

Management and Cost Accounting

COLIN DRURY

THIRD EDITION



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Management and Cost Accounting

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Management and Cost Accounting

Third Edition

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Preface

The aim of the third 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 managers in their decision-making, planning and control activities. A cost accounting system traces costs to jobs or products for financial accounting requirements in order to allocate costs incurred during a period between cost of goods sold and inventories. As the title suggests, this book is concerned with both management and cost accounting but emphasis is placed on the former. A major theme of this book is that different financial information is required for different purposes.

After many years of teaching management and cost accounting to various professional, undergraduate, postgraduate and post-experience courses I became convinced there was a need for a book with a more 'accessible' text. A large number of cost and management accounting text books have been published and these are generally aimed at students who are preparing for the examinations of professional accountancy bodies. 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 students who are preparing for the cost and management accounting examinations of the professional accountancy bodies at the foundation and advanced professional level and degree students who are pursuing a one or two year management accounting course. It should also be of use to higher national diploma and postgraduate 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.

Since the publication of the second edition of this book a considerable amount of attention has been focused on the relevance of contemporary management accounting practices and the conventional wisdom of management accounting as portrayed in textbooks. Much of this recent attention has resulted from the impact of the changing competitive and manufacturing environment. Investing in advanced manufacturing technologies has caused many problems; such as how to appraise the capital investments, how to compute product costs and how to modify control systems and performance measures so that they motivate managers to meet the new strategic manufacturing and competitive goals of their organizations. Some organizations have reported that their existing cost systems have hindered, rather than helped the required changes to come about. This has resulted in claims by some writers that current management accounting systems are obsolete and that a revolution in management accounting is required to match the revolution in manufacturing technology. As a result of the changing manufacturing and competitive environment, much new material has been introduced in the third edition of this book. The notable alterations are:

Major changes in the content

1. Chapters 11 and 21 are entirely new chapters. Chapter 11 describes activity-based *product* costing systems and contrasts activity-based costing with traditional product costing and decision-relevant costs. Chapter 21 describes the different manufacturing systems and production management strategies and also outlines the main features of the new manufacturing technologies. The management accounting implications of alternative production management strategies and advanced manufacturing technologies are also explained.
2. Chapter 25 (Past, current and future developments in management accounting) in the second edition has been rewritten and replaced by Chapter 27. This chapter outlines the past developments in management accounting, describes the major criticisms that have been made against existing management accounting practices and discusses the potential future developments. This chapter also contains new material on total quality management, life cycle costing, strategic management accounting and customer profitability analysis.
3. A greater emphasis on survey findings and company practice. In particular the findings of a survey, undertaken by the author, of 303 UK manufacturing companies, are recorded throughout the book.
4. Updating of references. A large percentage of the citations in the third edition refer to articles and books published subsequent to the second edition.
5. A substantial number of new end-of-chapter problems has been added from examinations subsequent to the second edition.
6. New text on activity-based cost *management* in Chapters 11 and 17.
7. New text in Chapter 21 on just-in-time manufacturing and backflush costing.
8. New text in Chapter 2 emphasizing the importance of the time horizon in classifying a cost as fixed or variable. Chapter 2 stresses that costs which are fixed in the short-run may be variable in the long-run and may vary with factors other than volume. The notion of 'complexity-related costs' is introduced.
9. Extensive rewriting of Chapter 4 describing how traditional product costing systems allocate overheads to products to meet the financial accounting requirements. This revised chapter provides the foundation for a comparison, in Chapter 11, of traditional and activity-based product costing systems.
10. Extensive rewriting of the material on decision-relevant costs in Chapter 10. In particular greater emphasis is placed on indicating that the decision-relevant approach adopts whichever planning time horizon the decision-maker considers appropriate for a given situation. The dangers of focusing excessively on the short-term and the need to focus on maximizing long-term cash inflows are emphasized. The chapter also contains new text on segmental profitability analysis.
11. Chapter 12 contains new text on decision-relevant and activity-based costs for pricing decisions. This chapter also includes new material on target costing.
12. New text in Chapter 14 on the modified internal rate of return and extensive rewriting of the text of 'Evaluation investments in advanced manufacturing technologies'.
13. New text in Chapter 15 classifying the different approaches to measuring risk.
14. Chapter 16 contains new text on identifying potential strategies and evaluating strategic options within the context of the long-term planning process.
15. The title of Chapter 17 (Chapter 16 in the second edition) has been changed from 'Control in the organization' to 'Operational control and performance measurement'. As the change in the title suggests, a greater emphasis is placed on operational control and performance measurement. New text has been added on non-financial performance measures and operational control and performance measurement in service organizations.
16. An extensive revision and simplification of the text on standard costing (Chapters 18 and 19). To simplify the introduction to standard costing Chapter 18 focuses initially on a variable standard costing system. It is stressed that the additional variances reported by an absorption costing system are required to meet financial accounting requirements and are not required for cost control. The material on material mix and yield and sales variances has been rewritten and new text has been added on market share and size variance.

17. Chapter 20 (Behavioural aspects of accounting control systems) has been updated to reflect new research in this area.
18. New text in Chapter 22 summarizing the steps involved in estimating cost functions.
19. New text in Chapter 23 on materials requirements planning and just-in-time purchasing and manufacturing.
20. Extensive rewriting of Chapters 25 (Measuring divisional profitability) and 26 (Transfer pricing in divisionalized companies). New text has been added in Chapter 25 on the impact of depreciation and inflation and the text on 'Reconciling short-term and long-term residual income measures' has been transferred to the Appendix. The material in Chapter 26 relating to transfer pricing in situations where the market for the intermediate product is imperfect or non-existent has been rewritten.

The addition of two entirely new chapters (Chapters 11 and 21) has resulted in a re-numbering of chapters. The topics in Chapters 1–10 of the third edition are the same as the second edition but the title of Chapter 10 has been changed from 'Measuring costs and benefits for decision-making' to 'Special studies: measuring relevant costs for decision-making'. The alterations beyond Chapter 10 are as follows:

- * Old Chapters 11–19 are now Chapters 12–20 and the title of the old Chapter 16 has been changed from 'Control in the organization' to 'Operational control and performance measurement'.
- * Old Chapters 20–25 are now Chapters 22–27 and the title of the old Chapter 23 has been changed from 'Performance measures and control in divisionalized companies' to 'Measuring divisional profitability'.

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 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 which 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 costs for allocating costs between cost of goods sold and inventories to meet financial accounting 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 the costs and revenues of responsibility centres.

This book consists of 27 chapters divided into eight parts. The role of each chapter within the overall framework is explained briefly in Chapter 1 and in more detail in the introduction to each section of the book. The first part (Part One) consists of two chapters and provides an introduction to management and cost accounting. The following three parts reflect the three different ways of constructing accounting information. Part Two consists of six chapters and is entitled Cost Accumulation for Stock Valuation and Profit Measurement. This section focuses on cost accounting with the emphasis on allocating manufacturing costs to products to separate costs between cost of goods sold and the closing stock valuation. The extent to which product costs accumulated for stock valuation and profit measurement should be adjusted for decision-making and responsibility accounting is also briefly considered. Part Three consists of seven chapters and is entitled Information for Decision-making. Here the notion of decision-relevant costs and the information which should be presented to help managers to make good decisions is discussed. Part Four consists of five chapters and is entitled Information for Planning and Control.

Structure and plan of the book

This section emphasizes the process for integrating the decisions into a meaningful, coordinated package via the budgeting process and also focuses on responsibility accounting, operational control and performance measurement. 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. The behavioural aspects of management accounting are included as a separate chapter in this section. Part Five contains one chapter. In this section the different production systems and advanced manufacturing technologies are described and their management accounting implications are discussed. Part Six consists of three chapters and is entitled The Application of Quantitative Methods to Management Accounting. Part Seven focuses on Divisional Performance Evaluation and consists of two chapters which deal with the problems of measuring the performance of divisional managers. The final part consists of a single chapter and is concerned with past, current and future developments in 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 13, 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. Teachers 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.

Alternative course sequences

Although conceived and developed as a unified whole, the book can be tailored to the individual requirements of a course and to 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. The following are suggested programmes for various courses:

Foundation professional accountancy examinations with a major emphasis on cost accounting:

All of Parts One and Two, Chapters 9–11 of Part Three plus Chapters 16–18 of Part Four.

Professional accountancy examinations at the professional or advanced level:

Revision of prescribed reading for the foundation level plus the remaining chapters of the book.

A two-year management accounting course for undergraduates

Part One, Chapter 4 (Part Two) and Parts Three to Eight

A one-year degree or post-experience course in management accounting

Part One, Chapter 4 (Part Two), Part Three (Chapters 9–15), Part Four (Chapters 16, 17, 18 and 20) and Chapters 21, 25, 26 and 27.

Assignment materials and supplementary manuals

Throughout this book I have kept the illustrations simple. Students can check their understanding of each chapter by answering the self assessment questions. Answers to these questions are contained in a separate section at the end of this book. More complex questions are 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 'Intermediate' are normally appropriate for a first year

course whereas questions graded 'Advanced' are normally appropriate for a second year course or the final stages of the professional accountancy examinations.

This book is part of an integrated educational package. A *Students' Manual* provides suggested answers to the questions which are asterisked here in the main text and a *Teachers' Manual* provides answers to the remaining questions. Students are strongly recommended to purchase the *Students' Manual*, which complements this book. It contains suggested answers to over 200 questions. Both the *Students' Manual* and the *Teachers' Manual* have been revised and extended. New answers have been added and the content of both manuals has been substantially revised.

In recognition of the increasing need for the integration of IT teaching into the curriculum, the third edition of this book is accompanied by a *Spreadsheet Applications Manual*, which has been written by Dr Alicia Gazely of Nottingham Business School. This explains basic spreadsheet techniques and then builds up over twenty models which illustrate, and allow students to explore, examples in the main text. Details of the techniques are given for Supercalc 5 and Lotus 1-2-3. All students undertaking courses which include spreadsheet applications of management accounting techniques should purchase a copy of this manual. Guidance notes and a disc are available to teachers on adoption.

Also available on adoption is a set of overhead projector transparency masters. The complete package therefore consists of:

- Main text
- Students' Manual
- Teachers' Manual
- Spreadsheet Applications Manual
- Guidance Notes and Disc for Spreadsheet Applications Manual
- OHP Masters

A separate section is included at the end of each chapter providing advice on key articles or books which students are recommended to read. In addition a list of references and further reading is provided so that students can pursue particular topics 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 writing.

Photocopies of the recommended articles may be obtained by post from the libraries of the professional accountancy bodies. A small charge is made for this service. Polytechnic and university libraries also provide a similar service. In addition they provide an inter-library loan service which enables students to request books not stored by the particular institution.

Recommended and
further reading

Some of the material on linear programming and standard costing was developed from a course on financial control given by Tony Rayman at the University of Bradford Management Centre in the mid 1970s. I am also particularly indebted to Professor John Perrin and Dick Wilson who both commented helpfully on the first edition; to Alan Nelson of Chapman & Hall for his valuable assistance; and to Bronwen, my wife, who has converted my original manuscripts into one final typewritten form. I also wish to acknowledge the support of the Chartered Association of Certified Accountants for funding a survey into the management accounting practices of UK manufacturing companies. The survey findings are reported throughout this book. My appreciation goes also to the Chartered Institute of Management Accountants, the Chartered Association of Certified Accountants, the Institute of Chartered Accountants in England and Wales, and the Association of Accounting Technicians for permission to reproduce examination questions. Questions from the Chartered Institute of Management Accountants' examinations are designated CIMA; questions from the Chartered Association of Certified Accountants are designated CACA or ACCA; questions from the Institute of Chartered

Acknowledgements

Accountants in England and Wales are designated ICAEW; and questions from the Association of Accounting Technicians are designated AAT. The answers in the accompanying teachers' and students' guides to this book are my own and are in no way the approved solutions of the above professional bodies.

Part One

Introduction to Management and Cost Accounting

The objective of this section is to provide an introduction to management and cost accounting. In Chapter 1 we define accounting and distinguish between financial, management and cost accounting. We then examine the role of management accounting in providing information to managers for decision-making, planning and control. In Chapter 2 we consider the various ways in which costs and sales revenues can be classified to meet the various requirements of the different users of accounting information.

The two chapters in this section provide a framework that is used to develop the remaining sections of this book. A thorough understanding of Chapters 1 and 2 is therefore essential.

The scope of management accounting

Learning objectives

After studying this chapter, you should be able to:

- differentiate between management accounting, cost accounting and financial accounting;
- list and describe each of the seven factors involved in the decision-making, planning and control process;
- justify the view that, broadly, firms seek to maximize the present value of future net cash inflows;
- explain the role of management accounting in the management process.

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 judgements and decisions by users of the information.

In other words, accounting is concerned with providing information that will help decision-makers to make good decisions.

An inspection of the terms used in this definition will indicate that an understanding of

accounting requires an understanding of the attributes of **economic information** and the process of identifying, **measuring** and **communicating information**. In addition, we must understand the **decision-making** process and be able to identify the **users of accounting information**. The objective in this first chapter is to consider each of the components of the definition of accounting to provide a framework that will enable you to achieve a more meaningful insight into the issues and problems of accounting that are discussed in this book. We shall begin by looking at the users of accounting information and identifying their requirements.

Accounting is a language that communicates economic information to people who have an interest in an organization – managers, shareholders and potential investors, employees, creditors and the government. 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 that are made 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 like the Central Statistical Office collect accounting information and require such information as the details of sales activity, profits, investments, stocks, dividends paid, the proportion of profits absorbed by taxation, and so on. In addition, the Inland Revenue needs information on the amount of profits that are subject to taxation. All this information is important for determining policies to manage the economy.

Accounting information is not confined to business organizations. Accounting

The users of accounting information

information about individuals is also important and is used by other individuals; for example, credit will only be extended to an individual after the prospective borrower has furnished a reasonable accounting of his private financial affairs. Non-profit-making organizations such as churches, charitable organizations, clubs, and government units such as local authorities, also require accounting information for decision-making, and for reporting the results of their activities. For example, a cricket club will require information on the cost of undertaking its various activities so that a decision can be made as to the amount of the annual subscription that it will charge to its members. Similarly, local authorities need information on the costs of undertaking specific activities so that decisions can be made as to which activities will be undertaken and the resources that must be raised to finance them.

The foregoing discussion has indicated that there are many users of accounting information who require information for decision-making. The objective of accounting is to provide sufficient information to meet the needs of the various users at the lowest possible cost. Obviously, the benefit derived from using an information system for decision-making must be greater than the cost of operating the system.

An examination of the various users of accounting information indicates that they can be divided into two categories:

1. internal parties within the organization;
2. external parties outside the organization.

It is possible to distinguish between two branches of accounting, which reflect the **internal and external users** of accounting information. **Management accounting is concerned with the provision of information to people within the organization to help them make better decisions, whereas financial accounting is concerned with the provision of information to external parties outside the organization.** In this book we shall focus on management accounting, and for simplicity we shall concentrate mainly on the applications of management accounting to manufacturing business organizations that are operated for the purpose of making a profit. Note, however, that many of the applications are equally appropriate to non-manufacturing and non-profit organizations, and the questions at the end of each chapter include many problems that are relevant to these entities. Solutions to selected problems are contained in the *Students' Manual* to this book.

The meaning of information

We noted at the beginning of this chapter that our definition of accounting requires an understanding of the attributes of **economic information** and the process of identifying, measuring and communicating information. Anyone studying accounting must be aware of the basic aspects of information theory and information economics, but before we embark on a discussion of information theory we must understand what is meant by the term 'information'.

It is possible to distinguish between **information** and **data**. Data represents facts of any kind; information can be more narrowly defined – it is a subset of data. An item of data is classed as information only if it adds to knowledge; for example, the number 100 000 taken by itself is not information because it does not add any knowledge, but the statement that 100 000 additional sales orders were received last month does add knowledge and is therefore classed as information.

Information may be obtained by direct observation or by communication. Managers normally obtain information by communication because it is not possible for them to observe all activities taking place which are under their responsibility. Instead, managers rely on information from conversations with their subordinates (*ad hoc* information) or the contents of formally transmitted reports, some of which will be prepared by the accountant.

Not all information is valuable. The information content of a message varies inversely with the probability of the occurrence of an event that is being reported. Suppose, for example, that you are informed that the temperature on the south coast of England on Christmas Day is expected to be less than 10°C. Because the probability of this event is very high, it is unlikely that this statement will have very much information content, and it is thus of little value. If, however, you are

informed that the temperature on the south coast during the Christmas period is expected to be in excess of 20°C, you may consider this information to be important and valuable because the probability of such an event is very low. This statement is valuable because it may cause you to change your planned course of action. Instead of staying at home, you may decide to visit the south coast during the Christmas period.

Accounting should concentrate on the provision of **relevant information** that is valuable to the recipient. In our everyday life we receive vast quantities of information in excess of our requirements, but our brains act as filters, so that we act on only a small fraction of the quantity of information we receive. For example, the ears of a pedestrian walking along a main street in a city centre pick up many sounds that are disregarded; but if the pedestrian hears the sound of a car horn, the brain brings the message to the attention of the conscious mind for appropriate action. The accountant acts in a similar way when designing an accounting reporting system by filtering out unneeded information and conveying only relevant information to the decision-maker. Clearly, this filtering process should be in accordance with the users' requirements. The Report of the Committee on Managerial Decision Models (1978) defined **relevant accounting information as that which bears upon or is useful to the action it is designed to facilitate or the result it is desired to produce**. For example, if a manager is considering alternative courses of action, both of which require the use of existing machinery, then the cash outflows (payments) for the hire of the machinery will remain the same for both alternatives. This information is not relevant to the decision, because the cash flows remain unchanged for both alternatives. Only those cash flows that will be different for the individual alternatives represent relevant accounting information for the decision.

Relevance is at the heart of management accounting; if information is not relevant to some need, it has no value. Thus it is important that there is a close relationship between the management accountant and all levels of management so that the management accountant can be familiar with the firm's operations and determine relevance in a manner that more precisely reflects the needs, understanding and receptivity of particular users.

Measurement theory is important to accountants since it is concerned with the problem of assessing or evaluating data so that its significance is correctly stated. Measurement is concerned with assigning numbers to objects or events. Accountants play a major role in this measurement process by quantifying data. The quantification of data adds usefulness and conveys more information than strictly qualitative statements. For example, performance in ice skating, diving and gymnastic competitions when expressed in quantitative terms conveys more meaningful information of the judgements of the performance of the various competitors.

The use of numbers raises the question as to what standard of measurement should be used? Management accountants normally use the monetary unit as the standard of measurement to measure costs, values and benefits of alternative courses of action. The advantage of using money as a standard of measurement is that it provides a useful means of attaching a common significance to very diverse objects and events about which business decisions are made. Not all decisions, however, can be expressed in monetary terms. For example, management might consider alternative policies aimed at improving employee morale and loyalty, but these items cannot be measured in monetary terms, and other quantitative or qualitative measures will be necessary to evaluate the alternative policies. In addition, Kaplan (1984) points out that firms require measurements of product quality, product innovation, employee morale and customer satisfaction. Such measures cannot be easily expressed in financial terms. Therefore, if the management accountant is to provide useful information to management, non-financial information may be as important as financial information.

An essential requirement of any measurement is that it should remain stable. Unfortunately, the monetary unit of measurement is not a stable measure in times of inflationary or deflationary price changes. Because of this instability, it is difficult to

Measurement theory

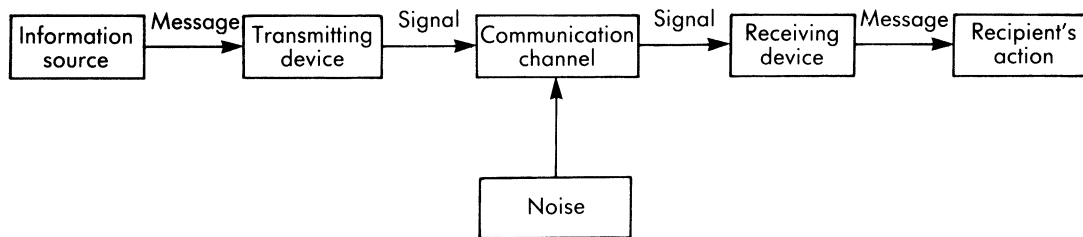


Figure 1.1 *A communication system.*

compare objects and events that are measured in one period of time with similar objects and events measured in subsequent periods. Consequently, some adjustments to the unit of measurement are necessary to overcome the problem. We shall consider these adjustments in subsequent chapters.

In addition to the need for stability, other attributes are also important. **The cost of the measurement system should not be unreasonable. In other words, the benefits from adopting the measurement system should be greater than the costs of operating the system. Also, the measurement unit should be understandable to the users. Finally, the basis of measurement should be relevant to the decision.** In the remaining chapters of this book we shall consider alternative courses of action and discuss the extent to which they possess the measurement attributes outlined in this section.

The communication of information

A **communication system** consists of the transfer of messages between an originator and a recipient. The objective is for the desires of the originator of the message to influence the actions of the recipient. The transfer of the message is effected by the use of a transmitting device at the information source, and the signals are picked up by a receiving device, which decodes the signals into a message at the destination. The transmitter and receiver are linked by a communication channel. This process is illustrated in Figure 1.1.

An information source produces a message, which is communicated by a transmitting device through a channel. The channel is the medium used to transmit the signal, which is then picked up by a receiving device and converted into a message for the recipient. In Figure 1.1 we can see that the communication channel is subject to interference or '**noise**', which can cause the signal received to differ from the signal transmitted, thus frustrating the intention of the originator of the message. Noise may be caused by processing errors such as the transposition of symbols in transit, the accidental loss of digits or the destruction of part of a report. Noise is present in all systems; it cannot be eliminated but it can be reduced, thus improving the clarity of the messages.

Let us now apply the procedure outlined in Figure 1.1 to the accountant's role in the communication system. The information source in an accounting system consists of economic events, which are normally reflected in signals received in the form of invoices, bank statements, wage slips and other documents. The accountant acts as a transmitting device by observing the economic events and encoding them by means of the preparation of accounting reports or statements. Such accounting reports or statements represent the communication channel by providing information for decision-making, explaining plans and evaluating performance. The message or accounting report may be received by a manager who will decode and interpret it. For example, a manager may receive a report on the performance of a subordinate and may interpret the difference between planned and actual performance in terms of the remedial action required. Hence the accounting report is decoded by the manager for use by the subordinate who is the recipient of the message. Successful communication of accounting information should mean that the messages that are conveyed in the accounting report have a significant influence on the actions of the manager.

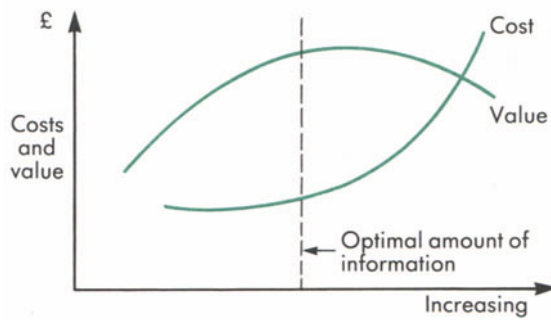


Figure 1.2 *Costs and value of information.*

Noise in an accounting system occurs when there are transfer errors and calculation errors, and this reduces the accuracy and reliability of the output from the system. The minimization of noise in the accounting system can be achieved by ensuring that self-checking devices are built in when the data is being analysed and collected for inclusion in the accounting reports.

A further aspect of noise relates to the physical capacity of the receiver to process all the information being transmitted. The transfer of too much information can cause **information overload**, which may result in the most important aspects of the message being lost, because they are buried in a mass of other information. The action of the receiver would then be different from that which was intended by the originator of the message. According to Ackoff (1975), managers receive too much information that is of little relevance to them.

Noise can also be affected by behavioural considerations. The effectiveness of accounting information is determined by the manner in which it affects behaviour. In this sense, we may say that unless accounting information serves to produce the desired action, it has served no purpose at all. Consequently the accountant should be aware of the human process that leads managers to recognize or fail to recognize the meaning of the information that is communicated. We shall consider in Chapter 20 how accounting information affects human behaviour.

Accountants should aim to provide the right information to the right people in the right quantity at the right time, and at minimum cost. This raises the question as to what is optimal quantity, content, accuracy and speed of transmitting information. These alternatives have different costs and values, and it is clear that accountants should bear this in mind when collecting and presenting accounting information. For example, better quality decisions might be made by postponing a decision until more information or information of greater accuracy is available. Decisions, however, must often be made promptly if they are to have maximum influence on future events. Consequently, there is a trade-off between speed on the one hand and accuracy and quantity on the other. We should therefore compare the costs of improving information systems with the potential benefits. The relationship between the costs and value of information is illustrated in Figure 1.2.

The diagram indicates that the cost of providing information increases at an accelerating rate as the quantity, content, accuracy and speed of transmitting information is increased. The value of information eventually decreases due to information overload at increasing levels. The optimal quantity, content, accuracy and speed of transmitting information is reflected by the dashed vertical line where the difference between the value of the information and the cost of transmitting the information is greatest. There is some evidence (Scapens, 1985, Ch. 3) that simple management accounting techniques are used by companies in both the US and UK, but there is rather limited use of the more complex techniques suggested in text books. It would appear that the benefits of using complex techniques may not always outweigh the additional costs which would be incurred. **Management**

The value of
information