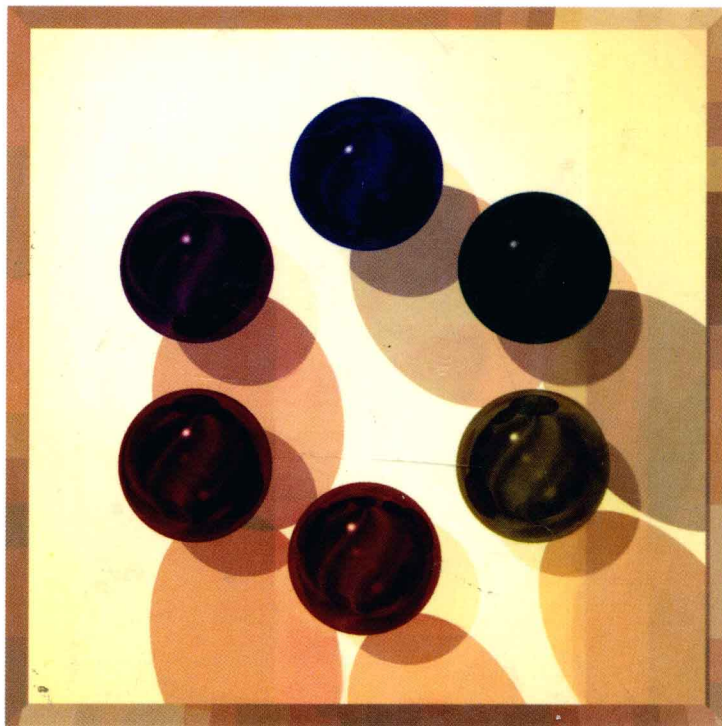


COST MANAGEMENT

Accounting and Control

◆
CANADIAN EDITION



HANSEN ◆ MOWEN ◆ ELIAS ◆ SENKOW



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To Our Parents

Preface

Over the past twenty years, changes in the business environment have profoundly affected cost accounting and cost management. An increased emphasis on providing value to customers, total quality management, time as a competitive element, advances in information and manufacturing technology, globalization of markets, service industry growth, and morality management are just a few examples of these changes. All these changes are driven by the need to create and sustain a competitive advantage. For many firms, the information required to create and sustain a competitive advantage no longer can be derived from traditional cost management information systems. As a result, firms operating in the contemporary environment demand more sophisticated information to support the requirements of this new environment. Typically, the contemporary cost management system is more detailed and more accurate than a traditional cost management system and, thus, more costly to operate. The emergence of contemporary systems therefore suggests that in many cases, the benefits of the more sophisticated system outweigh its costs. On the other hand, the continued existence of and reliance on traditional systems suggest the opposite for other firms.

The coexistence of traditional and contemporary cost management systems also implies a need to study both. Studying both systems provides flexibility and depth of understanding. Thus, in creating a text on cost management, we decided that a *systems approach* provided a convenient and logical framework. Using a systems framework allows us to make a clear distinction between the traditional and contemporary approaches in a way that would make it easy for students to grasp. It also avoids any artificial “integration” of the two systems. Integration is achieved by developing a common terminology—a terminology that allows us to define each system and discuss how they differ. We then discuss the traditional and contemporary approaches to costing and control in separate chapters. We believe this separation minimizes confusion and allows students to appreciate the differences that exist between contemporary and traditional approaches. It also permits an emphasis on either the traditional or contemporary approaches, depending on preferences. However, we did not follow the same pattern for the chapters on decision making. For these chapters, we felt that it would be more useful for students to see how the decision changes as the information set changes. For example, how does a make-or-buy decision change as we move from a unit-based traditional cost management system to the richer, activity-based cost management system?

AUDIENCE

This text is written primarily for students at the undergraduate level. The text presents a thorough treatment of traditional and contemporary approaches to cost management, accounting, and control, and can be used for a one-or-two-semester course. In our opinion, the text also has sufficient depth for graduate-level courses.

KEY FEATURES

We feel that the text offers a number of distinctive and appealing features—features that should make it much easier to teach students about the emerging themes in today's business world. One of our objectives was to reduce the time and resources expended by instructors so that students can be exposed to contemporary topics and practices. To give you a clear picture of the text's innovative approach, we have provided a detailed description of its key features.

Systems Framework

The text's organization follows a *systems framework*. Chapters 1 through 3 introduce the basic concepts and tools associated with cost management information systems. Chapters 4 through 9 are concerned with product costing systems. This section addresses the first major objective of a cost management information system: providing information for costing out services, products, and other objects of interest to management. The section is subdivided into traditional and contemporary approaches. Providing information for decision-making is also a major objective of a cost management information system. Chapters 10 through 15 deal with traditional and contemporary decision-making approaches. The third major objective of a cost management system is that of planning and control. Chapters 16 through 22 deal with these topics. This section is also subdivided into traditional and contemporary topics. Due to time constraints, Canadianization was limited to the Capital Investment Decisions material.

Contemporary Topics

The emerging themes of cost management are covered in depth and are integrated throughout the text. Integration, however, means more than simply adding a few pages within chapters that primarily focus on traditional cost management. It means that we have provided a framework for treating both traditional and contemporary topics and have used a common terminology that links the two approaches. It also means recognizing that the contemporary and traditional approaches are different enough that separate and comprehensive treatments are often called for. The nature and extent of the coverage of contemporary topics is described below. As this summary reveals, there is sufficient coverage of contemporary topics to provide a course that strongly emphasizes contemporary themes.

Historical Perspective Chapter 1 provides a brief history of cost accounting. The historical perspective allows students to see why traditional cost management systems work well in some settings but no longer work for other settings. The forces that are changing cost management practices are described. The changing

role of the management accountant is also described, with particular emphasis on why the need to develop a cross-functional expertise is so critical in today's environment. We think that this chapter is innovative in its thrust and offers more substance than is typically found in an introductory chapter. The chapter sets the tone for the entire text.

Providing Value to Customers The provision of value to customers is illustrated by the *value chain*, which is first introduced in Chapter 1 and defined and illustrated more completely in Chapter 2. Chapter 9 provides a detailed discussion of value-chain analysis. Value-chain analysis means that managers must understand and exploit internal and external linkages so that a sustainable competitive advantage can be achieved. Examples are provided that illustrate how value-chain analysis works. The examples show how the value-chain concepts can be operationalized—something which has not been clearly described by other treatments. Thus, we feel that the operational examples are a significant feature of the text.

Accounting and Cost Management Systems In Chapter 2, the accounting information system and its different subsystems are defined. Distinctions are made between the financial accounting and cost management information systems (they serve different purposes). The cost management information system is broken down into the cost accounting information system and the operational control system. The differences between traditional and contemporary cost management systems are defined and illustrated. The criteria for choosing a contemporary system over a traditional system are also discussed.

In Chapter 2, three methods of cost assignment are delineated: direct attribution, driver tracing, and allocation. Activity, resource, and cost drivers are also defined. Once the general cost assignment model is established, the model is used to help students understand the differences between traditional and contemporary cost management systems. A clear understanding of how the two systems differ is fundamental to the organizational structure that the text follows.

Activity-Based Costing and Management Much has been written on the uses and applications of ABC. This text presents a comprehensive approach to activity-based costing and management.

The *activity-based product costing model* is introduced in Chapter 2 and described in detail in Chapter 8. In Chapter 8, the advantages of ABC over unit-based costing are related. Chapter 8 also describes how activities are identified and classified so that homogeneous cost pools can be formed. Activity attributes and activity inventories are described. How costs are assigned to activities using resource drivers is illustrated. We feel that the ABC coverage is richer than most.

To fully understand how an ABC system works, students must also understand the data needed to support the system. Thus, we show (in Chapter 8) how the general ledger system must be unbundled to provide activity information. We also define and illustrate an *ABC relational database*. This helps the student understand the very practical requirements of an ABC system and is a unique feature of this text.

Activity costs change as activity usage changes. Variable, fixed, and mixed activity cost behavior is first defined in Chapter 2. Later, in Chapter 3, methods of breaking out fixed and variable activity costs are described. The chapter on cost behavior analysis is more general than usual chapters that treat the subject.

Traditional treatment usually focuses on cost as a function of production volume. We break away from this pattern and focus on cost as a function of changes in activity usage with changes in production activity as a special case.

The *activity resource usage model* is used to define activity cost behavior (in terms of when resources are acquired) and is defined and discussed in Chapter 3. This resource usage model plays an important role in numerous contemporary applications. It is used in value-chain analysis (Chapter 9), tactical decision and relevant costing analysis (Chapter 11), and in activity-based responsibility accounting (Chapter 20). The extensive applications of the activity resource usage model represent a unique feature of the text.

Just-in-Time Effects JIT manufacturing and purchasing are defined and their cost management practices are discussed in Chapters 9, 13, and 20. JIT is compared and contrasted with traditional manufacturing practices. The effects on cost traceability, inventory management, product costing, responsibility accounting, and so on are carefully delineated.

Life Cycle Cost Management In Chapter 9, we define and contrast three different life cycle viewpoints: production life cycle, marketing life cycle, and the consumable life cycle. We then show how these concepts can be used for strategic planning and analysis. In later chapters, we show how life cycle concepts are useful for pricing and profitability analysis (Chapters 14 and 15). Finally, life cycle budgeting is discussed in the chapter on contemporary responsibility accounting (Chapter 20). The breadth, depth, and numerous examples illustrating life cycle cost applications allow the student to see as never before the power and scope of this methodology.

Responsibility and Process Value Analysis The new responsibility accounting focuses on controlling and managing processes. The mechanism for doing this is called process value analysis. *Process value analysis* is defined and thoroughly discussed in Chapter 20. Numerous examples are given to facilitate understanding. Value-added and nonvalue-added cost reports are described.

In Chapter 20, we compare and contrast the traditional responsibility accounting system with the contemporary system. This allows students to understand the essential conceptual differences between the two approaches. It also reveals the limitations of traditional approaches to control in the new manufacturing environment.

Costs of Quality: Measurement and Control Often textual treatments simply define quality costs and present cost of quality reports. In Chapter 21, we go beyond this simple presentation and discuss cost of quality performance reporting. We also describe quality activities in terms of their value-added content. Finally, we introduce and describe ISO 9000, an important quality assurance and reporting system that many firms must now follow.

Productivity: Measurement and Control The new manufacturing environment demands new approaches to performance measurement. Productivity is one of these approaches, yet it is either not treated or superficially discussed in most cost management accounting texts. In Chapter 22, we offer a thorough treatment of the topic, including some new material on how to measure activity and process productivity.

Strategic Cost Management A detailed introduction to strategic cost management is provided in Chapter 8. Understanding strategic cost analysis is a vital part of the new manufacturing accounting. We feel that we have provided a more extensive introduction to this topic than anything currently available.

Theory of Constraints In Chapter 13, we provide a thorough introduction to the theory of constraints (TOC). TOC is described using a linear programming framework. This framework not only facilitates the description of TOC but it also provides a setting where students can see the value of linear programming. In fact, our treatment of linear programming is motivated by the need to develop the underlying concepts so that TOC can be presented and discussed.

Service Sector Focus

The significance of the service sector is recognized in this text through the extensive application of cost management principles to services. The text explains that services are not simply less complicated manufacturing settings, but instead have their own characteristics. These characteristics require modification of cost management accounting principles. Sections addressing services appear in a number of chapters, including product costing, pricing, and quality and productivity measurement.

Professional Ethics

Strong professional ethics are part of the personal foundation every accountant must have. We are convinced that students are interested in ethical dimensions of business and can be taught areas in which ethical conflicts can occur. Chapter 1 introduces the role of ethics; the ethical standards developed by the Institute of Management Accountants are reprinted there. To reinforce coverage of ethics, every chapter includes an ethics case for discussion. In addition, many chapters include sections on ethics. For example, Chapter 14, on pricing and revenue analysis, introduces the student to research on community standards of fairness and ethical dimensions of pricing. Chapter 19, on international issues, explores the dilemmas of differing ethical systems throughout the world.

Behavioral Issues

Ethical behavior is just one aspect of human behavior that is affected by cost management systems. The systems used for planning, control, and decision making can affect the way in which people act. Insights from behavioral decision theory are presented in appropriate sections of the text. For example, a simplified approach to prospect theory is presented in Chapter 15 to motivate a discussion of attitudes toward profit and loss. Chapter 16, on budgeting, includes a section on the behavioral impact of budgets. We believe that an integration of behavioral issues with accounting issues leads to a more complete understanding of the role of the accountant today.

Real World Examples

Our years of experience in teaching cost and management accounting have convinced us that students like and understand real world applications of accounting concepts. These real world examples make the abstract accounting ideas concrete and provide meaning and color. Besides, they're interesting and fun.

Therefore, real world examples are integrated throughout every chapter. The company index at the end of the text will help you locate these examples.

Outstanding Pedagogy

We think of this as a tool that can help students learn cost accounting and cost management concepts. Of paramount importance is text readability. We have written a very readable text and added numerous examples, real world applications, and illustrations of important cost accounting and cost management concepts. Specific “student-friendly” features of the pedagogy include the following.

Two photo essays designed to pictorially illustrate cost management concepts are included. The first photo essay, following Chapter 7, depicts cost concepts from firms using a traditional approach. The second photo essay following Chapter 15, depicts costs concepts from firms using contemporary approaches. The inclusion of both photo essays supports our contention that both the traditional and contemporary approaches have their place in firms today.

All chapters (except Chapter 1) include at least one review problem and solution. These problems demonstrate the computational aspects of chapter materials and reinforce the students’ understanding of chapter concepts before they undertake end-of-chapter materials.

All chapters include comprehensive end-of-chapter materials. These are divided into “Questions for Writing and Discussion” and “Exercises and Problems.” The questions for writing and discussion emphasize communication skill development. Exercises and problems to support every learning objective are included, and the relevant topics and learning objectives are noted in the text margins. The exercises and problems are graduated in difficulty from easy to challenging. CMA exam problems are included to enable the student to practice relevant problem material. Every chapter includes at least one ethics case.

An innovative addition to this text is the continuing systems problem, which revolves around the Open Road, Inc., bicycle company. All but two chapters include an Open Road problem that enables students to apply chapter concepts to a database problem. The Open Road is at the end of the exercises and problems.

Lotus Template problems and South-Western Publishing’s Decision Tools problems are identified in the end-of-chapter materials with appropriate icons.¹ These problems are designed to help students use computer tools to solve cost accounting problems.

A glossary of key terms is included at the end of the text. Key terms are also listed in the end-of-chapter material and identify the text pages to refer to for fuller explanation.

Whenever possible, graphical exhibits are provided to illustrate concepts. In our experience, some students need to “see” the concept, so we have attempted to portray key concepts to enhance understanding. Of course, many numerical examples are also provided.

At the end of each of the four parts, a comprehensive problem is provided for those instructors who prefer to explore chapter concepts in a more integrated manner. Questions at the end of each comprehensive problem enable the instructor to pick and choose the chapters to be emphasized in the case.

1. Lotus template problems carry the following icon.

Decision tools problems are identified by the following icon.



COMPREHENSIVE SUPPLEMENTS PACKAGE

Solutions Manual. This supplement contains the solutions for end-of-chapter material. Solutions have been independently verified to ensure their accuracy and reliability.

Solutions Transparencies. The transparencies include solutions to end-of-chapter exercises, problems, and comprehensive cases.

Test Bank, Prepared by Marvin L. Bouillon. A test bank of multiple choice questions and examination problems accompanied by solutions is available in both printed and microcomputer (MicroExam 4.0) versions. The Test Bank is designed to save time in preparing and grading periodic and final examinations.

Cooperative Learning Techniques, Prepared by Philip G. Cottell Jr. and Barbara Millis. The techniques for integrating cooperative learning into the cost accounting course are offered in this manual. Strategies, carefully linked to the learning objectives of this text, are offered to help incorporate teaching and learning approaches recommended by the AECC.

Study Guide, Prepared by Jay S. Holmen. The study guide provides a detailed review of each chapter and allows students to check their understanding of the material through review questions and exercises. Specifically, students are provided with a Chapter Review, Review Questions and Exercises, and a "Can You?" Checklist that helps students test their knowledge of key concepts in the chapter.

Open Road, Inc., Database Problems, Prepared by David S. Murphy. The continuing database problems at the end of most chapters expose students to the problems of data selection and acquisition found in the business world. In addition, they give students the opportunity to apply concepts from the chapter. The database is provided in Lotus 1-2-3® or dBase IV® and is free to adopters of this text. Instructions for using the database and solutions to all the problems are included in the solutions manual.

Electronic Spreadsheet Applications for Cost Accounting, by Gaylord N. Smith of Albion College. This supplemental text-workbook with template diskettes includes accounting applications and a spreadsheet tutorial. It requires approximately 20-25 hours for completion and is available for Lotus 1-2-3², Quattro Pro³, and Excel⁴.

Tools Diskette. This software diskette, designed for DOS-based computers, contains basic mathematical procedures that solve various types of problems, including inventory planning models, cost behavior analysis, gross profit analysis, linear programming routines, and capital expenditure analysis.

Spreadsheet Applications. Select end-of-chapter exercises and problems may be solved using Lotus 1-2-3 template diskettes. Exercises and problems are identified with an icon in the margin. The diskettes, which also provide a Lotus 1-2-3 tutorial, are provided free of charge to instructors at educational institutions who adopt this text.

2. Lotus and 1-2-3 are registered trademarks of the Lotus Development Corporation. Any reference to Lotus or 1-2-3 refers to this footnote.

3. Quattro Pro is a registered trademark of Borland International, Inc.

4. Macintosh is a trademark of Macintosh Laboratory, Inc., and is used by Apple Computer, Inc., with its express permission. Any reference to Macintosh or Excel refers to this footnote.

Video Supplements. Three videos are available with the text. In a light, but highly demonstrative video entitled *GE Lighting Systems*, GE employees, in a mock setting, test the effectiveness of the newer manufacturing concepts of JIT, total production maintenance, and total quality control against traditional manufacturing methods and compare the results. A second video, *Activity-Based Costing: The Next Generation*, presents a joint teleconference from the Public Broadcasting System and Robert Morris College in which three partners from Big Six firms discuss their experiences in implementing ABC systems for clients. The third video is a series of segments featuring interviews with management accountants from various companies and footage of their operations. Included are segments that show the new manufacturing environment and how such concepts as JIT and ABC are applied in real situations

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