COST AND
ACCOUNTING
MANAGERIAL

JACK GRAY · DON RICKETTS

COST AND MANAGERIAL ACCOUNTING

Jack Gray
Professor of Accounting
University of Minnesota, Minneapolis

Don Ricketts
Professor of Accounting
University of Cincinnati

McGraw-Hill Book Company

New York St. Louis San Francisco Auckland Bogotá Hamburg Johannesburg London Madrid Mexico Montreal New Delhi Panama Paris São Paulo Singapore Sydney Tokyo Toronto

COST AND MANAGERIAL ACCOUNTING

2 3 4 5 6 7 8 9 0 DODO 8 9 8 7 6 5 4 3 2

ISBN 0-07-024220-8

This book was set in Century Schoolbook
by Monotype Composition Company, Inc.
The editors were Donald G. Mason,
Michael Elia, and Edwin Hanson;
the designer was Robin Hessel;
the production supervisor was Charles Hess.
The drawings were done by VIP Graphics.
R. R. Donnelley & Sons Company was printer and binder.

Library of Congress Cataloging in Publication Data

Gray, Jack C., date
Cost and managerial accounting.

Includes index.
1. Cost accounting. I. Ricketts, Don.
II. Title.
HF5686.C8G685 657'.42 81-20710
ISBN 0-07-024220-8 AACR2

CONTENTS

1

COST ACCOUNTING AND MANAGERIAL ACCOUNTING

AFTER COMPLETING YOUR STUDY OF THIS CHAPTER, YOU SHOULD HAVE LEARNED:

1 The differences and similarities between cost accounting and managerial accounting. You will find that the primary difference is associated with the use of the data by managers.

2 How managerial accounting relates to planning and control decisions, and how cost accounting relates to the preparation of income statements and balance sheets.

3 The importance of evaluating alternative accounting procedures from a cost-benefit viewpoint.

4 How cost accounting and managerial accounting rely on a common data base to accomplish their objectives.

The first chapter of a textbook is often the hardest chapter to write. When authors begin a book, there is so much to say it is difficult to know where to start or when to stop. We have tried to make our beginning chapter worth reading and studying. The things you can expect to learn have been suggested in the list of objectives which begins each chapter. We use these objectives to help you know in advance what you can expect to learn by studying each chapter.

Here is a list of questions which are answered through the use of cost accounting and managerial accounting:

Questions cost and management accounting can help answer.

1 If McGraw-Hill Book Company has 8,000 copies of this book in inventory at year-end, at what cost will they be reported in the company balance sheet?

2 How many copies of this book must McGraw-Hill sell before a profit is made?

3 What does it cost a company when its union goes on strike?

4 What does it cost a company to stop polluting the air?

5 What will it cost Ford Motor Company to meet the minimum fuel economy standards for 1985?

6 If a university is considering offering a new Master of Accounting degree, what will it cost?

7 What does it cost to audit the financial statements of New York City?

This book is about accounting methods which can be used to answer these and many other similar questions.

Cost defined.

The word "cost" was used in all questions except number 2, which used the word "profit." **Cost** is defined as the resources consumed to accomplish a specific objective. McGraw-Hill Book Company consumed several different types of resources in publishing this book. They consumed dollars by paying wages to people who worked to make this the best book possible. They also consumed paper, ink, and partially consumed (wore out) machinery in the setting and printing of the book.

Profit defined.

Profit is the difference between sales revenues and the expired costs (or, more technically, expenses) of earning those revenues. Thus, cost must be measured to answer each question, including the question that mentioned profit rather than cost.

You calculate the cost of something with a specific purpose in mind.

Notice that the definition of cost referred to accomplishing a "specific objective." Each of the questions implies a specific objective or purpose. Question 1 implied the purpose of preparing a balance sheet for McGraw-Hill Book Company. Question 2 implied a purpose of deciding whether it would be profitable to produce and sell this book. (Neither McGraw-Hill nor the authors would have put the required amount of effort into preparing this book for literary recognition alone.) Exhibit 1-1 lists the implied specific purposes of each question.

COST ACCOUNTING SYSTEMS

Cost accounting system defined.

A **cost accounting system** is used to record, summarize, and report cost information. Some cost information is reported in income statements and balance sheets which are presented to external users such as shareholders and creditors. Other cost information is given in special reports to managers within the firm for use in

EXHIBIT 1-1
The Purpose of Cost Information

Question Number	Implied Specific Purpose
1	Prepare a balance sheet.
2	Will producing the book be profitable?
3	Should the company offer a higher settlement to avoid a strike?
4	Should the company close the plant or install pollution control equipment?
5	How will Ford Motor Company obtain the needed resources?
6	Will the new degree produce enough tuition to make it feasible?
7	Is improved quality of information worth the cost of an audit?

deciding how to operate the organization. Those *decisions* are simply the choices managers make about how their organizations should do things.

Managerial accounting provides cost information to managers to assist them in making decisions.

Exhibit 1-1 shows that most of the implied specific objectives are decisions or choices to be made by managers. Providing cost information to managers to assist them in making decisions is the part of accounting called **managerial accounting** or **management accounting.** Providing cost information for income statements and balance sheets is called **cost accounting.**

Cost accounting systems were developed many years ago to meet the needs of cost information for income statements and balance sheets. Only later did the development of more complex organizations demand that cost information also be collected and reported for management decisions. Cost accounting systems have evolved so that today they provide cost information for both cost accounting (for income statements and balance sheets) and managerial accounting.

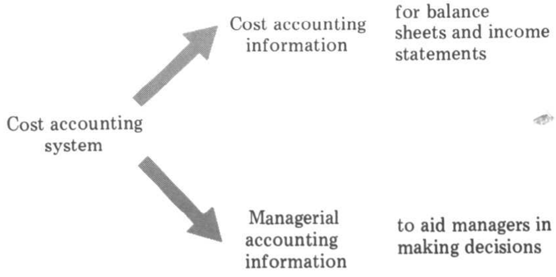
The kind of information provided has also expanded so that in addition to cost information it may include sales and production information in dollars and units. We will continue to use the term "cost information" because it is convenient, but you should remember that for some decisions it will also include revenue (sales) information.

Cost-accounting means developing cost data for income statements and balance sheets.

Let us make the distinction again. When we use the term "cost accounting" we mean developing cost data for use in income statements and balance sheets, the kind of data suggested in question 1 above. When we use the term "managerial accounting" we mean data prepared specifically for managers within the organization to help them make the decisions or choices which are needed for their part of the organization to achieve its objectives. But a cost accounting *system* provides cost data for both cost accounting and managerial accounting.

The reason for distinguishing between cost accounting and managerial accounting is that in many situations different information is needed for each. You may make mistakes if you use cost accounting reports for management decisions. A good example of this is sales orders. Marketing managers and production managers want to know about sales orders as they are received (before the products are shipped). Orders received help the marketing manager decide if sales are being made on schedule or whether increased sales efforts are needed. Orders received help the production manager decide what products and how many units of product should be produced. Are orders received managerial accounting or cost accounting information? If you chose managerial, you were right, because this information is being used by managers within the organization to make decisions. When the sales orders are shipped to the customers they influence cost accounting. The cost of the order is

EXHIBIT 1-2
The Relation between Cost Accounting Systems, Managerial Accounting, and Cost Accounting



deducted from the sales revenue in the income statement. Thus, the shipment of the order is important to cost accounting.

Examples of the difference between cost accounting and managerial accounting information.

If a production manager made production decisions based only on amounts of products shipped rather than orders received, the wrong products might be produced. The production department would be producing products needed last month for shipment to customers, but it might not be producing the products which customers will need this month and next month. A production manager needs managerial accounting information. This discussion can be summarized graphically as shown in Exhibit 1-2.

We shall next discuss managerial accounting and then cost accounting in more detail.

Managerial Accounting

In managerial accounting the accountant accumulates, summarizes, and reports information which managers need to make specific decisions; thus the name managerial accounting.

Planning decisions defined.

Control decisions defined.

Planning and Control The decisions managers are concerned with can be categorized as *planning* and *control* decisions. Planning decisions establish goals for the organization and choose plans (feasible sets of actions) to accomplish the goals. Control decisions result from implementing the plans and monitoring the actual results to see if goals are being achieved. If goals are not being achieved, control decisions must be made either to do things differently or to alter plans or goals to attainable levels.

Typical planning decisions for which managerial accounting information is needed include:

Examples of planning decisions.

- Should a new product line be marketed?
- Should the production and sale of an existing product line be terminated?
- How many units of each product should we produce this year?

- Should our production facilities be expanded? Contracted?
- What are our cash needs for the year? Should we negotiate a revolving line of credit with the bank?
- How much should we spend on advertising? Research and development?
- Is it more economical to purchase a part from an outside supplier or to manufacture it in our own production facilities (the make or buy decision)?

Planning is based on estimated future costs and revenues, but often historical data provides a good base for the estimates.

All the planning decisions listed above will require *estimates* of future costs and in some cases *estimates* of future revenues. Planning decisions establish the course of action the organization will follow to accomplish its goals. These decisions are based on what management *expects* to occur in the future, not what has occurred in the past. However, we will learn that the historical cost data provides a good base to estimate the future costs.

Typical control decisions for which cost accounting data are needed include:

Examples of control decisions.

- What can be done to make actual sales equal to budgeted sales?
- How can labor be used more efficiently so that actual costs do not exceed planned costs?
- Is a change in research and development projects needed to achieve planned results?
- Does actual production volume need to be changed to equal planned volume?

Control decisions involve comparing actual results with expected results.

All the control decisions listed above require the comparison of actual results with expected results where the expected results are developed from the planning decisions made by management. The actual results represent data collected by the cost accounting system from the actual events that have occurred during the implementation of the plans. This comparison of actual and expected results may necessitate *additional management* decisions to assure that either the original plan is attained or that modifications are made to the original plan in an acceptable way in order to match the actual conditions being encountered.

To illustrate, Melia Company planned to introduce a new product because managerial accounting analysis suggested that the new product could be produced for $3 per unit. Marketing managers believed that 1,000 units of product could be sold each month for $5 per unit. Melia's top management believed that these plans would lead to a satisfactory return on investment so the plan was accepted.

Implementation began but it was found that the cost of producing each unit was $3.50. The higher cost meant lower profit and return on investment. Melia was faced with control decisions. Some of the choices considered were:

Illustrations of control decisions.

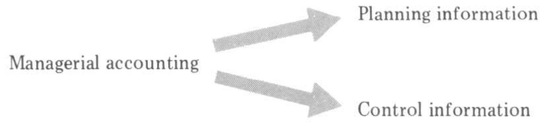
1 Can different production methods be used to bring the cost per unit down to $3?

2 Can the product be sold for $5.50 per unit so that the profit per unit will be as planned even with the higher cost per unit?

3 Can the product be redesigned with less expensive materials so that the cost will be $3 per unit?

4 Can more than 1,000 units be sold per month so that even with the planned $5 selling price and the $3.50 cost, the total profit will yield a satisfactory return on investment?

EXHIBIT 1-3
The Two Parts of Managerial Accounting



The methods of obtaining the needed information will be discussed in later chapters of this book, but seeking answers to questions like these is the essence of control. Graphically, the parts of managerial accounting are shown in Exhibit 1-3.

Relevance As you study this textbook you will learn that a great variety of accounting information is available to managers. For example, we previously learned that sales orders received and sales orders shipped are used for different purposes. How does an accountant know what information should be reported to managers to aid them in making their planning and control decisions? The accountant chooses information to be reported to a manager by (1) identifying the specific purpose, decision model, or technique the manager will use to make the decision and then (2) determining the **relevant information.**

The first part of the process, identifying the specific purpose, decision model, or technique in which the information will be used, was discussed earlier. Information that is important to one decision may not be important to another decision. This is why it is crucial to know the specific purpose or decision to be made before information is gathered.

The main topic of this section is relevance of information. Only relevant information can improve a decision. Information is *relevant* if it:

Relevant information (1) affects the accomplishment of objectives, and (2) will change as a result of the decision.

1 Affects the accomplishment of the objectives of the decision maker
2 Will change as a result of the decision or choice made by the decision maker

Relevance is important in managerial accounting because it is the main determinant of what the accountant will do and what information will be collected and reported. We will illustrate relevance with a personal example and then with a business example.

A personal illustration of the meaning of relevance.

Suppose that the specific decision to be made is to choose a pair of shoes to purchase. In the first illustration let us assume that the shoes are to be used for job interviews. Also assume that the shoestore at which we are shopping has a big rack of shoes available for a single price, $60 per pair. We are sure we can find a suitable pair on the rack. Since we are choosing shoes to be used in an interview, appearance and color are both very important. We want to project a well-dressed appearance so we will rule out casual shoes. The style of the shoe is *relevant* because we must avoid certain styles if we are to appear well dressed. The color is relevant because it must coordinate with the rest of the clothes we expect to wear in the interview.

In this special case the price of the shoes is not relevant.[1] Regardless of which pair we select, the price will be $60. So we ignore price in making this decision and consider only color and style. The information we use in making the choice is the relevant information.

[1] We have asked you to assume that all the shoes are the same price. This may seem somewhat unrealistic, but we ask you to do so to make an important point.