacturer; activity-based costing
	5-27	Supermarket; ABC, product-line profitability
	5-28	Furniture wholesaler; ABC, customer profitability
	5-29	Custom framing; activity-based costing
	5-30	Banking; ABC, product costing, cross-subsidization
	5-32	Law firm; job costing, multiple direct- and single indirect-cost categories
	5-33	Law firm; job costing, multiple direct- and indirect-cost categories
	5-34	Metal products manufacturer; first-stage allocation, ABC
	5-35	Lawn care, landscaping; first-stage allocation, ABC
	5-36	Radiology center; department, activity-cost rates
	5-37	Pharmaceuticals distributor; ABC
	5-38	Bag manufacturer; activity-based costing and management
	5-39	Health care; ABC system
	5-40	Surfboard manufacturer; unused capacity, activity-based costing and management
	5-41	Bow manufacturer; ABC and activity-based management
	5-42	Electronics; ABC, implementation, ethics
	5-43	Pet supply merchandiser; activity-based costing and management

EXHIBIT P-5 (Continued)

Chapter	Number	Context
6	6-30	Convenience store chain; activity-based budgeting
	6-31	Convenience store chain; activity-based budgeting, kaizen budgeting
	6-33	Tour company; responsibility accounting, stretch targets
	6-36	T-shirt manufacturer; kaizen approach
	6-39	Purchasing agent; responsibility accounting
	6-44	Wooden playground equipment manufacturer; activity-based budgeting
	6-47	Chemical company; kaizen budgeting for carbon emissions
	6-48	Footwear manufacturer; activity-based budgeting
7	7-32	Insulated cups manufacturer; benchmarking against competitors
	7-38	Bicycle manufacturer; responsibility issues in supply chain
	7-42	Game manufacturer; variances, custom production, just-in-time manufacturing
	7-43	Eyeglass lens manufacturer; use of variances for benchmarking
	7-47	GPS manufacturer; variances, benchmarking, ethics
8	8-31	Custom shirt maker; relationship between production-volume and sales-volume variance analysis
	8-40	Shoe manufacturer; activity-based costing, batch-level variance analysis
	8-41	Suitcase manufacturer; relationship between overhead and sales-volume variance analysis
	8-42	T-shirt maker; activity-based costing, batch-level variance analysis
9	9-22	Auto company; throughput costing
	9-24	Television set manufacturer; throughput costing
	9-29	Capacity management, denominator-level capacity concepts
	9-30	Motorcycle manufacturer; alternative denominator-level capacities
	9-33	Sports equipment manufacturer; throughput costing
	9-36	Textbook publisher; metrics to minimize inventory buildups
	9-37	Brewery; alternative denominator-level capacities, effect on operating income
	9-38	Brewery; alternative denominator-level capacities, motivational considerations
	9-40	Pet supply manufacturer; downward demand spiral
	9-42	Electronics manufacturer; alternative denominator-level capacities, effect on operating income
	9-44	Hospital meal service; cost allocation, downward demand spiral
	9-47	Airport equipment manufacturer; absorption, variable, and throughput costing
10	10-33	Radar system manufacture; learning curves
	10-34	Radar system manufacture; learning curves
	10-38	Hotel chain; ABC, choosing cost drivers
	10-44	Manufacturing; cost estimation

Exhibit P-5 (Continued)

Chapter	Number	Context
10	10-45	Manufacturing; cost estimation, learning curves
	10-47	Department store chain; cost drivers, ABC, simple regression analysis
	10-48	Department store chain; cost drivers, ABC, multiple regression analysis
11	11-21	Bank; Gini impurity
	11-22	Bank; Gini impurity
	11-23	Investment company; loan classification, decision trees
	11-24	Mobile phone services; stay or leave, decision trees
	11-25	Mobile phone services; stay or leave, decision trees and pruning
	11-26	Consumer credit; detecting fraudulent activity, maximum likelihood
	11-27	Receiver operating characteristic (ROC) curve
	11-28	TV retailer; segmenting customers, confusion matrices, payoff matrix, and choosing cutoff values
	11-29	Produce processing company; sorting apples, model thresholds, and payoff matrices
	11-30	Produce processing company; sorting apples, model thresholds, and payoff matrices
	11-31	Investment management; predicting loan default, exploring data
	11-32	Investment management; predicting loan defaults, decision trees
	11-33	Investment management; predicting loan defaults, decision trees and pruning
	11-34	Investment management; predicting loan defaults, likelihood values
	11-35	Investment management; predicting loan defaults, payoff matrix and choosing cutoff values
	11-36	Brake pad manufacturer; identifying defective product, maximum likelihood
	11-37	Brake pad manufacturer; identifying defective product, payoff matrix, and choosing cutoff values
	11-38	Retail store; predicting customer segments, receiver operating characteristic (ROC) curve
	11-39	Bank; loan classification, model thresholds, and payoff matrices
	11-40	Bank; loan classification, model thresholds, payoff matrices, and sensitivity analysis
12	12-24	Special order, activity-based costing
	12-25	Cellular modems; make versus buy, activity-based costing
	12-29	Filing cabinets; theory of constraints, throughput margin
	12-31	Printers; customer profitability analysis
	12-41	Manufacturing; ABC, make versus buy
	12-44	Electronic testing equipment manufacturer; theory of constraints, throughput margin
	12-45	Pharmaceutical manufacturer; theory of constraints, sensitivity analysis
	12-49	Customer profitability, activity-based costing, ethics

Exhibit P-5 (Continued)

Chapter	Number	Context
13	13-19	Electric motor manufacturer; balanced scorecard
	13-20	Electric motor manufacturer; analysis of growth, price-recovery and productivity components
	13-21	Merchandising; strategy, balanced scorecard
	13-22	Merchandising; strategic analysis of operating income
	13-23	Merchandising; analysis of growth, price-recovery, and productivity components
	13-24	Merchandising; identifying and managing unused capacity
	13-25	Machine manufacturer; strategy, balanced scorecard
	13-26	Machine manufacturer; strategic analysis of operating income
	13-27	Machine manufacturer; analysis of growth, price-recovery and productivity components
	13-28	Machine manufacturer; identifying and managing unused capacity
	13-29	Architecture firm; strategy, balanced scorecard
	13-30	Architecture firm; strategic analysis of operating income
	13-31	Architecture firm; analysis of growth, price-recovery, and productivity components
	13-32	Architecture firm; identifying and managing unused capacity
	13-33	Robotic vacuum manufacturer; strategy, balanced scorecard
	13-34	Hoverboard manufacturer; strategic analysis of operating income
	13-35	Hoverboard manufacturer; analysis of growth, price-recovery, and productivity components
	13-36	Hoverboard manufacturer; identifying and managing unused capacity
	13-37	Balanced scorecard
	13-38	Petroleum company; balanced scorecard
	13-39	Laser printers; balanced scorecard
	13-40	Chocolate manufacturer; balanced scorecard, environmental and social performance
	13-41	Cable and internet services; balanced scorecard, social performance
	13-42	Airline; balanced scorecard, environmental and social performance
	13-43	Manufacturing; partial productivity measurement
	13-44	Manufacturing; total factor productivity
14	14-17	Tool repair shop; value-added, nonvalue-added costs
	14-18	Architecture firm; target operating income, value-added costs
	14-19	Distributor; target prices, target costs, ABC
	14-20	Medical instruments; target costs, effect of product-design changes on product costs
	14-21	Solar heating systems; target costs, effect of process-design changes on service costs
	14-22	Hotel management; cost-plus target return on investment pricing
	14-23	Table sets manufacturer; cost-plus, target pricing
	14-24	Electronics manufacturer; life-cycle budgeting and costing
	14-25	Hotel; price discrimination

Exhibit P-5 (Continued)

Chapter	Number	Context
14	14-26	Manufacturer; target pricing
	14-27	Cosmetics manufacturer; value engineering, target pricing, target costing
	14-28	Amusement park; value engineering, target costing, ABC
	14-29	Candy manufacturer; target return on investment pricing
	14-31	Temp labor agency; cost-plus and market-based pricing
	14-32	Testing labs; cost-plus, activity-based costing, market-based pricing
	14-33	Industrial site cleanup; life-cycle costing
	14-34	Airline; price discrimination
	14-35	Hair dryer manufacturer; pricing products using the target-costing approach
	14-37	Wood sculpture manufacturing; target prices, target costs, locked-in costs, value engineering
15	15-19	Environmental products distributor; customer profitability, customer-cost hierarchy
	15-20	Repair service; customer profitability
	15-21	Pharmaceutical distributor; customer profitability
	15-30	Jewelry manufacturer; customer profitability
	15-31	Paper distributor; customer profitability
	15-32	Manufacturing company; customer profitability analysis
	15-33	Architecture and interior design; customer-cost hierarchy, customer profitability
	15-36	Internet, phone, TV service; cost-hierarchy income statement, allocation of corporate, division, and channel costs to customers
	15-37	Sporting goods and memorabilia manufacturer; cost-hierarchy income statement, allocation of corporate, division, and channel costs to customers
	15-42	Writing smaller orders; customer-cost hierarchy, profitability and ethics
18	18-46	Water bottle manufacturer; sustainable materials and processes
	18-47	Laminate-flooring manufacturer; benchmarking and ethics
19	19-45	Pharmaceutical manufacturer; contract manufacturing

Exhibit P-5 (Continued)

Chapter	Number	Context
20	20-17	Cell phone equipment; costs of quality
	20-18	Outdoor chair manufacturer; costs of quality
	20-19	Car seats; costs-of-quality, ethics
	20-20	Computer bags; nonfinancial measures of quality and time
	20-21	Printing presses; quality improvements, relevant costs and relevant revenues
	20-22	Flower shop; quality improvement, relevant costs and relevant revenues
	20-23	Pet toys; waiting time
	20-24	University; waiting time
	20-25	University; waiting time, relevant costs, student satisfaction
	20-26	Cell phones; nonfinancial measures of quality and time
	20-27	Manufacturer; nonfinancial measures of quality, manufacturing cycle efficiency
	20-28	Cereal manufacturer; statistical quality control
	20-29	Pizza delivery; quality improvement, Pareto diagram, cause-and-effect diagram
	20-30	Valve manufacturing; quality improvement, relevant costs, and relevant revenues
	20-31	Plastic lamps; quality improvement, relevant costs, and relevant revenues
	20-32	Plastic products; waiting times, manufacturing cycle times
	20-33	Plastic products; waiting times, relevant revenues, and relevant costs
	20-34	Wire harnesses; manufacturing cycle times, relevant revenues, and relevant costs
	20-35	Electronics manufacturer; quality improvement, relevant costs, relevant revenues
	20-36	Processor manufacturer; quality and ethics
	20-37	Textile printing; quality improvement
21	21-26	Men’s neckwear manufacturer; JIT production, relevant benefits, relevant costs
	21-27	Electronics manufacturer; backflush costing, two trigger points, incentives
	21-28	Electronics manufacturer; backflush costing, two trigger points, operating income
	21-29	Electronics manufacturer; backflush costing
	21-32	Music players; MRP, EOQ, JIT production
	21-34	Steel supplier, JIT purchasing, relevant benefits, relevant cost
	21-35	Computer manufacturer; supplier evaluation, costs of quality, timely deliveries
	21-36	Jeans manufacturer; supplier evaluation, costs of quality, timely deliveries
	21-37	Electrical meters; backflush costing and JIT production
	21-38	Electrical meters; backflush, two trigger points, materials purchase and sale

Exhibit P-5 (Continued)

Chapter	Number	Context
21	21-39	Electrical meters; backflush, two trigger points, completion of production and sale
	21-40	Security devices; lean accounting
	21-41	Pump manufacturer; JIT production, relevant benefits, relevant costs, ethics.
23	23-16	Window manufacturing; cost centers, profit centers, decentralization, transfer prices
24	24-23	Sports equipment; ROI and RI
	24-24	ROI, RI, measurement of assets
	24-25	Electric car manufacturer; ROI, RI
	24-26	Insurance and financial services company; ROI, RI, EVA
	24-29	Automotive retailer; ROI, RI, EVA
	24-30	Venture capital; capital budgeting, RI (conservation property)
	24-31	Manufacturing, U.S. and Norway; multinational performance measurement, ROI, RI
	24-32	Fashion product manufacturer; ROI, RI, EVA, performance evaluation
	24-33	Food conglomerate; risk sharing, incentives, benchmarking, multiple tasks
	24-34	Doorbell manufacturing; Residual income and EVA, timing issues
	24-37	Multinational firm, U.S., France, and Australia; differing risk, comparison of profit, ROI, and RI
	24-38	Media group; ROI, RI, DuPont method, investment decisions, balanced scorecard
	24-39	Media group; division managers' compensation, levers of control
	24-40	Executive compensation, balanced scorecard
	24-42	Tableware manufacturer; levers of control, ethics
	24-43	Health spas; RI, EVA, measurement alternatives, goal congruence

PRESENTATION OF SOLUTIONS

Instructors have a variety of views regarding the use of classroom time for homework solutions. Most instructors put solutions on a blackboard or an overhead projector. In turn, their students frantically copy the materials in their notes. Our practice is to reproduce the printed homework solutions for distribution either before, during, or after the discussion for a particular solution. The members of the class are glad to pay a modest fee to the school to cover the reproduction costs. In this way, students can spend more of their classroom time in thinking rather than writing. Further, they have a complete set of notes.

Some instructors object to this procedure because it provides students with a “file” that can be passed along to subsequent classes. Students in subsequent classes will then use the “file” to avoid conscientious preparation of homework. We used to worry about such practices, but long ago, we decided there would always be some students who hurt themselves by not doing homework in an appropriate way. Why should we penalize the vast majority of students by withholding the printed solutions? The benefits of using printed solutions clearly outweigh the costs. We no longer fret about the few students who beat the system (and themselves). Moreover, schools using My Accounting Lab can have new problems assigned to students where the problem structure is the same but the numbers are different.

Similarly, we distribute printed solutions to tests and examinations along with a summary of overall class performance. We do not devote class time to discussing these solutions. The students deserve feedback, but they have sufficient motivation to scrutinize the printed solutions and check their errors on an individual basis. In this way, more class time is available for new material.

If students have complaints about grades, we usually ask them to cool off for 24 hours and then to submit a written analysis of how they were unjustly treated. We then take these complaints in batches, regrade the papers, and return the papers. If the student then wants to have a person-to-person discussion of the matter, he or she is welcome at our office. This procedure may seem too impersonal, but we recommend it to those teachers who have been through some painful debates that have been inefficient and frustrating for both student and teacher.

MAJOR CHANGES IN TEXT OF THE 17TH EDITION

Increased Focus on Merchandising and Service Sectors

In keeping with the shifts in the U.S. and world economy, this edition makes great use of merchandising and service sector examples, with corresponding de-emphasis of traditional manufacturing settings. For example, Chapter 10 illustrates linear cost functions in the context of payments for cloud computing services. Chapter 11 describes revenue management using big-data analytics at a company investing in loans. Chapter 21 highlights inventory management in retail organizations and uses an example based on a seller of sunglasses. Chapter 22 incorporates a running example that looks at capital budgeting in the context of a transportation company. Several Concepts in Action boxes focus on the merchandising and service sectors, including achieving cost leadership at Costco (Chapter 1), reducing fixed costs at Lyft (Chapter 2), using activity-based costing to reduce the costs of health care delivery at the Mayo Clinic (Chapter 5), developing Internet-based budgeting at P. F. Chang's (Chapter 6), analyzing operating income performance at Buffalo Wild Wings (Chapter 13), and Facebook's work to overcome mobile data bottlenecks (Chapter 20).

Greater Emphasis on Sustainability

This edition places significant emphasis on sustainability as one of the critical managerial challenges of the coming decades. Many managers are promoting the development and implementation of strategies to achieve long-term financial, social, and environmental performance as key imperatives. We highlight this in Chapter 1 and return to the theme in several subsequent chapters. Chapter 13 discusses the benefits to companies from measuring social and environmental performance and how such measures can be incorporated in a balanced scorecard. Chapter 24 provides several examples of companies that mandate disclosures and evaluate managers on environmental and social metrics. A variety of chapters, including Chapters 2, 6, 10, 14, and 22, contain material that stress themes of recognizing and accounting for environmental costs; energy independence; setting stretch targets to motivate greater carbon reductions; using cost analysis, carbon tax, and cap-and-trade auctions to reduce environmental footprints; and constructing "green" homes in a cost-effective manner.

Focus on Innovation

We discuss the role of accounting concepts and systems in fostering and supporting innovation and entrepreneurial activities in firms. In particular, we discuss the challenges posed by recognizing R&D costs as period expenses even though the benefits of innovation accrue in later periods. In Chapter 6, we describe how companies budget for innovation expenses and develop measures to monitor success of the innovation efforts delinked from operational performance in the current period. Chapter 12 presents the importance of nonfinancial measures when making decisions about innovation. Chapter 14 stresses that innovation starts with understanding customer needs, while Chapter 20 discusses process innovations for improving quality. Many of the organizations used in "Concepts in Action" emphasize innovation (e.g., Lyft, Chapter 2; Mayo Clinic, Chapter 5; Facebook, Chapter 20). The running examples used in Chapter 2 and Chapter 20 focus on an innovative company (Tesla) and an innovative product (3D printers).

New Cutting-Edge Topics

The pace of change in organizations continues to be rapid. The seventeenth edition of *Cost Accounting* reflects changes occurring in the role of cost accounting in organizations.

- We have added new material and a new Chapter 11 to explain recent trends in big data and data analytics to manage revenues and predict costs. Companies are increasingly looking for management accountants who can interface with data scientists.
- We have introduced sustainability strategies and the methods companies use to implement sustainability and business goals.
- We describe ideas based on academic research regarding the weights placed on performance measures in a balanced scorecard. We have a section on methods to evaluate strategy maps such as the strength of links, differentiators, focal points, and trigger points.
- We provide details on the transfer pricing strategies used by multinational technology firms such as Apple and Google to minimize income taxes.
- We discuss current trends in the regulation of executive compensation.
- We describe the evolution of enterprise resource planning systems and newer simplified costing systems that practice lean accounting.

Opening Vignettes

Each chapter opens with a vignette on a real company situation. The vignettes engage the reader in a business situation or dilemma, illustrating why and how the concepts in the chapter are relevant in business. For example, Chapter 2 describes how teen apparel chain Aeropostale was driven into bankruptcy by the relatively high proportion of fixed costs in its operations. Chapter 5 explains the use of activity-based costing by IBM to evaluate the true cost of data breaches. Chapter 9 highlights Under Armor's use of a new internal company system to better manage its inventory and supply chain with efficiency and precision to reduce inventory costs. Chapter 15 shows how Starbucks changed its rewards program to better align rewards with customer spending. Chapter 19 shows the impact on Tesla of the rework costs associated with a drastic ramp-up of production to meet unprecedented customer demand. Chapter 24 describes the misalignment between performance measurement and pay at General Electric.

Concepts in Action Boxes

Found in every chapter, these boxes cover real-world cost accounting issues across a variety of industries, including defense contracting, entertainment, manufacturing, retailing, and sports. New examples include:

- Cost Leadership at Costco: Rock-Bottom Prices and Sky-High Profits (Chapter 1)
- Can Cost–Volume–Profit Analysis Help Whole Foods Escape the "Whole Paycheck" Trap? (Chapter 3)
- P. F. Chang's and Internet-Based Budgeting (Chapter 6)
- Can ESPN Avoid the Cord-Cutting "Death Spiral"? (Chapter 9)
- Zara Uses Target Pricing to Become the World's Largest Fashion Retailer (Chapter 14)
- Big Data Joint-Products and Byproducts Create New Business Opportunities (Chapter 17)

- Facebook Works to Overcome Mobile Data Bottlenecks (Chapter 20)
- IRS Accuses Medtronic of Unfair Tax Deal (Chapter 23)

Streamlined Presentation

We continue to try to simplify and streamline our presentation of various topics to make it as easy as possible for students to learn the concepts, tools, and frameworks introduced in different chapters. We have introduced a new chapter, Chapter 11, on data analytics to help management accountants use big data to manage both revenues and costs. This chapter follows Chapter 10 on predicting cost behavior. We received positive feedback for the reorganization of Chapters 12 through 16 in the sixteenth edition and have maintained that order in the seventeenth edition as chapters 13 through 17. Chapter 13 on the balanced scorecard and strategic profitability analysis follows Chapter 12 on decision making and relevant information for operational decisions. Chapter 14 is the first of four chapters on cost allocation. We introduce the purposes of cost allocation in Chapter 14 and discuss cost allocation for long-run product costing and pricing. Continuing the same example, Chapter 15 discusses cost allocation for customer costing. Chapter 16 builds on the Chapter 4 example to discuss cost allocation for support departments. Chapter 17 discusses joint cost allocation.

Other examples of streamlined presentations can be found in the following chapters:

- Chapter 2 on the discussion of fundamental cost concepts and the managerial framework for decision making.
- Chapter 6, where the appendix ties the cash budget to the chapter example.
- Chapter 8, which has a comprehensive chart that lays out all of the variances described in Chapters 7 and 8.
- Chapter 9, which uses a single two-period example to illustrate the impact of various inventory-costing methods and denominator level choices.
- Chapter 14, which provides a unified framework for assessing the price-cost relationship, including concepts such as price discrimination and congestion pricing, as well as its implications for regulatory and legal matters.

HIGHLIGHTS OF NEW CHAPTER-BY-CHAPTER CHANGES

Chapter 1

Chapter 1 has been rewritten to introduce ideas of data analytics, artificial intelligence, and machine learning. We have updated the IMA Statement of Ethical Professional Practice and added material on the importance of ethics, values, and behaviors, as well as the role of the Sarbanes-Oxley act in improving the quality of financial reporting.

Chapter 2

Chapter 2 has been updated to make it easier for students to understand core cost concepts and to provide a framework for how cost measurement is used in financial accounting and to help managers make decisions. We discuss the challenges of accounting for R&D costs and the implications for innovation, as well as the importance of recognizing environmental costs. We have also simplified the discussion of labor sub-classifications and highlighted throughout the changes wrought by the steep decline in information-gathering costs.

Chapter 3

Chapter 3 has been updated and revised to make it easier for students to understand core cost concepts. We have added material to discuss how data analytics, artificial intelligence, and machine learning can be helpful in making decisions.

Chapter 4

Chapter 4 has been rewritten to highlight more clearly the creation of cost pools and the level of fixed costs in a seasonal business. We discuss the need to adjust normal costs to actual costs using end-of-accounting-year adjustments, and provide a revised derivation of the numerical results. The chapter has also been updated with reference to current products and companies.

Chapter 5

Chapter 5 adds more discussion of product undercosting and overcosting and refining a costing system. The chapter example has been changed to add material on Time-Driven Activity-Based Costing (TDABC). The latter parts of the chapter have been substantially rewritten to eliminate overlaps and to provide a streamlined description of the costs and benefits of activity-based costing, and the behavioral and technical issues involved in implementing an ABC system.

Chapter 6

We have implemented a number of changes to improve the clarity of writing. We have added material to the section on revenues budgets about using data analytics, artificial intelligence, and machine learning to help predict future revenues. We elaborate on tradeoffs managers must make when choosing different organization structures.

Chapters 7 and 8

In Chapter 7, the appendix on mix and yield variances uses the same example from Chapters 7 and 8. Chapter 8 provides a revised comprehensive summary of the variances in Chapters 7 and 8. We have updated the section on benchmarking in the airlines industry. We have added material on multiple cost pools and allocation bases. We have rewritten the material on the relation between the sales-volume variance and the production-volume variance.

Chapter 9

Chapter 9 retains the simplified two-period integrated example of capacity choice. There is greater emphasis now on linking the impact of the choice of capacity concept to recent changes in financial reporting and tax requirements, while clarifying the distinction between financial and managerial accounting. The chapter contains updated examples and references to current economic conditions in various places.

Chapter 10

Chapter 10 has been revised to provide a data analytics context to the chapter and the new Chapter 11. We have added new material on logistic regression that serves as a tie-in to the new chapter on data science.

Chapter 11

Chapter 11 is a brand new chapter to help management accountants work with data scientists to create value. It is the first chapter of its kind in any cost or management accounting textbook. It explores how management accountants can work with data scientists to judge whether a model will create value and obtain relevant data. It introduces students to models for predicting revenues and tools such as cross-validation that data scientists use to overcome problems of overfitting using the bias-variance tradeoff. Management accountants play a crucial role in evaluating data-science models using techniques such as the receiver operating characteristic curve, and in using the model to make decisions using the confusion matrix and payoff matrix. The chapter provides management accountants with vital skills for the data-rich world they will encounter in the workplace.

Chapter 12

Chapter 12 has been revised to emphasize nonfinancial factors in decisions, particularly in environmental and innovation decisions. The chapter highlights how relevant cost analysis is distinct from the absorption costing method of preparing financial statements under Generally Accepted Accounting Principles (GAAP). The focus is on identifying and understanding why relevant costs and relevant revenues are important when making decisions.

Chapter 13

Chapter 13 retains the novel content around evaluating strategy maps by identifying strong and weak links, differentiators, focal points and trigger points, as well as a unified exhibit to present these concepts. Other parts have been substantially restructured and simplified, including the section on environmental and social performance measured in the Balanced Scorecard, the descriptions of quality improvement and reengineering, and the discussion of capacity management and unused capacity costs.

Chapter 14

Chapter 14 makes significant revisions to the sections on target pricing and target costing, cost-plus pricing, and life-cycle budgeting. The chapter presents material on carbon tax, cap-and-trade auctions, and the Sustainability Accounting Standards Board (SASB). The sections on antitrust laws and pricing decisions have been combined to provide a simplified framework, along with appropriate real-world examples.

Chapter 15

Chapter 15 was completely rewritten in 15E. The current revision makes a number of changes to improve the clarity of the writing and to motivate different concepts. The section on Cost-hierarchy-based operating income and the section on fully allocated customer profitability has been streamlined.

Chapter 16

Chapter 16 was also heavily revised in 15E. The current revision makes several significant changes to clarify concepts and improve clarity. We have substantially revised the section on the overview of the direct, step-down, and reciprocal methods and calculating job costs. . The Concepts in Action box uses updated federal cases on cost allocation disputes.

Chapter 17

Chapter 17 provides a discussion of the rationale for joint-cost allocation and the merits and demerits of various joint-cost allocation methods. We have made a number of changes to improve the clarity of writing to explain key concepts. We have rewritten the section on pricing decisions. In keeping with our emphasis on data analytics, the new Concepts in Action Box focuses on Big Data Joint and Byproducts.

Chapters 18 and 19

Chapters 18 and 19 provide a managerial lens on the estimation of equivalent units and the choice between the FIFO and weighted-average costing methods, both in the chapter content and in the new vignettes and real-world examples (including cryptocurrency). We have rewritten several sections in both chapters to improve the clarity of the presentation. Chapter 19 emphasizes, with illustrative examples, the theme of striving for zero waste, and a sustainable environment.

Chapter 20

Chapter 20 focuses on quality and time. It uses current examples for products and companies, including a change in the running example from a photocopier to a 3D printer. The opening vignette looks at the recent diesel emission scandal at Volkswagen Group. The sections on control charts, weighing the costs and benefits of improving quality, and evaluating a company's quality performance have been updated and streamlined.

Chapter 21

Chapter 21 emphasizes the importance of choosing the correct products to sell, deeply understanding customers and pricing smartly as ways to manage inventory. It discusses the role of big data and better demand forecasts in reducing demand uncertainty and safety stocks and in implementing Materials Requirements Planning (MRP) systems. The opening vignette highlights Target's use of Internet of Things (IOT) and the chapter is streamlined by the elimination of the section looking at special considerations in backflush costing.

Chapter 22

Chapter 22 focuses on the role of capital budgeting in supporting the choice of long-term projects, with an emphasis on sustainability. The opening vignette looks at the financial impact of California's rule mandating residential solar panels, the integrated example deals with the purchase of a new hybrid-engine bus, and various examples through the chapter and in the new Concepts in Action illustrate how companies incorporate sustainability in their capital budgeting decisions.

Chapter 23

Chapter 23 has been revised to reflect the latest developments in the controversial use of transfer prices for tax minimization by multinational corporations, with several real-world examples. The revision highlights the changing regulatory environment across the world, and provides updated information on the use of tools such as Advance Pricing Agreements. It pays special attention to the significant changes to US transfer pricing wrought by the 2017 Tax Cuts and Jobs Act.

Chapter 24

Chapter 24 describes the use of environmental, social, and ethical objectives by companies as part of top management's pay structures, with new examples of companies that embed sustainability targets into compensation systems. It discusses SEC regulations on disclosure of executive compensation and the impact of Dodd-Frank "say on pay" rules, with updated examples and data.

CHANGES IN ASSIGNMENT MATERIAL FOR THE 17TH EDITION

About 50% of the exercises and problems in the 17th edition are new or revised. The remaining exercises and problems are taken from the 16th edition. The following exhibits indicate the source of each of the exercises and problems in the 17th edition. These exhibits can be read as follows:

	Chapter 5	
	17E	16E
	.	.
	.	.
	.	.
Category (a)	xx	New
Category (b)	yy	ww Rev
Category (c)	zz	zz

Category (a) shows that Chapter 5 problem xx in the 17th edition is new to this edition.

Category (b) shows that Chapter 5 problem yy in the 17th edition is a revision of Chapter 5 problem ww in the 16th edition; the 'Rev' in 'ww Rev' indicates that the content and numbers from the 16th edition have been revised.

Category (c) shows that Chapter 5 problem zz in the 17th edition is Chapter 5 problem zz in the 16th edition. The absence of a 'Rev" after 'zz' means that no change in the content or numbers has been made in continuing use of this problem in the 17th edition.

With the shift occurring from the addition of the new Chapter 11, the mapping of problems in Chapters 12 through 24 in 17E is to Chapters 11 through 23, respectively, in the 16^{th} edition. We denote this by noting for Chapter 12, for example, that the problems in 17E relate to 16E (11), i.e., to Chapter 11 in the 16^{th} edition.

Chapter 1			Chapter 2			Chapter 3			Chapter 4			Chapter 5			Chapter 6		
17E	16E		17E	16E		17E	16E		17E	16E		17E	16E		17E	16E	
17	17		21	21		21	21		21	21		18	18		21	21	Rev
18	18		22		New	22	22	Rev	22	22		19	19		22	22	
19	19	Rev	23	23		23	23		23	23		20	20		23	23	Rev
20	20	Rev	24	24	Rev	24	24		24	24		21	21		24	24	
21		New	25	25		25	25		25	25	Rev	22	22	Rev	25	25	
22	22		26	26		26		New	26	26	Rev	23	23	Rev	26	26	
23		New	27	27		27	27	Rev	27	27		24	24		27	27	
24		New	28		New	28	28	Rev	28	28	Rev	25	25	Rev	28		New
25	25		29	28		29	29		29	29		26	26		29	29	
26	26		30	29	Rev	30		New	30	30	Rev	27	27		30	30	
27	27		31	30	Rev	31	30		31	31	Rev	28	28	Rev	31	31	
28	28		32	31		32	31	Rev	32	32	Rev	29	29	Rev	32	32	Rev
29	29	Rev	33	32		33	32		33	33	Rev	30	30		33	33	Rev
30	30		34	33	Rev	34	33		34	34	Rev	31	31	Rev	34	34	
31	31	Rev	35	34	Rev	35	35		35	35	Rev	32	32	Rev	35	35	
32	32	Rev	36	35	Rev	36	36	Rev	36	36	Rev	33	33	Rev	36	36	
33	33		37	36	Rev	37	37		37	37		34	34		37	37	
34	34	Rev	38	37		38	38	Rev	38	38		35	35		38		New
35	35		39		New	39	39		39	39		36	36		39		New
36	36	Rev	40	39		40	40	Rev	40	40		37	37	Rev	40	40	
37	37		41	40		41	41		41	41	Rev	38	38		41	41	
			42	41	Rev	42		New	42		New	39		New	42	42	
			43	42	Rev	43	43		43	43	Rev	40	40		43	43	
			44	46	Rev	44	44		44	44	Rev	41		New	44		New
			45	44	Rev	45	45		45		New	42	42		45		New
			46	45		46	46	Rev	46		New	43		New	46	46	
			47	47		47	47								47	47	Rev
			48	48	Rev	48	48								48	48	
						49	49										
						50	50	Rev									
						51	51										
						52	52										
						53	53										
						54	54										

Chapter 7			Chapter 8			Chapter 9			Chapter 10			Chapter 11			Chapter 12		
17E	**16E**		**17E**	**16E**		**17E**	**16E**		**17E**	**16E**		**17E**	**16E**		**17E**	**16E (11)**	
21	21	Rev	21	21		21	21		21	21	Rev	21		New	21	21	Rev
22	22		22	22		22	22		22	22	Rev	22		New	22	22	Rev
23	23		23	23		23	23		23	23		23		New	23	23	Rev
24	24	Rev	24	24		24	24		24	24		24		New	24	24	
25	25		25	25	Rev	25	25		25	25	Rev	25		New	25	25	
26	26		26	26	Rev	26	26	Rev	26	26	Rev	26		New	26	26	Rev
27	27		27	27	Rev	27	27		27	27	Rev	27		New	27	27	Rev
28	28		28	28		28	28	Rev	28	28	Rev	28		New	28	28	Rev
29	29		29	29	Rev	29	29		29	29		29		New	29	29	Rev
30	30		30	30	Rev	30	30		30	30	Rev	30		New	30	30	Rev
31	31		31	31		31	31	Rev	31	31		31		New	31	31	Rev
32		New	32	32	Rev	32	32	Rev	32	32		32		New	32	32	
33	33		33	33		33	33	Rev	33	33	Rev	33		New	33	33	
334	34		34	34		34	34	Rev	34	34	Rev	34		New	34	34	
35	35		35	35		35	35	Rev	35	35		35		New	35		New
36	36	Rev	36	36		36	36	Rev	36	36		36		New	36	36	
37	37	Rev	37	37		37	37	Rev	37	37	Rev	37		New	37		New
38	38		38	38		38	38	Rev	38	38		38		New	38		New
39	39		39	39	Rev	39		New	39	39		39		New	39	39	
40	40		40	40		40		New	40	40	Rev	40		New	40	40	
41	41	Rev	41		New	41	42	Rev	41	41	Rev				41		New
42		New	42	42	Rev	42	43	Rev	42	42					42	42	
43		New	43	43		43	44		43	43					43	43	
44	44		44	44		44	45	Rev	44	44					44	44	
45		New	45	45		45	46	Rev	45	45					45		New
46		New	46	46	Rev	46	48		46	46					46	46	
47	47		47		New	47		New	47	47					47		New
			48		New	48		New	48	48					48	48	
															49	49	
															50	50	

Chapter 13			Chapter 14			Chapter 15			Chapter 16			Chapter 17			Chapter 18		
17E	**16E (12)**		**17E**	**16E (13)**		**17E**	**16E (14)**		**17E**	**16E (15)**		**17E**	**16E (16)**		**17E**	**16E (17)**	
19	19		17	17		18	18	Rev	16	16		21	21		21	21	Rev
20	20		18	18		19	19		17	17		22	22		22	22	Rev
21	21		19	19		20	20		18	18		23	23		23	23	Rev
22	22		20	20		21	21	Rev	19	19		24	24		24	24	
23	23		21	21	Rev	22		New	20	20		25	25		25	25	
24	24		22	22		23	23	Rev	21	21		26	26		26	26	
25	25	Rev	23	23		24	24	Rev	22	22		27	27		27	27	
26	26	Rev	24		New	25	25		23	23		28	28		28	28	
27	27	Rev	25	25		26	26		24	24	Rev	29	29		29	29	
28	28	Rev	26	26	Rev	27	27		25	25		30	30		30	30	
29	29	Rev	27	27		28	28		26	26		31	31		31	31	
30	30	Rev	28	28		29	29	Rev	27		New	32	32		32	32	
31	31	Rev	29	29	Rev	30	30		28	28		33	33		33	33	
32	32	Rev	30	30	Rev	31	31		29	29		34	34		34		New
33		New	31	31	Rev	32	32		30	30		35	35		35		New
34		New	32	32	Rev	33		New	31	31		36		New	36	36	
35		New	33	33	Rev	34	34		32		New	37		New	37	37	
36		New	34	34	Rev	35	35	Rev	33		New	38		New	38	38	
37	37		35		New	36		New	34	34		39		New	39	39	
38	38		36		New	37		New	35	35	Rev	40		New	40	40	
39	39		37	37		38	38	Rev	36	36		41	41		41	41	
40	40					39	39	Rev				42		New	42	42	
41	41					40	40					43	43		43	43	
42	42					41		New							44	44	
43	43	Rev				42	41								45		New
44	44	Rev													46	46	
															47		New

Chapter 19			Chapter 20			Chapter 21			Chapter 22			Chapter 23			Chapter 24		
17E	**16E (18)**		**17E**	**16E (19)**		**17E**	**16E (20)**		**17E**	**16E (21)**		**17E**	**16E (22)**		**17E**	**16E (23)**	
20	20		17	18		21	21		21			16	17		21	21	
21	21		18	19	Rev	22	22		22	22	Rev	17	19	Rev	22	22	Rev
22	22		19	20		23	23	Rev	23	23		18		New	23	23	Rev
23	23		20	21		24	24		24	24		19		New	24		New
24	24		21	22		25	25		25	25	Rev	20	20	Rev	25	24	Rev
25	25		22		New	26	26		26	26	Rev	21	21	Rev	26	25	
26	26		23	24		27		New	27	27	Rev	22	22		27		New
27	27	Rev	24	25	Rev	28		New	28	28	Rev	23	23		28	26	Rev
28	28	Rev	25	26	Rev	29		New	29	29	Rev	24	24	Rev	29	27	Rev
29	29		26	27		30	30	Rev	30	30	Rev	25	25	Rev	30	28	
30	30		27	28		31	31		31	31		26	26	Rev	31	29	Rev
31	31		28	29		32	32	Rev	32	32		27	27	Rev	32	30	Rev
32	32		29	30		33	33		33	33	Rev	28	28	Rev	33	31	Rev
33	33		30	31	Rev	34	34		34	34		29	29	Rev	34	32	Rev
34	34		31	32	Rev	35	35		35	35		30	30	Rev	35		New
35	35		32	33	Rev	36	36		36		New	31	31		36	33	Rev
36	36		33	34	Rev	37	37	Rev	37	37	Rev	32	32		37	35	
37	37		34	35		38	38	Rev	38	38	Rev	33		New	38	36	
38	38		35		New	39	39	Rev	39	39		34	34		39	37	
39		New	36		New	40	40	Rev	40	40		35	35		40	38	Rev
40	40	Rev	37	38		41	41		41	41	Rev	36	36		41	39	
41	41	Rev							42		New	37	37		42		New
42	42	Rev													43	42	
43	43																
44	44																
45	45	Rev															

CHAPTER 1
THE MANAGER AND MANAGEMENT ACCOUNTING

See the front matter of this Solutions Manual for suggestions regarding your choices of assignment material for each chapter.

1-1 *Management accounting* measures, analyzes, and reports financial and nonfinancial information that helps managers make decisions to fulfill the goals of an organization. It focuses on internal reporting and is not restricted by generally accepted accounting principles (GAAP).

Financial accounting focuses on reporting to external parties such as investors, government agencies, and banks. It measures and records business transactions and provides financial statements that are based on generally accepted accounting principles (GAAP).

Other differences include (1) management accounting emphasizes the future (not the past), and (2) management accounting influences the behavior of managers and other employees (rather than primarily reporting economic events).

1-2 Financial accounting is constrained by generally accepted accounting principles. Management accounting is not restricted to these principles. The result is that

- management accounting allows managers to charge interest on owners' capital to help judge a division's performance, even though such a charge is not allowed under GAAP,
- management accounting can include assets or liabilities (such as "brand names" developed internally) not recognized under GAAP, and
- management accounting can use asset or liability measurement rules (such as present values or resale prices) not permitted under GAAP.

1-3 Management accountants can help to formulate, communicate and implement strategy by providing information about the sources of competitive advantage—for example, the cost, productivity, or efficiency advantage of their company relative to competitors or the premium prices a company can charge relative to the costs of adding features that make its products or services distinctive.

1-4 The business functions in the value chain are

- **Research and development**—generating and experimenting with ideas related to new products, services, or processes.
- **Design of products and processes**—detailed planning, engineering, and testing of products and processes.
- **Production**—procuring, transporting, storing, coordinating and assembling resources to produce a product or deliver a service.
- **Marketing**—promoting and selling products or services to customers or prospective customers.
- **Distribution**—processing orders and shipping products or delivering services to customers.
- **Customer service**—providing after-sales service to customers.

1-5 *Supply chain* describes the flow of goods, services, and information from the initial sources of materials and services to the delivery of products to consumers, regardless of whether those activities occur in one organization or in multiple organizations.

Cost management is most effective when it integrates and coordinates activities across all companies in the supply chain as well as across each business function in an individual company's value chain. Attempts are made to restructure all cost areas to be more cost-effective.

1-6 "Management accounting deals only with costs." This statement is misleading at best, and wrong at worst. Management accounting measures, analyzes, and reports financial *and nonfinancial* information that helps managers define the organization's goals and make decisions to fulfill those goals. Management accounting also analyzes revenues from products and customers in order to assess product and customer profitability. Therefore, while management accounting does use cost information, it is only a part of the organization's information recorded and analyzed by management accountants.

1-7 Management accountants can help improve quality and achieve timely product deliveries by recording and reporting an organization's current quality and timeliness levels and by analyzing and evaluating the costs and benefits—both financial and nonfinancial—of new quality initiatives, such as TQM, relieving bottleneck constraints, or providing faster customer service.

1-8 The five-step decision-making process is (1) identify the problem and uncertainties; (2) obtain information; (3) make predictions about the future; (4) make decisions by choosing among alternatives; and (5) implement the decision, evaluate performance, and learn.

1-9 *Planning decisions* focus on selecting organization goals and strategies, predicting results under various alternative ways of achieving those goals, deciding how to attain the desired goals, and communicating the goals and how to attain them to the entire organization.

Control decisions focus on taking actions that implement the planning decisions, deciding how to evaluate performance, and providing feedback and learning to help future decision making.

1-10 The three guidelines for management accountants are:

1. Employ a cost-benefit approach.
2. Recognize technical and behavioral considerations.
3. Apply the notion of "different costs for different purposes."

1-11 Agree. A successful management accountant requires general business skills (such as understanding the strategy of an organization) and people skills (such as motivating other team members) as well as technical skills (such as computer knowledge, calculating costs of products, and supporting planning and control decisions).

1-12 The new controller could reply in one or more of the following ways:

(a) Demonstrate to the plant manager how he or she could make better decisions if the plant controller was viewed as a resource rather than a deadweight. In a related way, the plant controller could show how the plant manager's time and resources could be saved by viewing the new plant controller as a team member.

(b) Demonstrate to the plant manager a good knowledge of the technical aspects of the plant. This approach may involve doing background reading. It certainly will involve spending time on the plant floor speaking to plant personnel.

(c) Show the plant manager examples of the new plant controller's past successes in working with line managers in other plants. Examples could include

- assistance in preparing the budget,
- assistance in analyzing problem situations and evaluating financial and nonfinancial aspects of different alternatives, and
- assistance in submitting capital budget requests.

(d) Seek assistance from the corporate controller to highlight to the plant manager the importance of many tasks undertaken by the new plant controller. This approach is a last resort but may be necessary in some cases.

1-13 The controller is the chief management accounting executive. The corporate controller reports to the chief financial officer, a staff function. Companies also have business unit controllers who support business unit managers or regional controllers who support regional managers in major geographic regions.

1-14 The Institute of Management Accountants (IMA) sets standards of ethical conduct for management accountants in the following four areas:

- Competence
- Confidentiality
- Integrity
- Credibility

1-15 Steps to take when established written policies provide insufficient guidance are as follows:

(a) Discuss the problem with the immediate superior (except when it appears that the superior is involved).

(b) Clarify relevant ethical issues by confidential discussion with an IMA Ethics Counselor or other impartial advisor.

(c) Consult your own attorney as to legal obligations and rights concerning the ethical conflicts.

1-16 (a) Communicating financial results and position to external parties is not a primary function of the management accountant. This is the function of the financial accountant.

1-17 (15 min.) **Value chain and classification of costs, computer company.**

Cost Item	Value Chain Business Function
a.	Production
b.	Distribution
c.	Design of products and processes
d.	Research and development
e.	Customer service or marketing
f.	Design of products and processes (or research and development)
g.	Marketing
h.	Production

1-18 (15 min.) **Value chain and classification of costs, pharmaceutical company.**

Cost Item	Value Chain Business Function
a.	Marketing
b.	Design of products and processes
c.	Customer service
d.	Research and development
e.	Marketing
f.	Production
g.	Marketing
h.	Distribution

1-19 (15 min.) **Value chain and classification of costs, fast-food restaurant.**

Cost Item	Value Chain Business Function
a.	Production
b.	Distribution
c.	Production
d.	Production
e.	Marketing
f.	Marketing
g.	Design of products and processes (or research and development)
h.	Customer service

1-20 (10 min.) **Key success factors.**

Change in Operations/ Management Accounting	Key Success Factor
a.	Innovation
b.	Cost and efficiency and quality
c.	Time and cost and efficiency
d.	Innovation, sustainability, and cost and efficiency
e.	Cost and efficiency

1-21 (10 min.) **Key success factors.**

Change in Operations/ Management Accounting	**Key Success Factor**
a.	Time and cost and efficiency
b.	Time and cost and efficiency
c.	Innovation and sustainability
d.	Cost and efficiency, time, and quality
e.	Cost and efficiency

1-22 (10–15 min.) **Planning and control decisions.**

Action	**Decision**
a.	Planning
b.	Control
c.	Control
d.	Planning
e.	Planning

1-23 (10–15 min.) **Planning and control decisions.**

Action	**Decision**
a.	Control
b.	Control
c.	Planning
d.	Planning
e.	Planning

1-24 (15 min.) **Five-step decision-making process, manufacturing.**

Action	**Step in Decision-Making Process**
a.	Obtain information.
b.	Make predictions about the future.
c.	Make decisions by choosing among alternatives.
d.	Implement the decision, evaluate performance, and learn.
e.	Make predictions about the future.
f.	Identify the problem and uncertainties.
g.	Obtain information.

1-25 (15 min.) **Five-step decision-making process, service firm.**

Action	**Step in Decision-Making Process**
a.	Make decisions by choosing among alternatives.
b.	Identify the problem and uncertainties.
c.	Obtain information and/or make predictions about the future.
d.	Obtain information and/or make predictions about the future.
e.	Make predictions about the future.
f.	Obtain information.

1-26 (10–15 min.) **Professional ethics and reporting division performance.**

1. Mendez's ethical responsibilities are well summarized in the IMA's "Standards of Ethical Behavior for Practitioners of Management Accounting and Financial Management" (Exhibit 1-7 of text). Areas of ethical responsibility include the following:

- Competence
- Confidentiality
- Integrity
- Credibility

The ethical standards related to Mendez's current dilemma are integrity, competence, and credibility. Using the integrity standard, Mendez should carry out duties ethically and communicate unfavorable as well as favorable information and professional judgments or opinions. Competence demands that Mendez perform her professional duties in accordance with relevant laws, regulations, and technical standards and provide decision support information that is accurate. Credibility requires that Mendez report information fairly and objectively and disclose deficiencies in internal controls in conformance with organizational policy and/or applicable law. Mendez should refuse to book the $200,000 of sales until the goods are shipped. Both financial accounting and management accounting principles maintain that sales are not complete until the title is transferred to the buyer.

2. Mendez should refuse to follow Dalton's orders. If Dalton persists, the incident should be reported to the corporate controller. Support for line management should be wholehearted, but it should not require unethical conduct.

1-27 (10–15 min.) **Professional ethics and reporting division performance.**

1. Gilpin's ethical responsibilities are well summarized in the IMA's "Standards of Ethical Behavior for Practitioners of Management Accounting and Financial Management" (Exhibit 1-7 of text). Areas of ethical responsibility include the following:

- Competence
- Confidentiality
- Integrity
- Credibility

The ethical standards related to Gilpin's current dilemma are integrity, competence, and credibility. Using the integrity standard, Gilpin should carry out duties ethically and communicate unfavorable as well as favorable information and professional judgments or opinions. Competence demands that Gilpin perform her professional duties in accordance with relevant laws, regulations, and technical standards and provide decision support information that is accurate. Credibility requires that Gilpin report information fairly and objectively and disclose deficiencies in internal controls in conformance with organizational policy and/or applicable law. Gilpin should use her professional judgment to decide if reclassifying labor costs from cost of goods sold to administrative labor is appropriate. This cost should be classified as cost of goods sold and she should refuse to classify the $50,000 of costs as administrative costs only to avoid allocation of overhead costs.

2. Gilpin should refuse to follow Myers' orders but should discuss her concerns with Myers. If Myers persists, the incident should be reported to the corporate controller of Blakemore Auto Glass. Gilpin may also want to consider consulting the IMA for ethical guidance. Support for line management should be wholehearted, but it should not require unethical conduct.

1-28 (15 min.) **Planning and control decisions, Internet company.**

1. **Planning decisions**
   a. Decision to raise monthly subscription fee from July
   c. Decision to offer e-mail service to subscribers and upgrade content of online services (later decision to inform subscribers and upgrade online services is an implementation part of control)
   e. Decision to decrease monthly subscription fee starting in November.

   Control decisions
   b. Decision to inform existing subscribers about the rate of increase—an implementation part of control decisions
   d. Dismissal of VP of Marketing—performance evaluation and feedback aspect of control decisions

2. Other planning decisions that may be made at PostNews.com: decision to raise or lower advertising fees; decision to charge a fee from on-line retailers when customers click-through from PostNews.com to the retailers' websites.

Other control decisions that may be made at PostNews.com: evaluating how customers like the new format for the weather information and evaluating whether the waiting time for customers to access the website has been reduced.

1-29 (20 min.) **Strategic decisions and management accounting.**

1. The strategies the companies are following in each case are:
   a. Cost leadership or low price strategy
   b. Product differentiation strategy
   c. Product differentiation strategy
   d. Cost leadership or low price strategy

2. Examples of information the management accountant can provide for each strategic decision about the source of competitive advantage follow.

   a. Cost to manufacture and sell the cell phone
      Productivity, efficiency, and cost advantages relative to competition
      Prices of competitive cell phones
      Sensitivity of target customers to price and quality
      The production capacity of Julian Phones and its competitors
      How the market for cell phones with standard features is growing

   b. Cost of modifying planes for the new first-class cabins
      Premium price that customers would be willing to pay for the first-class cabin
      Price of first class cabins on competitor airlines
      Cost of additional staffing and amenities for first-class service

   c. Cost of producing the new window shades
      Premium price that customers would be willing to pay for the window shades
      Prices of regular window shades
      The production capacity needed to manufacture the window shades

   d. Cost to manufacture, package, and sell new bagged cereal
      Sensitivity of target customers to price and quality
      Price of competitive low-priced breakfast cereal
      Productivity, efficiency, and cost advantages relative to competition
      Cash needed to manufacture, package, and sell new bagged cereal

1-30 (20 min.) **Strategic decisions and management accounting.**

1. The strategies the companies are following in each case are
   a. Cost leadership or low-price strategy
   b. Product differentiation strategy
   c. Cost leadership or low-price strategy
   d. Product differentiation strategy

2. Examples of information the management accountant can provide for each strategic decision follow.

   a. Cost related to purchase leather from a cheaper supplier
   Productivity and efficiency advantages relative to competition
   Sensitivity of target customers to price and quality
   Materials and labor usage costs when working with cheaper leather

   b. Cost of delivery service
   Premium price that customers would be willing to pay for the service
   Price of closest competitive product

   c. Cost to develop new software to check in customers
   Efficiency and cost advantages relative to competition
   Sensitivity of target customers to change in service

   d. Cost to hire horticultural specialist
   Premium price that customers would be willing to pay for expert advice
   Price of closest competitive product

1-31 (15 min.) **Management accounting guidelines.**

1. Behavioral and technical considerations
2. Behavioral and technical considerations
3. Different costs for different purposes
4. Behavioral and technical considerations (or cost benefit)
5. Cost-benefit approach
6. Cost-benefit approach
7. Behavioral and technical considerations
8. Different costs for different purposes
9. Cost-benefit approach

1-32 (15 min.) **Management accounting guidelines.**

1. Behavioral and technical considerations
2. Cost-benefit approach
3. Different costs for different purposes
4. Behavioral and technical considerations
5. Cost-benefit approach
6. Different costs for different purposes
7. Different costs for different purposes

1-33 (15 min.) **Role of controller, role of chief financial officer.**

1.

Activity	Controller	CFO
Managing the company's long-term investments		X
Presenting financial statements to the board of directors		X
Strategic review of different lines of businesses		X
Budgeting funds for a plant upgrade	X	
Managing accounts receivable	X	
Negotiating fees with auditors		X
Assessing profitability of various products	X	
Evaluating the costs and benefits of a new product design	X	

2. As CFO, Jimenez will be interacting much more with the senior management of the company, the board of directors, auditors, and the external financial community. Any experience he can get with these aspects will help him in his new role as CFO. George Jimenez can be better positioned for his new role as CFO by participating in strategy discussions with senior management; by preparing the external investor communications and press releases under the guidance of the current CFO; by attending courses that focus on the interaction and negotiations between the various business functions and outside parties such as auditors; and, either formally or on the job, getting training in issues related to investments and corporate finance.

1-34 (30 min.) **Pharmaceutical company, budgeting, ethics.**

1. The overarching principles of the IMA Statement of Ethical Professional Practice are Honesty, Fairness, Objectivity and Responsibility. The statement's corresponding "Standards for Ethical Behavior…" require management accountants to

- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Communicate information fairly and objectively.
- Provide all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.

The idea of capitalizing some of the company's R&D expenditures (item c) is a direct violation of the IMA's ethical standards above. This transaction would not be "in accordance with relevant laws, regulations, and technical standards." GAAP requires research and development costs to be expensed as incurred. Even if Maddox believes his transaction is justifiable, it violates the profession's technical standards and would be unethical.

The other "year-end" actions occur in many organizations and fall into the "gray" to "acceptable" area. Much depends on the circumstances surrounding each one, however, such as the following:

a. *Cut planned bonuses to the Amiven R&D team that would be paid in the third quarter, knowing that doing so may result in lower productivity and increased turnover of highly skilled staff.* This solution is not a violation of ethical standards but this action may not be in the best interest of the company in the long run. Reducing bonuses may help achieve the budget but losing highly skilled employees would harm the company's ability to develop new products in the future and hurt long-run profits.

b. *Sell off rights to the drug, Centrix. The company had not planned on doing this because, under current market conditions, it would get less than fair value. It would, however, result in a onetime gain that could offset the budget shortfall. Of course, all future profits from Centrix would be lost.* Again, this solution may solve the company's short-term budget crisis, but could result in the loss of future profits for Pharmex in the long run. If this action does not create value for Pharmex, it would result in taking an uneconomic action simply to manage accounting earnings in the third quarter.

2. While it is not uncommon for companies to sacrifice long-term profits for short-term gains, it may not be in the best interest of the company's shareholders. In the case of Pharmex, the CFO is primarily concerned with "maximizing shareholder wealth" in the immediate future (third quarter only) but not in the long term. Because this executive's incentive pay and even employment may be based on her ability to meet short-term targets, she may not be acting in the best interest of the shareholders in the long run.

Maddox definitely faces an ethical dilemma. It is not unethical on Maddox's part to want to please his new boss, nor is it unethical that Maddox wants to make a good impression on his first days at his new job; however, Maddox must still act within the ethical standards required by his profession. Taking illegal or unethical action by capitalizing R&D to satisfy the demands of his new supervisor, Emily Alford, is unacceptable. Although not strictly unethical, I would recommend that Maddox not agree to cut planned bonuses for the Amiven R&D team or sell off the rights to Centrix. Each of these appears to sacrifice the overall economic interests of Pharmex for short-run gain. Maddox should argue against doing this but not resign if Alford insists that these actions be taken. If, however, Alford asks Maddox to capitalize R&D, he should raise this issue with the chair of the audit committee after informing Alford that he is doing so. If the CFO still insists on Maddox capitalizing R&D, he should resign rather than engage in unethical behavior.

1-35 (30–40 min.) **Professional ethics and end-of-year actions.**

1. The possible motivations for the snack foods division wanting to take end-of-year actions include:

   (a) Management incentives. Daniel Foods may have a division bonus scheme based on one-year reported division earnings. Efforts to front-end revenue into the current year or transfer costs into the next year can increase this bonus.

   (b) Promotion opportunities and job security. Top management of Daniel Foods likely will view those division managers who deliver high reported earnings growth rates as being the best prospects for promotion. Division managers who deliver "unwelcome surprises" may be viewed as less capable.

   (c) Retain division autonomy. If top management of Daniel Foods adopts a "management by exception" approach, divisions that report sharp reductions in their earnings growth rates may attract a sizable increase in top management supervision.

2. The "Standards of Ethical Conduct . . . " require management accountants to

- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Communicate information fairly and objectively.

Several of the "end-of-year actions" clearly are in conflict with these requirements and should be viewed as unacceptable by Butler.

   (b) The fiscal year-end should be closed on midnight of December 31. "Extending" the close falsely reports next year's sales as this year's sales.

   (c) Altering shipping dates is falsification of the accounting reports.

   (f) Advertisements run in December should be charged to the current year. The advertising agency is facilitating falsification of the accounting records.

The other "end-of-year actions" occur in many organizations and fall into the "gray" to "acceptable" area. However, much depends on the circumstances surrounding each one, such as the following:

(a) If the independent contractor does not do maintenance work in December, there is no transaction regarding maintenance to record. The responsibility for ensuring that packaging equipment is well maintained is that of the plant manager. The division controller probably can do little more than observe the absence of a December maintenance charge.
(d) In many organizations, sales are heavily concentrated in the final weeks of the fiscal year-end. If the double bonus is approved by the division marketing manager, the division controller can do little more than observe the extra bonus paid in December.
(e) If TV spots are reduced in December, the advertising cost in December will be reduced. There is no record falsification here.
(g) Much depends on the means of "persuading" carriers to accept the merchandise. For example, if an under-the-table payment is involved, or if carriers are pressured to accept merchandise, it is clearly unethical. If, however, the carrier receives no extra consideration and willingly agrees to accept the assignment because it sees potential sales opportunities in December, the transaction appears ethical.

Each of the (a), (d), (e), and (g) "end-of-year actions" may well disadvantage Daniel Foods in the long run. For example, lack of routine maintenance may lead to subsequent equipment failure. The divisional controller is well advised to raise such issues in meetings with the division president. However, if Daniel Foods has a rigid set of line/staff distinctions, the division president is the one who bears primary responsibility for justifying division actions to senior corporate officers.

3. If Butler believes that Ray wants her to engage in unethical behavior, she should first directly raise her concerns with Ray. If Ray is unwilling to change his request, Butler should discuss her concerns with the Corporate Controller of Daniel Foods. She could also initiate a confidential discussion with an IMA Ethics Counselor, other impartial advisers, or her own attorney. Butler also may well ask for a transfer from the snack foods division if she perceives Ray is unwilling to listen to pressure brought by the Corporate Controller, CFO, or even President of Daniel Foods. In the extreme, she may want to resign if the corporate culture of Daniel Foods is to reward division managers who take "end-of-year actions" that Butler views as unethical and possibly illegal. It was precisely actions along the lines of (b), (c), and (f) that caused an accountant at WorldCom, to be indicted for falsifying WorldCom's books and misleading investors.

1-36 (30 min.) **Professional ethics and end-of-year actions.**

1. The possible motivations for Controller Sophie Gellar to modify the division's year-end earnings are

(i) Job security and promotion. The company's CFO will likely reward her for meeting the company's performance expectations. Alternately, Gellar may be penalized, perhaps even by losing her job if the performance expectations are not met.
(ii) Management incentives. Gellar's bonus may be based on the division's ability to meet certain profit targets. If the House and Home division is able to meet its profit target for the year, the Controller may receive incentive bonuses for the year, for example, by using lighter weight paper to reduce both paper and postage costs even if there is an impact on

future sales from lower quality, or by manipulating operating income by questionable revenue and/or expense recognition.

2. The overarching principles of the IMA Statement of Ethical Professional Practice are Honesty, Fairness, Objectivity and Responsibility. The statement's corresponding "Standards for Ethical Conduct…" require management accountants to

- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Communicate information fairly and objectively.
- Provide all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.

Several of the "year-end" actions are clearly in conflict with the statement's principles and required standards and should be viewed as unacceptable.

(c) Subscription revenue received in December in advance for magazines that will be sent out in January is a liability. Showing it as revenue falsely reports next year's revenue as this year's revenue.

(d) Delaying the shipment of the January issues to January 2 to defer recognition of the postage expense is not an ethical violation. However, recognizing subscription revenue of the January issue in December violates GAAP and is unethical. It falsely reports next year's revenue as this year's revenue.

(e) Booking advertising revenues that relate to January in December falsely reports next year's revenue as this year's revenue.

The other "year-end" actions occur in many organizations and fall into the "gray" to "acceptable" area. Much depends on the circumstances surrounding each one, however, such as the following:

(a) *Cancelling two of the division's least profitable magazines, resulting in the layoff of twenty-five employees.* While employee layoffs may be necessary for the business to survive, the layoff decision could result in economic hardship for those employees who lose their jobs, as well as result in employee morale problems for the rest of the division. Many companies would prefer to avoid causing hardship for their existing employees due to layoffs unless beneficial from a long-term perspective or for the survival of the business as a whole.

(b) *Changing to a lighter weight paper that would reduce both paper and postage costs by five percent. It is uncertain what effect the lower quality would have on future sales.* If it is determined that the cost savings from shifting to the lower grade of paper will outweigh any lost revenue from the reduction in quality, then this is not an ethical violation. Gellar should present to management a fair, unbiased report of the data so that management can make a decision that is in the best interest of the company in the long run. If the future lost revenues were greater than the savings in costs and Gellar were not to present this information clearly, it would violate the IMA's ethical standards of competence and credibility by not communicating information fairly, objectively and accurately.

(f) *Switching from declining balance to straight line depreciation to reduce depreciation expense in the current year.* Many companies switch their depreciation policy from one method to another. Phoenix Press could argue that straight-line depreciation better represents the decrease in the economic value of the asset compared to the declining balance method. Straight-line depreciation may also be more in line with what its competitors do. If, however, the company changes to straight-line depreciation with the sole purpose of reducing expenses to meet its profit goals, such behavior would be unacceptable. The Standards of Ethical Behavior require management accountants to communicate information fairly and objectively and to carry out duties ethically.

3. Gellar should directly raise her concerns first with the CFO, especially if the pressure from the CFO is so great that the only course of action on the part of the controller is otherwise to behave unethically. If the CFO refuses to change his direction, then the controller should raise these issues with the CEO, and next to the Audit Committee and the Board of Directors, after informing the CFO that she is doing so. The Controller could also initiate a confidential discussion with an IMA Ethics Counselor, other impartial advisers, or his/her own attorney. In the extreme, the Controller may want to resign if the corporate culture of Phoenix Press is to reward executives who take year-end actions that the Controller views as unethical and possibly illegal. It was precisely actions along the lines of (c), (d) and (e) that caused an accountant at WorldCom, to be indicted for falsifying WorldCom's books and misleading investors.

1-37 (40 min.) **Ethical challenges, global company.**

1. The overarching principles of the IMA Statement of Ethical Professional Practice are Honesty, Fairness, Objectivity, and Responsibility. The statement's corresponding "Standards for Ethical Conduct…" require management accountants to

- Perform professional duties in accordance with relevant laws, regulations, and technical standards.
- Refrain from engaging in any conduct that would prejudice carrying out duties ethically.
- Communicate information fairly and objectively.
- Disclose all relevant information that could reasonably be expected to influence an intended user's understanding of the reports, analyses, or recommendations.

Several of the suggestions made by Armstrong's staff are clearly in conflict with the statement's principles and required standards and should be viewed as unacceptable.

a. *Pay local officials to "certify" the ramin used by CI as sustainable. It is not certain whether the ramin would indeed be sustainable or not.* If the payment could be considered a bribe, the company would be in violation of the Foreign Corrupt Practices Act. Knowledge of such a violation of law would be considered a violation of professional ethics.

c. *Record executive year-end bonus compensation accrued for the current year when it is paid in the next year after the December fiscal year-end.* GAAP requires expenses to be recorded (accrued) when incurred, not when paid (cash basis accounting). Therefore, failure to record the executives' year-end bonus would violate the IMA's standards of credibility and integrity.

f. *Pressure current customers to take early delivery of goods before the end of the year so that more revenue can be reported in this year's financial statements.* This tactic, commonly known as channel stuffing, merely results in shifting future period revenues into the current period. The overstatement of revenue in the current period may mislead investor's to believe that the company's financial well-being is better than the actual results achieved. This practice would violate the IMA's standards of credibility and integrity. Channel stuffing is frequently considered a fraudulent practice.

i. *Recognize sales revenues on orders received but not shipped as of the end of the year.* GAAP requires income to be recorded (accrued) when the four criteria of revenue recognition have been met:

1. The company has completed a significant portion of the production and sales effort.

2. The amount of revenue can by objectively measured.

3. The major portion of the costs has been incurred, and the remaining costs can be reasonably estimated.

4. The eventual collection of the cash is reasonably assured.

Because criteria 1 and 3 have not been met at the time the order is placed, the revenue should not be recognized until after year-end. Therefore, recording next year's revenue in the current year would be a violation of GAAP and would be falsifying revenue. This would be a violation of the IMA's standards of credibility and integrity and considered fraudulent.

Three of the suggestions appear to be acceptable:

d. *Reject the change in materials. Counter the bad publicity with an aggressive ad campaign showing the consumer products as "made in the USA," since manufacturing takes place in North Carolina.* This is an acceptable strategy. Consumers could then weigh the employment benefits in the United States against the negative environmental effects of the company's actions.

e. *Redesign upholstered furniture to replace ramin contained inside with less expensive recycled plastic.* Creative changes in product design using recycled materials will allow CI to address sustainability concerns as well as protect company profits.

g. *Begin purchasing sustainable North American hardwoods and sell the Indonesian lumber subsidiary. Initiate a "plant a tree" marketing program, by which the company will plant a tree for every piece of furniture sold.* While this solution would increase cost of materials and the price CI must charge for its product, sales and profits may not decline if consumers perceive the value of sustainability and corporate social responsibility.

The other "year-end" actions occur in many organizations and fall into the "gray" to "acceptable" area. Much depends on the circumstances surrounding each one, however, such as the following:

b. *Make deep cuts in pricing through the end of the year to generate additional revenue.*

Again, this is only a short-term tactic to improve this year's financial results. Investors may be content in the short run, but in the long run, the company may see reduced margins from these actions.

h. *Sell-off production equipment prior to year-end. The sale would result in one-time gains that could offset the company's lagging profits. The owned equipment could be replaced with leased equipment at a lower cost in the current year.* While this course of action does not necessarily violate the IMA's code of ethical standards, it may be only a short-term tactic to improve this year's financial results. Armstrong will need to weigh his options in the long term to make the most cost effective decision for his company.

2. It is possible that any of the "year-end" actions that fall into the "gray" area may be good for investors, depending on the credible evidence that supports the management decision. For example, replacing owned equipment with leased equipment may result in both short-term gains for the company and long-term cost reduction. If so, this decision would be in the best interest of the investors. If the decision only results in short-term gains, but higher costs in the long-run, then the decision may not be in the best long-term interest of the company's investors and should not be implemented solely to prop up short-term earnings.

Those decisions that clearly violate the IMA code of ethical standards (a, c, f, and i) would never be in the best interest of the investor. These options would result in misleading financial statements and could result in the demise of the company or even in criminal charges, as was the case with companies such as Enron and WorldCom. If Armstrong asks the management accountant to take any of the actions that are clearly unethical, he should raise this issue with the chair of the Audit Committee after informing Armstrong that he is doing so. If Armstrong still insists on the management accountant taking these actions, he should resign rather than engage in unethical behavior.

Instructor's Resource Manual

Donna McGovern

Horngren's Cost Accounting

17th Edition

Srikant M. Datar
Harvard University
Madhav V. Rajan
Stanford University

Pearson

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1 The Manager and Management Accounting

TRANSITION NOTES

This chapter introduces the five-step decision-making process utilized by managers to make a variety of decisions. This process becomes an underlying theme of the text as it is applied to a number of types of decisions throughout the text. The steps of the five-step decision-making process are (1) identify the problem and uncertainties, (2) obtain information, (3) make predictions about the future, (4) make decisions by choosing among alternatives, and (5) implement the decision, evaluate performance, and learn. With the emphasis on the five-step decision process, material relating to the problem-solving, scorekeeping, and attention-directing roles of the management accountant are streamlined. There is also an increased emphasis on the linkage between the set of business functions in the value chain and customer expectations as key success factors.

EXERCISES AND PROBLEMS CORRELATION CHART

17th Edition	16th Edition	17th Edition	16th Edition
17	17	28	28
18	18	29	29
19	19	30	30
20 Revised	20	31 Revised	31
21	21	32 Revised	32
22	22	33	33
23 Revised	23	34	34
24 Revised	24	35	35
25	25	36 Revised	36
26	26	37	37
27	27		

I. LEARNING OBJECTIVES

1. Distinguish financial accounting from management accounting.
2. Understand how management accountants help firms make strategic decisions.
3. Describe the set of business functions in the value chain and identify the dimensions of performance that customers are expecting of companies.
4. Explain the five-step decision-making process and its role in management accounting.
5. Describe three guidelines management accountants follow in supporting managers.
6. Understand how management accounting fits into an organization's structure.
7. Understand what professional ethics mean to management accountants.

II. CHAPTER SYNOPSIS

Chapter 1 is an important introductory chapter. The underlying premise of this text, *Cost Accounting: A Managerial Emphasis* (17^{th} ed.), is the importance of cost accounting data in making managerial decisions. Distinction is made between financial accounting and managerial accounting. **Financial accounting** focuses on reporting financial information to external parties such as investors, government agencies, banks, and suppliers based on Generally Accepted Accounting Principles (GAAP). The most important way financial accounting information affects managers' decisions and actions is through compensation, numbers in financial statements. Management accounting is the process of measuring, analyzing, and reporting financial and nonfinancial information that helps managers make decisions to fulfill the goals of an organization. Managers use management accounting information to:

1. develop, communicate, and implement strategy
2. coordinate design, operations, and a company's performance.

Cost accounting provides information for both management accounting and financial accounting professionals. Cost accounting is the process of measuring, analyzing and reporting financial and nonfinancial information related to the costs of acquiring or using resources in an organization. The distinction between management accounting and cost accounting is not so clear-cut, and we often use these terms interchangeably in the book.

Successful management accounting systems capture and report information that helps managers make decisions to fulfill organizational goals in an effective and efficient manner. Management accounting also provides information critical to the planning and control decisions of managers.

A five-step decision-making process is introduced to guide successful decision making: identify the problem, obtain information, make predictions about outcomes, make a decision, and implement the decision.

Key guidelines for management accountants include: cost–benefit analysis, behavioral considerations, technical considerations, and different costs for different purposes. Understanding these guidelines is essential for the student to have a solid foundation for material that is presented later in the text.

As those responsible for the integrity of the accounting information used by external and internal parties, accountants must maintain the highest of ethical standards. They must take special care to avoid the appearance of ethical improprieties—not only avoid unethical behavior, but avoid the appearance of such. The Sarbanes–Oxley Act of 2002, passed in response to several large accounting scandals, imposes strict ethical standards on accountants. Professional associations such as the AICPA and the IMA not only impose additional standards on their members but also provide resources that help members identify ethical issues and possible courses of action when ethical dilemmas confront them.

III. POINTS OF EMPHASIS

1. Make sure that the students understand the perspective of cost accounting and how it differs from that of financial accounting.
2. The cost–benefit ratio is pervasive throughout the text. The students should grasp this concept early or they will not fully understand cost accounting.
3. Another recurring theme throughout the text is the five-step decision model. Emphasize this concept and be certain the students are operationally familiar with it.
4. The guidelines to management accounting covered in Learning Objective 5 give the student a proper perspective in order to "do" management accounting.
5. It is helpful and sets an ethical tone for the class if you go over the points included in the IMA Code of Ethical Conduct. Discuss the definitions of the terms covered in the Code, making certain that the students have a grasp of what is involved in ethical conduct.

IV. CHAPTER OUTLINE

LEARNING OBJECTIVE 1

Distinguish financial accounting

… reporting on past performance to external users

from management accounting

… helping managers make decisions

1.1 Accounting systems process economic events and transactions into information helpful to managers. This data is collected, categorized, summarized, and analyzed.

1.2 Accounting systems provide information found in the financial statements as well as in internal performance reports.

1.3 Managers use this information to administer the activities of their area of responsibility.

1.4 Information needs may vary depending on managerial needs.

> TEACHING POINT. It is good to stop here and evaluate the different needs of different users within the company. Sales managers are interested in sales data by region or sales person; distribution managers may be interested in orders by geographic location or requested due dates; manufacturing managers may be interested in quantities of products ordered so production

scheduling can occur. All of these are interested in different aspects of the sales data.

1.5 Management accounting has a different focus than financial accounting. The management accountant reports financial and nonfinancial information that helps managers make decisions that will help the company achieve its goals or implement its strategy. It is forward-looking.

TEACHING POINT. Students need to understand from the start the “decision-making” focus of management accounting.

1.6 Management accounting reports information in a manner that will help managers do their jobs better and are not restricted by Generally Accepted Accounting Principles (GAAP).

TEACHING POINT. This is a good time to introduce an overriding element of management accounting—the cost–benefit ratio. Engage the students in a cost–benefit analysis from personal experience. For example, compare the cost of getting a college education (including lost wages) with the benefits. Link the discussion to the original decision to (1) attend college and (2) the choice of a college.

1.7 Financial accounting has a historical focus, as it reports the results of operations to external parties. These reports must adhere to GAAP.

1.8 Cost accounting and financial accounting do not operate independently. Cost accounting, in addition to providing information for management accounting decision-making needs, also provides data to meet financial accounting inventory-valuation needs.

(Exhibit 1-1 summarizes the major differences between financial and managerial accounting.)

1.9 **Cost management** describes the activities managers undertake to use resources in a way that increases a product’s value to customers and achieves an organization’s goals.

TEACHING POINT. Students are frequently confused by cost accounting terminology. Explain that different practices arise in different companies. Because cost accounting is not for external reporting purposes, there is frequently a lack of communication among companies, and no standard terminology developed. Many cost accounting terms lack a uniform definition, and many practices may go by different names.

Refer to Quiz Question 1

LEARNING OBJECTIVE 2

Understand how management accountants help firms make strategic decisions

… they provide information about the sources of competitive advantage

2.1 **Strategy** describes how an organization will compete and the opportunities management should pursue. It involves matching its capabilities with the opportunities in the marketplace to accomplish its objective.

> TEACHING POINT. Emphasize here the difference in strategic and tactical decision making. Strategy focuses on the long term and is performed by upper management. Tactical decision making is short term and is in the realm of lower to middle management. For students a strategic decision is their choice of a college and a major. A tactical decision would be what class to study for tonight.

2.2 Two broad strategies include competing on the basis of price or on the basis of product differentiation.

> TEACHING POINT. Have the students brainstorm for names of companies that have pursued either strategy. How have they implemented the strategy of price competition? How have they differentiated the product?

2.3 **Strategic cost management** describes cost management specifically focused on strategic issues. This seeks answers to questions such as:

- Who are our most important customers and how do we deliver value to them?
- What substitute products exist in the market? How do they differ from ours?
- What is our most critical capability? What do we do best?
- Will adequate cash be available to fund the strategy or is outside financing needed?

Refer to Quiz Question 2 **Problem 1-29**

LEARNING OBJECTIVE 3

Describe the set of business functions in the value chain and identify the dimensions of performance that customers are expecting of companies

… R&D, design, production, marketing, distribution, and customer service supported by administration to achieve cost and efficiency, quality, time, and innovation

3.1 The **value chain** is the sequence of business functions in which customer usefulness is added to products or services.

(Exhibit 1-2 illustrates the six business functions in the value chain.)

3.2 **Research and development (R&D)** involves generating and experimenting with new ideas related to new products, services, or processes.

3.3 The **design** function undertakes detailed planning and engineering of products, services, or processes.

3.4 **Production** is procuring, transporting, and storing (inbound logistics) and coordinating and assembling (operations) resources to produce a product or deliver a service.

3.5 **Marketing** involves promoting and selling products or services to customers.

3.6 **Distribution** is the process of delivering the products or services to customers.

3.7 **Customer service** provides after-sale service to customers.

TEACHING POINT. All of these functions are important and interrelated. The failure of a company to deliver any one of these adequately will have a negative impact on the others. Ask the students about negative experiences they have had with a company and which element of the value chain was involved. Probe further, exploring how this failure impacted the student's perception of the company in other areas.

3.8 Management accountants are involved in the value chain as they keep track of costs incurred in each category. This information helps managers evaluate cost–benefit tradeoffs.

3.9 Related to the value chain is the supply chain. Whereas the value chain is internal, the **supply chain** involves the flow of goods, services, and information from the initial source of materials and services to the delivery of products to consumers. The value chain can involve one or many different organizations.

(Exhibit 1-3 illustrates an overview of the value chain.)

3.10 The value chain and supply chain should be used by the company to deliver improving levels of performance for the customer. Key success factors in accomplishing this delivery include the following:

- **Cost and efficiency—**Determine what customers are willing to pay for a product or service and set a *target price*. By subtracting the desired profit, the company can then work to accomplish its *target cost*.
- **Quality—**Customers expect high levels of quality. Total Quality Management (TQM) is a philosophy that seeks to improve operations throughout the company and exceed customer expectations.

TEACHING POINT. Emphasize that quality does not have to be the most expensive. A product or service can be a quality product or service if it conforms to its intent. This is quality of conformance. Quality of design relates to products being thought of as being top-notch. A Rolls Royce automobile has quality of design. There is a more thorough discussion of quality in Chapter 19.

- **Time**—New product development time and customer response time are two elements of this factor. In today's time-conscious society, the customer wants the product or service now. Any delay is unacceptable. A company that can compete on the basis of time, whether in development or delivery is one that has an edge in today's market.

  TEACHING POINT. When Fred Smith founded Federal Express to deliver packages overnight, many thought he would not succeed. However, Smith realized an unmet demand for quick delivery.

- **Innovation**—A constant flow of new products or services is the basis for ongoing company success.

- **Sustainability**—Companies increasingly apply the key success factors of cost and efficiency, quality, time, and innovation to promote sustainability.

Refer to Quiz Questions 3 and 4 **Exercise 1-18**

LEARNING OBJECTIVE 4

Explain the five-step decision-making process

… identify the problem and uncertainties, obtain information, make predictions about the future, make decisions by choosing among alternatives, and implement the decision, evaluate performance, and learn to do planning and control

and its role in management accounting

… planning and control of operations and activities

4.1 Managers should go through a routine process in order to make effective decisions. This five-step decision-making process can be utilized to make a variety of decisions.

- **Identify the problems and uncertainties.** What are the choices that are being faced and where do the uncertainties lie?

- **Obtain information.** Gather information before making a decision helps the manager to make a more informed decision.

  TEACHING POINT. Guard against information overload, or obtaining too much information. Narrow the choices so the volume of information is manageable. Too much information can lead to "paralysis of analysis," or the inability to formulate a viable solution.

- **Make predictions about the future.** On the basis of the information obtained attempt to predict the outcome of each course of action.
- **Make decisions by choosing among alternatives.** The information has been gathered and projections made. Select an alternative.

TEACHING POINT. Do not shy away from making a decision. Someone once asked the president of General Motors if he had ever made a bad decision. His response was that to reach the level of success he had achieved, you were doing good to bat .500. You are going to make bad decisions, learn from them.

Collectively, the four preceding steps are known as **planning**—the selection of organizational goals, predicting results under alternative ways of achieving these goals, deciding how to attain these goals, and communicating the goals to the entire organization.

A **budget** has been described as the quantitative expression of a proposed plan of action. It is a planning tool.

Control is the action taken to implement the planning decisions represented by the budget.

- **Implement the decision, evaluate performance, and learn.** All the effort expended in steps 1 through 4 is useless unless the decision is put into action.

TEACHING POINT. Most people have been associated with organizations or individuals who would have great plans, and would go through steps 1 through 4 of the process, only to fail to implement the decision. A colleague once came into work one morning, announcing an intention to return to school for an advanced degree. Fifteen years later, that colleague is still in the same company, without the degree.

Once implemented, the decision must be monitored. This is performance evaluation. One way of doing this is by comparing the budget with the actual results. This makes budgeting a control tool in addition to a planning tool. Often this is accomplished by the use of a performance report.

TEACHING POINT. Monitoring also helps keep the plan (or budget) realistic. If the person proposing the project knows the results will not be monitored, there is a tendency to overstate the benefits so the project will receive approval.

Learn. If the results were not as planned, find out why. Use this information to improve the decision-making process for future decisions.

Refer to Quiz Question 5	**Exercise 1-24, 25**

LEARNING OBJECTIVE 5

Describe three guidelines management accountants follow in supporting managers

… employing a cost–benefit approach, recognizing behavioral as well as technical considerations, and calculating different costs for different purposes

TEACHING POINT. These guidelines are the foundation for the rest of the text. Students must understand that everything that is to follow must be filtered through the lens of cost-benefit, behavioral and technical considerations, and different costs for different purposes.

5.1 **Cost–benefit approach.** Always ask if the benefits from undertaking the activity exceed the costs of doing so.

5.2 **Behavioral and technical considerations.** Consider the motivational aspect of the decision. Will the managers and employees be motivated to work toward the goals of the organization? Technical considerations provide managers with appropriate information at appropriate intervals to assist in decision making.

5.3 **Different costs for different purposes.** Much of this book is about alternative ways to compute costs. In determining the cost, the first question that should be asked is "What is the purpose of this cost number?" Performance evaluation, external reporting, and internal decision making are three different purposes that might require a different view of cost.

Refer to Quiz Question 6

LEARNING OBJECTIVE 6

Understand how management accounting fits into an organization's structure

… for example, the responsibilities of the controller

6.1 Most organizations distinguish between **line** and **staff** relationships. **Line management** is directly responsible for attaining the goals of the organization. Production is a line function. **Staff management** supports line management with advice and assistance. Accounting and human resources are two examples of staff management functions.

6.2 The **chief financial officer** or **CFO** (also called the finance director) is the executive responsible for overseeing the financial operations of an organization. Included among the responsibilities of the CFO are several functions:

- **Controller** provides financial information to managers and shareholders and oversees the overall operations of the accounting system.
- The **treasury** function includes banking, financing, investments, and cash management.
- **Risk management** includes managing the financial risk of interest rate and exchange rate changes as well as derivatives management.
- **Taxation** includes income taxes, sales taxes, and international tax planning.
- **Investor relations** responds to and interacts with shareholders.
- **Strategic planning** includes defining strategy and allocating resources to implement strategy.

The scope and importance of an **internal audit** has increased in recent years and now includes reviewing and analyzing financial and other records to attest to the integrity of the organization's financial reports and adherence to policies and procedures.

(Exhibit 1-6 illustrates a typical organization chart for the CFO)

Refer to Quiz Questions 7 and 8 **Problem 1-33**

LEARNING OBJECTIVE 7

Understand what professional ethics means to management accountants

… for example, management accountants must maintain integrity and credibility in every aspect of their job

7.1 Accountants have a special obligation regarding ethics, as they are responsible for the integrity of the financial information provided to external and internal users.

7.2 Sarbanes–Oxley focuses on improving internal control, corporate governance, monitoring of managers, and disclosure practices of public corporations. This legislation brought an increase in the ethical standards of managers and accountants.

7.3 The Institute of Management Accountants (IMA) is the largest association of management accountants in the United States.

7.4 The IMA offers professional certification in the form of the CMA designation—Certified Management Accountant. This certification represents a demonstration of technical competency in financial and managerial accounting and holds the CMA to high ethical standards.

7.5 The IMA *Standards for Ethical Conduct for Practitioners of Management Accounting and Financial Management* presents guidelines on issues relating to competence, confidentiality, integrity, and credibility.

(Exhibit 1-7 is a copy of the IMA Ethical Conduct Statement.)

7.6 In addition to the *Standards*, the IMA has an ethics hotline to assist members in resolving their ethical dilemmas.

TEACHING POINT. Students sometimes don't realize the importance of proper ethical behavior. A sign on a church once read "Integrity—Gained over a lifetime, lost in an instant." Emphasize that integrity, once lost, is difficult to regain. Also, it is important for the accountant to avoid even the appearance of unethical conduct.

Refer to Quiz Questions 9 and 10 **Exercise 1-35**

V. OTHER RESOURCES

To download instructor resources, visit the Instructor's Resource Center at *www.pearsonhighered.com/irc*.

The following exhibits were mentioned in this chapter of the Instructor's Manual, and have been included in the **Image Library**.

Exhibit 1-1 summarizes the main differences between financial and managerial accounting.

Exhibit 1-2 illustrates the six business functions in the value chain.

Exhibit 1-3 illustrates an overview of the supply chain.

Exhibit 1-4 illustrates an overview of a performance report.

Exhibit 1-5 illustrates how accounting aids decision making.

Exhibit 1-6 illustrates a typical organization chart for the CFO.

Exhibit 1-7 is a copy of the IMA Ethical Conduct Statement.

Exhibit 1-8 is a copy of the IMA Resolution of Ethical Conduct.

CHAPTER 1 QUIZ

1. Why do most companies adhere to GAAP for their basic internal financial statements?
   a. GAAP is required by law for publicly held companies.
   b. To use GAAP and another system of reporting would be too costly for most companies.
   c. Accountants are required by their code of ethics to use GAAP accounting.
   d. Accrual accounting provides a uniform method to measure an organization's financial performance.

2. Which of the following is *not* true about strategy?
   a. It involves matching its capabilities with the opportunities in the marketplace to accomplish its objective.
   b. It has a short-term focus.
   c. It can be implemented through price competition or product differentiation.
   d. It involves the use of strategic cost management.

3. The value chain
   a. involves external companies as well as internal activities.
   b. is the sequence of business functions in which customer usefulness is added to products or services.
   c. applies only to manufacturing companies.
   d. is not relevant in today's cost accounting environment.

4. Which of the following is *not* a key success factor in a company's effort to deliver increased levels of performance to the customer?
   a. Time
   b. Innovation
   c. Quality
   d. Price reduction

5. The five-step decision-making process
   a. includes planning and control activities.
   b. is performed exclusively by management accountants.
   c. is not often used, as the costs exceed the benefits.
   d. must be performed following GAAP guidelines.

6. In supporting managers, management accountants have three guidelines. These guidelines are:
   a. Cost–benefit analysis, performance reporting, behavioral considerations, and technical considerations.
   b. Cost–benefit analysis, behavioral considerations and technical considerations, and different costs for different purposes.
   c. Financial statement preparation, technical considerations, strategic direction, and budgeting.
   d. Following functional lines of authority, cost–benefit analysis, behavioral considerations, and use of the value chain.

7. _____ management exists to provide advice and assistance to those responsible for attaining the objectives of the organization.
   a. Line
   b. Functional
   c. Staff
   d. Risk

8. The Treasurer
   a. is the executive responsible for overseeing the financial operations of an organization.

b. undertakes banking, financing, investments, and cash management duties.
c. provides financial information to managers and shareholders and oversees the overall operations of the accounting system.
d. is a different title for the Controller.

9. Which of the following is *not* one of the ethical responsibilities of a management accountant?
 a. Compliance
 b. Confidentiality
 c. Integrity
 d. Objectivity

10. The Institute of Management Accountants issues which certification?
 a. CPA
 b. CIA
 c. CFE
 d. CMA

CHAPTER 1 QUIZ SOLUTIONS

1. d
2. b
3. b
4. d
5. a
6. b
7. c
8. b
9. a
10. d

Chapter 1. The Manager and Management Accounting

1-17	a. Prod b. Dist c. Des d. R&D e. CS or Mark f. Des or R&D g. Mark h. Prod
1-18	a. Mark b. Des c. CS d. R&D e. Mark f. Prod g. Mark h. Dist
1-19	a. Prod b. Dist c. Prod d. Prod e. Mark f. Mark g. Des or R&D h. CS
1-20	a. Innov b. Cost & Qual c. Time & Cost d. Innov, Sust & Cost e. Cost
1-21	a. Time & Cost b. Time & Cost c. Innov & Sust d. Cost, Time & Quality e. Cost
1-22	a. Planning b. Control c. Control d. Planning e. Planning
1-23	a. Control b. Control c. Planning d. Planning e. Planning
1-24	a. OI b. MP c. MD d. IE&L e. MP f. IP&U g. OI
1-25	a. MD b. IP&U c. OI and/or MP d. OI and/or MP e. MP f. OI
1-29	1. a. CL b. PD c. PD d. CL
1-30	1. a. CL b. PD c. CL d. PD
1-31	1. B-T 2. B-T 3. Dif 4. B-T 5. CB 6. CB 7. B-T 8. Dif 9. CB
1-32	1. B-T 2. CB 3. Dif 4. B-T 5. B-T 6. Dif 7. Dif
1-33	1. CFO CFO CFO Cont Cont CFO Cont Cont
1-36	2.Unacceptable: (c) (d) and (e) Gray to acceptable area: (a), (b), (f)
1-37	1.Unacceptable: (a) (c) (f) and (i) Acceptable: (d) (e) and (g) Gray area: (b) and (h)