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DRURY
MANAGEMENT AND COST
ACCOUNTING
EIGHTH EDITION



COLIN DRURY Management and Cost Accounting, eighth edition

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Management and Cost Accounting
Eighth Edition
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PREFACE



The aim of the eighth edition of this book is to explain the principles involved in designing and evaluating management and cost accounting information systems. Management accounting systems accumulate, classify, summarize and report information that will assist employees within an organization in their decision-making, planning, control and performance measurement activities. A cost accounting system is concerned with accumulating costs for inventory valuation to meet external financial accounting and internal monthly or quarterly profit measurement requirements. As the title suggests, this book is concerned with both management and cost accounting but emphasis is placed on the former.

A large number of cost and management accounting textbooks have been published. Many of these books contain a detailed description of accounting techniques without any discussion of the principles involved in evaluating management and cost accounting systems. Such books often lack a conceptual framework, and ignore the considerable amount of research conducted in management accounting in the past three decades. At the other extreme, some books focus entirely on a conceptual framework of management accounting with an emphasis on developing normative models of what ought to be. These books pay little attention to accounting techniques. My objective has been to produce a book which falls within these two extremes.

This book is intended primarily for undergraduate students who are pursuing a one-year or two-year management accounting course, and for students who are preparing for the cost and management accounting examinations of the professional accountancy bodies at an intermediate or advanced professional level. It should also be of use to postgraduate and higher national diploma students who are studying cost and management accounting for the first time. An introductory course in financial accounting is not a prerequisite, although many students will have undertaken such a course.

STRUCTURE AND PLAN OF THE BOOK

A major theme of this book is that different financial information is required for different purposes, but my experience indicates that this approach can confuse students. In one chapter of a typical book students are told that costs should be allocated to products including a fair share of overhead costs; in another chapter they are told that some of the allocated costs are irrelevant and should be disregarded. In yet another chapter they are told that costs should be related to people (responsibility centres) and not products, whereas elsewhere no mention is made of responsibility centres.

In writing this book I have devised a framework that is intended to overcome these difficulties. The framework is based on the principle that there are three ways of constructing accounting information. The first is cost accounting with its emphasis on producing product (or service) costs for allocating costs between cost of goods sold and inventories to meet external and internal financial accounting inventory valuation and profit measurement requirements. The second is the notion of decision relevant costs with the emphasis on providing information to help managers to make good decisions. The third is responsibility accounting and performance measurement which focuses on both financial and non-financial information; in particular the assignment of costs and revenues to responsibility centres.

This book is divided into six parts. Part One consists of two chapters and provides an introduction to management and cost accounting and a framework for studying the remaining chapters. The following three parts reflect the three different ways of constructing accounting information. Part Two consists of five chapters and is entitled 'Cost Accumulation for Inventory Valuation and Profit Measurement'. This section focuses mainly on assigning costs to products to separate the costs incurred during a period between costs of goods sold and the closing inventory valuation for internal and external profit measurement. The extent to which product costs accumulated for inventory valuation and profit measurement should be adjusted for meeting decision-making, cost control and performance measurement requirements is also briefly considered. Part Three consists of seven chapters and is entitled 'Information for Decision-making'. Here the focus is on measuring and identifying those costs which are relevant for different types of decisions.

The title of Part Four is 'Information for Planning, Control and Performance Measurement'. It consists of six chapters and concentrates on the process of translating goals and objectives into specific activities and the resources that are required, via the short-term (budgeting) and long-term planning processes, to achieve the goals and objectives. In addition, the management control systems that organizations use are described and the role that management accounting control systems play within the overall control process is examined. The emphasis here is on the accounting process as a means of providing information to help managers control the activities for which they are responsible. Performance measurement and evaluation within different segments of the organization is also examined.

Part Five consists of two chapters and is entitled 'Strategic Cost Management and Strategic Management Accounting.' The first chapter focuses on strategic cost management and the second on strategic management accounting. Part Six consists of three chapters and is entitled 'The Application of Quantitative Methods to Management Accounting'.

In devising a framework around the three methods of constructing financial information there is a risk that the student will not appreciate that the three categories use many common elements, that they overlap, and that they constitute a single overall management accounting system, rather than three independent systems. I have taken steps to minimize this risk in each section by emphasizing why financial information for one purpose should or should not be adjusted for another purpose. In short, each section of the book is not presented in isolation and an integrative approach has been taken.

When I wrote this book an important consideration was the extent to which the application of quantitative techniques should be integrated with the appropriate topics or considered separately. I have chosen to integrate quantitative techniques whenever they are an essential part of a chapter. For example, the use of probability statistics are essential to Chapter 12 (Decision-making under conditions of risk and uncertainty) but my objective has been to confine them, where possible, to Part Six.

This approach allows for maximum flexibility. Lecturers wishing to integrate quantitative techniques with earlier chapters may do so but those who wish to concentrate on other matters will not be hampered by having to exclude the relevant quantitative portions of chapters.

MAJOR CHANGES IN THE CONTENT OF THE EIGHTH EDITION

The feedback relating to the structure and content of the previous editions has been extremely favourable and therefore only minor changes have been made to the existing structure. Chapter 11 (Pricing decisions and profitability analysis) followed Chapter 10 (Activity-based costing) in the seventh edition. The order of these chapters has been reversed in the eighth edition with the chapter on activity-based costing assigned to Chapter 11 and the material relating to pricing decisions and profitability analysis assigned to Chapter 10.

The major objective in writing the eighth edition has been to produce a less complex and more accessible text. This objective created the need to thoroughly review the entire content of the seventh edition and to rewrite, simplify and improve the presentation of much of the existing material. Many of the chapters have been rewritten and some new material has been added (e.g. operating leverage in Chapter 8 and the strategic planning, budgeting and control process in Chapter 15). The end result has been an extensive rewrite of the text.

Substantial changes have been made to the end-of-chapter assessment material that contains the solutions in a separate section at the end of the book. The new text design, including the presentation of the end-of-chapter assessment material and the section on the answers to the review problems at the end of the book has been improved and is now presented in a more accessible format. Finally, most of the 'Real World Views' that provide examples of the practical application of management accounting have been replaced by more recent examples that provide better illustrations of the practical applications. Suggested outline solutions to the answers to the questions accompanying the 'Real World Views' have been added to the Instructor's Manual accompanying this book.

LEARNING NOTES

Feedback from previous editions indicated that a significant majority of the respondents identified specific topics contained in the text that were not included in their teaching programmes, whereas a minority of respondents indicated that the same topics were included in their teaching programmes. In order to meet the different requirements of lecturers and different course curriculum, various topics are included as learning notes that can be accessed by students and lecturers on the CourseMate digital support resources accompanying this book. Examples of topics that are incorporated as learning notes include: determining the cost driver denominator level for use with ABC systems, the contingency approach to management accounting and statistical variance investigation models. The learning notes tend to include the more complex issues that often do not feature as part of the content of other management accounting textbooks. All learning notes are appropriately referenced within the text. For example, at appropriate points within specific chapters the reader's attention is drawn to the fact that, for a particular topic, more complex issues exist and that a discussion of these issues can be found by referring to a specific learning note on the CourseMate digital support resources accompanying this book.

CASE STUDIES

Over 30 case studies are available on the dedicated CourseMate digital support resources for this book. Both lecturers and students can download these case studies from CourseMate (students use the printed access card provided in the front of the book). Teaching notes for the case studies are only available for lecturers to download. The cases generally cover the content of several chapters and contain questions to which there is no ideal answer. They are intended to encourage independent thought and initiative and to relate and apply your understanding of the content of this book in more uncertain situations. They are also intended to develop your critical thinking and analytical skills.

HIGHLIGHTING OF ADVANCED READING SECTIONS

Feedback relating to previous editions has indicated that one of the major advantages of this book has been the comprehensive treatment of management accounting. Some readers, however, will not require a comprehensive treatment of all of the topics that are contained in the book. To meet the different requirements of the readers, the more advanced material that is not essential for those readers not requiring an in-depth knowledge of a particular topic has been highlighted using a vertical green line. If you do require an in-depth knowledge of a topic you may find it helpful to initially omit the advanced reading sections, or skim them, on your first reading. You should read them in detail only when you fully understand the content of the remaining parts of the chapter. The advanced reading sections are more appropriate for an advanced course and may normally be omitted if you are pursuing an introductory course. For some chapters all of the content represents advanced reading. Where this situation occurs readers are informed at the beginning of the relevant chapters and the highlighting mechanism is not used.

INTERNATIONAL FOCUS

The book has now become an established text in many different countries throughout the world. Because of this a more international focus has been adopted. A major feature is the presentation of boxed exhibits of surveys and practical applications of management accounting in companies in many different countries, particularly the European mainland. Most of the assessment material has incorporated questions set by the UK professional accountancy bodies. These questions are appropriate for worldwide use and users who are not familiar with the requirements of the UK professional accountancy bodies should note that many of the advanced level questions also contain the beneficial features described above for case study assignments.

RECOMMENDED READING

A separate section is included at the end of most chapters providing advice on key articles or books which you are recommended to read if you wish to pursue topics and issues in more depth. Many of the references are the original work of writers who have played a major role in the development of management accounting. The contribution of such writers is often reflected in this book but there is frequently no substitute for original work of the authors. The detailed references are presented in the Bibliography towards the end of the book.

ASSESSMENT MATERIAL

Throughout this book I have kept the illustrations simple. You can check your understanding of each chapter by answering the review questions. Each question is followed by page numbers within parentheses that indicate where in the text the answers to specific questions can be found. More complex review problems are also set at the end of each chapter to enable students to pursue certain topics in more depth. Each question is graded according to the level of difficulty. Questions graded 'Basic' are appropriate for a first-year course and normally take less than 20 minutes to complete. Questions graded 'Intermediate' are also normally appropriate for a first-year course but take about 30–45 minutes to complete, whereas questions graded 'Advanced' are normally appropriate for a second-year course or the final stages of the professional accountancy examinations. Fully worked solutions to the review problems not prefixed by the term 'IM' (Instructor's Manual) are provided in a separate section at the end of the book.

This book is part of an integrated educational package. A *Student Manual* provides additional review problems with fully worked solutions. Students are strongly recommended to purchase the *Student Manual*, which complements this book. In addition, the *Instructor's Manual* provides suggested solutions to the questions at the end of each chapter that are prefixed by the term 'IM.' The solutions to these questions are not available to students. The *Instructor's Manual* can be downloaded free by lecturers. Case studies are also available for students and lecturers to access on the accompanying CourseMate digital support resources for this book. Case study teaching notes are only available to lecturers.

Also available to lecturers is an Examview[®] testbank offering 1800+ questions and answers tailored to the content of the book, for use in classroom assessment.

ALTERNATIVE COURSE SEQUENCES

Although conceived and developed as a unified whole, the book can be tailored to the individual requirements of a course, and so the preferences of the individual reader. For a discussion of the alternative sequencing of the chapters see Guidelines to Using the Book in Chapter 1.

SUPPLEMENTARY MATERIAL

The eighth edition of the print *Student Manual* helps you work through the text and is available from all good bookshops (ISBN 9781408048566).

The eighth edition of Colin Drury's *Management and Cost Accounting* text is accompanied by the following dedicated digital support resources:

- **Dedicated instructor resources** only available to lecturers, who can register for access either at <http://login.cengage.com> or by speaking to their local Cengage Learning representative.
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This includes the following resources for lecturers:

- **Instructor's Manual** which includes answers to 'IM Review Problems' in the text
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ABOUT THE AUTHOR



Colin Drury was employed at Huddersfield University from 1970 until his retirement in 2004. He was awarded the title of professor in 1988 and emeritus professor in 2004. Colin is the author of three books published by Cengage; *Management and Cost Accounting*, which is Europe's best selling management accounting textbook, *Management Accounting for Business* and *Cost and Management Accounting*. Colin has also been an active researcher and has published approximately 100 articles in professional and academic journals. In recognition for his contribution to accounting education and research Colin was given a lifetime achievement award by the British Accounting Association in 2009.



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Thanks are also given to the many contributors who have provided Case Studies for the CourseMate online support resource.

WALK THROUGH TOUR

discussed in the book. We begin by looking at the users of accounting information and identifying their requirements. This is followed by a description of the decision-making process and the changing business environment. Finally, the different functions of management accounting are described.

THE USERS OF ACCOUNTING INFORMATION

Accounting is a language that communicates economic information to people who have an interest in an organization. These people (known as stakeholders) fall into several groups (e.g. managers, shareholders and potential investors, employees, creditors and the government) and each of these groups has its own requirements for information.

- Managers require information that will assist them in their decision-making and control activities; for example, information is needed on the estimated selling prices, costs, demand, competitive position and profitability of various products/services that are provided by the organization.
- Shareholders require information on the value of their investment and the income that is derived from their shareholding.
- Employees require information on the ability of the firm to meet wage demands and avoid redundancies.
- Creditors and the providers of loan capital require information on a firm's ability to meet its financial obligations.
- Government agencies such as the Central Statistical Office collect accounting information and require such information as the details of sales activity, profits, investments, stocks (i.e. inventories), dividends paid, the proportion of profits absorbed by taxation and so on. In addition, government taxation authorities require information on the amount of profits that are subject to taxation. All this information is important for determining policies to manage the economy.

REAL WORLD VIEWS 1.1

Accounting information for human resource professionals

People Management, the journal of the Chartered Institute of Personnel and Development (CIPD), provides an example of the importance of accounting information to human resources (HR) professionals. The article touts the oft-cited expression 'people are our greatest asset', but questions how many HR professionals appreciate the full costs of people in an organisation.

According to Vanessa Robinson of the CIPD, HR professionals shouldn't merely say 'people are our great asset', but look at the income statement and see what they cost! The problem is that many HR professionals may not have sufficient basic accounting knowledge to understand basic accounting principles. They need to be familiar with the basic financial statements – the income statement, statement of financial position

and the statement of cash flows – as well as understand basic cost concepts. What this article tells us is something we as accountants already know – that accounting is a communication medium, a language. Indeed, that not everyone understands. Having said that, while HR professionals may not think they require fluency in accounting, they do need to make business decisions which are underpinned by sound financial information, e.g. recruit and retain staff. Having an understanding of accounting information (rather than just accepting it from the accountants) will benefit HR and other professions in an organisation.

Questions

- What kind of accounting information would you communicate to HR professionals?
- What format would you use?

References

'You do the math', People Management, 30/7/2008, available at <http://www.peoplemanagement.co.uk/pm/articles/2008/07/you-do-the-math.htm>

Real world views Real world cases are provided throughout the text, helping to demonstrate theory in practice and the practical application of accounting in real companies around the world.

1 INTRODUCTION TO MANAGEMENT ACCOUNTING

LEARNING OBJECTIVES After studying this chapter, you should be able to:

- distinguish between management accounting and financial accounting;
- identify and describe the elements involved in the decisionmaking, planning and control process;
- justify the view that a major objective of commercial organizations is to broadly seek to maximize future profits;
- explain the factors that have influenced the changes in the competitive environment;
- outline and describe the key success factors that directly affect customer satisfaction;
- identify and describe the functions of a cost and management accounting system;
- provide a brief historical description of management accounting.

There are many definitions of accounting, but the one that captures the theme of this book is the definition formulated by the American Accounting Association. It describes accounting as:

the process of identifying, measuring and communicating economic information to permit informed judgments and decisions by users of the information.

In other words, accounting is concerned with providing both financial and non-financial information that will help decision makers to make good decisions. In order to understand accounting, you need to know something about the decision-making process, and also to be aware of the various users of accounting information.

During the past two decades many organizations in both the manufacturing and service sectors have faced dramatic changes in their business environment. Deregulation and extensive competition from overseas companies in domestic markets has resulted in a situation where most companies now operate in a highly competitive global market. At the same time there has been a significant reduction in product life cycles arising from technological innovations and the need to meet increasingly discriminating customer demands. To succeed in today's highly competitive environment, companies have made customer satisfaction an overriding priority. They have also adapted new management approaches and manufacturing companies have changed their manufacturing systems and invested in new technologies. These changes have had a significant influence on management accounting systems.

The aim of this first chapter is to give you the background knowledge that will enable you to achieve a more meaningful insight into the issues and problems of cost and management accounting that are

Learning objectives Listed at the start of each chapter highlighting the core coverage contained within.

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restatement of the contribution per limiting factor described in the main body of this chapter and the allocation of scarce resources using linear programming as described in Chapter 23. However, it is possible to distinguish between throughput accounting and the contribution approach. Contribution and throughput accounting differ in terms of their definition of variable cost. Contribution treats direct materials, direct labour and variable overheads as variable costs, whereas throughput accounting assumes that only direct materials represent variable costs. Throughput accounting is thus more short-term oriented and assumes that direct labour and variable overheads cannot be avoided within a very short-term period. In contrast, contribution assumes that the short-term represents a longer period than that assumed with throughput accounting and thus classifies direct labour and variable overheads as variable costs that vary with output in the longer term.

Goldratt and Cox (1992) do not advocate any specific accounting practices. Instead, accountants are encouraged to learn TOC ideas and apply them to accounting in ways that suit their own circumstances. However, traditional techniques that have been described in management accounting textbooks for many years, such as how product mix decisions should be made when capacity constraints apply, can be viewed as an attempt to apply TOC ideas. Thus, applying TOC ideas in accounting does not represent a radical innovation in accounting but a move towards the widespread adoption of short-run variable costing techniques. Hence, the same criticisms that have been applied to variable costing can also be made to the application of TOC ideas. That is, all expenses other than direct materials are assumed to be fixed and unavoidable. For a more detailed discussion of the TOC and throughput accounting you should refer to Dagdale and Jones (1998), Jones and Dagdale (1998) and the solution to Review problem 9.25.

KEY TERMS AND CONCEPTS

Differential cash flows The cash flows that will be affected by a decision that is to be taken, also known as incremental cash flows.

Facility sustaining costs Common costs that are incurred to support the organization as a whole and are irrelevant for decision-making.

Incremental cash flows The cash flows that will be affected by a decision that is to be taken, also known as differential cash flows.

Limiting factors Scarce resources that constrain the level of output.

Opportunity costs Costs that measure the opportunity that is sacrificed when the choice of one course of action requires that an alternative is given up.

Optimised production technology (OPT) An approach to production management that is based on the principle that profits are expanded by increasing the throughput of the plant, which it aims to achieve by identifying and dealing with bottlenecks.

Outsourcing The practice of obtaining goods or services from outside suppliers instead of producing the same goods or providing the same services within the organization.

Qualitative factors Non-monetary factors that may affect a decision.

Relevant costs and revenues Future costs and revenues that will be changed by a particular decision, whereas irrelevant costs and revenues will not be affected by that decision.

Special studies A detailed non-routine study that is undertaken relating to choosing between alternative courses of action.

Stock costs Costs that have been incurred by a decision made in the past and that cannot be changed by any decision that will be made in the future.

Theory of constraints (TOC) A five-step process of maximizing operating profit when faced with bottleneck and non-bottleneck operations.

Throughput accounting A management accounting methodology that gives priority to throughput over inventory and operational expenses.

Within direct view The original cost of an asset minus depreciation.

RECOMMENDED READING

For a discussion of the arguments for and against using the contribution analysis approach you should refer to the Journal of Management Accounting Research (JMAR) Fall 1990, 1–32, 'Contribution margin analysis: no longer relevant. Strategic cost management: the new paradigm?', which repudiates the contribution from a panel of speakers at the American Accounting Association Annual Meeting, Ferrara (pp. 1–20), Kaplan

Key terms and concepts Highlighted throughout the text where they first appear alerting students to the core concepts and techniques. These are also listed at the end of each chapter with brief definitions.

EXAMPLE 7.1

The following information is available for periods 1–6 for the Hogue Company:

	(£)
Unit selling price	10
Variable unit cost	6
Fixed costs per each period	300,000

The company produces only one product. Budgeted activity is expected to average 150,000 units per period, and production and sales for each period are as follows:

	Period 1	Period 2	Period 3	Period 4	Period 5	Period 6
Units sold (000s)	150	120	180	150	140	160
Units produced (000s)	150	150	150	150	170	140

There were no opening inventories at the start of period 1, and the actual manufacturing fixed overhead incurred was £300,000 per period. We shall also assume that non-manufacturing overheads are £100,000 per period.

EXHIBIT 7.2 Variable costing statements

	Period 1 (£000s)	Period 2 (£000s)	Period 3 (£000s)	Period 4 (£000s)	Period 5 (£000s)	Period 6 (£000s)
Opening stock	—	—	—	—	—	140
Production cost	900	900	900	900	1020	840
Closing stock	(150)	(150)	(150)	(150)	(180)	(90)
Cost of sales	300	750	1050	300	840	950
Fixed costs	300	300	300	300	300	300
Total costs	1200	1200	1200	1200	1260	1280
Sales	1500	1200	1800	1500	1400	1600
Gross profit	300	180	600	300	560	340
Less non-manufacturing costs	(100)	(100)	(100)	(100)	(120)	(90)
Net profit	200	80	500	200	440	250

inventory and deduct this sum from the production cost. Using the variable costing system, the 30,000 units in inventory are valued at £6 per unit. A closing inventory of 180,000 will then be deducted from the production costs, giving a cost of sales figure of £720,000. Note that the closing inventory valuation does not include any fixed overheads.

The 30,000 units of closing inventory in period 2 become the opening inventory for period 3 and therefore an expense for this period. The production cost for the 150,000 units made in period 3 is added to this opening inventory valuation. The overall effect is that costs for 180,000 units are matched against sales for 180,000 units. The profits for periods 4–6 are calculated in the same way.

Exhibits and Examples Illustrations of accounting techniques and information are presented throughout the text.

ADVANCED READING

AN ILLUSTRATION OF THE TWO-STAGE PROCESS FOR AN ABC SYSTEM

Earlier in this chapter Figure 3.3 was used to contrast the general features of ABC systems with traditional costing systems. It was pointed out that ABC systems differ from traditional systems by having a greater number of cost centres in the first stage, and a greater number and variety of cost allocation bases in the second stage of the two-stage allocation process. We shall now look at ABC systems in more detail.

You will see from Figure 3.3 that another major distinguishing feature of ABC is that overheads are assigned to each major activity, rather than departments, which normally represent cost centres with traditional systems. Activities consist of the aggregation of many different tasks, events or units of work that cause the consumption of resources. They tend to consist of verbs associated with objects. Typical production support activities include schedule production, set-up machines, move materials, purchase materials, inspect items and process supplier records. When costs are accumulated by activities they are known as **activity cost centres**. Production process activities include machine products and assemble products. Thus, within the production process, activity cost centres are sometimes identical to the cost centres used by traditional cost systems. Generally with ABC systems cost centres are often decomposed into many different activity centres.

A further distinguishing feature is that traditional systems normally assign support costs by reallocating their costs to production cost centres so that they are assigned to products within the production centre cost driver rates. In contrast, ABC systems tend to establish separate cost driver rates for support centres, and assign the cost of support activities directly to cost objects without any reallocation to production centres.

We shall now use Example 3.1 for the Enterprise Company to illustrate ABC in more detail. ABC systems normally decompose production cost centres into many different activity centres but to keep things simple we shall assume that the three production centres (i.e. the two machine centres and the assembly centre) established for the traditional costing system have also been identified as activity centres with the ABC system. Therefore, the production activity centres are identical to the cost centres used by the traditional cost system. However, we shall assume that three activity centres have been established for each of the two support functions. For materials procurement the following activity centres have been established.

Activity	£	Activity cost driver
Purchasing materials	900,000	Number of purchase orders
Receiving materials	600,000	Number of material receipts
Disbursing materials	200,000	Number of production runs
	1,700,000	

You can see that the total costs assigned to the purchase, receiving and disburse materials activities total £1,700,000, the same as the total allocated to the materials procurement cost centre by the traditional costing system. The process of allocating the costs to the three activity cost centres is the same as that used to allocate the costs of £1,700,000 to the materials procurement cost centre with the traditional costing system. To simplify the presentation these cost assignments are not shown. To emphasize the point that ABC systems use cause-and-effect second stage allocations the term cost driver tends to be used instead of allocation base. Cost drivers should be significant determinants of the cost of activities. For example, it is assumed for the Enterprise Company that the cost of processing purchase orders is determined by the number of purchase orders that each product generates, as the number of purchase orders is used to represent the cost driver for the purchasing materials activity. The number of receipts for receiving materials and the number of production runs for the disbursing of materials have been identified as cost drivers for the receipt of materials and disbursing of materials activities.

Advanced reading More advanced material has been highlighted, this is not essential for a basic understanding of each chapter. These sections should be read when you have fully understood the remaining chapter content.

ASSESSMENT MATERIAL

(pp. 2–15), Shank (pp. 15–21), Horngren (pp. 21–4), Boer (pp. 24–7), together with consulting remarks (pp. 25–32). For a detailed discussion of the theory of

KEY EXAMINATION POINTS

A common mistake that students make when presenting information for decision-making is to compare unit costs. With this approach, there is a danger that fixed costs will be utilized and treated as variable costs. In most cases you should compare total amounts of costs and revenues rather than unit amounts. Many students do not present the information clearly and concisely. There are many alternative ways of presenting the information, but the simplest approach is to list future costs and revenues for each alternative in a format similar to Exhibit 9.1. You should exclude irrelevant items or ensure that the same amount for irrelevant items is included for each alternative. To determine the amount to be entered for each alternative, you should ask yourself what difference it will make if the alternative is selected.

Never allocate common fixed costs to the alternatives. You should focus on how each alternative will affect future cash flows of the organization. Changes in the appointment of fixed costs will not alter future cash flows of the company. Remember that if a resource is scarce, your analysis should recommend the alternative that yields the largest contribution per limiting factor.

You should now attempt the review problems and compare your answers with the solutions that are provided. These problems will test your understanding of a variety of decision problems that have been covered in Chapter 9.

ASSESSMENT MATERIAL

The review questions are short questions that enable you to assess your understanding of the main topics included in the chapter. The numbers in parentheses provide you with the page numbers to refer to if you cannot answer a specific question.

The review problems are more complex and require you to relate and apply the content to various business problems. The problems are graded by their level of difficulty. Solutions to review problems that are not provided by the term 'TM' are provided in a separate section at the end of the book. Solutions to problems preceded by the term 'IM' are provided in the *Instructor's Manual* accompanying this book that can be downloaded from the lecturer's digital support resources. Additional review problems with fully worked solutions are provided in the *Student's Manual* that accompanies this book.

The website also includes over 30 case study problems. Several cases are relevant to the content of this chapter. Examples include First Ltd and High Street Reproduction Furniture Ltd.

REVIEW QUESTIONS

9.1 What is a relevant cost? (p. 156)

9.2 Why is it important to recognize separate factors when presenting information for decision-making? Provide examples of separate factors (pp. 156–160).

9.3 What underlying principle should be followed in determining relevant costs for decision-making? (p. 160)

9.4 Explain what is meant by special pricing decisions. (p. 160)

9.5 Describe the important factors that must be taken into account when making special pricing decisions. (p. 167)

9.6 Describe the dangers involved in focusing exclusively on a short-term decision-making time horizon. (p. 168)

9.7 Define breakeven factors. (p. 200)

9.8 How should a company determine its optimal product mix when a limiting factor exists? (p. 201)

9.9 Why is the written down value and depreciation of an asset being considered for replacement different when making replacement decisions? (p. 204)

9.10 Explain the importance of opportunity costs in decision-making. (p. 205)

9.11 Explain the factors that affect the original purchase price of materials are irrelevant for decision-making. (p. 210)

9.12 Why does the relevant cost of a resource after absorbing upon the circumstances? (p. 210)

9.13 Describe the first action involved in applying the theory of constraints. (p. 212)

9.14 Describe throughput accounting and explain how it can be used to determine the optimum use of a bottleneck activity. (p. 216)

Review questions Short questions that enable you to assess your understanding of the main topics included in the chapter.

CHAPTER 10 PRICING DECISIONS AND PROFITABILITY ANALYSIS

KEY TERMS AND CONCEPTS

Absorption costing system: A costing system that allocates all manufacturing costs, including fixed manufacturing costs, to products and values unsold stocks at their total cost of manufacture.

Cost-plus pricing: An approach to pricing customers' products and services that involves calculating product costs and adding the desired profit margin.

Customer profitability analysis: The analysis of profits by individual customers or customer categories.

Direct costing: A costing system that assigns only variable manufacturing costs, not fixed manufacturing costs, to products and includes them in the inventory valuation.

Full cost: The estimated sum of all resources that are committed to a product in the long run, also known as long-run cost.

Long-run cost: The estimated sum of all resources that are committed to a product in the long run, also known as full cost.

Points analysis: A type of analysis based on the observation that a very small proportion of items account for the majority of value.

Penetration pricing policy: An approach to pricing that involves charging low prices initially with the intention of gaining rapid acceptance of the product.

Price leaders: Firms that have some discretion over setting the selling price of their products or services.

Price takers: Firms that have little or no influence over setting the selling price of their products or services.

Price-volume mix: An approach to pricing that attempts to exploit sections of the market that are relatively insensitive to price changes.

Product life cycle: The period of time from initial expenditure on research and development to the withdrawal of support to customers.

Target costing: A technique that focuses on managing costs during a product's planning and design phase by establishing the target cost for a product or service that is derived from starting with the target selling price and deducting a desired profit margin.

Target ratio of return on invested capital: An approach to pricing that involves estimating the amount of investment attributable to a product and setting a price that ensures a satisfactory return on investment for a given volume.

RECOMMENDED READING

Sizer (1989) has written extensively on pricing, his writings on this topic are all relevant today. You are recommended to read Chapters 11 and 12 of his book. These chapters focus on different pricing policies and the information that management requires to make sound pricing decisions. Few empirical studies have been undertaken on pricing decisions but one such study is that by Mills (1988). For an historical analysis of the allocation of common costs in pricing decisions you should refer to Barrow (1994). You should refer to Lucas (2003) for an evaluation of research supporting the accountants' and economists' respective positions to pricing. A more detailed description of target costing can be found in an article by Kato (1993) and a book written by Yoshida et al. (1995). For a survey of target costing in Dutch firms you should refer to Dekker and Smidt (2003).

KEY EXAMINATION POINTS

Questions requiring the use of differential calculus are sometimes set by the professional accountability examination bodies (e.g. Review problem 30.18). Where demand information is given you should avoid calculating and recommending cost-plus selling prices. Whenever possible, incorporate estimated revenues and costs for different demand levels and recommend the selling price that yields the maximum profit. You should also be prepared to discuss the limitations of cost-plus pricing and indicate why it is widely used in spite of these limitations.

ASSESSMENT MATERIAL

The review questions are short questions that enable you to assess your understanding of the main topics included in the chapter. The numbers in parentheses provide you with the page numbers to refer to if you cannot answer a specific question.

The review problems are more complex and require you to relate and apply the content to various business problems. The problems are graded by their level of difficulty. Solutions to review problems that are not provided by the term 'TM' are provided in a separate section at the end of the book. Solutions to problems preceded by the term 'IM' are provided in the *Instructor's Manual* accompanying this book that can be downloaded from the lecturer's digital support resources. Additional review problems with fully worked solutions are provided in the *Student's Manual* that accompanies this book.

The website also includes over 30 case study problems. Several cases are relevant to the content of this chapter. Examples include First Ltd and High Street Reproduction Furniture Ltd.

Recommended readings Further reading lists to supplement key topics.

ASSESSMENT MATERIAL

7.6 Under what circumstances will variable costing report higher profits than absorption costing? (p. 150)

7.7 What arguments can be advanced in favour of variable costing? (pp. 150–153)

7.8 What arguments can be advanced in favour of absorption costing? (p. 154)

7.9 Explain how absorption costing can encourage managers to engage in behaviour that is harmful to the organization. (p. 154)

REVIEW PROBLEMS

7.10 **Bank:** WPL Ltd produces a single product. The management currently uses marginal costing but is considering using absorption costing in the future.

The budgeted fixed production overheads for the period are £120,000. The budgeted total for the period is 200,000 units. There were 800 units of opening inventory at the beginning of the period and 200 units at the end of the period.

If absorption costing principles were applied, the profit for the period compared to the marginal costing profit would be:

	£
(a) £25,000 higher	
(b) £17,000 lower	
(c) £125,000 higher	
(d) £25,000 lower	

CMA PV Management Accounting: Performance Evaluation

7.11 **Bank:** In a period, opening stocks were 12,000 units and closing stocks 14,000 units. The profit based on marginal costing was £50,400 and profit using absorption costing was £60,150. The fixed overhead absorption rate per unit (to the nearest penny) is:

	£
(a) £4.00	
(b) £4.17	
(c) £4.50	

CMA Stage 1 Cost Accounting

7.12 **Bank:** A newly formed company has chosen up the following budgets for its first six accounting periods:

	Period 1	Period 2
Sales units	10,000	10,000
Production units (input/output)	10,000	10,000
Material (output)	10,000	10,000

The following budgeted information applies to both periods:

	Period 1	Period 2
Selling price per unit	6.40	
Variable cost per unit	3.80	
Fixed production overhead per unit	15.000	

(a) In period 1, the budgeted profit will be:

(i) the same under both absorption costing and marginal costing

(ii) £170 higher under absorption costing

(iii) £170 lower under absorption costing

(iv) \$1400 higher under absorption costing

(b) In period 2, absorption was as budgeted, except for the fixed production overhead, which was \$15.700.

The reported profit, using absorption costing in period 2, would be:

(i) \$12,300

(ii) \$12,400

(iii) \$12,600

(iv) \$12,800

CMA – Management Accounting Fundamentals

7.13 Why is it necessary to select an appropriate denominator level for variable costing? (p. 150)

7.14 Identify and describe the four different denominator level measures that can be used to estimate fixed overhead rates. (pp. 150–153)

7.15 Explain why the choice of an appropriate denominator level is important. (pp. 150–157)

7.16 Why is budgeted activity the most useful denominator measure? (p. 157)

7.17 **Bank:** Preparation of variable and absorption costing statements is an essential part of the difference in profit. Discuss the limitations and advantages of each statement. (p. 150)

7.18 **Bank:** Prepare a variable costing statement and an absorption costing statement for a single product at a unit selling price of £25. In constant production costs, the cost structure is as follows:

	£
Production materials	£30 per unit produced
Distribution	£1 per unit sold
Overhead costs	£5000 per annum, plus £2 per unit produced

Fixed costs: £5000 per annum

For several years Wilson has operated a system of variable costing for management accounting purposes. It has been decided to review the system and to compare it for management accounting systems with an absorption costing system.

As part of the review, you have been asked to prepare estimates of Wilson's profits in constant price base terms over a five-year period in three different hypothetical situations, and to compare the two types of system generally for management accounting activities.

(a) In each of the following three sets of hypothetical circumstances, calculate Wilson's profit in each of years t_1 , t_2 and t_3 , and also in total over the three-year period t_1 to t_3 , where that is variable costing system and then a full-cost absorption costing system with fixed cost recovery based on a normal production level of 1000 units per annum.

(i) Stable unit levels of production, sales and inventory

	t_1	t_2	t_3
Opening stock	100	100	100
Production	1000	1000	1000
Sales	1000	1000	1000
Closing stock	100	100	100

(ii) Stable unit level of sales, but fluctuating unit levels of production and inventory

	t_1	t_2	t_3
Opening stock	100	600	400
Production	1000	800	1200
Sales	1000	1000	1000
Closing stock	100	800	100

(iii) Stable unit level of production, but fluctuating unit levels of sales and inventory

	t_1	t_2	t_3
Opening stock	100	600	400
Production	1000	1000	1000
Sales	800	1200	1000
Closing stock	400	600	1000

(b) Many

Review problems Graded by difficulty level, these more complex questions have worked solutions either at the back of the book, or in the accompanying Instructor's Manual.

DIGITAL SUPPORT RESOURCES

Dedicated Instructor Resources

To discover the dedicated instructor online support resources accompanying this textbook, instructors should register here for access:

<http://login.cengage.com>

Resources include:

- Instructor's Manual (including answers to 'IM Review Problems' in the text)
- ExamView Testbank
- PowerPoint slides to use in your teaching
- Case Study Teaching Notes to accompany the Case Studies on CourseMate
- Downloadable figures and tables from the book to use in your teaching



Instructor access

Instructors can access CourseMate by registering at <http://login.cengage.com> or by speaking to their local Cengage Learning EMEA representative.



Instructor resources

Instructors can use the integrated Engagement Tracker in CourseMate to track students' preparation and engagement. The tracking tool can be used to monitor progress of the class as a whole, or for individual students.

Student access

Students can access CourseMate using the unique personal access card included in the front of the book.

Student resources

CourseMate offers a range of interactive learning tools tailored to the eighth edition of Colin Drury's *Management and Cost Accounting*, including:

- Case studies
- Quizzes
- Beat the clock Q&A games
- PowerPoint slides
- Interactive eBook
- Learning notes
- Outline solutions to Real World View questions
- Glossary
- Accounting and finance definitions
- Crossword puzzles and flashcards
- Guide to Excel
- Useful weblinks



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Student access

On the recommendation of their instructor, students can purchase Aplia by searching for Colin Drury, *Management and Cost Accounting*, on www.cengagebrain.com.

Student resources

Aplia is dedicated to improving learning by increasing student effort and engagement, and provides detailed explanations for every question to help students stay focussed, alert and thinking critically. Aplia Accounting features include:

- Embedded eBook
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- Personalized customer support
- Automatically graded chapter assignments with instant detailed feedback

PART ONE

INTRODUCTION TO MANAGEMENT AND COST ACCOUNTING

