NINTH EDITION

MANAGEMENT ACCOUNTING FOR DECISION MAKERS

Peter Atrill
Eddie McLaney

Pearson

MyLab Accounting

MyLab™ and Mastering™ from Pearson improve results for students and educators. Used by over ten million students, they effectively engage learners at every stage.

MyLab Accounting is an online homework, tutorial and assessment system, which is tailored to the unique learning needs of each student. Offering unlimited opportunities for practice and providing relevant and timely feedback, it helps students master key concepts, experience more "I Get It" moments and ultimately achieve better results.

"It was so easy to use. Helps you pass your exams!"

Jamie Moore, student, University of Glasgow

For students

- **Interactive tutorial exercises** – correlated with the textbook, they regenerate algorithmically to give students unlimited opportunity for practice and mastery.
- **Learning resources and aids** – a multitude of learning resources such as an eText, flashcards, web links and glossary to help you enjoy an engaging and dynamic learning experience.
- **Study plan for self-paced learning** – helps you monitor your own progress, letting you see at a glance exactly which topics you need to practise.

For educators

- **Powerful homework and test manager** – create, import and manage online homework assignments, quizzes and tests that are automatically graded, allowing you to spend less time grading and more time teaching.
- **Comprehensive gradebook tracking** – the online gradebook automatically tracks your students' results on tests, homework and tutorials and gives you control over managing results and calculating grades.
- **Integration with the most commonly used virtual learning environments** – allows for instructor and student to use a single sign-on to the MyLab Accounting course.

Use the power of MyLab Accounting to accelerate your learning. You need both an access card and a course ID to access MyLab Accounting:

1. Is your lecturer using MyLab Accounting? **Ask your lecturer** for your course ID.
2. Has an access card been included with the book? **Check the inside back cover of the book.**
3. If you have a course ID but no access card, **go to: http://www.pearson.com/mylab/accounting to buy access.**

For educator access, contact your Pearson account manager. To find out who your account manager is, visit **www.pearsoned.co.uk/replocator**

For more instructor resources available with this title, visit **www.pearsoned.co.uk**

ALWAYS LEARNING

PEARSON

This page intentionally left blank

MANAGEMENT ACCOUNTING

FOR DECISION MAKERS

Pearson

At Pearson, we have a simple mission: to help people make more of their lives through learning.

We combine innovative learning technology with trusted content and educational expertise to provide engaging and effective learning experiences that serve people wherever and whenever they are learning.

From classroom to boardroom, our curriculum materials, digital learning tools and testing programmes help to educate millions of people worldwide – more than any other private enterprise.

Every day our work helps learning flourish, and wherever learning flourishes, so do people.

To learn more, please visit us at **www.pearson.com/uk**

NINTH EDITION

MANAGEMENT ACCOUNTING FOR DECISION MAKERS

Peter Atrill and
Eddie McLaney

Pearson

Harlow, England • London • New York • Boston • San Francisco • Toronto • Sydney
Dubai • Singapore • Hong Kong • Tokyo • Seoul • Taipei • New Delhi
Cape Town • São Paulo • Mexico City • Madrid • Amsterdam • Munich • Paris • Milan

PEARSON EDUCATION LIMITED
KAO TWO
KAO PARK
Harlow CM17 9NA
United Kingdom
Tel: +44 (0)1279 623623
Web: www.pearson.com/uk

First published 1995 by Prentice Hall Europe (print)
Second edition published 1999 by Prentice Hall Europe (print)
Third edition published 2002 by Pearson Education Limited (print)
Fourth edition published 2005 (print)
Fifth edition published 2007 (print)
Sixth edition published 2009 (print)
Seventh edition published 2012 (print and electronic)
Eighth edition published 2015 (print and electronic)
Ninth edition published 2018 (print and electronic)

© Prentice Hall Europe 1995, 1999 (print)
© Pearson Education Limited 2002, 2005, 2007, 2009 (print)
© Pearson Education Limited 2012, 2015, 2018 (print and electronic)

The rights of Peter Atrill and Edward McLaney to be identified as authors of this work have been asserted by them in accordance with the Copyright, Designs and Patents Act 1988.

The print publication is protected by copyright. Prior to any prohibited reproduction, storage in a retrieval system, distribution or transmission in any form or by any means, electronic, mechanical, recording or otherwise, permission should be obtained from the publisher or, where applicable, a licence permitting restricted copying in the United Kingdom should be obtained from the Copyright Licensing Agency Ltd, Barnard's Inn, 86 Fetter Lane, London EC4A 1EN.

The ePublication is protected by copyright and must not be copied, reproduced, transferred, distributed, leased, licensed or publicly performed or used in any way except as specifically permitted in writing by the publishers, as allowed under the terms and conditions under which it was purchased, or as strictly permitted by applicable copyright law. Any unauthorised distribution or use of this text may be a direct infringement of the authors' and the publisher's rights and those responsible may be liable in law accordingly.

All trademarks used herein are the property of their respective owners. The use of any trademark in this text does not vest in the author or publisher any trademark ownership rights in such trademarks, nor does the use of such trademarks imply any affiliation with or endorsement of this book by such owners.

Pearson Education is not responsible for the content of third-party internet sites.

The Financial Times. With a worldwide network of highly respected journalists, *The Financial Times* provides global business news, insightful opinion and expert analysis of business, finance and politics. With over 500 journalists reporting from 50 countries worldwide, our in-depth coverage of international news is objectively reported and analysed from an independent, global perspective. To find out more, visit www.ft.com/pearsonoffer.

ISBN: 978-1-292-20457-4 (print)
978-1-292-20460-4 (PDF)
978-1-292-20462-8 (ePub)

British Library Cataloguing-in-Publication Data
A catalogue record for the print edition is available from the British Library

Library of Congress Cataloging-in-Publication Data
Names: Atrill, Peter, author. | McLaney, E. J., author.
Title: Management accounting for decision makers / Peter Atrill, Eddie McLaney.
Description: Ninth edition. | Harlow, United Kingdom : Pearson Education, [2018]
Identifiers: LCCN 2017048338 | ISBN 9781292204574 (print) | ISBN 9781292204604 (PDF) | ISBN 9781292204628 (ePub)
Subjects: LCSH: Managerial accounting. | Decision making.
Classification: LCC HF5657.4.A873 2018 | DDC 658.15/11—dc23
LC record available at https://lccn.loc.gov/2017048338

10 9 8 7 6 5 4 3 2 1
22 21 20 19 18

Front cover image © Shutterstock Premier/Allies Interactive

Print edition typeset in 9.25/13 HelveticaNeueLTW1G by iEnergizer Aptara®, Ltd.
Printed by DZS Grafic, Slovenia

NOTE THAT ANY PAGE CROSS REFERENCES REFER TO THE PRINT EDITION

Brief Contents

Contents

Lecturer Resources

ON THE WEBSITE

For password-protected online resources tailored to support the use of this textbook in teaching, please visit **www.pearsoned.co.uk/atrillmclaney**

Preface

This book is directed primarily at those following an introductory course in management accounting. Many readers will be studying at a university or college, perhaps majoring in accounting or in another area, such as business studies, IT, tourism or engineering. Other readers, however, may be studying independently, perhaps with no qualification in mind.

The book is written in an 'open learning' style, which has been adopted because we believe that readers will find it to be more 'user-friendly' than the traditional approach. Whether they are using the book as part of a taught course or for personal study, we feel that the open learning approach makes it easier for readers to learn.

Management accounting is concerned with ensuring that managers have the information needed to plan and control the direction of their organisation. In writing a book on this subject, we have taken into account the fact that most readers will not have studied the subject before. We have therefore tried to write in an accessible style, avoiding technical jargon. Where technical terminology is unavoidable, we have tried to give clear explanations. At the end of the book (in Appendix A) there is a glossary of technical terms, which readers can use to refresh their memory where they come across a term whose meaning is in doubt. We have tried to introduce topics gradually, explaining everything as we go. We have included a variety of questions and tasks designed to help readers to grasp the subject more thoroughly, just as a good lecturer might do in lectures and tutorials. In framing these questions and tasks, we have tried to encourage critical thinking by requiring analysis and evaluation of various concepts and techniques. To help broaden understanding, questions and tasks often require readers to go beyond the material in the text and/or to link the current topic with material covered earlier in the book. More detail on the nature and use of these questions and tasks is given in the 'How to use this book' section immediately following this preface.

The book covers all the areas required to gain a firm foundation in the subject. Chapter 1 provides a broad introduction to the nature and purpose of management accounting. Chapters 2, 3, 4 and 5 are concerned with identifying cost information and using it to make short-term and medium-term decisions. Chapters 6 and 7 deal with the ways in which management accounting can be used in making plans and in trying to ensure that those plans are actually achieved. Chapter 8 considers the use of management-accounting information in making investment decisions, typically long-term ones. Chapter 9 is concerned with the all-important area of risk in financial decision making and how to handle it. Chapter 10 deals with performance evaluation and pricing, including strategic management accounting. This is an increasingly important area of management accounting that focuses on factors outside the organisation but which have a significant effect on its success. Chapter 11 deals with the problems of measuring performance where the business operates through a divisional organisation structure, which is common among large businesses. It also considers the use of non-financial measures in measuring performance. Finally, Chapter 12 looks at the way in which management accounting can help in the control of short-term assets, such as inventories (stock) and cash.

In this ninth edition, we have taken the opportunity to improve the book. We have introduced a new chapter, Chapter 9, which focuses on risk in decision making. In earlier editions of the book, risk had been covered, but we decided that it should be given greater emphasis, thereby justifying a separate chapter. The new chapter expands on the coverage of risk in the earlier editions. We have continued to highlight the changing role of management accountants, enabling them to retain their place at the centre of the decision-making and planning process. We have also added more, as well as more up-to-date, examples of management accounting in practice.

We would like to thank those at Pearson Education who were involved with this book for their support and encouragement. Without their help it would not have materialised.

We hope that readers will find the book readable and helpful.

Peter Atrill
Eddie McLaney

How to use this book

Whether you are using the book as part of a lecture/tutorial-based course or as the basis for a more independent mode of study, the same approach should be broadly followed.

Order of dealing with the material

The contents of the book have been ordered in what is meant to be a logical sequence. For this reason, it is suggested that you work through the book in the order in which it is presented. Every effort has been made to ensure that earlier chapters do not refer to concepts or terms which are not explained until a later chapter. If you work through the chapters in the 'wrong' order, you may encounter points that have been explained in an earlier chapter which you have not read.

Working through the chapters

You are advised to work through the chapters from start to finish, but not necessarily in one sitting. Activities are interspersed within the text. These are meant to be like the sort of questions which a good lecturer will throw at students during a lecture or tutorial. Activities seek to serve two purposes:

- To give you the opportunity to check that you understand what has been covered so far.
- To try to encourage you to think beyond the topic that you have just covered, sometimes so that you can see a link between that topic and others with which you are already familiar. Sometimes, activities are used as a means of linking the topic just covered to the next one.

You are strongly advised to do all the activities. The answers are provided immediately after the activity. These answers should be covered up until you have arrived at a solution, which should then be compared with the suggested answer provided.

Towards the end of Chapters 2–12, there is a 'self-assessment question'. This is rather more demanding and comprehensive than any of the activities. It is intended to give you an opportunity to see whether you understand the main body of material covered in the chapter. The solutions to the self-assessment questions are provided in Appendix B at the end of the book. As with the activities, it is very important that you make a thorough attempt at the question before referring to the solution. If you have real difficulty with a self-assessment question you should go over the chapter again, since it should be the case that careful study of the chapter will enable completion of the self-assessment question.

End-of-chapter assessment material

At the end of each chapter, there are four 'review' questions. These are short questions requiring a narrative answer and intended to enable you to assess how well you can recall main points covered in the chapter. Suggested answers to these questions are provided in

Appendix C at the end of the book. Again, a serious attempt should be made to answer these questions before referring to the solutions.

At the end of each chapter, there are normally eight exercises. These are more demanding and extensive questions, mostly computational, and should further reinforce your knowledge and understanding. We have attempted to provide questions of varying complexity.

Answers to five out of the eight exercises in each chapter are provided in Appendix D at the end of the book. These exercises are marked with a coloured number, but a thorough attempt should be made to answer these questions before referring to the answers. Answers to the three exercises that are not marked with a coloured number are given in a separate teacher's manual.

Acknowledgements

The publisher thanks the following reviewers for their very valuable comments on the book:

John Currie
Bianca A.C. Groen
Khamid Irgashev
Celani John Nyide

Figures

Figure 1.3 from Rigby, D. and Bilodeau, B. (2015) *Management Tools and Trends 2015*, Bain and Company; Figure 3.13 from www.statista.com. with Oil price information taken from www.nasdaq.com and www.statista.com accessed 12 November 2016; Figure 4.2 from Al-Omiri, M. and Drury, C. (2007) A survey of factors influencing the choice of product costing systems in UK organizations, *Management Accounting Research*, Vol. 18 (4), pp. 399-424. Copyright © 2007 Elsevier Ltd. With permission from Elsevier; Figures 4.13, 5.5, 5.7, 7.11, 7.13 adapted from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 12; Figure 5.2 adapted from Innes, J. and Mitchell, F. (1990) *Activity Based Costing: A Review With Case Studies*, CIMA Publishing. With kind permission of Elsevier; Figure 5.10 adapted from Porter, M.E. (1985) *Competitive Advantage: Creating and Sustaining Superior Performance*, The Free Press. Copyright © 1985, 1998 by Michael E. Porter. All rights reserved. With the permission of The Free Press, a Division of Simon & Schuster, Inc.; Figure 5.11 adapted from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 19; Figure 5.13 from Rigby, D. (2015) *Insights Management Tools, Benchmarking*, Bain & Company, http://www.bain.com, 10 June; Figure 5.15 from Rigby, D. (2015) *Insights Management Tools, Total Quality Management*, Bain & Company, http://www.bain.com, 10 June; Figure 6.6 from BPM Forum (2008) *Perfect How You Project*; Figures 6.7, 6.8, 6.10, 6.13 adapted from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 15; Figure 6.12 from *Beyond Budgeting*, aawww.bbrt.org; Figure 8.7 adapted from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 18; Figures 10.5, 10.6 from Deloitte (2016) *Thriving in Uncertainty: Cost improvement practices and trends in the Fortune 1000*, www2. Deloitte.com, April; Figure 10.7 adapted from Kaplan, R. and Norton, D. (1996) *The Balanced Scorecard*, Harvard Business School Press. Copyright © 1996 by the Harvard Business School Publishing Corporation. All rights reserved. Reprinted by permission of Harvard Business School Press; Figure 10.9 from Rigby, D. (2015) *Insights Management Tools, Balanced Scorecard*, Bain & Company, http://www.bain.com/publications/articles/management-tools-balanced-scorecard.aspx, 10 June, used with permission from Bain & Company; Figures 10.17, 10.18 adapted from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 13; Figure 11.1 from Savills plc, www.savills.co.uk, accessed 26 October 2016; Figure 11.4 after Drury, C. and El-Shishini, E. (2005) *Divisional Performance Measurement: An Examination of Potential Explanatory Factors*, CIMA Research Report, August, p. 32. With the kind permission of Professor C Drury; Figure 11.9 from Abdel-Maksoud, A., Dugdale, D. and Luther, R. (2005) Non-financial performance measurement in manufacturing companies, *The British Accounting Review*, Vol. 37, Issue 3, pp. 261-297. Copyright © 2005 Elsevier Ltd.

Text

Article 1.1 from http://www.icmi.com/Resources/Customer-Experience/2015/10/Yes-the-Customer-is-Still-King; Extract 1.2 from Ruddick, G. (2016), *Rolls-Royce to scrap two divisions amid restructuring* www.theguardian.com, 16 December; Extract 1.5 from Gallivan, R. (2016), *News Corp Buys Wireless Group for $296 Million*, The Wall Street Journal, 25 June; Extract 1.6 from Allarey, R (2015) *This Is How Nike Managed to Clean Up Its Sweatshop Reputation*, www.complex.com, 8 June.; Article 1.7 adapted from Goyder, M., (2009) How we've poisoned the well of wealth, *Financial Times* ,15 February. © The Financial Times Limited 2009. All rights reserved. We would like to thank Mark Goyder, Founder Director of Tomorrow's Company for permission to quote his article 'How we've poisoned the well of wealth' as published in the *Financial Times*; Extract 1.9 from Paltrow, S. (2016) *U.S. Army fudged its accounts by trillions of dollars, auditor finds*, www.reuters.com, 19 August; Article 2.1 adapted from Anderson, L., (2012) *Something for the weekend*, ft.com, 16 November. © The Financial Times Limited 2012. All rights reserved; Extract 2.2 from Burite, J., (2016) *Tullow Sees Opportunity Cost If Kenya-Uganda Pipeline Plan Fails*, www.bloomberg.com, 30 March; Extract 2.3 from the FT editorial (2013), *UK taxpayer will lose in rush to exit*, ft.com, 5 May, © The Financial Times Limited. All Rights Reserved; Extract 3.2 from McGee, P. and Parker, A. (2015), *Disaster-plagued Malaysian Airways seeks break-even by 2018*, ft.com, 1 June. © The Financial Times Limited. All Rights Reserved; Extract 3.4 from Jimmy Choo plc, Preliminary results statement for the six months ended 30 June 2016, www.jimmychooplc.com, 25 August 2016; Extract 3.6 from Murray, D. (2016) *Wheat price is below break-even point. Record-setting wheat crop adds to international glut*, www.greatfalltribune.com, 7 August; Extract 3.8 from Proactive Investors United Kingdom (2016) *Image scan to break even thanks to large June x-ray order*. www.proactiveinvestors.co.uk, 22 August; Extract 3.11 from Stern, S. (2013) *Logic of outsourcing can be hard to resist,* ft.com, 20 September. © The Financial Times Limited 2013. All rights reserved.; Extract 4.1 from Morgan, J. (2016) Cambridge's 'cost of education' rises to £18K per student *Times Higher Education Supplement*, 8 September; Extract 5.10 from Rigby, D. (2015) *Insights Management Tools, Total Quality Management*, Bain & Company, http://www.bain.com, 10 June; Extract 5.11 from Song, J. and Bradshaw, T. (2016) Samsung recall debacle fuels brand concerns, ft.com, 11 October. © The Financial Times Limited. All Rights Reserved; Extract 6.1 from Greene King plc Annual Report 2016, p.48; Extract 6.2 from Rolls-Royce Holdings plc, Annual Report 2016, p. 64; Extract 6.6 from CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 15 and McLaughlin, T. (2017), *Back to zero: Companies use 1970s budget tool to cut costs as they hunt for growth*, Reuter Business News, uk.reuter.com, 30 January; Article 6.8 from John Timpson (2011), The management column, *Daily Telegraph Business*, 5 June. Copyright © Telegraph Media Group Limited 2011; Extract 7.10 from Marginson, D. and Ogden, S. (2005) Budgeting and innovation, *Financial Management,* April, pp. 29-31; Extract 8.4 from Bland, B. (2016), *China's robot revolution*, ft.com, 6 June. © The Financial Times Limited. All Rights Reserved; Extract 8.5 from Guthrie, J. (2016), *Kiwi combo, Lombard*, ft.com, 9 June. © The Financial Times Limited. All Rights Reserved; Extract 8.6 from Stothard. M. (2016), *Hinkley Point is risk for overstretched EDF, warn critics*, ft.com, 15 September. © The Financial Times Limited. All Rights Reserved; Article 8.10 from Rolls Royce Holdings plc Annual Report 2016, p. 185; Extract 8.11 from Grant, J. (2015) *CRH adds CR Laurence to acquisitions tally for $1.3bn*, ft.com, 27 August. © The Financial Times Limited. All Rights Reserved; Article 8.14 adapted from Kingfisher plc *Annual Report 2015/16*, p. 28, (www.kingfisher.co.uk); Extract 9.2 from Minco Plc (2014), Woodstock Mn - New Brunswick, www.mincoplc.com, 10 July; Extract 9.3 from Alkaraan, F. and Northcott, D. (2006). Strategic capital investment decision-making: a role for emergent analysis tools? A study of practice in large UK manufacturing companies, *British Accounting Review*, Vol. 38 pp. 149-173; Cohen, G. and Yagil, J. (2010). Sectoral differences in corporate financial behaviour: an international survey, *The European Journal of Finance*, Vol. 16, pp. 245-262; Article 10.1 adapted from 'How companies respond to competitors: a McKinsey global survey', *The McKinsey Quarterly*, mckinseyquarterly.com, May 2008. Reprinted with permission; Article 10.6 from Kaplan, R. and Norton, D. (1996) *The Balanced Scorecard*, Harvard Business School Press. Copyright © 1996 by the Harvard Business School Publishing Corporation. All rights reserved. Reprinted by permission of Harvard Business School Press; Extract 10.7 from When misuse leads to failure, *Financial Times*, 24 May 2006. © The Financial Times Limited 2006. All rights reserved; Extract 10.8 from Stock Analysis on Net, www.stock-analysis-on.net, accessed 16 March 2017; Article 10.11 from Robinson, D. (2012) Pricing strategies amid uncertainty, ft.com, 30 July. © The Financial Times Limited 2012. All rights reserved. Used with permission of the author; Article 10.12 from Guilding, C., Drury, C. and Tayles, M. (2005) An empirical investigation of the importance of cost-plus pricing, *Management Auditing Journal*, Vol. 20, No. 2, pp.125 – 137; CIMA (2009) *Management Accounting Tools for Today and Tomorrow*, p. 13; Extract 11.1 from Timpson, About Timpson, www.timpson.co.uk/about-timpson accessed on

16 March 2017; Article 11.3 from Associated British Foods plc, Annual Report 2015, p. 9; Article 11.5 from Drury, C. and El-Shishini, E. (2005) *Divisional Performance Measurement: An Examination of Potential Explanatory Factors*, CIMA Research Report, August, p. 30. With the kind permission of Professor C Drury; Extract 11.7 from Miller, H. and Pope, T. (2016) What does the row over Google's tax bill tell us about the corporate tax systems, Institute for Fiscal Studies, 26 January; Article 11.8 from *In the spotlight: a new era of transparency and risk for transfer pricing 2016*, EY Transfer Pricing Survey Series, www.ey.com pp. 3 and 4; Extract 11.11 from Swallow, B. (2014) ESQi: *Why is a 20-year-old service measure still so influential?* http://www.mycustomer.com/service/management/esqi-why-is-a-20-year-old-service-measure-still-so-influential, May; Extract 12.3 from McFarlane, S. and Zhdannikov, D. (2015), *Glencore shrinking its $18 bn commodity inventory mountain*, www.reuters.com, 29 October; Extract 12.6 from Hurley, J. (2016) Suppliers 'routinely kept waiting by supermarkets', www.thetimes.co.uk, 25 January; Extract 12.11 from Davies, R. and Merin, D. (2014), *Uncovering cash and insights from working capital*, McKinsey and Company, www.mckinsey.com, July. Copyright (c) 2017, McKinsey & Company; Extract 12.12 from REL Consulting, *The Working Capitalist – Spring 2016*, p. 8 www.relconsultancy.com.

This page intentionally left blank

Chapter 1

INTRODUCTION TO MANAGEMENT ACCOUNTING

INTRODUCTION

Welcome to the world of management accounting! Management accounting is concerned with collecting and analysing financial and other information and then communicating this information to managers. This information is intended help mangers within businesses and other organisations make better decisions. In this introductory chapter, we examine the role of management accounting within a business. To understand the context for management accounting, we begin by examining the nature and purpose of a business. Thus, we first consider what businesses seek to achieve, how they are organised and how they are managed. Having done this, we go on to explore how management-accounting information can be used within a business to improve the quality of managers' decisions. We also identify the characteristics that management-accounting information must possess to fulfil its role. Management accounting has undergone many changes in response to developments in the business environment and to the increasing size and complexity of businesses. In this chapter we shall discuss some of the more important changes that have occurred.

Learning outcomes

When you have completed this chapter, you should be able to:

- Identify the purpose of a business and discuss the ways in which a business may be organised and managed.
- Discuss the issues to be considered when setting the long-term direction of a business.
- Explain the role of management accounting within a business and describe the key qualities that management-accounting information should possess.
- Explain the changes that have occurred over time in both the role of the management accountant and the type of information provided by management-accounting systems.

WHAT IS THE PURPOSE OF A BUSINESS?

Peter Drucker, an eminent management thinker, has argued that '*The purpose of business is to create and keep a customer*' (see reference 1 at the end of the chapter). Drucker defined the purpose of a business in this way in 1967, at a time when most businesses did not adopt this strong customer focus. His view therefore represented a radical challenge to the accepted view of what businesses do. Fifty years later, however, his approach is part of the conventional wisdom. It is now widely accepted that, in order to succeed, businesses must focus on satisfying the needs of the customer.

Although the customer has always provided the main source of revenue for a business, this has often been taken for granted. In the past, too many businesses assumed that the customer would readily accept whatever services or products were on offer. When competition was weak and customers were passive, businesses could operate under this assumption and still make a profit. However, the era of weak competition has passed. Today, customers have much greater choice and are much more assertive concerning their needs. They now demand higher quality services and goods at cheaper prices. They also require that services and goods be delivered faster with an increasing emphasis on the product being tailored to their individual needs. If a business cannot meet these needs, a competitor often can. Thus the business mantra for the current era is '*the customer is king*'. Most businesses now recognise this fact and organise themselves accordingly.

Real World 1.1 describes how the internet and social media have given added weight to this mantra. It points out that dissatisfied customers now have a powerful medium for broadcasting their complaints.

Real World 1.1

The customer is king

The mantra that the "customer is king" has gained even greater significance among businesses in recent years because of the rise of the internet and social media. In the past, a dissatisfied customer might tell only a few friends about a bad buying experience. As a result, the damage to the reputation of the business concerned would normally be fairly limited. However, nowadays, through the magic of the internet, several hundred people, or more, can be very speedily informed of a bad buying experience.

Businesses are understandably concerned about the potential of the internet to damage reputations, but are their concerns justified? Do customer complaints, which wing their way through cyberspace, have any real effect on the businesses concerned? A Harris Poll survey of 2,000 adults in the UK and US suggests they do and so businesses should be concerned. It seems that social media can exert a big influence on customer buying decisions.

The Harris Poll survey, which was conducted online, found that around 20 per cent of those surveyed use social media when making buying decisions. For those in the 18-34 age range, the figure rises to almost forty per cent. Furthermore, 60 percent of those surveyed indicated that they would avoid buying from a business that receives poor customer reviews for its products or services.

The moral of this tale appears to be that, in this internet age, businesses must work even harder to keep their customers happy if they are to survive and prosper.

Source: Based on information in Miesbach, A.(2015) *Yes, the Customer is Still King*, 30 October www.icmi.com

HOW ARE BUSINESSES ORGANISED?

Nearly all businesses that involve more than a few owners and/or employees are set up as limited companies. Finance will come from the owners (shareholders) both in the form of a direct cash investment to buy shares (in the ownership of the business) and through the shareholders allowing past profits, which belong to them, to be reinvested in the business. Finance will also come from lenders (banks, for example) as well as through suppliers providing goods and services on credit.

In larger limited companies, the owners (shareholders) tend not to be involved in the daily running of the business; instead they appoint a board of directors to manage the business on their behalf. The board is charged with three major tasks:

- setting the overall direction for the business;
- monitoring and controlling the activities of the business; and
- communicating with shareholders and others connected with the business.

Each board has a chairman who is elected by the directors. The chairman is responsible for the smooth running of the board. In addition, each board has a chief executive officer (CEO) who leads the team that is responsible for running the business on a day-to-day basis. Occasionally, the roles of chairman and CEO are combined, although it is usually considered to be good practice to separate them. It prevents a single individual having excessive power.

The board of directors represents the most senior level of management. Below this level, managers are employed, with each manager being given responsibility for a particular part of the business's operations.

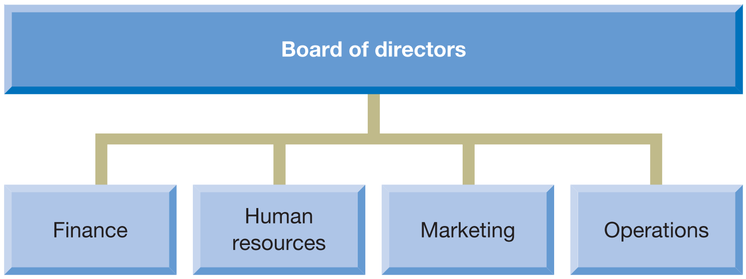
Activity 1.1

Why are larger businesses *not* managed as a single unit by just one manager? Try to think of at least one reason.

Three common reasons are:

- The sheer volume of activity or number of employees makes it impossible for one person to manage them.
- Certain business operations may require specialised knowledge or expertise.
- Geographical remoteness of part of the business operations may make it more practical to manage each location as a separate part, or set of separate parts.

The operations of a business may be divided for management purposes in different ways. For smaller businesses offering a single product or service, separate departments are often created. Tasks are grouped according to functions (such as marketing, human resources and finance) with each department responsible for a particular function. The managers of each department will then be accountable to the board of directors. In some cases, a departmental manager may also be a board member. A typical departmental structure, organised along functional lines, is shown in Figure 1.1.



This is a typical organisational structure for a business that has been divided into separate operating divisions.

Figure 1.1 A departmental structure organised according to business functions

Departments based around functions permit greater specialisation, which, in turn, can promote greater efficiency. The departmental structure, however, can become too rigid. This can lead to poor communication between departments and, perhaps, a lack of responsiveness to changing market conditions.

The structure set out in Figure 1.1 may be adapted according to the particular needs of the business. Where, for example, a business has few employees, the human resources function may not form a separate department but rather form part of another department. Where business operations are specialised, separate departments may be created to deal with each specialist area. Example 1.1 illustrates how Figure 1.1 may be modified to meet the needs of a particular business.

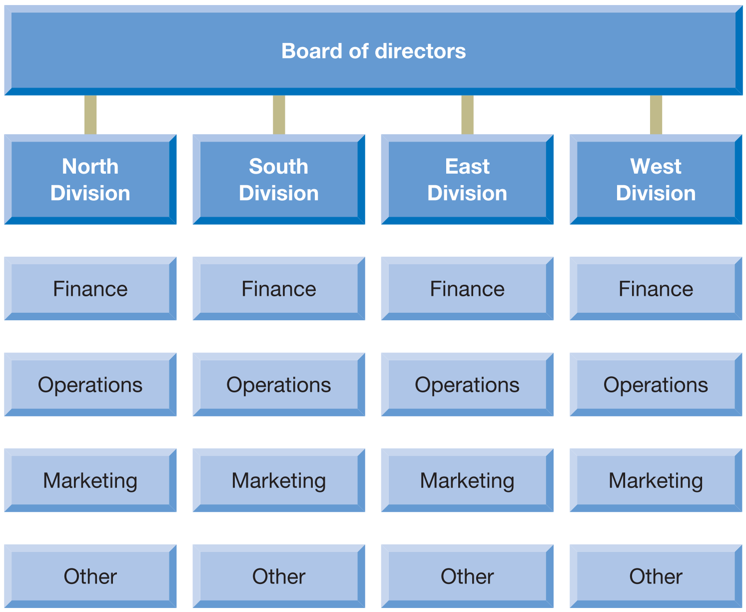
Example 1.1

Supercoach Ltd owns a small fleet of coaches that it hires out with drivers for private group travel. The business employs about 60 people. It could be departmentalised as follows:

- *Marketing department*, dealing with advertising, dealing with enquiries from potential customers, maintaining good relationships with existing customers and entering into contracts with customers.
- *Routing and human resources department*, responsible for the coach drivers' routes, schedules, staff duties and rotas and problems that arise during a particular job or contract.
- *Coach maintenance department*, looking after repair and maintenance of the coaches, buying spares, and giving advice on the need to replace old or inefficient coaches.
- *Finance department*, responsible for managing cash flows, costing business activities, pricing new proposals, measuring financial performance, preparing budgets, borrowing, paying wages and salaries, billing and collecting amounts due from customers, and processing and paying invoices from suppliers.

For large businesses with a diverse geographical spread and/or a wide product range, the simple departmental structure set out in Figure 1.1 will usually have to be adapted. Separate divisions are often created for each geographical area and/or major product group. Each division will be managed separately and will usually enjoy a degree of autonomy. This can produce more agile responses to changing market conditions. Within each division, however, departments are often created and organised along functional lines. Those functions that provide support across the various divisions, such as human resources, may be carried out at head office to avoid duplication. The managers of each division will be accountable to the board of directors. In some cases, individual board members may also be divisional managers.

A typical divisional organisational structure is set out in Figure 1.2. Here the main basis of the structure is geographical. Thus, North Division deals with production and sales in the north and so on.



This is a typical departmental structure organised according to business functions.

Figure 1.2 A divisional organisational structure

Once a particular divisional structure has been established, it need not be permanent. Successful businesses constantly strive to improve their operational efficiency. This could well result in revising their divisional structure. **Real World 1.2** is an extract from an article that describes how one well-known business has reorganised in order to simplify operations and to reduce costs.

Real World 1.2

Engineering change

The chief executive of Rolls-Royce has shaken up its senior management team and scrapped two divisions as part of his attempt to turnaround the struggling engineer. Warren East will scrap the aerospace and land & sea divisions that split Rolls into two parts.

The move means that Rolls will operate with five smaller businesses all reporting directly to East. The Rolls chief executive plans to bring in a chief operating officer to assist him in running the company. Rolls said the revamp will "simplify the organisation, drive operational excellence and reduce cost".

The Rolls boss is overhauling the company after it issued five profit warnings in less than two years. East wants to cut costs by between £150m and £200m a year. The level of concern about the future of Rolls was underlined earlier this week when it emerged the government has drawn up contingency plans to nationalise its nuclear submarine business or force it to merge with defence manufacturer BAE Systems in the event the company's performance worsens.

East said: "The changes we are announcing today are the first important steps in driving operational excellence and returning Rolls-Royce to its long-term trend of profitable growth. This is a company with world-class engineering capability, strong market positions and exceptional long-term prospects."

Under the new structure Rolls will operate with five divisions from January 1 2016 – civil aerospace, defence aerospace, marine, nuclear, and power systems.

Source: Extracts from Ruddick, G. (2016), Rolls-Royce to scrap two divisions amid restructuring, www.theguardian.com, 16 December.

While both divisional and departmental structures are very popular in practice, it should be noted that other organisational structures may be found.

HOW ARE BUSINESSES MANAGED?

Over the past three decades, the environment in which businesses operate has become increasingly turbulent and competitive. Various reasons have been identified to explain these changes, including:

- the increasing sophistication of customers (as we have seen);
- the development of a global economy where national frontiers have become less important;
- rapid changes in technology;
- the deregulation of domestic markets (for example, electricity, water and gas);
- increasing pressure from owners (shareholders) for competitive economic returns; and
- the increasing volatility of financial markets.

The effect of these environmental changes has been to make the role of managers more complex and demanding. This, along with the increasing size of many businesses, has led managers to search for new ways to manage their businesses. One important tool that has been developed in response to managers' needs is **strategic management**. This is concerned with establishing the long-term direction for the business. It involves setting long-term goals and then ensuring that they are implemented effectively. To help the business develop a competitive edge, strategic management focuses on doing things differently rather than simply doing things better.

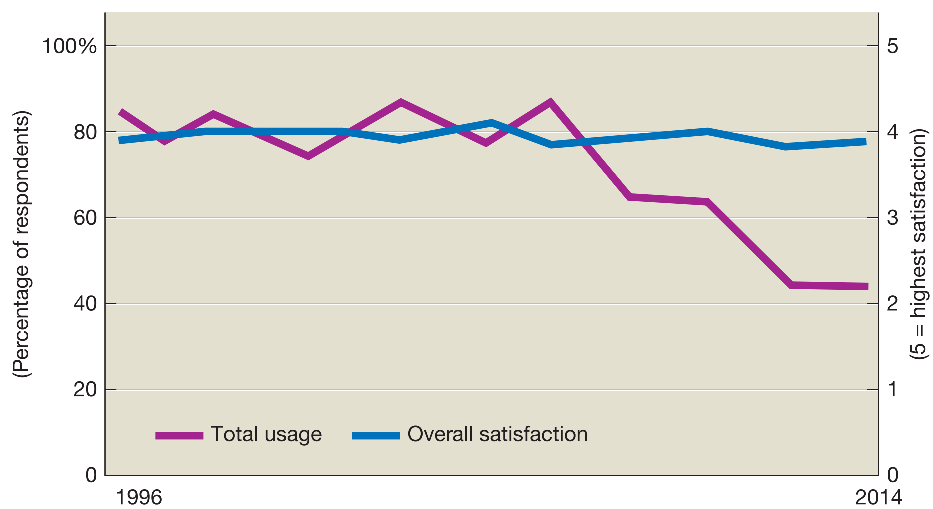
Strategic management provides a business with a clear sense of purpose along with a series of steps to achieve that purpose. The steps taken should link the internal resources of the business to the external environment of competitors, suppliers, customers and so on. This should be done in such a way that any business strengths, such as having a skilled workforce, are exploited and any weaknesses, such as being short of investment finance, are not exposed. To achieve this requires the development of strategies and plans that take account of the business's strengths and weaknesses, as well as the opportunities offered and threats posed by the external environment. Access to a new, expanding market is an example of an opportunity; the decision of a major competitor to reduce prices is an example of a threat.

Real World 1.3 provides an indication of the extent to which strategic planning is carried out in practice.

Real World 1.3

Strategic planning high on the list

A recent survey investigated the use of various management tools throughout the world. It found that strategic planning is used by more than 40 per cent of those businesses that took part. This made it the fourth most popular management tool. The survey, which is conducted annually, has placed strategic planning in first position for three of the past five years and in second position for one of those years. Figure 1.3 indicates the level of usage and satisfaction concerning this technique.



The results were based on a survey of 1,067 senior executives throughout the world.

Source: Rigby, D. and Bilodeau, B. (2015) *Management Tools and Trends 2015*, Bain and Company.

Figure 1.3 The usage of strategic planning

The strategic management process may be approached in different ways. One popular approach, involving five steps, is described below.

1 Establish mission, vision and objectives

The first step is to establish the mission of a business, which may be set out in the form of a **mission statement**. This is a concise declaration of the overriding purpose of the business. It addresses the question '*What business are we in?*' To answer this question, managers should focus on those customer needs that the business seeks to satisfy rather than on the products currently produced. Thus, a publisher of novels might, for example, conclude that it is really in the entertainment business. The **vision statement** is closely connected to the mission statement and declares the business's aspirations. It addresses the question '*What do we want to achieve?*' Once again, it should be in as concise a form as possible. By answering both questions, managers are provided with a clear focus for decision making.

Activity 1.2

Can you think why mission statements and vision statements should be concise?

Having to produce concise statements will force managers to think very carefully about the essential nature of their business and the aspirations that they have for it. In practice, this can prove more difficult than it may sound. Concise statements have the added advantages that they are easier to remember and to communicate to employees, owners and others.

The mission and vision of a business will often adorn its website. **Real World 1.4** provides an example of these strategic statements for one large business.

Real World 1.4

Power trip

Aggreko plc provides power generation and temperature control solutions to customers who need them quickly or for a short period of time. Its mission is:

> **To offer specialist energy solutions that are delivered by our high-quality people in such a way that we continually grow our global list of satisfied and long-term customers.**

Its stated vision is:

> **To be the leading global player in the specialist energy marketplace.**

Source: www.aggreko.com, accessed 7 November 2016.

Having established the purpose and aspirations of the business, objectives must be developed in order to translate these into specific commitments. Objectives help to bring real discipline into the strategy process. They should provide clear targets, or outcomes, which are both challenging and achievable. They should also provide the basis for assessing actual performance. Although quantifiable objectives provide the clearest targets, some areas of performance, such as employee satisfaction, may be capable of only partial quantification. Other areas, such as business ethics, may be impossible to quantify.

In practice, the objectives set by a business are likely to range across all key areas and might include a commitment to achieve:

- a specified percentage share of the market in which the business competes;
- a high level of customer satisfaction;
- a high degree of employee involvement;
- a specified percentage of sales revenue being generated from newly-developed products;
- high standards of ethical behaviour in business dealings;

- a specified percentage operating profit margin (operating profit as a percentage of sales revenue); and
- a specified percentage return on capital employed.

Businesses do not normally make their statement of objectives public.

Activity 1.3

Can you think why they may not wish to do so?

It is often because they do not wish to make their intentions clear to their competitors.

2 Undertake a position analysis

The **position analysis** seeks to discover how, given its attributes, the business is placed in relation to its environment (customers, competitors, suppliers, technology, the economy, political climate and so on). This will be carried out in the context of its mission, vision and objectives. The position analysis is often approached within the framework of the business's strengths, weaknesses, opportunities and threats (a **SWOT analysis**). It involves identifying the business's strengths and weaknesses as well as the opportunities provided and threats posed by the external environment. Strengths and weaknesses are internal attributes of the business, whereas opportunities and threats are present in the environment within which the business operates.

Activity 1.4

Ryanair Holdings plc is a highly successful 'no-frills' airline. Can you suggest some factors that could be strengths, weaknesses, opportunities and threats for this business? Try to think of two for each of these (eight in all).

Strengths could include such things as:

- a strong, well-recognised brand name;
- a modern fleet of aircraft requiring less maintenance;
- reliable customer service concerning punctuality and baggage loss; and
- an Internet booking facility used by virtually all passengers, which reduces administration costs.

Weaknesses might include:

- limited range of destinations;
- use of secondary airports situated some distance from city centres;
- poor facilities at secondary airports; and
- poor customer service concerning complaints.

Opportunities might include:

- new destinations becoming available, particularly in eastern Europe;
- increasing acceptance of 'no-frills' air travel among business travellers; and
- the development of new fuel-efficient aircraft.

→

Threats to the business might come from:

- increased competition – either new low-fare competitors entering the market or traditional airlines reducing fares to compete;
- increases in fuel prices and airport charges;
- increasing congestion at airports, making it more difficult to turn aircraft around quickly;
- changes in the regulatory environment (for example, changes in regulations concerning the maximum monthly flying hours for a pilot) making it harder to operate; and
- vulnerability to a downturn in economic conditions.

You may have thought of others.

The SWOT framework is not the only way to carry out a position analysis; nevertheless, it seems to be very popular. A 2009 survey of businesses covering different industry sectors, geographical locations and size found that about 65 per cent of the total used SWOT analysis (see reference 2 at the end of the chapter).

3 Identify and assess the strategic options

This involves trying to identify possible courses of action. Each of the options identified should assist the business in reaching its objectives by using its strengths to exploit opportunities while not exposing its weaknesses to threats. The strengths, weaknesses, opportunities and threats are, of course, those identified using SWOT analysis. Having identified the available strategic options, each will then be assessed according to agreed criteria.

4 Select strategic options and formulate plans

The business will select what appears to be the best of the courses of action or strategies (identified in Step 3) available. When doing this, the potential for the selected strategies to achieve the mission, vision and objectives must be the key criterion. While the strategies selected provide a the broad outline, a more detailed plan is required to specify the particular actions to be taken. This overall plan will normally be broken down into a series of plans, one for each aspect of the business.

In an effort to match the chosen strategies with the opportunities available, a business may decide to acquire other businesses. **Real World 1.5** is an extract from a *Wall Street Journal* article that discusses an example of an acquisition made because of its 'strategic fit'.

Real World 1.5

Fit for purpose

News Corp is buying the owner of the radio station talkSPORT for £220.3 million ($296 million), the latest move by the media company to increase its exposure to U.K. sports content including the lucrative English Premier League soccer competition.

News Corp said the purchase of Wireless Group plc "represents an excellent strategic fit with its existing operations, broadening News Corp's range of services in the U.K., Ireland and internationally."

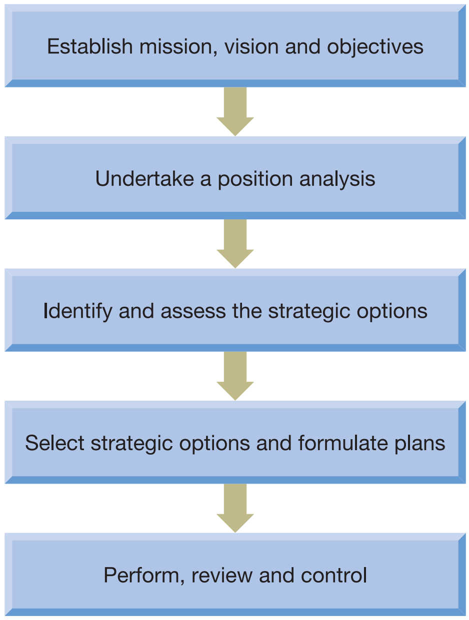
Source: Extract from Gallivan, R. (2016), News Corp Buys Wireless Group for $296 Million *The Wall Street Journal*, 25 June.

The fact that News Corp describes the acquisition as an 'excellent strategic fit', suggests that it represented better value to News Corp than it would for a different acquirer, paying the same price, but for which the strategic fit was not as good.

5 Perform, review and control

Finally, the business must implement the plans derived in Step 4. The actual outcome will be monitored and compared with the plans to see whether things are progressing satisfactorily. Steps must be taken to exercise control where actual performance fails to match earlier planned performance.

Figure 1.4 shows the strategic management framework in diagrammatic form. This framework will be considered further in later chapters. We shall see, for example, how the business's mission and vision links, through objectives and long-term plans, to detailed budgets in Chapters 6 and 7.



The business should set out its mission, vision and objectives and then develop plans in a systematic manner to achieve them.

Figure 1.4 The strategic management framework

THE CHANGING BUSINESS LANDSCAPE

Factors such as increased global competition and advances in technology, mentioned earlier, have had a tremendous impact on the kind of businesses that survive and prosper. They have also had an impact on the kind of business structures and processes adopted. Examples of the changes that have occurred in many countries in recent years, including the UK, are:

- *The growth of the service sector.* This includes businesses such as financial services, communications, tourism, transportation, consultancy, leisure and so on. This growth of the service sector has been matched by the decline of the manufacturing and extractive (for example, coal mining) sectors.

- *The emergence of new industries.* This includes science-based industries such as genetic engineering and biotechnology.
- *The growth of e-commerce.* Consumers are increasingly drawn to buying a wide range of goods including groceries, books, music and computers online. Businesses also use e-commerce to order supplies, monitor deliveries and distribute products.
- *Automated manufacturing.* Many manufacturing processes are now fully automated and computers are used to control the production process.
- *Lean manufacturing.* This involves a systematic attempt to identify and eliminate waste, surplus production, delays, defects and so on in the production process.
- *Greater product innovation.* There is much greater pressure to produce new, innovative products. The effect has been to increase the range of products available and to shorten the life cycles of many products.
- *Faster response times.* There is increasing pressure on businesses to develop products more quickly, to produce products more quickly and to deliver products more quickly.

These changes have presented huge challenges for the management accountant. New techniques have been developed and existing techniques adapted to try to ensure that management accounting retains its relevance. These issues will be considered in more detail as we progress through the book.

WHAT IS THE FINANCIAL OBJECTIVE OF A BUSINESS?

A business is normally created to enhance the wealth of its owners. Throughout this book we shall assume that this is its main objective. This may come as a surprise, as there are other objectives that may be pursued that relate to the needs of others associated with the business.

Activity 1.5

Can you think of two examples of what these other objectives may be?

A business may seek to:

- provide good working conditions for its employees;
- conserve the environment for the local community;
- develop safer products for its customers; and
- offer fair trading terms to suppliers in underdeveloped countries.

You may have thought of others.

While a business may pursue these objectives, it is normally set up primarily with a view to increasing the wealth of its owners. In practice, the behaviour of businesses over time appears to be consistent with this objective.

Within a market economy there are strong competitive forces at work that ensure that failure to enhance owners' wealth will not be tolerated for long. Competition for the funds provided by the owners and competition for managers' jobs will normally mean that the owners' interests will prevail. If the managers do not provide the expected increase in ownership wealth, the owners have the power to replace the existing management team with a new team that is more responsive to owners' needs. Does this mean that the needs of other groups associated with the business (employees, customers, suppliers, the community and so on) are not really important? The answer to this question is almost certainly no, if the business wishes to survive and prosper over the longer term.

Satisfying the needs of other groups is usually consistent with increasing the wealth of the owners over the longer term. Disaffected customers, for example, may turn to another supplier, resulting in a loss of shareholder wealth for the original supplier. A dissatisfied workforce may result in low productivity, strikes, high labour turnover rates and so forth, which will in turn have an adverse effect on owners' wealth. Similarly, a business that upsets the local community by unacceptable behaviour, such as polluting the environment, may attract bad publicity, resulting in a loss of customers and heavy fines.

Real World 1.6 is an article that discusses how one well-known business responded to damaging allegations.

Real World 1.6

The price of clothes

Nike is king. From its dominance in the athletic world, its popularity amongst consumers and being one of the most globally recognised brands, Nike is riding a wave of success that shows no signs of slowing down. But it wasn't always like that.

In the late '90s, Nike was embroiled in controversy over its reported use of sweatshops, an issue that threatened to derail Nike's popularity and undoubtedly hurt its company image. In a recent report by *Business Insider*, we're able to read just some of the things Nike has done to improve and change the way people perceive the brand. "The sweatshop perception was one of the biggest challenges Nike has faced," University of Southern California professor Jeetendr Sehdev said. "It seemed impossible they could ever shake the perception."

Nike used sweatshops. There's no denying that. *BI*'s report mentions the 14 cents an hour earned by Indonesian workers, while also referencing a *New York Times* article from 1997 that documented abuse of workers by a Vietnamese sub-contractor. It's a part of Nike's history that the brand isn't proud of. But since then, it has been doing its part to upgrade its overseas conditions and to help make sure that the abuses of the past never occur again.

In 1998, Nike's Phil Knight helped lead the change in the company. Knight vowed Nike would be more upfront with the issues, promising to be more transparent in overseas dealings and becoming more committed to addressing and improving the issues and abuses it was confronted with and accused of. "The Nike product has become synonymous with slave wages, forced overtime, and arbitrary abuse," Knight said. "I truly believe the American consumer doesn't want to buy products made under abusive conditions."

Since then, Nike has done just that having raised minimum wage rates, improving factory conditions, and ensuring the factories have clean air. Also, Nike publishes public reports documenting its general responsibility and factory conditions following through on the promise of being more transparent.

Source: Allarey, R (2015) This Is How Nike Managed to Clean Up Its Sweatshop Reputation, www.complex.com, 8 June.

We should be clear that generating wealth for the owners is not the same as seeking to maximise the current year's profit. Wealth creation is concerned with the longer term and so it relates not only to this year's profit but to that of future years as well. In the short term, corners can be cut and risks taken that improve current profit at the expense of future profit. **Real World 1.7** is a *Financial Times* article that provides some examples of how emphasis on short-term profit can be damaging.

Real World 1.7

Short-term gains, long-term problems

For many years, under the guise of defending capitalism, we have been allowing ourselves to degrade it. We have been poisoning the well from which we have drawn wealth. We have misunderstood the importance of values to capitalism. We have surrendered to the idea that success is pursued by making as much money as the law allowed without regard to how it was made.

Thirty years ago, retailers would be quite content to source the shoes they wanted to sell as cheaply as possible. The working conditions of those who produced them was not their concern. Then headlines and protests developed. Society started to hold them responsible for previously invisible working conditions. Companies like Nike went through a transformation. They realised they were polluting their brand. Global sourcing became visible. It was no longer viable to define success simply in terms of buying at the lowest price and selling at the highest.

Financial services and investment are today where footwear was thirty years ago. Public anger at the crisis will make visible what was previously hidden. Take the building up of huge portfolios of loans to poor people on US trailer parks. These loans were authorised without proper scrutiny of the circumstances of the borrowers. Somebody else then deemed them fit to be securitised and so on through credit default swaps and the rest without anyone seeing the transaction in terms of its ultimate human origin.

Each of the decision makers thought it okay to act like the thoughtless footwear buyer of the 1970s. The price was attractive. There was money to make on the deal. Was it responsible? Irrelevant. It was legal, and others were making money that way. And the consequences for the banking system if everybody did it? Not our problem.

The consumer has had a profound shock. Surely we could have expected the clever and wise people who invested our money to be better at risk management than they have shown themselves to be in the present crisis? How could they have been so gullible in not challenging the bankers whose lending proved so flaky? How could they have believed that the levels of bonuses that were, at least in part, coming out of their savings could have been justified in 'incentivising' a better performance? How could they have believed that a 'better' performance would be one that is achieved for one bank without regard to its effect on the whole banking system? Where was the stewardship from those exercising investment on their behalf?

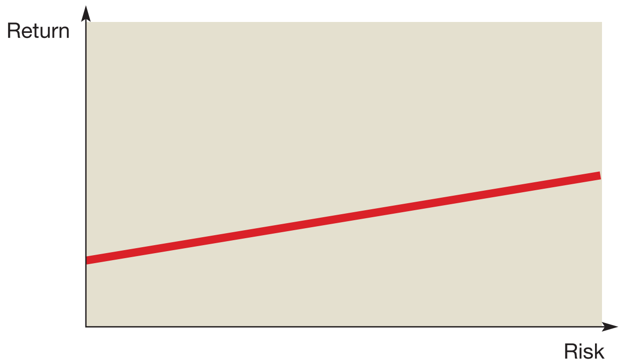
The answer has been that very few of them do exercise that stewardship. Most have stood back and said it doesn't really pay them to do so. The failure of stewardship comes from the same mindset that created the irresponsible lending in the first place. We are back to the mindset that has allowed us to poison the well: never mind the health of the system as a whole, I'm making money out of it at the moment. Responsibility means awareness for the system consequences of our actions. It is not a luxury. It is the cornerstone of prudence.

FT *Source*: Adapted from Goyder, M. (2009) How we've poisoned the well of wealth, *Financial Times*, 15 February.
© The Financial Times Limited 2009. All Rights Reserved. We would like to thank Mark Goyder, Founder Director of Tomorrow's Company for permission to quote his article 'How we've poisoned the well of wealth' as published in the *Financial Times*.

BALANCING RISK AND RETURN

All decisions attempt to influence future outcomes, and financial decisions are no exception. The only thing certain about the future, however, is that we cannot be sure what will happen. There is a risk that things may not turn out as planned and this should be taken into account when making financial decisions.

As in other aspects of life, risk and return tend to be related. Evidence shows that returns relate to risk in something like the way shown in Figure 1.5.



Even at zero risk a certain level of return will be required. This will increase as the level of risk increases.

Figure 1.5 Relationship between risk and return

Activity 1.6

Look at Figure 1.5 and state, in broad terms, where an investment in

(a) a government savings account and
(b) a lottery ticket

should be placed on the risk–return line.

A government savings account is normally a very safe investment. Even if the government is in financial difficulties, it can always print more money to repay investors. Returns from this form of investment, however, are normally very low.

Investing in a lottery ticket runs a very high risk of losing the whole amount invested. This is because the probability of winning is normally very low. However, a winning ticket can produce enormous returns.

Thus, the government savings account should be placed towards the far left of the risk–return line and the lottery ticket towards the far right.

This relationship between risk and return has important implications for setting financial objectives for a business. The owners will require a minimum return to induce them to invest at all, but will require an additional return to compensate for taking risks; the higher the risk, the higher the required return. Managers must be aware of this and must strike the appropriate balance between risk and return when setting objectives and pursuing particular courses of action.

The turmoil in the banking sector has shown, however, that the right balance is not always struck. Some banks have taken excessive risks in pursuit of higher returns and, as a consequence, have incurred massive losses. They are now being kept afloat with taxpayers' money. **Real World 1.8** discusses the collapse of one leading bank, in which the UK government took a majority stake, and argues that the risk appetite of banks must now change.

Real World 1.8

Banking on change

The taxpayer has become the majority shareholder in the Royal Bank of Scotland (RBS). This change in ownership, resulting from the huge losses sustained by the bank, will shape the future decisions made by its managers. This does not simply mean that it will affect the amount that the bank lends to homeowners and businesses. Rather it is about the amount of risk that it will be prepared to take in pursuit of higher returns.

In the past, those managing banks such as RBS saw themselves as producers of financial products that enabled banks to grow faster than the economy as a whole. They did not want to be seen as simply part of the infrastructure of the economy. It was too dull. It was far more exciting to be seen as creators of financial products that created huge profits and, at the same time, benefited us all through unlimited credit as low rates of interest. These financial products, with exotic names such as 'collateralised debt obligations' and 'credit default swaps', ultimately led to huge losses that taxpayers had to absorb in order to prevent the banks from collapse.

Now that many banks throughout the world are in taxpayers' hands, they are destined to lead a much quieter life. They will have to focus more on the basics such as taking deposits, transferring funds and making simple loans to customers. Is that such a bad thing?

The history of banks has reflected a tension between carrying out their core functions and the quest for high returns through high risk strategies. It seems, however, that for some time to come they will have to concentrate on the former and will be unable to speculate with depositors' cash.

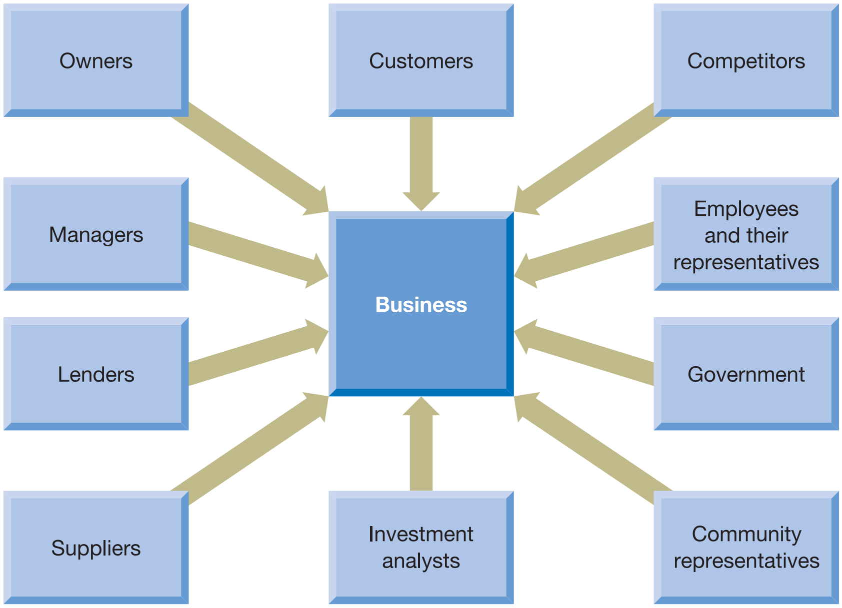
Source: Based on information in Peston, Robert (2008) We own Royal Bank, *BBC News*, www.bbc.co.uk, 28 November.

WHAT IS MANAGEMENT ACCOUNTING?

Having considered what businesses are and how they are organised and managed, we can now turn our attention to the role of **management accounting**. A useful starting point for our discussion is to understand the general role of accounting, which is to help people make informed business decisions. All forms of accounting, including management accounting, are concerned with collecting and analysing financial, and other, information and then communicating this information to those making decisions. This decision-making perspective of accounting provides the theme for the book and shapes the way that we deal with each topic.

For accounting information to be useful for decision making, the accountant must be clear about *for whom* the information is being prepared and *for what purpose* it will be used. In practice there are various groups of people (known as 'user groups') with an interest in a particular organisation, in the sense of needing to make decisions about that organisation. For the typical private-sector business, the most important of these groups of users of accounting information are shown in Figure 1.6. Each of these groups will have different needs.

This book is concerned with providing accounting information for only one of the groups identified – the managers. It is, however, a particularly important user group. Managers are responsible for running the business, and their decisions and actions play a vital role in



Several user groups have an interest in accounting information relating to a business. The majority of these are outside the business but, nevertheless, have a stake in it. This is not meant to be an exhaustive list of potential users; however, the groups identified are normally the most important.

Figure 1.6 Main users of accounting information relating to a business

determining its success. Planning for the future and exercising day-to-day control over a business involves a wide range of decisions being made. For example, managers may need to decide whether to:

- develop new products or services (as with a computer manufacturer developing a new range of computers);
- increase or decrease the price or quantity of existing products or services (as with a telecommunications business changing its mobile phone call and text charges);
- increase or decrease the operating capacity of the business (as with a beef farming business reviewing the size of its herd); and/or
- change the methods of purchasing, production or distribution (as with a clothes retailer switching from local to overseas suppliers).

The accounting information provided should help in identifying and assessing the financial consequences of the kind of decisions listed above. In later chapters, we shall consider each of the types of decisions in the list and see how their financial consequences can be assessed.

HOW USEFUL IS MANAGEMENT-ACCOUNTING INFORMATION?

There are arguments and convincing evidence that managers regard management-accounting information as useful. There have been numerous research surveys that have asked managers to rank the importance of management-accounting information, in relation to other sources of information, for decision-making purposes. These studies have almost invariably found that managers rank accounting information very highly. It is also worth noting that businesses of any size will normally produce management-accounting information even though there is no legal compulsion for businesses to do so. Presumably, the cost of producing this information is justified on the grounds that managers believe it is useful. Such arguments and evidence, however, leave unanswered the question as to whether the information is *actually* useful for decision-making purposes: that is, does it really affect managers' behaviour?

It is impossible to measure just how useful management-accounting information is to managers. We should remember that this information usually represents only one input to a particular decision. The precise weight attached to it by managers, and the benefits that flow as a result, cannot be accurately assessed. We shall shortly see, however, that it is at least possible to identify the kinds of qualities that accounting information must possess in order to be useful. Where these qualities are lacking, the usefulness of the information will be undermined.

PROVIDING A SERVICE

One way of viewing management accounting is as a form of service. Management accountants provide economic information to their 'clients', the managers. The value of this service can be judged according to whether the managers' information needs have been met.

To be useful, management-accounting information should possess certain qualities, or characteristics. In particular, it must be relevant and it must faithfully represent what it is supposed to represent. These two qualities, **relevance** and **faithful representation**, are regarded as fundamental qualities and are now explained in more detail.

- *Relevance*. Management-accounting information should make a difference. That is, it should be capable of influencing managers' decisions. To do this, it must help to *predict future events* (such as predicting the next year's profit), or help to *confirm past events* (such as establishing the previous year's profit), or do both. By confirming past events, managers can check on the accuracy of their earlier predictions. This may, in turn, help them to improve the ways in which they make predictions in the future.

  Management-accounting information often relies on the use of estimates. These can cover a wide range and may, for example, include estimates of future sales, costs and cash flows. By their very nature, however, estimates contain a degree of uncertainty.

Activity 1.7

Do you think that the use of estimates will weaken the relevance of accounting information provided to managers?

Estimates will vary in the degree of uncertainty that they contain. The higher the degree of uncertainty, the less relevant estimates are likely to be.

This does not imply, however, that estimates with a high degree of uncertainty should not be reported. There may be situations where they still provide managers with the most relevant information available.

To be relevant, management-accounting information must cross a threshold of **materiality**. An item of information should be considered material, or significant, if its omission or misstatement could alter the decisions that managers make.

Activity 1.8

Do you think that information that is material for one business will also be material for all other businesses?

No. It will often vary from one business to the next. What is material will normally depend on factors such as the size of the business, the nature of the information and the amounts involved.

Ultimately, what is considered material is a matter of judgement. In making this judgement, consideration should be given as to how this information is likely to be used by managers. Where a piece of information is not material, it should not be included within the management-accounting reports. It will merely clutter them up and, perhaps, interfere with the managers' ability to interpret them.

- *Faithful representation*. Management-accounting information should represent what it is supposed to represent. To do so, the information provided must reflect the substance of what has occurred rather than its legal form. Take, for example, a manufacturer that provides goods to a retailer on a sale-or-return basis. The manufacturer may wish to treat this arrangement as two separate transactions. Thus, a contract may be agreed for the sale of the goods and a separate contract agreed for the return of the goods if unsold by the retailer. This may result in a sale being reported as soon as the goods are delivered to the retailer even though they are returned at a later date. The economic substance, however, is that the manufacturer has made no sale as the goods were subsequently returned. They have simply been moved from the manufacturer's business to the retailer's business and then back again. Management-accounting reports should reflect this economic substance. To do otherwise would be misleading.

  To provide a perfectly faithful representation, the information provided should be *complete*. In other words, it should incorporate everything needed for managers to understand what is being portrayed. It should also be *neutral*, which means that the information should be presented and selected without bias. Finally, it should be *free from error*. This is not the same as saying that information must be perfectly accurate; this may not be possible. We saw earlier that management-accounting information often contains estimates and these may turn out to be inaccurate. Nevertheless, estimates can still be faithfully represented provided they are properly described and prepared. In practice, management-accounting information is unlikely to reflect perfectly these three aspects of faithful representation. It should aim to do so, however, insofar as possible.

Management-accounting information must contain *both* of these fundamental qualities if it is to be useful. There is little point in producing information that is relevant, but which lacks faithful representation, or producing information that is irrelevant, even if it is faithfully represented.

Further qualities

Where management-accounting information is both relevant and faithfully represented, there are other qualities that, if present, can *enhance* its usefulness. These are **comparability**, **verifiability**, **timeliness** and **understandability**. Each of these qualities is now considered.

- *Comparability.* When using management-accounting information, managers often want to make comparisons. They may want to compare performance of the business over time (for example, profit this year compared to last year). They may also want to compare certain *aspects* of business performance to those of similar businesses (such as the level of sales achieved during the year). Better comparisons can be made where the management-accounting system treats items that are basically the same in the same way and where policies for measuring and presenting management-accounting information are made clear.
- *Verifiability.* This quality provides assurance to users that the management-accounting information provided faithfully represents what it is supposed to represent. Management accounting information is verifiable where different, independent experts could reach a consensus that it provides a faithful portrayal. Verifiable information tends to be supported by evidence, such as an invoice stating the cost of some item of inventories.
- *Timeliness.* Management-accounting information should be produced in time for managers to make their decisions. A lack of timeliness will undermine the usefulness of the information. Normally, the later management-accounting information is produced, the less useful it becomes.
- *Understandability.* Management-accounting information should be set out as clearly and concisely as possible so as to help those managers at whom the information is aimed.

Activity 1.9

Do you think that management-accounting reports should be understandable to those who have not studied management accounting?

It would be very helpful if everyone could understand management-accounting reports. This, however, is unrealistic, as it is not normally possible to express complex financial events and transactions in simple, non-technical terms. Any attempts to do so are likely to provide a distorted picture of reality.

It is probably best that we regard management-accounting reports in the same way that we regard a report written in a foreign language. To understand either of these, we need to have had some preparation. When management-accounting reports are produced, it is normally assumed that the relevant manager not only has a reasonable knowledge of business and accounting but is also prepared to invest some time in studying the reports. Nevertheless, the onus is clearly on management accountants to provide information in a way that makes it as understandable as possible to non-accountants.

It is worth emphasising that the four qualities just discussed cannot make management-accounting information useful. They can only enhance the usefulness of information that is already relevant and faithfully represented.

WEIGHING UP THE COSTS AND BENEFITS

Even though a piece of management-accounting information may have all the qualities described, it does not automatically mean that it should be collected and reported to users. There is still one more hurdle to jump. Consider Activity 1.10.

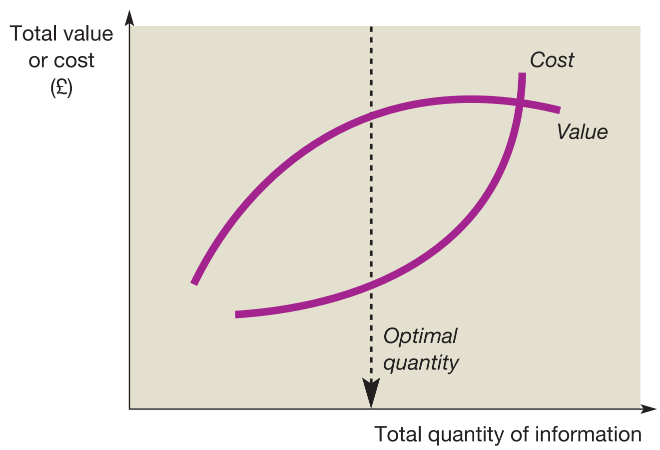
Activity 1.10

Suppose that an item of information is capable of being provided. It is relevant to a particular decision and can be faithfully represented. It is also comparable, verifiable and timely, and could be understood by the manager.

Can you think of a good reason why, in practice, you might decide not to produce the information?

The reason is that you judge the cost of doing so to be greater than the potential benefit of having the information. This cost–benefit issue will limit the amount of management accounting information provided.

In theory, a particular item of management-accounting information should only be produced if the costs of providing it are less than the benefits, or value, to be derived from its use. Figure 1.7 shows the relationship between the costs and value of providing additional management-accounting information.



The benefits of management-accounting information eventually decline. The cost of providing the information, however, will rise with each additional piece of information. The optimal level of information provision is where the gap between the value of the information and the cost of providing it is at its greatest.

Figure 1.7 Relationship between the cost and value of providing additional management-accounting information

Figure 1.7 shows how the total value of information received by the manager eventually begins to decline. This is, perhaps, because additional information becomes less relevant, or because of the problems that a manager may have in processing the sheer quantity of information provided. The total cost of providing the information, however, will increase with each additional piece of information. The broken line indicates the point at which the gap between the value of information and the cost of providing that information is at its greatest. This represents the optimal amount of information that should be provided. Beyond this optimal level, each additional piece of information will cost more than the value of having it. This theoretical model, however, poses a number of problems in practice, which we shall now discuss.

To illustrate the practical problems of establishing the value of information, let us assume that when parking our car, we accidentally reversed our car into a wall in a car park. This resulted in a dented boot and scraped paintwork. We want to have the dent taken out and the paintwork resprayed at a local garage. We have discovered that the nearest garage would charge £400, but we believe that other local garages may offer to do the job for a lower price. The only way of finding out the prices at other garages is to visit them, so that they can see the extent of the damage. Visiting the garages will involve using some fuel and will take up some of our time. Is it worth the cost of finding out the price for the job at the various local garages? The answer, as we have seen, is that if the cost of discovering the price is less than the potential benefit, it is worth having that information.

To identify the various prices for the job, there are several points to be considered, including:

- How many garages shall we visit?
- What is the cost of fuel to visit each garage?
- How long will it take to make all the garage visits?
- At what price do we value our time?

The economic benefit of having the information on the price of the job is probably even harder to assess, in advance. The following points need to be considered:

- What is the cheapest price that we might be quoted for the job?
- How likely is it that we shall be quoted a price cheaper than £400?

As we can imagine, the answers to these questions may be far from clear – remember that we have only contacted the local garage so far. When assessing the value of accounting information, we are confronted with similar problems.

Producing management-accounting information can be very costly. The costs, however, are often difficult to quantify. Direct, out-of-pocket costs, such as salaries of accounting staff, are not usually a problem, but these are only part of the total costs involved. There are other costs such as the cost of users' time spent on analysing and interpreting the information provided.

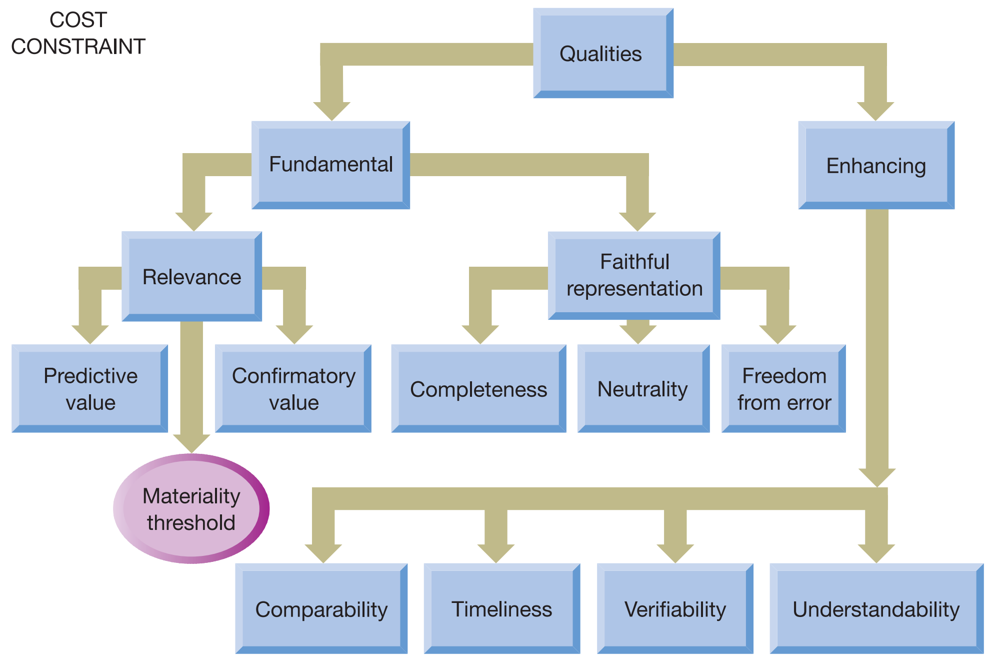
Activity 1.11

What about the economic benefits of producing management-accounting information? Do you think it is easier, or harder, to assess the economic benefits of management-accounting information than to assess the costs of producing it?

It is normally much harder to assess the benefits. We saw earlier that, even if we could accurately measure the economic benefits arising from a particular decision, we must bear in mind that management-accounting information will be only one factor influencing that decision. Other factors will also be taken into account. Furthermore, the precise weight attached to the management-accounting information by the decision maker cannot normally be established.

There are no easy answers to the problem of weighing costs and benefits. Although it is possible to apply some 'science' to the problem, a lot of subjective judgement is normally involved.

The qualities, or characteristics, influencing the usefulness of management-accounting information that have been discussed above are summarised in Figure 1.8.



There are two fundamental qualities that determine the usefulness of accounting information. In addition, there are four qualities that enhance the usefulness of accounting information. The benefits of providing the information, however, should outweigh the costs.

Figure 1.8 The qualities that influence the usefulness of accounting information

MANAGEMENT ACCOUNTING AS AN INFORMATION SYSTEM

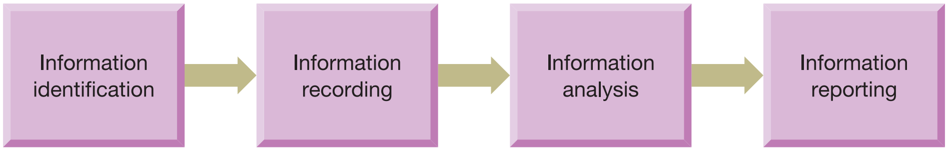
We have already seen that management accounting can be seen as the provision of a service to its 'clients', the managers. Another way of viewing management accounting is as a part of the business's total information system. Managers have to make decisions concerning the allocation of scarce economic resources. To ensure that these resources are efficiently allocated, managers often require economic information on which to base their decisions. It is the role of the management-accounting system to provide that information.

The **management-accounting information system** has certain features that are common to all information systems within a business. These are:

- identifying and capturing relevant information (in this case, economic information);
- recording the information collected in a systematic manner;
- analysing and interpreting the information collected; and
- reporting the information in a manner that suits the needs of individual managers.

The relationship between these features is set out in Figure 1.9.

Given the decision-making emphasis of this book, we shall be concerned primarily with the last two elements of the process – the analysis and reporting of management-accounting information. We shall consider the way in which information is used by, and is useful to, managers rather than the way in which it is identified and recorded.



There are four sequential stages of a management-accounting information system. The first two stages are concerned with preparation, whereas the last two stages are concerned with using the information collected.

Figure 1.9 The management-accounting information system

Efficient management-accounting systems are an essential ingredient of an efficient organisation. When management-accounting systems fail, the results can be disastrous. **Real World 1.9** comprises extracts from an article that discusses an example of an almost complete systems failure for the US Army.

Real World 1.9

Systems error!

The Defense Department's Inspector General, in a June report, said the Army made $2.8 trillion in wrongful adjustments to accounting entries in one quarter alone in 2015, and $6.5 trillion for the year. Yet the Army lacked receipts and invoices to support those numbers or simply made them up.

As a result, the Army's financial statements for 2015 were "materially misstated," the report concluded. The "forced" adjustments rendered the statements useless because "DoD (Department of Defense) and Army managers could not rely on the data in their accounting systems when making management and resource decisions."

The new report focused on the Army's General Fund, the bigger of its two main accounts, with assets of $282.6 billion in 2015. The Army lost or didn't keep required data, and much of the data it had was inaccurate, the IG said. "Where is the money going? Nobody knows," said Franklin Spinney, a retired military analyst for the Pentagon and critic of Defense Department planning.

The IG report also blamed DFAS [(Defense Finance and Accounting Services), which handles a wide range of Defense Department accounting services], saying it too made unjustified changes to numbers. For example, two DFAS computer systems showed different values of supplies for missiles and ammunition, the report noted – but rather than solving the disparity, DFAS personnel inserted a false "correction" to make the numbers match.

DFAS also could not make accurate year-end Army financial statements because more than 16,000 financial data files had vanished from its computer system. Faulty computer programming and employees' inability to detect the flaw were at fault, the IG said.

Source: Extracts from Paltrow, S. (2016) U.S. Army fudged its accounts by trillions of dollars, auditor finds, www.reuters.com, 19 August.

IT'S JUST A PHASE

Although management accounting has always been concerned with helping managers to manage, the information provided has undergone profound changes over the years. This has been in response to changes in both the business environment and in business methods. The development of management accounting can be seen as having four distinct phases.

Phase 1

Until 1950, or thereabouts, businesses enjoyed a fairly benign economic environment. Competition was weak and, as products could easily be sold, there was no pressing need for product innovation. The main focus of management attention was on the internal processes of the business. In particular, there was a concern for determining the cost of goods and services produced and for exercising financial control over the relatively simple production processes that existed during that period. In this early phase, management-accounting information was not a major influence on decision making. Although cost and budget information was produced, it was not widely supplied to managers at all levels of seniority.

Phase 2

During the 1950s and 1960s management-accounting information remained inwardly focused; however, the emphasis shifted towards producing information for short-term planning and control purposes. Management accounting came to be seen as an important part of the system of management control and of particular value in controlling the production and other internal processes of the business. The controls developed, however, were largely reactive in nature. Problems were often identified as a result of actual performance deviating from planned performance. Only then would corrective action be taken.

Phase 3

During the 1970s and early 1980s the world experienced considerable upheaval as a result of oil price rises and economic recession. This was also a period of rapid technological change and increased competition. These factors conspired to produce new techniques of production, such as robotics and computer-aided design. These new techniques led to a greater concern for controlling costs, particularly through waste reduction. Waste arising from delays, defects, excess production and so on was identified as a non-value-added activity – that is, an activity that increases costs, but does not generate additional revenue. Various techniques were developed to reduce or eliminate waste. To compete effectively, managers and employees were given greater freedom to make decisions and this in turn has led to the need for management-accounting information to be made more widely available. Advances in computing, such as the personal computer, changed the nature, amount and availability of management-accounting information. Increasing the volume and availability of information to managers meant that greater attention had to be paid to the design of management-accounting information systems.

Phase 4

During the 1990s and 2000s advances in manufacturing technology and in information technology, such as the World Wide Web, continued unabated. This further increased the level of competition which, in turn, led to a further shift in emphasis. Increased competition provoked a concern for the more effective use of resources, with particular emphasis on creating value for shareholders by understanding customer needs (see reference 3 at the end of the chapter). This change resulted in management-accounting information becoming more outwardly focused. The attitudes and behaviour of customers have become the object of much information gathering. Increasingly, successful businesses are those that are able to secure and maintain competitive advantage over their rivals through a greater understanding of customer needs. Thus, information that provides details of customers and the market has become vitally important. Such information might include customers' evaluation of services provided (perhaps through the use of opinion surveys) and data on the share of the market enjoyed by the particular business.

It should be emphasised that the effect of these four phases is cumulative. That is to say that each successive phase built on what already existed as common practice, rather than replacing it. For example, the activities of Phase 1 (principally, cost determination) remain an important part of the work of the management accountant during Phase 4.

Figure 1.10 summarises the four phases in the development of modern management accounting.

Phase 1	Internal processes of the business, including determining the cost of goods and services provided and exercising financial control
Phase 2	Short-term planning and control
Phase 3	Controlling costs and waste reduction
Phase 4	Generating shareholder value and more external focus, particularly concentration on customers and competitors

Modern management accounting has developed by passing through four phases. Each of these adds to, rather than replaces, the previous phase. Thus, determining the cost of output, which was the main focus of the first phase, still plays an important role in management accounting today.

Figure 1.10 The four phases in the development of management accounting

WHAT INFORMATION DO MANAGERS NEED?

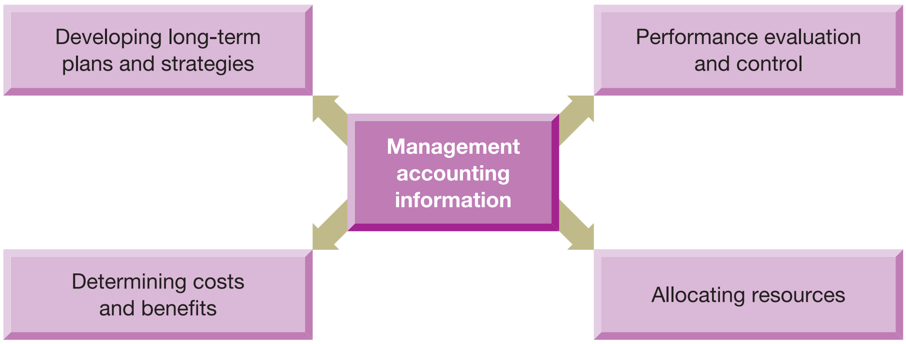
We have seen that management accounting can be regarded as a form of service where managers are the ‘clients’. This raises the question, however, as to what kind of information these ‘clients’ require. It is possible to identify four broad areas of decision making where management-accounting information is required:

- *Developing objectives and plans.* We have seen that managers are responsible for establishing the objectives of the business and then developing appropriate strategies to achieve them. Management-accounting information can help in developing objectives and in identifying the various strategies available. It can also generate financial plans to reveal likely outcomes from implementing the various strategies identified. These plans should help managers to evaluate each strategy and to select the most appropriate.
- *Performance evaluation and control.* Management-accounting information can help in reviewing the performance of the business against agreed criteria. Controls need to be in place to try to ensure that actual performance conforms to planned performance. Actual outcomes will, therefore, be compared with plans to see whether the performance is better or worse than expected. Where there is a significant difference, some investigation should be carried out and corrective action taken where necessary.
- *Allocating resources.* Resources available to a business are limited and it is the duty of managers to ensure that they are used as efficiently and effectively as possible. Management-accounting information can play a key role in carrying out this duty.

Decisions such as the optimum level of output, the appropriate location for production facilities, the optimum mix of products and the appropriate type of investment in new equipment rely heavily on management-accounting information.

- *Determining costs and benefits.* Many management decisions require knowledge of the costs and benefits of pursuing a particular course of action such as providing a service, producing a new product or closing down a department. The decision will involve weighing the costs against the benefits. The management accountant can help managers by providing details of particular costs and benefits. In some cases, these may be extremely difficult to quantify; however, some approximation is usually better than nothing at all.

These areas of management decision making are set out in Figure 1.11.



Management-accounting information helps managers to make decisions in four broad areas: developing long-term plans and strategies, performance evaluation and control, allocating resources and determining costs and benefits.

Figure 1.11 Decisions requiring management-accounting information

REPORTING NON-FINANCIAL INFORMATION

Adopting a more strategic and customer-focused approach to running a business has highlighted the fact that many factors, which are often critical to success, cannot be measured in purely financial terms. Many businesses have developed **key performance indicators (KPIs)**. These include the traditional financial measures, such as return on capital employed. However, KPIs often include a large proportion of non-financial indicators to help assess the prospects of long-term success. As the major provider of decision-making information, the management accountant has increasingly shouldered responsibility for reporting non-financial measures regarding quality, product innovation, product cycle times, delivery times and so on.

Activity 1.12

It can be argued that non-financial measures, such as those mentioned above, do not, strictly speaking, fall within the scope of accounting information and, therefore, could (or should) be provided by others. What do you think?

It is true that others could collect this kind of information. As stated, however, management accountants are major information providers to managers and may see it as their role to provide a broad range of information for decision making.

The boundaries of management accounting are not fixed. Non-financial information is often inextricably linked to financial outcomes. A lack of new product innovation, for example, may lead to a decline in sales revenue. Management accountants may, therefore, feel obliged to report the relationship between the two. To do this will involve collecting both financial and non-financial information.

Activity 1.13 considers the kind of information that may be expressed in non-financial terms and which the management accountant may provide for an airline business.

Activity 1.13

Imagine that you are the chief executive of the 'no-frills' airline Ryanair Holdings plc. What kinds of non-financial information (that is, information not containing monetary values) may be relevant to help you evaluate the performance of the business for a particular period? Try to think of at least six.

Here are some possibilities, although there are many more that might have been chosen:

- volume of passengers transported to various destinations;
- average load factor (that is, percentage of total passenger seats occupied) per trip;
- market share of air passenger travel;
- number of new routes established by Ryanair during a period;
- percentage of total passenger volume generated by these new routes;
- aircraft turnaround times at airports;
- punctuality of flights;
- levels of aircraft utilisation;
- number of flight cancellations;
- percentage of baggage losses;
- levels of customer satisfaction;
- levels of employee satisfaction;
- percentage of bookings made over the Internet; and
- maintenance hours per aircraft.

In Chapter 10 we shall look at some of the financial and non-financial KPIs that are used in practice.

INFLUENCING MANAGERS' BEHAVIOUR

We have seen that management accounting attempts to measure various aspects of business performance. Its ultimate purpose is to improve the quality of managers' decisions. In other words, the various measures are intended to have a positive effect on managers' behaviour. Occasionally, however, things may not turn out this way.

A potential problem is that managers will focus their attention and efforts on those aspects of the business that are being measured and will ignore other aspects. This is because the aspects being measured are often those used to evaluate managers' performance. They may therefore conclude that 'the things that count are the things that get counted'. Such a narrow focus, however, can have undesirable consequences for the business.

Activity 1.14

A departmental manager has been given responsibility for controlling departmental costs and this forms an important part of her annual performance appraisal. The manager is allocated an amount of money to spend on staff training each year. How might the manager's focus on 'the things that get counted' result in undesirable consequences?

To demonstrate cost consciousness, the manager may underspend during the year by cutting back on staff training. Although this may help to exert control over costs, staff morale and longer-term profitability may be adversely affected. These adverse effects may go unrecognised, at least in the short term, as cost control will be the focus of attention.

There is also the potential problem that a particular measure will be manipulated. Where, for example, profit is seen as important, a manager may attempt to boost this measure by continuing to use old, fully depreciated, pieces of equipment in order to keep depreciation charges low. This may be done despite the fact that the purchase of new equipment would produce higher quality products and would help the business to flourish over the longer term. The incentive for such behaviour is often linked to managers' rewards. In the case just described, for example, annual, profit-related bonuses may be the key motivation behind the manager's actions.

A further potential problem is that the targets against which performance is measured may be 'gamed'. A sales manager, for example, may provide a deliberately low sales forecast for a period where it will be used as the basis for a sales target. The incentive to do so may again be related to management rewards, such as when bonuses are given for exceeding sales targets. It may also be done, however, to ensure that future sales targets can be achieved with relatively little effort.

Management accountants must be aware of the unintended consequences of accounting measures on the behaviour of managers. When developing measures, every effort should be made to take account of all key aspects of performance, even though some may be difficult to quantify. Furthermore, they must be alert to any signs that managers are manipulating measures or 'gaming' targets rather than striving to achieve the objectives of the business.

REAPING THE BENEFITS OF INFORMATION TECHNOLOGY

The impact of information technology (IT) on the volume, quality and timeliness of management-accounting information, as well as other information, reported to managers is difficult to overstate. The ability of computers to process large amounts of information means that routine reports can be produced quickly and accurately. Some reports may be produced on a daily, or even a real-time, basis. This can be vital for businesses operating in a highly competitive environment, which risk losing competitive advantage through making decisions based on inaccurate, or out-of-date, reports. IT has also enabled information to be more widely available throughout the business. Increasingly, employees at all levels can gain access to relevant information and reports to guide their decisions and actions through their personal computers.

IT has allowed management reports to be produced in greater detail and in greater variety than could be contemplated under a manual system. It has also allowed sophisticated measurement systems to be provided at relatively low cost. IT makes it much easier to assess proposals by allowing variables (such as estimates of product price, output, product cost and so on) to be changed easily. By just a few keystrokes, the estimated size of key variables may be increased or decreased so as to create a range of possible scenarios.

In recent years, enterprise resource planning (ERP) systems have been developed. These systems provide an integrated suite of applications, or modules, to track resources across the whole of the business. They operate in real time and offer modules covering a range of business functions including accounting, manufacturing, marketing and sales, human resources and project management. ERP systems offer timeliness and accuracy in reporting and generate a wealth of data relating to the various business operations. Managers are, therefore, better able to plan and control a range of business operations.

The IT revolution continues and its impact on businesses shows no sign of easing. One development that has a potentially profound effect on the role of management accountants is that of **big data**. This term is used to describe the huge volume of data that businesses now collect relating to customers, to competitors and to the broader business environment. These data, which are varied and often generated at great velocity, are collected from multiple sources such as credit cards, the Internet, social media and so on. Big data poses a major challenge to businesses because its volume and complexity is too much for traditional data processing systems to handle. Those businesses, however, which are able to capture, shape and analyse big data gain a huge competitive advantage. They can scan the environment in order to detect trends and patterns to be fed into the planning and decision-making process.

FROM BEAN COUNTER TO TEAM MEMBER

Given the changes described above, it is not surprising that the role of the management accountant within a business has been transformed. IT has released the management accountant from much of the routine work associated with preparation of management-accounting reports. This has allowed more time to focus on the design of information systems and the analysis and interpretation of the information produced.

The release from routine work has also enabled management accountants to take a more proactive role within the business. Their reach now extends beyond providing information, and perhaps advice, to managers. Increasingly, they are regarded as part of the management team. By taking a lead in the design of information systems and by shaping and interpreting their output, they become more directly involved in planning and decision making.

Management accountants are gradually assuming a broader role as information managers within a business. They are well placed to do so as their core skills in structuring, analysing and reporting information can be applied to both financial and non-financial information. Furthermore, these skills are underpinned by commercial awareness as well as an understanding of managers' needs. To carry out this broader role, management accountants must work closely with IT professionals. Often, they can provide a bridge between IT professionals and the management team.

The enhanced role for management accountants should add value to the business and improve its competitive position. However, it requires a wider set of skills than required from their more traditional role.

Activity 1.15

When looking at the enhanced role of management accountants, what kind of skills do you think are needed? Try to think of at least two.

The skills needed include:

- interpersonal skills for collaborating across boundaries and for working as part of a team;
- communication skills for influencing the behaviour of others and for providing advice and guidance;
- organisation and leadership skills for functioning as part of a management team; and
- computing and analytical skills for designing new information systems and for interpreting the output that is generated.

You may have thought of others.

Changes to the role of the management accountant should benefit the development of management accounting as a discipline. While working as part of a cross-functional team, there is an opportunity to gain a greater awareness of strategic and operational matters, an increased understanding of the information needs of managers and a deeper appreciation of the importance of value creation. This is likely to have a positive effect on the design and development of management-accounting systems. As a consequence, we should see increasing evidence that management accounting systems are being designed to fit the particular structure and processes of the business rather than the other way round.

REASONS TO BE ETHICAL

The extent to which a business displays honesty, fairness and transparency when dealing with its stakeholders (customers, employees, suppliers, the community, the shareholders and so on) has become a key issue. There have been many examples of businesses, some of them very well known, acting in ways that most people would regard as unethical and unacceptable. Such actions include:

- paying bribes to encourage employees of a competitor business to reveal information about the competitor that could be useful;
- oppressive treatment of suppliers, for example, making suppliers wait excessive periods before payment; and
- manipulating the financial statements, for example, overstating profit so that senior managers become eligible for performance bonuses.

Despite the many examples of unethical acts that have attracted publicity over recent years, it would be very unfair to conclude that most businesses are involved in unethical activities. Nevertheless, revelations of unethical practice can be damaging to the entire business community. Dishonest, bullying and underhand behaviour can lead to a loss of confidence in business generally, perhaps leading to the imposition of tighter regulatory burdens. Most businesses are aware of these consequences and try, therefore, to demonstrate their commitment to high standards of behaviour.

As an additional incentive to behave ethically, there is evidence to suggest a link between high ethical standards and superior financial performance. **Real World 1.10** describes the findings of one study claiming to find such a link.

Real World 1.10

Business karma?

The Ethisphere Institute is a well-known organisation that promotes ethical business practices. Each year it produces a list of the World's Most Ethical Companies. The criteria used for evaluating businesses cover various aspects including corporate governance, compliance programmes, culture of ethics, reputation and corporate citizenship.

To see whether investing in ethical businesses led to superior investor returns, one study created an investment portfolio of businesses that were included in the list of the World's Most Ethical Companies as well as being listed on a US stock market. For the period 2007–2011, returns from this portfolio were then compared to the market returns, as measured by a market index (S&P 500). After adjusting for differences in risk, the study found that the portfolio of ethical businesses consistently outperformed the market. Investing in the portfolio generated returns up to 8 per cent higher than expected returns during periods when the market was rising as well as when it was falling. The authors of the study argued that this latter finding suggested that ethical businesses benefit from special protection in times of crises.

Source: Areal, N. and Carvalho, A. (2012) The World's Most Ethical Companies: does the fame translate into gain? www.efmaefm.org. pp. 1–41.

While the above findings are interesting, we should be cautious in drawing conclusions. Perhaps ethical practices do not drive superior performance but rather well-managed, high-performing, businesses tend to adopt ethical practices.

Management accountants are likely to find themselves at the forefront with issues relating to business ethics. In the three examples of unethical business activity mentioned above, a management accountant would probably have to be involved either in helping to commit the unethical act or in covering it up. Management accountants are, therefore, particularly vulnerable to being put under pressure to engage in unethical acts. Many businesses recognise this risk and produce an ethical code for their finance and accounting staff. **Real World 1.11** provides an example of one such code.

Real World 1.11

The only way is ethics

BT plc, the telecommunications business, has a code of ethics for its senior finance and accounting staff which states that they must:

- Act with honesty and integrity, including ethically handling actual or apparent conflicts of interest between their personal relationships or financial or commercial interests and their responsibilities to BT;
- Promote full, fair, accurate, timely and understandable disclosure in all reports and documents that BT files with, or submits to, the US Securities and Exchange Commission or otherwise makes public;
- Comply with all laws, rules and regulations applicable to BT and to its relationship with its shareholders;
- Report known or suspected violations of this code of ethics promptly to the chairman of the Nominating & Governance Committee; and
- Ensure that their actions comply not only with the letter but the spirit of this code of ethics and foster a culture in which BT operates in compliance with the law and BT's policies.

Source: BT plc, Our Business Practice and Code of Ethics, www.BT.com, accessed 8 November 2016.

MANAGEMENT ACCOUNTING AND FINANCIAL ACCOUNTING

Management accounting is one of two main strands in accounting; the other strand is **financial accounting**. The difference between the two is based on the user groups to which each is addressed. Management accounting seeks to meet the needs of managers, whereas financial accounting seeks to meet the accounting needs of the other users that were identified earlier in Figure 1.6 (see p. 17).

The difference in their targeted user groups has led to each strand of accounting developing along different lines. The main areas of difference are as follows:

- *Nature of the reports produced.* Financial accounting reports tend to be general-purpose. Although they are aimed primarily at providers of finance such as owners and lenders, they contain financial information that will be useful for a broad range of users and decisions. Management accounting reports, on the other hand, are often specific-purpose reports. They are often designed with a particular decision in mind and/or for a particular manager.
- *Level of detail.* Financial accounting reports provide users with a broad overview of the performance and position of the business for a period. As a result, information is aggregated (that is, added together) and detail is often lost. Management accounting reports, however, often provide managers with considerable detail to help them with a particular operational decision.
- *Regulations.* The financial accounting reports of many businesses are subject to regulations imposed by the law and by accounting rule makers. These regulations often require a standard content and, perhaps, a standard format to be adopted. As management accounting reports are for internal use only, there are no regulations from external sources concerning their content and form. They can be designed to meet the needs of particular managers.
- *Reporting interval.* For most businesses, financial accounting reports are produced on an annual basis, although some large businesses produce half-yearly reports and a few produce quarterly ones. Management accounting reports will be produced as frequently as is needed. A sales manager, for example, may require routine sales reports on a daily, weekly or monthly basis so as to monitor performance closely. Special-purpose reports can also be prepared when the occasion demands: for example, where an evaluation is required of a proposed investment in new equipment.
- *Time orientation.* Financial accounting reports reveal the performance and position of a business for the past period. In essence, they are backward-looking. Management accounting reports, on the other hand, often provide information concerning future performance as well as past performance. It is an oversimplification, however, to suggest that financial accounting reports never incorporate expectations concerning the future. Occasionally, businesses will release forward-looking information to other users in an attempt to raise finance or to fight off unwanted takeover bids. Even preparation of financial accounting reports for the past period typically requires making some judgements about the future, for example the residual value of a depreciating asset.
- *Range and quality of information.* Two key points are worth mentioning here. Firstly, financial accounting reports concentrate on information that can be quantified in monetary terms. Management accounting also produces such reports, but is also more likely to produce reports that contain information of a non-financial nature, such as physical volume of inventories, number of sales orders received, number of new products launched, physical output per employee and so on. Secondly, financial accounting places greater emphasis on the use of objective, verifiable evidence when preparing reports. Management accounting reports may use information that is less objective and verifiable, but nevertheless provide managers with the information they need.

We can see from this that management accounting is less constrained than financial accounting. It may draw from a variety of sources and use information that has varying degrees of reliability. The only real test to be applied when assessing the value of the information produced for managers is whether or not it improves the quality of the decisions made.

The main differences between financial accounting and management accounting reports are summarised in Figure 1.12.

	Management accounting	*Financial accounting*
Nature of the reports produced	Tend to be specific-purpose	Tend to be general-purpose
Level of detail	Often very detailed	Usually broad overview
Regulations	Unregulated	Usually subject to accounting regulation
Reporting interval	As short as required by managers	Usually annual or bi-annual
Time orientation	Often based on projected future information as well as past information	Almost always historical
Range and quality of information	Tend to contain financial and non-financial information, often use information that cannot be verified	Focus on financial information, great emphasis on objective, verifiable evidence

Although management and financial accounting are closely linked and have broadly common objectives, they differ in emphasis in various aspects.

Figure 1.12 Management and financial accounting reports compared

The differences between management accounting and financial accounting reports suggest differences in the information needs of managers and those of other users. While differences undoubtedly exist, there is also a good deal of overlap between the information needs of both.

Activity 1.16

Can you think of any areas of overlap between the information needs of managers and those of other users? (*Hint*: Think about the time orientation and the level of detail of accounting information.)

Two points that spring to mind are:

- Managers will, at times, be interested in receiving a historical overview of business operations of the sort provided to other users.
- Other users would be interested in receiving detailed information relating to the future, such as the planned level of profits, and non-financial information, such as the state of the sales order book and the extent of product innovations.

To some extent, differences between the two strands of accounting reflect differences in access to financial information. Managers have total control over the form and content of the information that they receive. Other users have to rely on what managers are prepared to provide or what financial reporting regulations insist must be provided. Although the scope of financial accounting reports has increased over time, fears concerning loss of competitive advantage and user ignorance about the reliability of forward-looking data have meant that other users do not receive the same detailed and wide-ranging information as that available to managers.

In the past it has been argued that accounting systems are biased in favour of providing information for external users. Financial accounting requirements have been the main priority and management accounting has suffered as a result. More recent survey evidence suggests, however, that this argument has lost its force. Nowadays, management accounting systems will usually provide managers with information that is relevant to their needs rather than that determined by external reporting requirements. External reporting cycles, however, retain some influence over management accounting. Managers tend to be aware of external users' expectations (see reference 4 at the end of the chapter).

SUMMARY

The main points of this chapter may be summarised as follows:

What is the purpose of a business?

- To create and keep a customer.

How are businesses organised and managed?

- Most businesses of any size are set up as limited companies.
- A board of directors is appointed by shareholders to oversee the running of the business.
- Businesses are often divided into departments and organised along functional lines; however, larger businesses may be divisionalised along geographical and/or product lines.

Strategic management

- The development of strategic management is in response to changes in the competitive environment and to the increase in size of many businesses.
- Strategic management involves five steps:
  1. Establish mission, vision and objectives.
  2. Undertake a position analysis (for example, a SWOT analysis).
  3. Identify and assess strategic options.
  4. Select strategic options and formulate plans.
  5. Perform, review and control.

The changing business landscape

- Increased competition and advances in technology have changed the business landscape.
- There have been changes in the kind of businesses in existence as well as changes in business structures and processes.

Setting financial aims and objectives

- A key financial objective for a business is to enhance the owners' (shareholders') wealth.
- When setting financial objectives the right balance must be struck between risk and return.

Management accounting and user needs

- For management accounting to be useful, it must be clear *for whom* and *for what purpose* the information will be used.
- Managers are an important type of user of financial information concerning the business, but there are several others including owners, employees, lenders and government.

Providing a service

- Management accounting can be viewed as a form of service as it involves providing information to 'clients' – the managers.
- To provide a useful service, management accounting information must possess certain qualities, or characteristics.
- The fundamental qualities are relevance and faithful representation. Other qualities that enhance the usefulness of accounting information are comparability, verifiability, timeliness and understandability.
- Providing a service to managers can be costly and information should be produced only if the cost of providing the information is less than the benefits gained.

Management accounting as an information system

- Management accounting is part of the total information system within a business. It shares the features that are common to all information systems within a business, which are the identification, recording, analysis and reporting of information.

What information do managers need?

- To meet managers' needs, information relating to the following broad areas is required:
  - developing objectives and plans;
  - performance evaluation and control;
  - allocating resources; and
  - determining costs and benefits.
- Providing non-financial information has become an increasingly important part of the management accountant's role.

Influencing managers' behaviour

- The main purpose of management accounting is to affect people's behaviour.
- Doing so, however, is not always beneficial and may have unintended consequences.

Reaping the benefits of IT

- IT has had a major effect on the ability to provide accurate, detailed and timely information.
- Developments in IT have enabled information and reports to be more widely disseminated throughout the business.
- IT has had a profound impact on the role of the management accountant.

Changing role of the management accountant

- Management accounting has changed over the years in response to changes in the business environment (including the IT revolution) and in business methods.
- Less time is spent preparing reports and more time is spent on analysis and on providing business advice.
- The management accountant is often a key member of the management team, which requires greater interpersonal, leadership and management skills.
- The management accountant often takes on a broader role of information manager within a business.
- This new dimension to the management accountant's role should benefit the design of more relevant management accounting information systems.

Ethical behaviour

- Management accountants may be put under pressure to commit unethical acts.
- Many businesses now publish a code of ethics governing the behaviour of accounting staff.

Management accounting and financial accounting

- Accounting has two main strands – management accounting and financial accounting.
- Management accounting seeks to meet the needs of the business's managers, and financial accounting seeks to meet the needs of providers of finance but will also be of use to other user groups.
- These two strands differ in terms of the types of reports produced, the level of reporting detail, the time orientation, the degree of regulation and the range and quality of information provided.

KEY TERMS

For definitions of these terms, see Appendix A.

Strategic management p. 6
Mission statement p. 7
Vision statement p. 8
Position analysis p. 9
SWOT analysis p. 9
Management accounting p. 16
Relevance p. 18
Faithful representation p. 18
Materiality p. 19
Comparability p. 19
Verifiability p. 19
Timeliness p. 19
Understandability p. 19
Management accounting information system p. 23
Key performance indicator (KPI) p. 27
Big data p. 30
Financial accounting p. 33

REFERENCES

1 Drucker, P. (1967) *The Effective Executive*, Heinemann.

2 Chartered Institute of Management Accounting (2009) *Management Accounting Tools for Today and Tomorrow*, CIMA.

3 Abdel-Kader, M. and Luther, R. (2008) The impact of firm characteristics on management accounting practices: a UK-based empirical analysis, *British Accounting Review*, March.

4 Dugdale, D., Jones, C. and Green, S. (2006) *Contemporary Management Accounting Practices in UK Manufacturing*, Elsevier.

FURTHER READING

If you would like to explore the topics covered in this chapter in more depth, we recommend the following:

Bhimani, A., Horngren, C., Datar, S. and Rajan, M. (2015) *Management and Cost Accounting*, 6th edn, Pearson, Chapter 1.

Crane, A. and Matten, D. (2016) *Business Ethics: Managing Corporate Citizenship and Sustainability in the Age of Globalization,* 4th edn, Oxford University Press, Chapter 1.

Hilton, R. and Platt, D. (2014) *Managerial Accounting*, 10th edn, McGraw-Hill Higher Education, Chapter 1.

Johnson, G., Whittington D., Scholes, K., Angwin, D. and Regner, P. (2014) *Exploring Strategy: Text and Cases*, 10th edn, Pearson, Chapters 1–3.

REVIEW QUESTIONS

Solutions to these questions can be found at the back of the book on pp. 526–527.

1.1 Identify the main users of accounting information for a university. For what purposes would different user groups need information? Would these groups use the accounting information in a different way from the equivalent groups in private-sector businesses?

1.2 Management accounting has been described as 'the eyes and ears of management'. What do you think this expression means?

1.3 Assume that you are a manager considering the launch of a new service. What accounting information might be useful to help in making a decision?

1.4 'Management accounting information should be understandable. As some managers have a poor knowledge of accounting we should produce simplified financial reports to help them.' To what extent do you agree with this view?

EXERCISES

Solutions to these exercises can be found at the back of the book on pp. 535–536.

Basic-level exercise

1.1 You have been speaking to a friend who owns a small business, and she has said that she has read something about strategic management and that no modern business can afford not to get involved with it. Your friend has little idea what strategic management involves.

Required:
Briefly outline the steps in strategic management, summarising what each step involves.

Advanced-level exercise

1.2 Jones Dairy Ltd (Jones) operates a 'doorstep' fresh milk delivery service. Two brothers carry on the business that they inherited from their father in the early 1980s. They are the business's only directors. The business operates from a yard on the outskirts of Trepont, a substantial town in mid Wales.

Jones expanded steadily from when the brothers took over until the early 1980s, by which time it employed 25 full-time rounds staff. This was achieved because of four factors: (1) some expansion of the permanent population of Trepont; (2) expanding Jones's geographical range to the villages surrounding the town; (3) an expanding tourist trade in the area; and (4) a positive attitude to 'marketing'.

As an example of the marketing effort, when new residents move into the area, the member of the rounds staff concerned reports this back. One of the directors immediately visits the potential customer with an introductory gift, usually a bottle of milk, a bottle of wine and a bunch of flowers. He then attempts to obtain a regular milk order. Similar methods are used to persuade existing residents to place orders for delivered milk.

By the mid-1990s Jones had a monopoly of doorstep delivery in the Trepont area. A combination of losing market share to Jones and the town's relative remoteness had discouraged the national doorstep suppliers. The little locally-based competition there once was had gone out of business.

Supplies of milk come from a bottling plant, owned by one of the national dairy businesses, which is located 50 miles from Trepont. The bottlers deliver nightly, except Saturday nights, to Jones's depot. Jones delivers daily, except on Sundays.

Profits, after adjusting for inflation, have fallen since the early 1990s. Sales volumes have fallen by about a third, compared with a decline of about 50 per cent for doorstep deliveries nationally over the same period. New customers are increasingly difficult to find, despite a continuing policy of encouraging them. Many existing customers tend to have less milk delivered. A sufficient profit has been made to enable the directors to enjoy a reasonable income compared with their needs, but only by raising prices. Currently Jones charges 81p for a standard pint, delivered. This is fairly typical of prices for milk delivered to the doorstep around the UK. The Trepont supermarket, which is located in the centre of town, charges 50p a pint and other local stores charge between 55p and 60p.

Currently Jones employs 15 full-time rounds staff, a van maintenance mechanic, a secretary/bookkeeper and the two directors. Jones is regarded locally as a good employer. Regular employment opportunities in the area are generally few. Rounds staff are expected to, and generally do, give customers a friendly, cheerful and helpful service.

The two brothers continue to be the only shareholders and directors and comprise the only level of management. One of the directors devotes most of his time to dealing with the supplier and with issues connected with details of the rounds. The other director looks after administrative matters, such as the accounts and human resources issues. Both directors undertake rounds to cover for sickness and holidays.

Required:
As far as the information given in the question will allow, undertake an analysis of the strengths, weaknesses, opportunities and threats (a SWOT analysis) of the business.

Chapter 2

RELEVANT COSTS AND BENEFITS FOR DECISION MAKING

INTRODUCTION

This chapter considers how we should identify relevant costs and benefits when making management decisions. The principles outlined will provide the basis for much of the rest of the book.

Management decisions should aim to achieve the objectives of the business. When considering a proposed course of action, this involves weighing the relevant benefits and associated costs. We shall see that not all of benefits and costs that can be identified may be relevant to the particular course of action. It is important, therefore, to distinguish carefully between the costs and benefits that are relevant and those that are not. Failure to do so can easily lead to poor decisions being made.

Learning outcomes

When you have completed this chapter, you should be able to:

- Define and distinguish between relevant costs, outlay costs and opportunity costs.
- Identify and quantify the costs and benefits that are relevant to a particular decision.
- Use relevant costs and benefits to make decisions.
- Set out relevant costs and benefits analysis in a logical form so that the results can be clearly communicated to managers.

COST–BENEFIT ANALYSIS

Managers spend much of their time making plans and decisions. As part of this process, they try to assess the likely outcome from each course of action being considered. This involves a careful weighing of the prospective **benefits** against the **costs** involved. Benefits are those outcomes, resulting from a course of action, that help a business to achieve its objectives. Costs, on the other hand, represent the sacrifice of resources needed to achieve those benefits. For a proposed plan, or decision, to be worthwhile, the likely benefits should exceed the associated costs.

Real World 2.1 provides an interesting example of where **cost–benefit analysis** was used to evaluate a possible course of action designed to solve a serious problem faced by many businesses.

Real World 2.1

Stocktaking

Light-fingered employees are a problem for all employers; however, the issue is particularly severe in the retail trade. Tatiana Sandino, an associate professor in accounting and management at Harvard Business School, and co-author Clara Xiaoling Chen, an assistant professor of accountancy at the University of Illinois at Urbana–Champaign, cite figures from the National Retail Security survey in the USA which says that employee theft of inventories contributed to a loss of \$15.9bn in 2008.

To try to discover what might dissuade employees from stealing, the two academics wondered if higher remuneration might help. They hypothesised that higher wages might encourage employees to feel more warmly towards their employers, that these employees – if they were paid more – would be less inclined to steal because they would not want to lose their jobs and paying a larger sum in the first place would attract more honest employees.

Using two data sets and including factors such as workers' different socio-economic environments and how many people the stores employed, the authors found that paying a larger salary caused a drop in employee theft and could, in certain circumstances, make fiscal sense.

A cost–benefit analysis found that what an employer saved in cash and inventories theft covered about 39 per cent of the cost of the wage increase. 'Our study suggests that an increase in wages will decrease theft, but won't fully pay off,' says Prof. Sandino. The pair suggest that raising salaries might be the right course of action if other benefits – such as reduced employee turnover or higher employee productivity – account for at least 61 per cent of the wage increase.

FT *Source*: Adapted from Anderson, L. (2012) Something for the weekend, ft.com, 16 November.
© The Financial Times Limited 2012. All Rights Reserved.

To help weigh costs and benefits arising from a particular decision, it would be useful if both could be measured in monetary terms. This would then provide a common denominator for cost–benefit analysis. Some costs and benefits, however, may elude attempts to place a reliable monetary value on them. Take, for example, the likely problems of trying to measure the costs, in terms of loss of reputation, incurred by selling customers faulty products or the benefits accruing from steps taken to lift morale among the workforce. To add to the measurement problems, the timing and duration of these costs and benefits may be difficult to estimate. Nevertheless, the costs just described can have a significant effect on the achievement of business objectives. They should not, therefore, be ignored or given less weight when making decisions. There is always a risk that managers will take too narrow a view and act on the basis that 'the things that count are the things that get counted'. That is, attention will be paid to those aspects where it is easy to assign a monetary value, but aspects that are difficult to value are ignored. We shall return to this point a little later in the chapter.

WHAT IS MEANT BY 'COST'?

The term 'cost' is a slippery concept. Although a very broad description was given earlier when discussing cost–benefit analysis, it can be defined in different ways. Managers therefore need to be clear what it means in the context of decision making. This is an important issue to which we now turn.

Identifying and measuring cost may seem, at first sight, to be pretty straightforward: it is simply the amount paid for the goods supplied or the service provided. When measuring cost *for decision-making purposes*, however, things are not quite that simple. The following activity illustrates why this is the case.

Activity 2.1

You own a motor car, for which you paid a purchase price of £5,000 – much below the list price – at a recent car auction. You have just been offered £6,000 for this car.

What is the cost to you of keeping the car for your own use? *Note*: Ignore running costs and so on; just consider the 'capital' cost of the car.

By retaining the car, you are forgoing a cash receipt of £6,000. Thus, the real sacrifice, or cost, incurred by keeping the car for your own use is £6,000.

Any decision that you make with respect to the car's future should logically take account of the figure of £6,000. This is known as the **opportunity cost** since it is the value of the opportunity foregone in order to pursue the other course of action. (In this case, the other course of action is to retain the car.)

We can see that the cost of retaining the car is not the same as the purchase price. In one sense, of course, the cost of the car in Activity 2.1 is £5,000 because that is how much was paid for it. However, this cost, which for obvious reasons is known as the **historic cost**, is only of academic interest. It cannot logically ever be used to make a decision on the car's future. If we disagree with this point, we should ask ourselves how we should assess an offer of £5,500, from another person, for the car – assuming that the original offer still stood. The answer is that we should compare the offer price of £5,500 with the opportunity cost of £6,000. This should lead us to reject the offer as it is less than the £6,000 opportunity cost. In these circumstances, it would not be logical to accept the offer of £5,500 on the basis that it was more than the £5,000 that we originally paid. The only other figure that should concern us is the value to us, in terms of pleasure, usefulness and so on, of retaining the car. If we valued this more highly than the £6,000 opportunity cost, we should reject both offers.

We may still feel, however, that the £5,000 is relevant here because it will help us in assessing the profitability of the decision. If we sold the car, we should make a profit of either £500 (£5,500 − £5,000) or £1,000 (£6,000 − £5,000) depending on which offer we accept. Since we should seek to make the higher profit, the right decision is to sell the car for £6,000. However, we do not need to know the historic cost of the car to make the right decision. What decision should we make if the car cost us £4,000 to buy? Clearly we should still sell the car for £6,000 rather than for £5,500 as the important comparison is between the offer price and the opportunity cost. We should reach the same conclusion whatever the historic cost of the car.

To emphasise the above point, let us assume that the car cost £10,000. Even in this case the historic cost would still be irrelevant. Had we just bought a car for £10,000 and found shortly after that it is only worth £6,000, we might well be fuming with rage at our mistake, but this does not make the £10,000 a **relevant cost**. The only relevant factors, in a decision on whether to sell the car or to keep it, are the £6,000 opportunity cost and the value of the benefits of keeping it. Thus, the historic cost can never be relevant to a future decision.

To say that historic cost is an **irrelevant cost** is not to say that *the effects of having incurred that cost* are always irrelevant. The fact that we own the car, and are thus in a position to exercise choice as to how to use it, is not irrelevant. It is highly relevant.

Opportunity costs are rarely taken into account in the routine accounting processes, such as recording revenues, expenses, assets and claims. This is because they do not involve any out-of-pocket expenditure. It seems that they are only calculated where they are relevant to a particular management decision. Historic costs, on the other hand, do involve out-of-pocket expenditure and are recorded. They are used in preparing the annual financial statements, such as the statement of financial position and the income statement. This is logical, however, since these statements are intended to be accounts of what has actually happened and are drawn up after the event. The failure to use opportunity costs when preparing the traditional financial statements rather calls into question the usefulness of those statements for decision-making purposes. This point is beyond the scope of this book, however.

RELEVANT COSTS: OPPORTUNITY AND OUTLAY COSTS

We have just seen that, when we are making decisions concerning the future, **past costs** (that is, historic costs) are irrelevant. It is future opportunity costs and future **outlay costs** that are of concern. An opportunity cost can be defined as the value, in monetary terms, of being deprived of the next best opportunity in order to pursue the particular objective. An outlay cost is an amount of money that will have to be spent to achieve an objective. We shall shortly meet plenty of examples of both of these types of future cost.

To be relevant to a particular decision, a future outlay cost, or opportunity cost, must satisfy all three of the following criteria:

1. *It must relate to the objectives of the business.* Most businesses have enhancing owners' (shareholders') wealth as their key strategic objective. That is, they are trying to become richer (see Chapter 1). Thus, to be relevant to a particular decision, a cost must have an effect on the wealth of the business.
2. *It must be a future cost.* Past costs cannot be relevant to decisions being made about the future.
3. *It must vary with the decision.* Only costs that are different between outcomes can be used to distinguish between them. Take, for example, a road haulage business that has decided

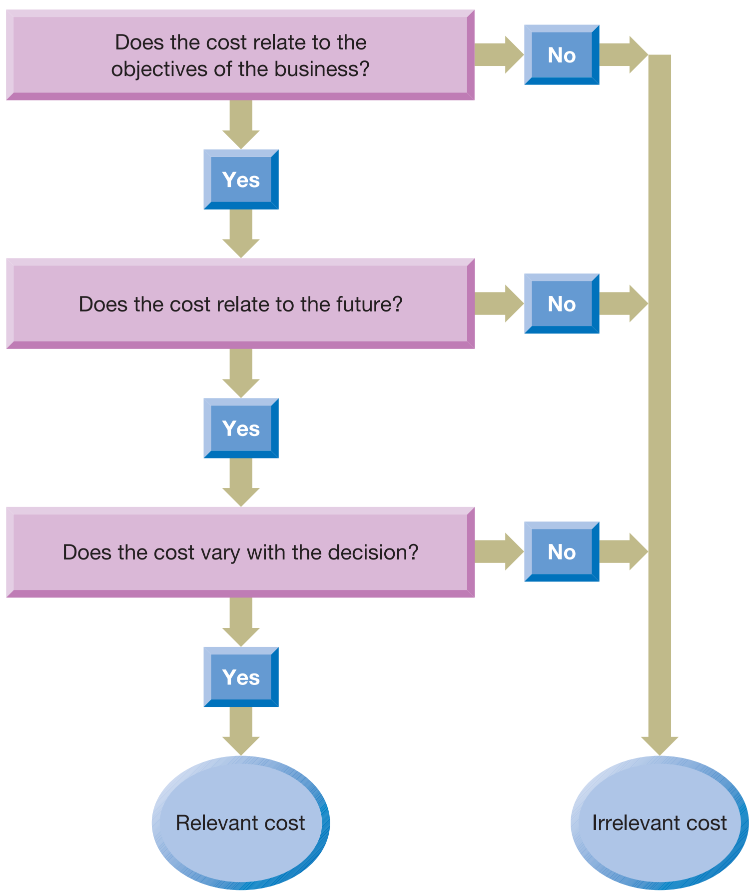
that it will buy a new additional lorry and the decision lies between two different models. The purchase price, the load capacity, the fuel and maintenance costs are different for each lorry. The potential costs and benefits associated with these are relevant items. The lorry will require a driver, so the business will need to employ one, but a suitably qualified driver could drive either lorry equally well, for the same wage. The cost of employing the driver is thus irrelevant to the decision as to which lorry to buy. This is despite the fact that this cost is a future one.

Activity 2.2

If the decision did not concern a choice between two models of lorry but rather whether to operate an additional lorry or not, would the cost of employing the additional driver be relevant?

Yes – because it would then be a cost that would vary with the decision.

Figure 2.1 sets out in diagrammatic form how we determine which costs are relevant to a particular decision.



To be relevant to a particular decision, a cost must satisfy all three criteria.

Figure 2.1 A decision flow diagram for identifying relevant costs

To be relevant, the benefits arising from a particular course of action must also satisfy all three criteria mentioned. That is, they should relate to the objectives of the business, they should relate to the future and they should vary with the decision.

Activity 2.3

A garage has a car that it bought several months ago. The car needs new tyres before it is roadworthy. A tyre fitting business has offered to fit four new tyres on the car for £400.

The garage paid £9,000 to buy the car. Without the new tyres it could be sold for an estimated £10,500. What is the minimum price at which the garage should sell the car with new tyres?

The minimum price is the amount required to cover all the relevant costs. At this price, the benefits will exactly equal the costs and so neither a profit nor loss is made. Any price that is lower than this amount will mean the wealth of the business is reduced. In this case, the minimum price is:

	£
Opportunity cost of the car	10,500
Cost of the new tyres	400
Total	10,900

The original cost of the car is irrelevant for reasons already discussed. It is the opportunity cost of the car that concerns us. In this case, it is the sales value foregone. If the new tyres are purchased, the garage will have to pay £400; but will pay nothing if they are not. The £400 is, therefore, a relevant cost as it is a future cost that varies with the decision.

It should be emphasised that the garage will not try to sell the car with its new tyres for £10,900; it will try to get as much as possible for it. Any price above the £10,900, however, will make the garage better off than would be the case if it did not buy the new tyres.

Real World 2.2 is an extract from an article that discusses the opportunity cost of two countries building separate oil pipelines rather than cooperating in a joint venture.

Real World 2.2

Benefits foregone

Tullow Sees Opportunity Cost If Kenya-Uganda Pipeline Plan Fails

- Joint facility has ‘tangible economic value,’ official says
- London-based oil company has discoveries in both countries

By Joseph Burite
(Bloomberg) — 03/30/2016

Tullow Oil plc, which has oil discoveries in Uganda and Kenya, sees an opportunity cost if the two countries don’t collaborate on a pipeline to ship their crude to the Indian Ocean, a company official said.

Landlocked Uganda is deciding on whether the pipeline will traverse northern Kenya’s desert to a proposed port at Lamu, or south past Lake Victoria to Tanga on Tanzania’s coast. While Tullow, which discovered Uganda’s oil, has a seat at the talks, the pipeline decision is “above our pay grade,” Tim O’Hanlon, the London-based company’s vice president for African business, said in an interview.

“For us we think of it as an East African integrated regional infrastructure and the opportunity cost of Uganda and Kenya not cooperating on the pipeline is enormous,” he said Wednesday →

in Tanzania's commercial capital, Dar es Salaam. "A joint pipeline has real tangible economic value, measurable value for individual countries Uganda and Kenya, and East Africa in general."

Tanzanian President John Magufuli said earlier this month he'd agreed with his Ugandan counterpart, Yoweri Museveni, to route the conduit via his country at a cost of about $4 billion, with Total SA helping fund the project. Nagoya, Japan-based Toyota Tsusho Corp. estimates the Kenyan route may cost about $5 billion.

Separate Pipelines

A Ugandan decision to route the pipeline through Tanzania would probably mean Kenya would need its own facility to transport its oil, according to O'Hanlon. "We are talking about two separate pipelines or a joint pipeline through Kenya," he said.

Tullow along with Total SA and the China National Offshore Oil Corp. are developing Uganda's oil fields in the western region of Hoima. The Chinese company was awarded its production license in 2013, the only one so far issued by Uganda's government.

O'Hanlon said Tullow expects its first production in Uganda about three or four years after the company makes its final investment decision in 2017, and that it will be awarded production licenses in the next few weeks.

"It's taken time but it's going fine and it's of course one of the key issues that we have to have in place before we march into production," he said. To contact the reporter on this story:

Joseph Burite in Dar es Salaam at jburite@bloomberg.net

To contact the editors responsible for this story:

Paul Richardson at pmrichardson@bloomberg.net

Michael Gunn

Source: Direct extract from Burite, J. (2016) *Tullow Sees Opportunity Cost If Kenya-Uganda Pipeline Plan Fails,* www.bloomberg.com, 30 March.

IRRELEVANT COSTS: SUNK COSTS AND COMMITTED COSTS

A **sunk cost** is simply another way of referring to a past cost and so the terms 'sunk cost' and 'past cost' can be used interchangeably. A **committed cost** arises where an irrevocable decision has been made to incur the cost. This is often because a business has entered into a legally-binding contract. As a result, it is effectively the same as a past cost despite the fact that the cash may not be paid until some point in the future. Since the business must eventually pay, the cost will not vary with the decision. Thus, as with a past cost, a committed cost can never be a relevant cost for decision-making purposes.

Activity 2.4

Past costs are irrelevant costs. Does this mean that what happened in the past is irrelevant?

No, it does not mean this. The fact that the business has an asset that it can deploy in the future is highly relevant. What is not relevant is how much it cost to acquire that asset. This point was raised in the discussion that followed Activity 2.1.

Another reason why the past can be relevant is that it generally – though not always – provides us with our best guide to the future. Suppose that we need to estimate the cost of doing something in the future to help us to decide whether it is worth doing. In these circumstances our own experience, or that of others, on how much it has cost to do the thing in the past may provide us with a valuable guide to how much it is likely to cost in the future.

Real World 2.3 provides extracts from a *Financial Times* article that deals with the possible disposal by the UK government of its stake in a bank that came close to collapse during the recent recession and had to be rescued. It points out that what the government paid for its shares in the bank is a sunk cost and, therefore, an irrelevant one.

Real World 2.3

Bank transfer

Royal Bank of Scotland and George Osborne, the UK chancellor, are both eager to see the back of the other. RBS has declared that it should be healthy enough by next year for the government to start selling off its 81 per cent, and Mr Osborne has privately mooted a similar notion.

Last week, RBS displayed some encouraging signs of progress. For a long time, it seemed in such a dire state that it needed either to be fully nationalised, or split into good and bad banks and recapitalised by the taxpayer. Those risks, if not eliminated, have been reduced.

This does not mean the bank and its major shareholder can take a victory lap. RBS still has plenty of work to do, and concerns linger about whether it has fully acknowledged its bad loans. Its shares suffered when it announced its first-quarter results, revealing the rapid contraction of its investment arm.

The government must consider two factors before privatisation. The first is what price it can achieve, and whether it will match the book value paid by the Labour government in 2008. It need not get too hung up on the purchase price because that is a sunk cost. But neither should it be so enthusiastic to sell that it fails to get the best return for taxpayers.

FT *Source*: Extracts from the FT editorial (2013), UK taxpayer will lose in rush to exit, ft.com, 5 May.

SUNK COST FALLACY

Although we should ignore past costs when considering future courses of action, this is often easier said than done. It seems that people often display an irrational commitment to past costs. We persist in continuing along a particular path because of our previous investment of time, effort or money. The end result is often to make poor decisions about the future direction. Managers can be as guilty of this kind of behaviour as anyone else.

In behavioural economics, the refusal to abandon an attachment to an irrecoverable investment is known as the **sunk cost fallacy**. Various reasons have been suggested as to why we act in this way. In **Real World 2.4** we consider some of these.

Real World 2.4

Clinging to the past

Perhaps you have said, or heard, the following sort of comments:

> **'I might as well finish this book. It's not very good but I paid for it and now I'm more than half was through.'**

'I can't throw out these shoes. They are almost new and, although they hurt my feet, I paid a fortune for them'

'I really don't want to buy the car any more. However, I paid the dealer a non-refundable deposit and so I suppose I should go ahead.'

'I hate my job as an accountant but I've invested too many years of my life to achieve the qualifications just to throw it all away.'

These sort of comments show an attachment to past decisions rather than a concern for the future. They are irrational because costs previously incurred are not a good guide to maximising future utility. The investment of time, money or other resources should not be determined by what has already been spent.

Why do we do this? It may be because we suffer from loss aversion, which is a strong dislike of wasting resources. This is a strong negative emotion: the greater the amount wasted, the greater the suffering. The pain of incurring losses is usually much greater than the pleasure achieved by making equivalent gains. We may, therefore, stick with the book or the job in the hope that things improve in the future.

To abandon an investment may lead to feelings of regret and failure, which we may seek to avoid. It may also attract criticism. We may be blamed for giving up too easily or for making the original investment. This can make it difficult to own up to our poor decisions.. Finally we may not be able to see clearly the options available by not sticking with the investment. However, new opportunities may come into view once we have abandoned the sunk cost.

An example of the sunk cost fallacy in business occurred when the British and French governments agreed to develop the Concorde - a supersonic passenger jet. This turned out to be a very bad investment. Development costs were much higher than expected and it became clear, before the project was completed, that it would not be financially viable. Nevertheless, both governments decided to press ahead and complete the project rather than admit failure and write off the investment cost. Many believe that the decision to continue was largely determined by the costs already incurred. The Concorde was in operation from 1976 to 2003.

Source: Based on information in Leahy, R. (2014) *Letting go of sunk costs,* www.psychologytoday.com, 24 September and J. Blasingame (2011) *Beware of the Concorde fallacy* www.forbes.com 15 September.

DETERMINING THE RELEVANT COST OF LABOUR AND MATERIALS

Having set out the broad principles of what constitutes a relevant cost, let us now consider two key elements that go to make up the cost of a product or service – labour and materials. Determining the relevant costs of each can be quite tricky. This is because, in practice, they will vary according to the particular circumstances. By keeping in mind the principles just discussed, however, we should be able to separate the relevant costs arising from a course of action from any irrelevant costs.

Labour

The relevant cost of labour will vary according to whether the business is operating with spare capacity or whether it is operating at full capacity. In Activity 2.5 on the next page, we consider the situation where a business has temporary spare capacity but does not intend to lay off its workers.

Activity 2.5

Assume the same information set out in Activity 2.3 above. Further assume, however, that the car also needs a replacement engine before it can be driven. It is possible to buy a reconditioned engine for £1,200, which would take seven hours to fit by a mechanic who is paid £15 an hour. The garage is currently short of work, but the owners are reluctant to lay off any mechanics or even to cut down their basic working week. This is because skilled mechanics are difficult to find and an upturn in demand for their skills is expected soon.

What is the minimum price at which the garage should sell the car with a reconditioned engine and with new tyres fitted?

Again, the minimum price is the amount required to cover the relevant costs of the job. This minimum price will now be as follows:

	£
Opportunity cost of the car	10,500
Cost of new tyres	400
Cost of the reconditioned engine	1,200
Total	12,100

The cost of the new engine is a relevant cost for the same reason as the cost of new tyres: it is a future cost that varies with the decision. If the garage decides against fitting the engine, this cost will not be incurred. The cost of labour, on the other hand, is an irrelevant cost because it does not vary with the decision. As the mechanic will still be employed even though there is no work, the garage will incur the same cost whether or not the mechanic undertakes the engine-replacement job. If this job is not undertaken, the mechanic will be paid to do nothing. The additional labour cost for this job is, therefore, zero.

Where the business is working at full capacity the relevant cost of labour will depend on whether additional workers are employed to undertake the task or whether workers currently spending time on another task are redeployed. Let us first consider the situation where additional workers are employed to carry out a specified task.

Activity 2.6

Assume exactly the same circumstances as in Activity 2.5, except that the garage is currently working at full capacity. It is possible, however, to employ a recently-retired mechanic, on a casual basis, to fit the engine. The mechanic will be employed for seven hours and will be paid £15 an hour.

What is the minimum price at which the garage should sell the car, with a reconditioned engine fitted and new tyres, under these altered circumstances?

The minimum price is:

	£
Opportunity cost of the car	10,500
Cost of new tyres	400
Cost of mechanic (7 × £15)	105
Cost of the reconditioned engine	1,200
Total	12,205

→

The opportunity cost of the car, the cost of the new tyres and the cost of the reconditioned engine are the same as in Activity 2.5. However, a charge for labour has now been added to obtain the minimum price. This is because it is now a future cost that varies with the decision. If the garage decides against fitting the engine, the mechanic will not be hired.

If overtime payments are made to existing workers to fit the engine, a similar situation to hiring a mechanic on a casual basis would arise. The overtime payments would be regarded as a relevant cost as they would vary with the decision.

Where a business is working at full capacity, it may be possible to redeploy the existing workforce in order to carry out a new task. This will mean that an opportunity cost is normally incurred as workers will be taken away from other revenue-generating tasks. Activity 2.7 considers this scenario.

Activity 2.7

Assume exactly the same circumstances as in Activity 2.6, except that the garage redeploys a mechanic to carry out the engine-replacement job. This means that other work, which the mechanic could have done during the seven hours, will not be undertaken. This other work could have been charged to a customer at the rate of £60 an hour. The mechanic, however, is only paid £15 an hour.

What is the minimum price at which the garage should sell the car, with new tyres and a reconditioned engine fitted, under these circumstances?

The minimum price is:

	£
Opportunity cost of the car	10,500
Cost of new tyres	400
Opportunity cost of mechanic (7 × £60)	420
Cost of the reconditioned engine	1,200
Total	12,520

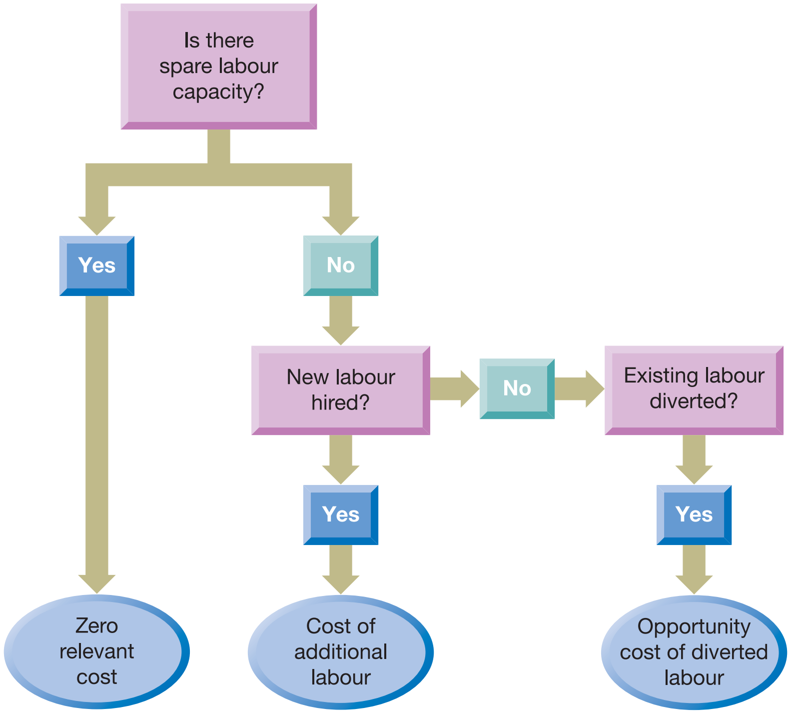
The opportunity cost of the car, the cost of the new tyres and the cost of the reconditioned engine are the same as in Activity 2.6. However, the cost of labour is now different. It is the amount sacrificed in making time available to undertake the engine-replacement job. While the mechanic is working on this job, the opportunity to do other work, for which customers would pay £420, is lost.

Note that the £15 an hour mechanic's wage is still not relevant. The mechanic will be paid £15 an hour irrespective of whether it is the engine-replacement work or some other job that is undertaken.

The points made above concerning the relevant cost of labour are summarised in Figure 2.2 on the next page.

Materials

The relevant cost of materials will vary according to whether the materials are held in inventories and whether there is an intention to replace them. In Activity 2.8 on the next page, the materials required for a particular job are already held in inventories but not all need to be replaced. When attempting this activity, keep firmly in mind the principles discussed earlier.



The starting point is to determine whether there is temporary spare capacity. In these circumstances, the relevant cost of labour is usually zero. Relevant labour costs often only arise where the business is operating a full capacity.

Figure 2.2 A decision flow diagram for identifying the relevant cost of labour

Activity 2.8

A business is considering making a bid to undertake a contract. The contract will require the use of two types of raw material – A1 and B2. Quantities of both of these materials are held by the business. If it chose to do so, the business could sell the raw materials in their present state. All of the inventories of these two raw materials will need to be used on the contract. Information on the raw materials concerned is as follows:

Inventories item	*Quantity (units)*	*Historic cost (£/unit)*	*Sales value (£/unit)*	*Current purchase cost (£/unit)*
A1	500	5	3	6
B2	800	7	8	10

Inventories item A1 is in frequent use in the business on a variety of work.

The inventories of item B2 were bought a year ago for a contract that was abandoned. It has recently become obvious that there is no likelihood of ever using this raw material unless the contract currently being considered proceeds.

Management wishes to deduce the minimum price at which the business could undertake the contract without reducing its wealth as a result (that is, the price at which the costs are exactly equal to the benefits). This can be used as the baseline in deducing the bid price.

How much should be included in the minimum price in respect of the two inventories items detailed above?

→

The minimum price must cover the relevant costs. The costs to be covered by the minimum price are:

A1	£6 × 500 = £3,000
B2	£8 × 800 = £6,400

We are told that the item A1 is in frequent use and so, if it is used on the contract, it will need to be replaced. The business will, therefore, have to buy 500 units additional to those which would have been required had the contract not been undertaken. The purchase cost of the materials is £6 per unit and so the relevant cost is 500 × £6.

Item B2 will never be used by the business unless the contract is undertaken. This means that if the contract is not undertaken, the only reasonable thing for the business to do is to sell the B2. If, however, the contract is undertaken and the B2 is used, it will have an opportunity cost equal to the potential proceeds from disposal, which is £8 a unit. In other words, the relevant cost will be the sales value of item B2 that has been foregone.

Note that the historic cost information about both materials is irrelevant. This will always be the case as it represents a sunk cost.

Where an item of materials is not held in inventories, it will have to be purchased specifically for the job. In this case, therefore, the purchase cost of the materials will be the relevant cost. It is a future cost that will vary with the decision.

Now have a go at Activity 2.9 below, which is a little more difficult than the previous activity.

The points made above concerning the relevant cost of materials are summarised in Figure 2.3 on the next page.

Activity 2.9

HLA Ltd is in the process of preparing a quotation for a special job for a customer. The job will have the following material requirements:

		Units currently held in inventories			
Material	***Units required***	***Quantity held (units)***	***Historic cost (£/unit)***	***Sales value (£/unit)***	***Current purchase cost (£/unit)***
P	**400**	**0**	**–**	**–**	**40**
Q	**230**	**100**	**62**	**50**	**64**
R	**350**	**200**	**48**	**23**	**59**
S	**170**	**140**	**33**	**12**	**49**
T	**120**	**120**	**40**	**0**	**68**

Material Q is used consistently by the business on various jobs.

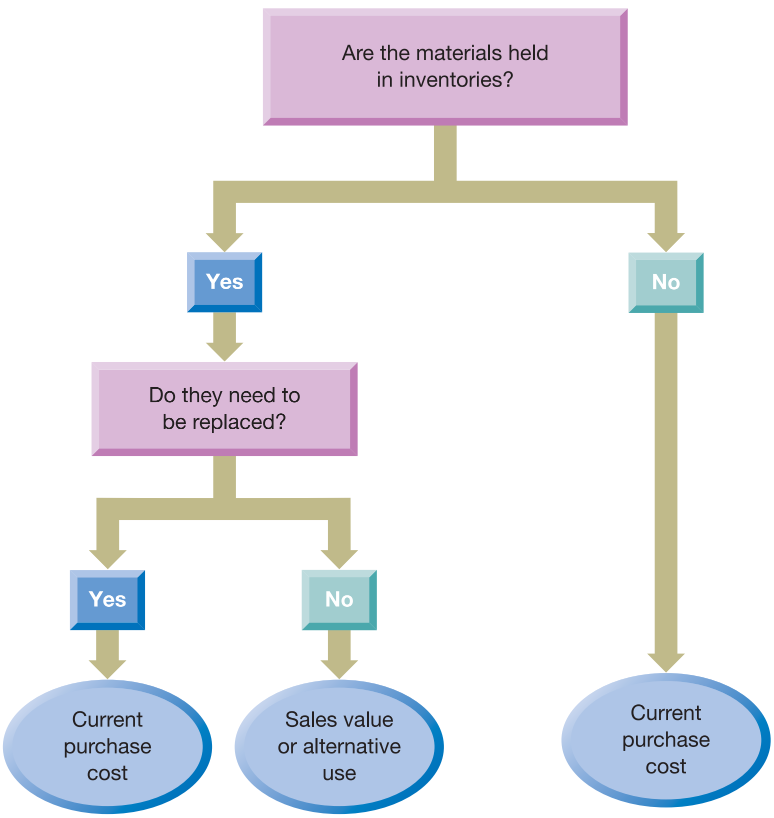
The business holds materials R, S and T as the result of previous overbuying. No other use (apart from this special job) can be found for R, but the 140 units of S could be used in another job as a substitute for 225 units of material V that are about to be purchased at a price of £10 a unit. Material T has no other use, it is a dangerous material that is difficult to store and the business has been informed that it will cost £160 to dispose of the material currently held.

If it chose to, the business could sell the raw materials Q, R and S already held in their present state.

What is the relevant cost of the materials for the job specified above?

The relevant cost is as follows:

	£
Material P	
This will have to be purchased at £40 a unit (400 × £40)	16,000
Material Q	
Those units already held will have to be replaced and the remaining 130 units will have to be purchased, therefore the relevant cost is (230 × £64)	14,720
Material R	
200 units of this are held and these could be sold. The relevant cost of these is the sales value forgone (200 × £23)	4,600
The remaining 150 units of R would have to be purchased (150 × £59)	8,850
Material S	
This could be sold or used as a substitute for material V	
The existing inventories could be sold for £1,680 (that is, 140 × £12); however, the saving on material V is higher. This higher figure must be taken as the opportunity cost (225 × £10)	2,250
The remaining units of material S must be purchased (30 × £49)	1,470
Material T	
A saving on disposal will be made if material T is used	(160)
Total relevant cost	47,730



The starting point is to determine whether the materials are held inventories. Relevant costs arise where inventories have to be replaced or where there is an opportunity cost involved in their use. Where materials are not held in inventories, the cost of purchasing them is the relevant cost.

Figure 2.3 A decision flow diagram for identifying the relevant cost of materials

NON-MEASURABLE COSTS AND BENEFITS

It was mentioned at the beginning of the chapter that certain costs and benefits may defy measurement in monetary terms. These costs and benefits often have a broader, but less immediate, impact on the business. Ultimately, however, they are likely to affect the ability of a business to achieve its objectives.

Activity 2.10

Activities 2.5, 2.6 and 2.7 were concerned with the cost of putting a car into a marketable condition. Apart from the quantifiable items mentioned, are there other costs or benefits that are difficult to quantify, but which should, nevertheless, be taken into account in making a decision as to whether to do the work? Try to think of at least two.

We can think of four:

- Turning away another job in order to do the engine replacement may result in customer dissatisfaction.
- The quality of workmanship may be lower where casual labour is employed, which could damage the reputation of the business.
- Demand for the car following the work carried out may be uncertain.
- Benefits beyond the profit expected from the sale of the particular car may accrue. By offering a broader range of cars for sale, more car-buying customers may be attracted to the garage.

You may have thought of others.

These 'qualitative' costs and benefits should provide a further input to the final plans or decisions. To include these costs and benefits, managers must rely on judgement when attaching weightings to them. By taking them into account, however, the final picture may be quite different than that provided by only the quantifiable costs and benefits.

To end the chapter, **Real World 2.5** describes another case where the decision makers, quite correctly, ignored past costs and just concentrated on future options for the business concerned. It also highlights how two sets of managers can take quite different views of the worth of an investment, presumably based on similar sources of information.

Real World 2.5

Delivering for £1

In April 2013 Better Capital PCC Ltd, a private equity business, paid £1 to buy City Link, the delivery and courier business, from Rentokil Initial plc, the pest control and hygiene business.

Rentokil had bought City Link as part of the takeover of Target Express in 2006, but had never been able to make a success of its acquisition. An analyst at Espirito Santo, the investment bank, said 'City Link has been a persistent thorn in the side of [Rentokil's] management's efforts to deliver a turnround at Rentokil and has assumed both significant financial cost and management focus, detracting from the core of the business'. The management at Rentokil was clearly very pleased to rid itself of City Link without incurring further losses.

Better Capital could obviously see a brighter future for City Link and committed £40 million to fund additional working capital and restructuring, including the acquisition of new delivery vehicles and expanding the number of staff.

Despite Better Capital honouring its £40 million commitment, adverse trading results forced City Link to stop trading and into administration in December 2014, seemingly with Better Capital losing its investment and, probably more importantly, with the business's 2,700 employees losing their jobs.

Better Capital is no stranger to deals done for £1. In February 2014, it sold Readers Digest, a publishing business, for that sum. It had bought the business for £14 million in 2010 and subsequently invested £9 million in it.

Sources: Based on City Link (2014) City Link reaps benefits of Better Capital investment, www.city-link.co.uk/press/2014/news, January; Wembridge, M. (2013) Rentokil Initial sells City Link to John Moulton's buyout group, ft.com, 29 April; Armstrong, A. (2014) Reader's Digest sold for £1 by Better Capital, *Daily Telegraph*, 16 February; Szu, P. C. (2014) City Link collapses into administration leaving 2,700 jobs at risk, *Daily Telegraph*, 25 December.

Self-assessment question 2.1

JB Limited is a small specialist manufacturer of electronic components. Makers of aircraft, for both civil and military purposes, use much of its output. One of the aircraft makers has offered a contract to JB Limited for the supply, over the next 12 months, of 400 identical components. The data relating to the production of each component are as follows:

- *Material requirements:*
  3 kg of Material M1 (see Note 1 below)
  2 kg of Material P2 (see Note 2 below)
  1 bought-in component (part number 678) (see Note 3 below)

  Note 1: Material M1 is in continuous use by the business; 1,000 kg are currently held by the business. The original cost was £4.70/kg, but it is known that future purchases will cost £5.50/kg.

  Note 2: 1,200 kg of Material P2 are currently held. The original cost of this material was £4.30/kg. The material has not been required for the last two years. Its scrap value is £1.50/kg. The only foreseeable alternative use is as a substitute for Material P4 (in constant use), but this would involve further processing costs of £1.60/kg. The current cost of Material P4 is £3.60/kg.

  Note 3: It is estimated that the components (part number 678) could be bought in for £50 each.
- *Labour requirements:* Each component would require five hours of skilled labour and five hours of semi-skilled. A skilled employee is available and is currently paid £14/hour. A replacement would, however, have to be obtained at a rate of £12/hour for the work that would otherwise be done by the skilled employee. The current rate for semi-skilled work is £10/hour and an additional employee could be appointed for this work.
- *General manufacturing costs:* It is JB Limited's policy to charge a share of the general costs (rent, heating and so on) to each contract undertaken at the rate of £20 for each machine hour used on the contract. If the contract is undertaken, the general costs are expected to increase as a result of undertaking the contract by £3,200.

Spare machine capacity is available and each component would require four machine hours. A price of £200 a component has been offered by the potential customer.

Required:

(a) Should the contract be accepted? Support your conclusion with appropriate figures to present to management.

(b) What other factors ought management to consider that might influence the decision?

The solution to this question can be found at the back of the book on p. 514.

SUMMARY

The main points of this chapter may be summarised as follows:

Cost–benefit analysis

- Involves a careful weighing of the costs and benefits of plans and decisions.
- To be worthwhile, benefits should exceed the associated costs.
- Not all costs and benefits can be measured in monetary terms.

Relevant and irrelevant costs

- Relevant costs must:
  - relate to the objective being pursued by the business;
  - be a future cost; and
  - vary with the decision.
- Relevant costs therefore include:
  - opportunity costs; and
  - differential future outlay costs.
- Irrelevant costs therefore include:
  - all past (or sunk) costs;
  - all committed costs; and
  - non-differential future outlay costs.

Relevant cost of labour and materials

- The relevant cost of labour will vary according to whether the business is operating with spare capacity or is operating at full capacity.
- The relevant cost of materials will vary according to whether the materials are held in inventories and whether they need to be replaced.

Non-measurable costs and benefits

- Should provide an input to the final plans or decisions.
- Managers must rely on judgement when attaching weights to these items.

KEY TERMS

For definitions of these terms, see Appendix A.

Benefit p. 41
Cost p. 41
Cost–benefit analysis p. 41
Opportunity cost p. 42
Historic cost p. 42
Relevant cost p. 43
Irrelevant cost p. 43
Past cost p. 43
Outlay cost p. 43
Sunk cost p. 46
Committed cost p. 46
Sunk cost fallacy p. 47

FURTHER READING

If you would like to explore the topics covered in this chapter in more depth, we recommend the following:

Drury, C. (2015) *Management and Cost Accounting*, 9th edn, Cengage Learning, Chapter 9.

Hilton, R. and Platt D. (2014) *Managerial Accounting*, Global edn, McGraw-Hill Education, Chapter 14.

Bhimani, A., Horngren, C., Datar, S. and Rajan, M. (2015) *Management and Cost Accounting*, 6th edn, Pearson, Chapter 10.

Kaplan, R., Atkinson, A., Matsumura, E. and Young, S.M. (2011) *Management Accounting*, 6th edn, Prentice Hall, Chapter 3.

REVIEW QUESTIONS

Solutions to these questions can be found at the back of the book on p. 527.

2.1 To be relevant to a particular decision, a cost must have three attributes. What are they?

2.2 Distinguish between a sunk cost and an opportunity cost.

2.3 Define the word 'cost' in the context of management accounting.

2.4 What is meant by the expression 'committed cost'? How do committed costs arise?

EXERCISES

Those with coloured numbers have solutions given at the back of the book on pp. 536–539.

Basic-level exercises

2.1 Lombard Ltd has been offered a contract for which there is available production capacity. The contract is for 20,000 identical items, manufactured by an intricate assembly operation, to be produced and delivered in the next few months at a price of £80 each. The specification for one item is as follows:

Assembly labour	4 hours
Component X	4 units
Component Y	3 units

There would also be the need to hire equipment, for the duration of the contract, at an outlay cost of £200,000.

The assembly is a highly skilled operation and the workforce is currently underutilised. It is the business's policy to retain this workforce on full pay in anticipation of high demand next year, for a new product currently being developed. There is sufficient available skilled labour to undertake the contract now under consideration. Skilled workers are paid £15 an hour.

Component X is used in a number of other sub-assemblies produced by the business. It is readily available. 50,000 units of Component X are currently held in inventories. Component Y was a special purchase in anticipation of an order that did not in the end materialise. It is, therefore, surplus to requirements and the 100,000 units that are currently held may have to be sold at a loss. An estimate of various values for Components X and Y provided by the materials planning department is as follows:

Component	*X* *£/unit*	*Y* *£/unit*
Historic cost	4	10
Replacement cost	5	11
Net realisable value	3	8

It is estimated that any additional relevant costs associated with the contract (beyond the above) will amount to £8 an item.

Required:
Analyse the information and advise Lombard Ltd on the desirability of the contract.

2.2 The local authority of a small town maintains a theatre and arts centre for the use of a local repertory company, other visiting groups and exhibitions. Management decisions are taken by a committee that meets regularly to review the financial statements and to plan the use of the facilities.

The theatre employs a full-time, non-performing staff and a number of artistes at total costs of £9,600 and £35,200 a month, respectively. The theatre mounts a new production every month for 20 performances. Other monthly costs of the theatre are as follows:

	£
Costumes	5,600
Scenery	3,300
Heat and light	10,300
A share of the administration costs of the local authority	16,000
Casual staff	3,520
Refreshments	2,360

On average the theatre is half full for the performances of the repertory company. The capacity and seat prices in the theatre are:

200 seats at £24 each
500 seats at £16 each
300 seats at £12 each

In addition, the theatre sells refreshments during the performances for £7,760 a month. Programme sales cover their costs, and advertising in the programme generates £6,720 a month.

The management committee has been approached by a popular touring group, which would like to take over the theatre for one month (25 performances). The group is prepared to pay the local authority half of its ticket income as a fee for the use of the theatre. The group expects to fill the theatre for 10 nights and achieve two-thirds capacity on the remaining 15 nights. The prices charged are £2 less than normally applies in the theatre.

The local authority will, as normal, pay for heat and light costs and will still honour the contracts of all artistes and pay the non-performing employees who will sell refreshments, programmes and so on. The committee does not expect any change in the level of refreshments or programme sales if they agree to this booking.

Note: The committee includes the share of the local authority administration costs when making profit calculations. It assumes occupancy applies equally across all seat prices.

Required:

(a) On financial grounds should the management committee agree to the approach from the touring group? Support your answer with appropriate workings.

(b) What other factors may have a bearing on the decision by the committee?

2.3 Andrews and Co. Ltd has been invited to tender for a contract. It is to produce 10,000 metres of an electrical cable in which the business specialises. The estimating department of the business has produced the following information relating to the contract:

- *Materials:* The cable will require a steel core, which the business buys in. The steel core is to be coated with a special plastic, also bought in, using a special process. Plastic for the covering will be required at the rate of 0.10 kg/metre of completed cable.
- *Direct labour:*

Skilled:	10 minutes/metre
Unskilled:	5 minutes/metre

The business already holds sufficient of each of the materials required to complete the contract. Information on the cost of the inventories is as follows:

	Steel core *£/metre*	*Plastic* *£/kg*
Historic cost	1.50	0.60
Current buying-in cost	2.10	0.70
Scrap value	1.40	0.10

The steel core is in constant use by the business for a variety of work that it regularly undertakes. The plastic is a surplus from a previous contract where a mistake was made and an excess quantity ordered. If the current contract does not go ahead, this plastic will be scrapped.

Unskilled labour, which is paid at the rate of £7.50 an hour, will need to be taken on specifically to undertake the contract. The business is fairly quiet at the moment which means that a pool of skilled labour exists that will still be employed at full pay of £12 an hour to do nothing if the contract does not proceed. The pool of skilled labour is sufficient to complete the contract.

Required:
Indicate the minimum price at which the contract could be undertaken, such that the business would be neither better nor worse off as a result of doing it.

Intermediate-level exercises

2.4 SJ Services Ltd has been asked to quote a price for a special contract to render a service that will take the business one week to complete. Information relating to labour for the contract is as follows:

Grade of labour	*Hours required*	*Basic rate/hour*
Skilled	27	£24
Semi-skilled	14	£18
Unskilled	20	£14

A shortage of skilled labour means that the necessary staff to undertake the contract would have to be moved from other work that is currently yielding an excess of sales revenue over labour and other costs of £8 an hour.

Semi-skilled labour is currently being paid at semi-skilled rates to undertake unskilled work. If the relevant members of staff are moved to work on the contract, unskilled labour will have to be employed for the week to replace them.

The unskilled labour actually needed to work on the contract will be specifically employed for the week of the contract.

All labour is charged to contracts at 50 per cent above the rate paid to the employees, so as to cover the contract's fair share of the business's general costs (rent, heating and so on). It is estimated that these general costs will increase by £50 as a result of undertaking the contract.

Undertaking the contract will require the use of a specialised machine for the week. This machine is currently being hired out to another business at a weekly rental of £175 on a week-by-week contract.

To derive the above estimates, the business has had to spend £300 on a specialised study. If the contract does not proceed, the results of the study can be sold for £250.

An estimate of the contract's fair share of the business's rent is £150 a week.

Required:
Deduce the minimum price at which SJ Services Ltd could undertake the contract such that it would be neither better nor worse off as a result of undertaking it.

2.5 A business in the food industry is currently holding 2,000 tonnes of material in bulk storage. This material deteriorates with time. In the near future, it will, therefore, be necessary for it to be repackaged for sale or sold in its present form.

The material was acquired in two batches: 800 tonnes at a price of £40 a tonne and 1,200 tonnes at a price of £44 a tonne. The current market price of any additional purchases is £48 a tonne. If the business were to dispose of the material, in its present state, it could sell any quantity but for only £36 a tonne; it does not have the contacts or reputation to command a higher price.

Processing this material may be undertaken to develop either Product A or Product X. No weight loss occurs with the processing, that is, 1 tonne of the material will make 1 tonne of A or X. For Product A, there is an additional cost of £60 a tonne, after which it will sell for £105 a tonne. The marketing department estimates that a maximum of 500 tonnes could be sold in this way.

With Product X, the business incurs additional costs of £80 a tonne for processing. A market price for X is not known and no minimum price has been agreed. The management is currently engaged in discussions over the minimum price that may be charged for Product X in the current circumstances. Management wants to know the relevant cost per tonne for Product X so as to provide a basis for negotiating a profitable selling price for the product.

Required:
Identify the relevant cost per tonne for Product X, given sales volumes of X of:

(a) up to 1,500 tonnes
(b) over 1,500 tonnes, up to 2,000 tonnes
(c) over 2,000 tonnes.

Explain your answer.

Advanced-level exercises

2.6 A local education authority is faced with a predicted decline in the demand for school places in its area. It is believed that some schools will have to close in order to remove up to 800 places from current capacity levels. The schools that may face closure are referenced as A, B, C and D. Their details are as follows:

- *School A* (capacity 200) was built 15 years ago at a cost of £1.2 million. It is situated in a 'socially disadvantaged' community area. The authority has been offered £14 million for the site by a property developer.

- *School B* (capacity 500) was built 20 years ago and cost £1 million. It was renovated only two years ago at a cost of £3 million to improve its facilities. An offer of £8 million has been made for the site by a business planning a shopping complex in this affluent part of the area.
- *School C* (capacity 600) cost £5 million to build five years ago. The land for this school is rented from a local business for an annual cost of £300,000. The land rented for School C is based on a 100-year lease. If the school closes, the property reverts immediately to the owner. If School C is not closed, it will require a £3 million investment to improve safety at the school.
- *School D* (capacity 800) cost £7 million to build eight years ago; last year £1.5 million was spent on an extension. It has a considerable amount of grounds, which is currently used for sporting events. This factor makes it attractive to developers, who have recently offered £9 million for the site. If School D is closed, it will be necessary to pay £1.8 million to adapt facilities at other schools to accommodate the change.

In its accounting system, the local authority depreciates non-current assets based on 2 per cent a year on the original cost. It also differentiates between one-off, large items of capital expenditure or revenue, on the one hand, and annually recurring items, on the other.

The local authority has a central staff, which includes administrators for each school costing £200,000 a year for each school, and a chief education officer costing £80,000 a year in total.

Required:

(a) Prepare a summary of the relevant cash flows (costs and revenues, relative to not making any closures) under the following options:

(1) closure of D only

(2) closure of A and B

(3) closure of A and C.

Show separately the one-off effects and annually recurring items, rank the options open to the local authority and, briefly, interpret your answer. *Note*: Various approaches are acceptable provided that they are logical.

(b) Identify and comment on any two different types of irrelevant cost contained in the information given in the question.

(c) Discuss other factors that might have a bearing on the decision.

2.7 Rob Otics Ltd, a small business that specialises in manufacturing electronic-control equipment, has just received an enquiry from a potential customer for eight identical robotic units. These would be made using Rob Otics's own labour force and factory capacity. The product specification prepared by the estimating department shows the following:

- Material and labour requirements for each robotic unit:

Component X	2 per unit
Component Y	1 per unit
Component Z	4 per unit
Assembly labour	25 hours per unit (but see below)
Inspection labour	6 hours per unit

As part of the costing exercise, the business has collected the following information:

- *Component X.* This item is normally held by the business as it is in constant demand. There are 10 units currently held which were bought for £150 a unit. The sole supplier of Component X has announced a price rise of 20 per cent, effective immediately, for any further supplies. Rob Otics has not yet paid for the items currently held.