fifteenth edition

COST ACCOUNTING

A MANAGERIAL EMPHASIS

Charles T. Horngren Srikant M. Datar Madhav Rajan

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A Managerial Emphasis

Fifteenth Edition

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About the Authors

Charles T. Horngren was the Edmund W. Littlefield Professor of Accounting, Emeritus, at Stanford University. A Graduate of Marquette University, he received his MBA from Harvard University and his PhD from the University of Chicago. He was also the recipient of honorary doctorates from Marquette University and DePaul University.

A certified public accountant, Horngren served on the Accounting Principles Board for six years, the Financial Accounting Standards Board Advisory Council for five years, and the Council of the American Institute of Certified Public Accountants for three years. For six years, he served as a trustee of the Financial Accounting Foundation, which oversees the Financial Accounting Standards Board and the Government Accounting Standards Board. Horngren was a member of the Accounting Hall of Fame.

A member of the American Accounting Association, Horngren had been its president and its director of research. He received its first Outstanding Accounting Educator Award. The California Certified Public Accountants Foundation gave Horngren its Faculty Excellence Award and its Distinguished Professor Award. He was the first person to have received both awards.

The American Institute of Certified Public Accountants presented its first Outstanding Educator Award to Horngren. Horngren was named Accountant of the Year, Education, by the national professional accounting fraternity, Beta Alpha Psi. Professor Horngren was also a member of the Institute of Management Accountants, from whom he received its Distinguished Service Award. He was also a member of the Institutes' Board of Regents, which administers the Certified Management Accountant examinations.

Horngren is the author of other accounting books published by Pearson Education: *Introduction to Management Accounting,* 15th ed. (2011, with Sundem, and Stratton); *Introduction to Financial Accounting,* 10th ed. (2011, with Sundem and Elliott); *Accounting,* 8th ed. (2010, with Harrison and Bamber); and *Financial Accounting,* 8th ed. (2010, with Harrison).

Horngren was the Consulting Editor for the Charles T. Horngren Series in Accounting.

Srikant M. Datar is the Arthur Lowes Dickinson Professor at the Harvard Business School. He served as Senior Associate Dean from 2000 to 2010. A graduate with distinction from the University of Bombay, he received gold medals upon graduation from the Indian Institute of Management, Ahmedabad, and the Institute of Cost and Works Accountants of India. A chartered accountant, he holds two master's degrees and a PhD from Stanford University.

Datar has published his research in leading accounting, marketing, and operations management journals, including *The Accounting Review, Contemporary Accounting Research, Journal of Accounting, Auditing and Finance, Journal of Accounting and Economics, Journal of Accounting Research,* and *Management Science*. He has served as an associate editor and on the editorial board of several journals and has presented his research to corporate executives and academic audiences in North America, South America, Asia, Africa, Australia, and Europe. He is a coauthor of three other books: *Managerial Accounting: Making Decisions and Motivating Performance, Rethinking the MBA: Business Education at a Crossroads*, and *Rethinking Graduate Management Education in Latin America.*

Cited by his students as a dedicated and innovative teacher, Datar received the George Leland Bach Award for Excellence in the Classroom at Carnegie Mellon University and the Distinguished Teaching Award at Stanford University.

Datar is a member of the board of directors of Novartis A.G., ICF International, T-Mobile US, and Stryker Corporation and has worked with many organizations, including Apple Computer, Boeing, DuPont, Ford, General Motors, Morgan Stanley, PepsiCo, Visa, and the World Bank. He is a member of the American Accounting Association and the Institute of Management Accountants.

Madhav V. Rajan is the Robert K. Jaedicke Professor of Accounting and Senior Associate Dean for Academic Affairs at Stanford University's Graduate School of Business. He is also Professor of Law (by courtesy) at Stanford Law School. Rajan oversees the MBA and MSx programs as well as the Marketing and Organizational Behavior faculty areas at the GSB.

Rajan received his undergraduate degree in commerce from the University of Madras, India, and his MS in accounting, MBA, and PhD degrees from Carnegie Mellon University. In 1990, his dissertation won the Alexander Henderson Award for Excellence in Economic Theory.

Rajan's primary area of research interest is the economics-based analysis of management accounting issues, especially as they relate to internal control, capital budgeting, quality management, supply chain and performance systems in firms. He has published his research in a variety of leading journals, including *The Accounting Review, Journal of Accounting Research, Management Science*, and *Review of Financial Studies*. In 2004, he received the Notable Contribution to Management Accounting Literature award. He is a coauthor of *Managerial Accounting: Making Decisions and Motivating Performance*.

Rajan has served as the Departmental Editor for Accounting at *Management Science* as well as associate editor for both the accounting and operations areas. From 2002 to 2008, Rajan served as an editor of *The Accounting Review*. Rajan has twice been a plenary speaker at the AAA Management Accounting Conference.

Rajan has received several teaching honors at Wharton and Stanford, including the David W. Hauck Award, the highest undergraduate teaching award at Wharton. He has taught in a variety of executive education programs, including the Stanford Executive Program and the National Football League Program for Managers, as well as custom programs for firms, including Genentech, Hewlett-Packard, and nVidia.

Rajan is a director of Cavium, Inc., and iShares, Inc., and a trustee of the iShares Trust.

Preface

Studying Cost Accounting is one of the best business investments a student can make. Why? Because success in any organization—from the smallest corner store to the largest multinational corporation—requires the use of cost accounting concepts and practices. Cost accounting provides key data to managers for planning and controlling, as well as costing products, services, even customers. This book focuses on how cost accounting helps managers make better decisions, as cost accountants are increasingly becoming integral members of their company's decision-making teams. In order to emphasize this prominence in decision making, we use the "different costs for different purposes" theme throughout this book. By focusing on basic concepts, analyses, uses, and procedures instead of procedures alone, we recognize cost accounting as a managerial tool for business strategy and implementation.

We also prepare students for the rewards and challenges they face in the professional cost accounting world of today and tomorrow. For example, we emphasize both the development of analytical skills such as Excel to leverage available information technology and the values and behaviors that make cost accountants effective in the workplace.

New to This Edition

Deeper Consideration of Global Issues

Businesses today have no choice but to integrate into an increasingly global ecosystem. Virtually all aspects, including supply chains, product markets, and the market for managerial talent, have become more international in their outlook. To illustrate this, we incorporate global considerations into many of the chapters. For example, Chapter 6 talks about the special challenges of budgeting in multinational companies while Chapter 23 discusses the challenges of evaluating the performance of divisions located in different countries. The opener for Chapter 17 highlights the differences in the way process flows are accounted for under U.S. and international accounting rules and the impact of these differences on companies' margins and after-tax income. Chapter 22 examines the importance of transfer pricing in minimizing the tax burden faced by multinational companies. Several new examples of management accounting applications in companies are drawn from international settings.

Increased Focus on Merchandising and Service Sectors

In keeping with the shifts in the U.S. and world economy, this edition makes greater 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 20 highlights inventory management in retail organizations and has a revised example based on a seller of sunglasses. Chapter 21 now incorporates a new 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 the use of activity-based costing to reduce the costs of health care delivery (Chapter 5), the structure of SGA costs at Nordstrom (Chapter 2), and an analysis of the operating income performance of Best Buy (Chapter 12).

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 12 discusses the benefits to companies from measuring social and environmental performance and how such measures can be incorporated in a balanced scorecard. Chapter 23 provides several examples of companies that mandate disclosures and evaluate managers on environmental and social metrics. A variety of chapters, including Chapters 4, 10, and 15, contain vignettes that stress themes of energy independence, using cost analysis to reduce environmental footprints, and constructing "green" homes in a cost-effective manner.

New Cutting-Edge Topics

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

- We have introduced sustainability strategies and the methods companies use to implement sustainability with business goals.
- We have added ideas based on academic research regarding the weights to be placed on performance measures in a balanced scorecard.
- We have provided 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.
- We discuss the role of accounting concepts and systems in fostering and supporting innovation and entrepreneurial activities in firms.

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 Hostess Brands, the maker of Twinkies, was driven into liquidation by the relatively high proportion of fixed costs in its operations. Chapter 4 explains the importance of job costing for "green" homebuilders such as KB Home. Chapter 8 examines Tesla Motors' understanding of fixed and variable overhead costs for planning and control purposes. Chapter 12 shows how Volkswagen's Brazilian subsidiary used the balanced scorecard to guide its journey out of the global financial crisis. Chapter 15 shows the impact of two alternative methods of cost allocation considered by the U.S. government for charging customers for the costs of developing "Smart Grids" for power. Chapter 23 describes the historical misalignment between performance measurement and pay at AIG and the recent changes to the compensation plans for its executives.

Concepts in Action Boxes

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

- Cost–Volume–Profit Analysis Makes Megabus a Mega-Success (Chapter 3)
- Flexible Budgets at Corning (Chapter 7)
- What Does It Cost AT&T to Send a Text Message (Chapter 10)
- Are Charitable Organizations Allocating Joint Costs in a Misleading Way? (Chapter 16)
- Avoiding Performance-Measurement Silos at Staples (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. A major change in this edition is the reorganization of Chapters 12 and 13. Chapter 13 in the fourteenth edition, "Strategy, Balanced Scorecard, and Strategic Profitability Analysis," has been moved to Chapter 12, and Chapter 12 in the fourteenth edition, "Pricing Decisions and Cost Management," has been moved to Chapter 13. As a result of the switch, Chapter 13 is the first of four chapters on cost allocation. We introduce the purposes of cost allocation in Chapter 13 and discuss cost allocation for long-run product costing and pricing. Continuing the same example, Chapter 14 discusses cost allocation for customer costing. Chapter 15 builds on the Chapter 4 example to discuss cost-allocation for support departments. Chapter 16 discusses joint cost allocation. As a result of the reorganization, we have also made major revisions in the structure and writing of each of these chapters as we discuss in detail in the next section.

Other examples of more streamlined presentations can be found in:

- Chapter 2 on the discussion of fundamental cost concepts and the managerial framework for decision making.
- Chapter 6, which has a revised appendix that ties together the chapter example and the cash budget.
- 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.

Selected Chapter-by-Chapter Content Changes

Thank you for your continued support of* Cost Accounting*. In every new edition, we strive to update this text thoroughly. To ease your transition from the fourteenth edition, here are selected highlights of chapter changes for the fifteenth edition.

Chapter 1 has been rewritten to include greater discussion of sustainability and why this issue has become increasingly critical for managers. It also includes more 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 has been updated and revised to make it easier for students to understand core cost concepts and to provide a framework for how cost accounting and cost management help managers make decisions.

Chapter 3 now includes greater managerial content, using examples from real companies to illustrate the value of cost–volume–profit analysis in managerial decision making.

Chapter 4 has been revised with the addition of substantial new material to the section discussing end-of-period adjustments for the difference between Manufacturing Overhead Control and Manufacturing Overhead Allocated. The chapter also now discusses criteria for allocating costs and relates them to real examples to highlight why managers need allocated cost information to make decisions.

Chapter 5 has been reorganized with a new section on first-stage allocation to help students understand how costs from the standard accounting classifications (salaries, depreciation, rent, and so on) are allocated to activity-cost pools. The discussion of behavioral considerations in implementing activity-based costing has been moved to a new section and integrated with other material in the chapter. There is also new material on the tradeoffs related to allocating facility-sustaining costs to products or not allocating them at all because these costs do not have good cost drivers.

Chapter 6 has been significantly rewritten with the addition of more managerial content. In addition, the appendix has been completely reworked to tie together the chapter example and the cash budget.

In Chapter 7, the appendix on market-share and market-size variances has been replaced with one on mix and yield variances, which provide a natural extension of efficiency variances to settings with substitutable inputs. Chapter 8 now provides a revised comprehensive summary of the variances in both Chapters 7 and 8 via an innovative new exhibit.

Chapter 9 has been simplified substantially by a change in the integrated example from three to two periods. This retains the pedagogical value of the example while making it much easier for students to read and understand. Exhibit 9-4 and the material around it have been simplified further, and the self-study problem has also been revised.

Chapter 10 provides a practical guide to the use of various cost estimation techniques with many illustrative examples. The opening vignette has been revised, and we include a new discussion of the difference between correlation and causation, as well as a more streamlined description of inference and hypothesis testing when using regression analysis.

Chapter 11 has been revised substantially; the material on "Theory of Constraints and Throughput Contribution Margin" from Chapter 19 has now been incorporated into a new section in this chapter. The text and numbers have been rewritten to link with the Power Recreation problem already in Chapter 11 (and the chapter appendix). The chapter has been made easier for students to follow by replacing paragraphs with tables. Throughout, there is greater emphasis on understanding why relevant costs and revenues are important when making decisions.

The new Chapter 12 (on the balanced scorecard) has been rewritten with a completely new section on using the balanced scorecard to achieve environmental and social goals. This section describes the motivations for companies to focus on sustainability goals (such as the concept of shared value), sustainability strategies, and the methods companies use to implement sustainability with business goals. There is also a new exhibit extending the Chipset balanced scorecard to include environmental and social objectives and measures.

The new Chapter 13 focuses on cost allocation for long-run pricing decisions. The material on short-run costing and pricing (from Chapter 12 in the fourteenth edition) has been moved to Chapter 11.

Chapter 14 has been completely rewritten. It continues the same example of Astel Computers from Chapter 13 but switches the context from cost allocation for pricing to cost allocation for customer profitability. The order of presentation, the content, the examples, and the exhibits are all new. The chapter now starts with customer profitability based on customer-level costs and discusses the hierarchical operating income statement. It then motivates why corporate, division, and distribution channel costs need to be allocated and the criteria that can be used to allocate them. The chapter closes with sales variances and market-share and market-size variances (moved here from Chapter 7). The example is new and builds on the Astel Computers example that is used throughout Chapters 13 and 14.

Chapter 15 is also heavily revised, with new content, examples, and exhibits. It continues the example of Robinson Company from Chapter 4 but adds more issues around cost allocation—single rate, dual rate, and support-department cost allocations using direct, step-down, and reciprocal methods. Using the same example helps link and integrate normal costing and support department cost allocation.

Chapter 16 now provides an in-depth discussion of the rationale for joint-cost allocation and the merits and demerits of various joint-cost allocation methods. It also uses real-world examples to highlight the preferred method of joint-cost allocation in various settings.

Chapters 17 and 18 present actual costing with the material on standard costing discussed in the appendix. We have added a discussion of managerial issues when estimating equivalent units and choosing between the FIFO and weighted-average costing methods. Chapter 18 emphasizes the importance of reducing spoilage and scrap and more generally the theme of striving for a sustainable production and service environment.

As a result of moving material on the theory of constraints to Chapter 11, Chapter 19 now focuses on quality and time. We use the same Photon example throughout the chapter to discuss both quality and time-based competition. This helps to integrate and streamline the chapter.

Chapter 20 contains revised content and presentation comparing traditional and just-in-time purchasing (and a changed Exhibit 20-5). The sections on supplier evaluation, relevant costs of quality, and timely deliveries have also been rewritten, as well as the material on enterprise resource planning systems and lean accounting.

Chapter 21 has been completely redone with an entirely new example and a set of revised (and clearer) exhibits. The focus has shifted from a manufacturing setting to a transportation firm evaluating the purchase of a new hybrid-engine bus.

Chapter 22 has been significantly 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 also highlights the costs and benefits of decentralization and the tradeoffs involved in setting a transfer pricing policy.

Chapter 23 includes a description of the use of environmental, social, and ethical objectives by companies as part of top management's pay structures. It discusses the new SEC regulations on disclosure of executive compensation and the Dodd-Frank "say on pay" rules. The chapter also incorporates research findings on the relative weight to be placed on different measures of the balanced scorecard.

Hallmark Features of *Cost Accounting*

- Exceptionally strong emphasis on managerial uses of cost information
- Clarity and understandability of the text
- Excellent balance in integrating modern topics with traditional coverage
- Emphasis on human behavior aspects
- Extensive use of real-world examples
- Ability to teach chapters in different sequences
- Excellent quantity, quality, and range of assignment material

The first thirteen chapters provide the essence of a one-term (quarter or semester) course. There is ample text and assignment material in the book's twenty-three chapters for a two-term course. This book can be used immediately after the student has had an introductory course in financial accounting. Alternatively, this book can build on an introductory course in managerial accounting.

Deciding on the sequence of chapters in a textbook is a challenge. Because every instructor has a unique way of organizing his or her course, we utilize a modular, flexible organization that permits a course to be custom tailored. *This organization facilitates diverse approaches to teaching and learning.*

As an example of the book's flexibility, consider our treatment of process costing. Process costing is described in Chapters 17 and 18. Instructors interested in filling out a student's perspective of costing systems can move directly from job-order costing described in Chapter 4 to Chapter 17 without interruption in the flow of material. Other instructors may want their students to delve into activity-based costing and budgeting and more decision-oriented topics early in the course. These instructors may prefer to postpone discussion of process costing.

Resources

In addition to this textbook and MyAccountingLab, a companion website is available for students at www.pearsonhighered.com/horngren.

The following resources are available for instructors in MyAccountingLab and on the Instructors Rescource Center at www.pearsonhighered.com/horngren.

- Solutions Manual
- Test Bank in word and TestGen, including algorithmic questions
- Instructors Manual
- PowerPoint Presentations
- Image Library

Acknowledgments

We are indebted to many people for their ideas and assistance. Our primary thanks go to the many academics and practitioners who have advanced our knowledge of cost accounting. The package of teaching materials we present is the work of skillful and valued team members developing some excellent end-of-chapter assignment material. Tommy Goodwin and Tola Lawal provided outstanding research assistance on technical issues and current developments. We would also like to thank the dedicated and hard-working supplement author team and Integra.The book is much better because of the efforts of these colleagues.

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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
Stanford University

To Our Families

Swati, Radhika, Gayatri, Sidharth (SD)

Gayathri, Sanjana, Anupama (MVR)

Cost Accounting

A Managerial Emphasis

1 The Manager and Management Accounting

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

All businesses are concerned about revenues and costs.

Managers at companies small and large must understand how revenues and costs behave or risk losing control of the performance of their firms. Managers use cost accounting information to make decisions about research and development, budgeting, production planning, pricing, and the products or services to offer customers. Sometimes these decisions involve tradeoffs. The following article shows how companies like Apple make those tradeoffs to increase their profits.

iTunes Variable Pricing: Downloads Are Down, but Profits Are Up[1]

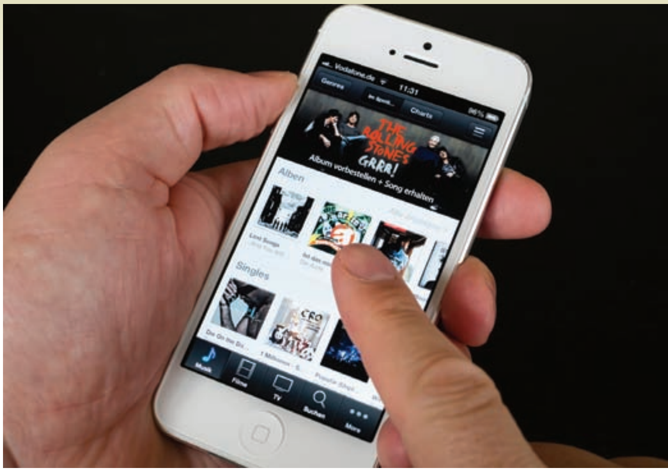
Can selling less of something be more profitable than selling more of it? In 2009, Apple changed the pricing structure for songs sold through iTunes from a flat fee of \$0.99 to a three-tier price point system of \$0.69, \$0.99, and \$1.29. The top 200 songs in any given week make up more than one-sixth of digital music sales. Apple began charging the highest price (\$1.29) for these songs—songs by artists like Adele and Carly Rae Jepsen.

Six months after Apple implemented the new pricing model, the downloads of the top 200 tracks were down by about 6%. But although the number of downloads dropped, the higher prices generated more revenue than the old pricing structure. Because Apple's iTunes costs—wholesale song costs, network and transaction fees, and other operating costs—do not vary based on the price of each download, the profits from the 30% price increase more than made up for the losses from the 6% decrease in volume.

Apple has also applied this new pricing structure to movies available through iTunes, which range from \$14.99 for new releases to \$9.99 for most other films.

To increase profits beyond those created by higher prices, Apple also began to manage iTunes' costs. Transaction costs (what Apple pays credit-card processors like Visa and MasterCard) have decreased, and Apple has also reduced the number of people working in the iTunes store.

[1] *Sources:* Bruno, Anthony and Glenn Peoples Variable iTunes pricing a moneymaker for artists. Reuters, (June 21, 2009); http://www.reuters.com/article/idUSTRE55K0DJ20090621" The long tale? *Billboard* (November 14, 2009); http://www.billboard.biz/bbbiz/content_display/magazine/features/e3i35ed869fbd929ccd cca52ed7fd 9262d3?imw=Y" Savitz, Eric,Apple Turns Out, iTunes Makes Money Pacific Crest Says (2007); Subscription Services Seems Inevitable. Barron's "Tech Trader Daily" blog, April 23. http://blogs.barrons.com/techtrader-daily/2007/04/23/apple-turns-out-itunes-makes-money-pacific-crest-says-subscription-service-seems-inevitable/ Apple, Inc. "Frequently Asked Questions (FAQ) for Purchased Movies. Accessed May 1, 2013; Nekesa Mumbi Moody, "Adele, Carly Rae Jepsen Top iTunes' Year-End Sales," *Billboard* (December 13, 2012).



By studying cost accounting, you will learn how successful managers and accountants run their businesses and prepare yourself for leadership roles in the firms you work for. Many large companies, including Nike and the Pittsburgh Steelers, have senior executives with accounting backgrounds.

Financial Accounting, Management Accounting, and Cost Accounting

Learning Objective 1

Distinguish financial accounting

. . . reporting on past performance to external users

from management accounting

. . . helping managers make decisions

As many of you have already learned in your financial accounting class, accounting systems are used to record economic events and transactions, such as sales and materials purchases, and process the data into information helpful to managers, sales representatives, production supervisors, and others. Processing any economic transaction means collecting, categorizing, summarizing, and analyzing. For example, costs are collected by category, such as materials, labor, and shipping. These costs are then summarized to determine a firm's total costs by month, quarter, or year. Accountants analyze the results and together with managers evaluate, say, how costs have changed relative to revenues from one period to the next. Accounting systems also provide the information found in a firm's income statement, balance sheet, statement of cash flow, and performance reports, such as the cost of serving customers or running an advertising campaign. Managers use this information to make decisions about the activities, businesses, or functional areas they oversee. For example, a report that shows an increase in sales of laptops and iPads at an Apple store may prompt Apple to hire more salespeople at that location. Understanding accounting information is essential for managers to do their jobs.

Individual managers often require the information in an accounting system to be presented or reported differently. Consider, for example, sales order information. A sales manager at Porsche may be interested in the total dollar amount of sales to determine the commissions paid to salespeople. A distribution manager at Porsche may be interested in the sales order quantities by geographic region and by customer-requested delivery dates to ensure vehicles get delivered to customers on time. A manufacturing manager at Porsche may be interested in the quantities of various products and their desired delivery dates so that he or she can develop an effective production schedule.

To simultaneously serve the needs of all three managers, Porsche creates a database, sometimes called a data warehouse or infobarn, consisting of small, detailed bits of information that can be used for multiple purposes. For instance, the sales order database will contain detailed information about a product, its selling price, quantity ordered, and delivery details (place and date) for each sales order. The database stores information in a way that allows different managers to access the information they need. Many companies are building their own enterprise resource planning (ERP) systems. An ERP system is a single database that collects data and feeds them into applications that support a company's business activities, such as purchasing, production, distribution, and sales.

Financial accounting and management accounting have different goals. As you know, **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, which is often, in part, based on 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 strategies
2. Coordinate product design, production, and marketing decisions and evaluate a company's performance

Management accounting information and reports do not have to follow set principles or rules. The key questions are always (1) how will this information help managers do their jobs better, and (2) do the benefits of producing this information exceed the costs?

Exhibit 1-1 summarizes the major differences between management accounting and financial accounting. Note, however, that reports such as balance sheets, income statements, and statements of cash flows are common to both management accounting and financial accounting.

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. For example, calculating the cost of a product is a cost accounting function that meets both the financial accountant's inventory-valuation needs and the management accountant's decision-making needs (such as deciding how to price products and choosing which products to promote). However, today most accounting professionals take the perspective that cost information is part of the management accounting information collected to make management decisions. Thus, the distinction between management accounting and cost accounting is not so clear-cut, and we often use these terms interchangeably in the book.

Businesspeople frequently use the term *cost management*. Unfortunately, the term does not have an exact definition. In this book we use **cost management** to describe the activities managers undertake to use resources in a way that increases a product's value

Exhibit 1-1 Major Differences Between Management and Financial Accounting

	Management Accounting	Financial Accounting
Purpose of information	Help managers make decisions to fulfill an organization's goals	Communicate an organization's financial position to investors, banks, regulators, and other outside parties
Primary users	Managers of the organization	External users such as investors, banks, regulators, and suppliers
Focus and emphasis	Future-oriented (budget for 2014 prepared in 2013)	Past-oriented (reports on 2013 performance prepared in 2014)
Rules of measurement and reporting	Internal measures and reports do not have to follow GAAP but are based on cost-benefit analysis	Financial statements must be prepared in accordance with GAAP and be certified by external, independent auditors
Time span and type of reports	Varies from hourly information to 15 to 20 years, with financial and nonfinancial reports on products, departments, territories, and strategies	Annual and quarterly financial reports, primarily on the company as a whole
Behavioral implications	Designed to influence the behavior of managers and other employees	Primarily reports economic events but also influences behavior because manager's compensation is often based on reported financial results

to customers and achieves an organization's goals. In other words, cost management is not only about reducing costs. Cost management also includes making decisions to incur additional costs—for example, to improve customer satisfaction and quality and to develop new products—with the goal of enhancing revenues and profits. Whether or not to enter new markets, implement new organizational processes, and change product designs are also cost management decisions. Information from accounting systems helps managers to manage costs, but the information and the accounting systems themselves are not cost management.

Decision Point

How is financial accounting different from management accounting?

Strategic Decisions and the Management Accountant

Learning Objective 2

Understand how management accountants help firms make strategic decisions

. . . they provide information about the sources of competitive advantage

A company's **strategy** specifies how the organization matches its own capabilities with the opportunities in the marketplace. In other words, strategy describes how an organization will compete and the opportunities its managers should seek and pursue. Businesses follow one of two broad strategies. Some companies, such as Southwest Airlines and Vanguard (the mutual fund company), follow a cost leadership strategy. They have been profitable and have grown over the years by providing quality products or services at low prices and by judiciously managing their costs. Other companies such as Apple and the pharmaceutical giant Johnson & Johnson follow a product differentiation strategy. They generate their profits and growth because they offer differentiated or unique products or services that appeal to their customers and are often priced higher than the less-popular products or services of their competitors.

Deciding between these strategies is a critical part of what managers do. Management accountants work closely with managers in various departments to formulate strategies by providing information about the sources of competitive advantage, such as (1) the company's cost, productivity, or efficiency advantage relative to competitors or (2) the premium prices a company can charge relative to the costs of adding features that make its products or services distinctive. **Strategic cost management** describes cost management that specifically focuses on strategic issues.

Management accounting information helps managers formulate strategy by answering questions such as the following:

- *Who are our most important customers, and how can we be competitive and deliver value to them?* After Amazon.com's success selling books online, management accountants at Barnes & Noble outlined the costs and benefits of several alternative approaches for enhancing the company's information technology infrastructure and developing the capability to sell books online. A similar cost–benefit analysis led Toyota to build flexible computer-integrated manufacturing plants that enable it to use the same equipment efficiently to produce a variety of cars in response to changing customer tastes.
- *What substitute products exist in the marketplace, and how do they differ from our product in terms of features, price, cost, and quality?* Hewlett-Packard, for example, designs, costs, and prices new printers after comparing the functionality and quality of its printers to other printers available in the marketplace.
- *What is our most critical capability? Is it technology, production, or marketing? How can we leverage it for new strategic initiatives?* Kellogg Company, for example, uses the reputation of its brand to introduce new types of cereals with high profit margins.
- *Will adequate cash be available to fund the strategy, or will additional funds need to be raised?* Procter & Gamble, for example, issued new debt and equity to fund its strategic acquisition of Gillette, a maker of shaving products.

Decision Point

How do management accountants support strategic decisions?

The best-designed strategies and the best-developed capabilities are useless unless they are effectively executed. In the next section, we describe how management accountants help managers take actions that create value for their customers.

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

Value-Chain and Supply-Chain Analysis and Key Success Factors

Customers demand much more than just a fair price; they expect quality products (goods or services) delivered in a timely way. The entire customer experience determines the value a customer derives from a product. In this section, we explore how a company goes about creating this value.

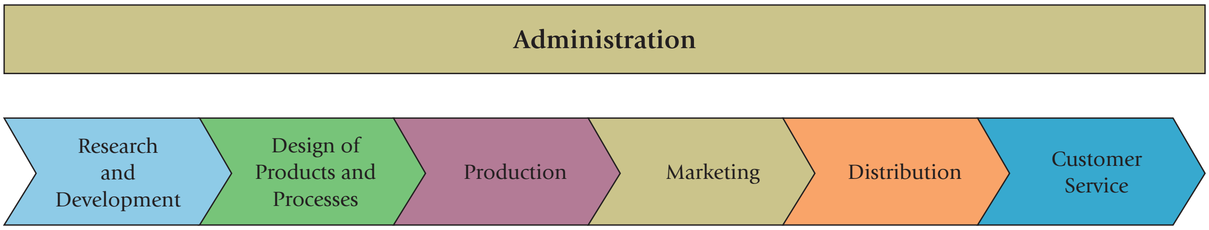
Value-Chain Analysis

The **value chain** is the sequence of business functions by which a product is made progressively more useful to customers. Exhibit 1-2 shows six primary business functions: research and development (R&D), design of products and processes, production, marketing, distribution, and customer service. We illustrate these business functions with Sony Corporation's television division.

1. **Research and development (R&D)—**generating and experimenting with ideas related to new products, services, or processes. At Sony, this function includes research on alternative television signal transmission and on the picture quality of different shapes and thicknesses of television screens.
2. **Design of products and processes—**detailed planning, engineering, and testing of products and processes. Design at Sony includes deciding on the number of component parts in a television set and determining the effect alternative product designs will have on the set's quality and manufacturing costs. Some representations of the value chain collectively refer to the first two steps as technology development.[2]
3. **Production—**procuring, transporting, and storing ("inbound logistics") and coordinating and assembling ("operations") resources to produce a product or deliver a service. The production of a Sony television set includes the procurement and assembly of the electronic parts, the cabinet, and the packaging used for shipping.
4. **Marketing (including sales)—**promoting and selling products or services to customers or prospective customers. Sony markets its televisions at tradeshows, via advertisements in newspapers and magazines, on the Internet, and through its sales force.
5. **Distribution—**processing orders and shipping products or services to customers ("outbound logistics"). Distribution for Sony includes shipping to retail outlets, catalog vendors, direct sales via the Internet, and other channels through which customers purchase new televisions.
6. **Customer service—**providing after-sales service to customers. Sony provides customer service on its televisions in the form of customer-help telephone lines, support on the Internet, and warranty repair work.

In addition to the six primary business functions, Exhibit 1-2 shows an administration function, which includes accounting and finance, human resource management, and information technology and supports the six primary business functions. When discussing the value chain in subsequent chapters of the book, we include the administration

Exhibit 1-2 Different Parts of the Value Chain



[2] M. Porter, *Competitive Advantage* (New York: Free Press, 1998).

function within the primary functions. For example, included in the marketing function is the function of analyzing, reporting, and accounting for resources spent in different marketing channels, whereas the production function includes the human resource management function of training frontline workers. Each of these business functions is essential to companies satisfying their customers and keeping them satisfied (and loyal) over time.

To implement their corporate strategies, companies such as Sony and Procter & Gamble use **customer relationship management (CRM)**, a strategy that integrates people and technology in all business functions to deepen relationships with customers, partners, and distributors. CRM initiatives use technology to coordinate all customer-facing activities (such as marketing, sales calls, distribution, and after-sales support) and the design and production activities necessary to get products to customers.

Different companies create value in different ways. Lowe's (the home-improvement retailer) does so by focusing on cost and efficiency. Toyota Motor Company does so by focusing on quality. Fast response times at eBay create quality for the online auction giant's customers, whereas innovation is primarily what creates value for the customers of the biotech company Roche-Genentech. The Italian apparel company Gucci creates value for its customers by building a prestigious brand. As a result, at different times and in different industries, one or more of these functions is more critical than others. For example, a company such as Roche-Genentech will emphasize R&D and the design of products and processes. In contrast, a company such as Gucci will focus on marketing, distribution, and customer service to build its brand.

Exhibit 1-2 depicts the usual order in which different business-function activities physically occur. Do not, however, interpret Exhibit 1-2 to mean that managers should proceed sequentially through the value chain when planning and managing their activities. Companies gain (in terms of cost, quality, and the speed with which new products are developed) if two or more of the individual business functions of the value chain work concurrently as a team. For example, a company's production, marketing, distribution, and customer service personnel can often reduce a company's total costs by providing input for design decisions.

Managers track the costs incurred in each value-chain category. Their goal is to reduce costs and to improve efficiency. Management accounting information helps managers make cost–benefit tradeoffs. For example, is it cheaper to buy products from a vendor or produce them in-house? How does investing resources in design and manufacturing reduce costs of marketing and customer service?

Supply-Chain Analysis

The parts of the value chain associated with producing and delivering a product or service—production and distribution—are referred to as the *supply chain*. The **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. Consider Coke and Pepsi: Many companies play a role in bringing these products to consumers as the supply chain in Exhibit 1-3 shows. Part of cost management emphasizes integrating and coordinating activities across all companies in the supply chain to improve their

Exhibit 1-3 Supply Chain for a Cola Bottling Company