

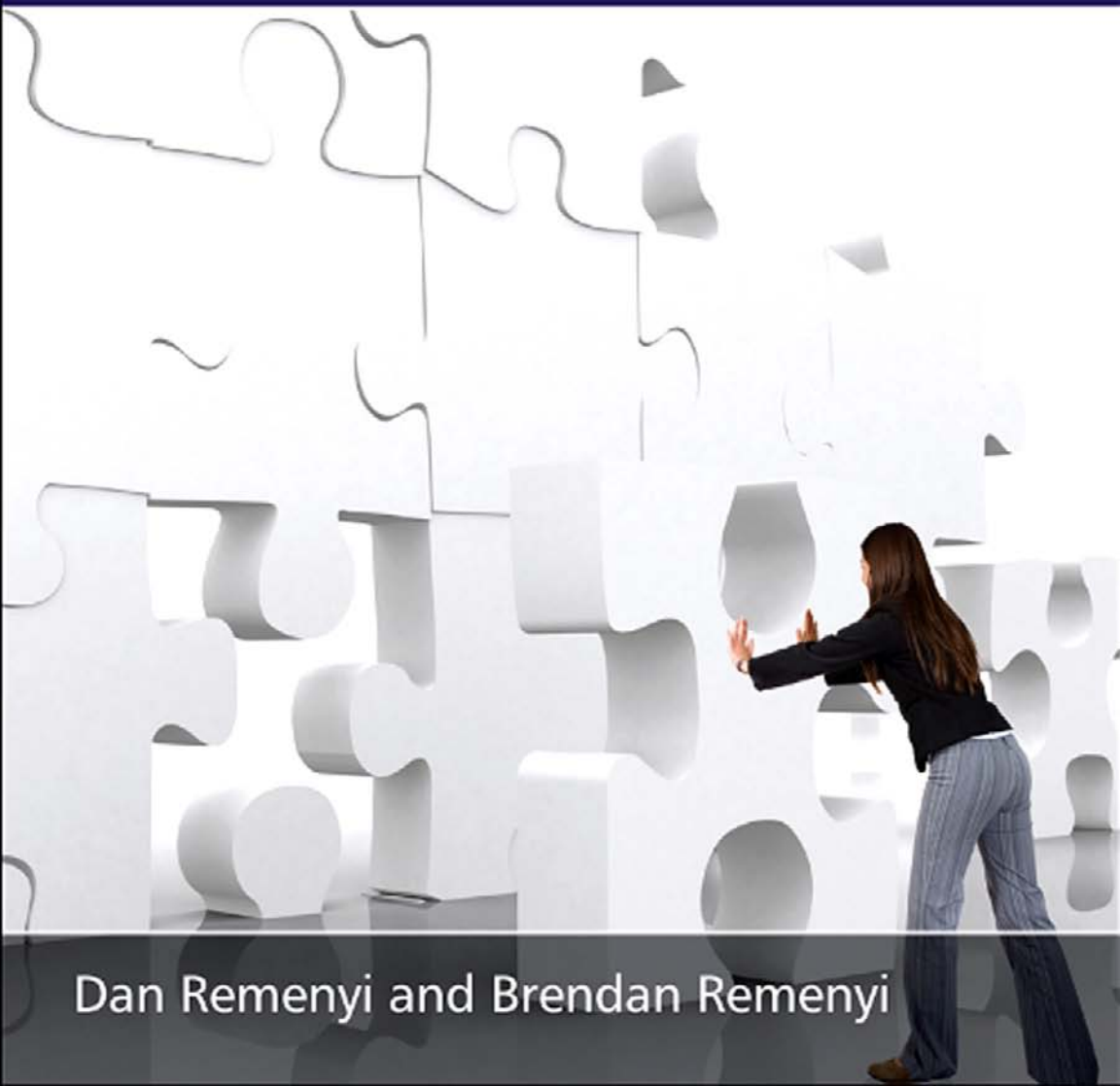


CIMA

PUBLISHING

How to Prepare Business Cases

A practical guide for accountants



Dan Remenyi and Brendan Remenyi

How to Prepare Business Cases

This page intentionally left blank

How to Prepare Business Cases

A Practical Guide for Accountants

Dan Remenyi & Brendan Remenyi



ELSEVIER

AMSTERDAM • BOSTON • HEIDELBERG • LONDON • NEW YORK • OXFORD
PARIS • SAN DIEGO • SAN FRANCISCO • SINGAPORE • SYDNEY • TOKYO

CIMA Publishing is an imprint of Elsevier

CIMA

PUBLISHING

CIMA Publishing is an imprint of Elsevier
Linacre House, Jordan Hill, Oxford OX2 8DP, UK
30 Corporate Drive, Suite 400, Burlington, MA 01803, USA

First edition 2009

Copyright © 2009 Academic Conferences Limited. Published by Elsevier Ltd.
All rights reserved

No part of this publication may be reproduced, stored in a retrieval system
or transmitted in any form or by any means electronic, mechanical,
photocopying, recording or otherwise without the prior written permission
of the publisher

Permissions may be sought directly from Elsevier's Science & Technology Rights
Department in Oxford, UK: phone (+44) (0) 1865 843830; fax (+44) (0) 1865 853333;
email: permissions@elsevier.com. Alternatively you can visit the Science and
Technology books website at www.elsevierdirect.com/rights for further details

Notice

No responsibility is assumed by the publisher for any injury and/or damage to persons
or property as a matter of products liability, negligence or otherwise, or from any use or
operation of any methods, products, instructions or ideas contained in the material
herein

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

Library of Congress Cataloging-in-Publication Data

A catalog record for this book is available from the Library of Congress

978-1-85617-666-8

For information on all CIMA publications
visit our website at elsevierdirect.com

Printed and bound in Great Britain

09 10 11 12 10 9 8 7 6 5 4 3 2 1

Working together to grow
libraries in developing countries

www.elsevier.com | www.bookaid.org | www.sabre.org

ELSEVIER

BOOK AID
International

Sabre Foundation

Contents

Preface	xi
About the Authors	xiii
How to Use this Book	xv
1 Why a Business Case for Investment?	1
1.1 Introduction	3
1.2 The comprehensive business case	8
1.3 A business case as a model	9
1.4 Definition of a business case	10
1.5 Corporate culture is central to a business case	12
1.6 A caution	13
1.7 Who owns the business case?	14
1.8 Summary	15
2 Different Investment Decisions and the Business Case	17
2.1 Investment decisions and the business case	19
2.2 Must-do investments	20
2.3 A core business investment decision	20
2.4 Investment in a prestige project	23
2.5 Investments in research and development	25
2.6 Investment matrix and the business case	26
2.7 Intangible benefits	28

2.8 The Protean nature of investment business cases	28
2.9 Summary	29
3 Preparing a Business Case	31
3.1 Introduction	33
3.2 The elements of a business case	34
3.3 The consensus issue	36
3.4 The acceptance of change	36
3.5 Accuracy of estimation	39
3.6 Strategic alignment	40
3.7 Technology	40
3.8 Risk – project and system	41
3.9 An investment business case as a process	41
3.10 Multi-stage large scale investments	42
3.11 Summary	44
4 The Art of Evaluation	45
4.1 Introduction	47
4.2 Evaluation and the business case	47
4.3 Traditional business evaluation	48
4.4 Dimensions of evaluation	50
4.5 Other evaluation issues	54
4.6 A professional approach to the evaluation process	55
4.7 A word about assumptions	55
4.8 Summary	56
5 The Business Outcome	59
5.1 Introduction	61
5.2 Outcome statement or statements	62

5.3 Another example of the macro-model for a sales administration system	67
5.4 Meso-model	69
5.5 How to develop a meso-model	72
5.6 Generic categories of benefit	73
5.7 Micro-model	75
5.8 Summary	77
6 The Stakeholders	79
6.1 Introduction	81
6.2 The importance of stakeholders	82
6.3 The stakeholder	82
6.4 The three major groups of stakeholders	83
6.5 The investment owners as stakeholders	83
6.6 Technical professionals as stakeholders	85
6.7 Financial managers and administrators as stakeholders	85
6.8 Different stakeholders – different views	86
6.9 Stakeholders – for and against	88
6.10 Stakeholder mapping	90
6.11 Stakeholder management	93
6.12 The stakeholders and the business case	96
6.13 Summary	98
7 Strategic Alignment and Benefit Identification	99
7.1 Introduction	101
7.2 Strategy? What strategy?	101
7.3 Approaches to strategic thinking	103
7.4 The five forces model	103

7.5	Generic strategies model	104
7.6	The value chain model	105
7.7	Strategy and the value package	109
7.8	The question of strategic alignment	112
7.9	Shifting sands	115
7.10	Summary	115
8	Technology Issues	117
8.1	Introduction	119
8.2	Understanding required by the principal stakeholders	120
8.3	A difficult challenge	120
8.4	Create a technology statement	121
8.5	Checklist to assist completing the technology statement	125
8.6	Summary	126
9	Risk – Conceptualising and Measuring	127
9.1	Introduction	129
9.2	Defining risk	130
9.3	A 3 × 3 risk framework for project risk	131
9.4	Other types of project risk	132
9.5	'Bad' ideas	136
9.6	Incorporating risk in the business case	137
9.7	Quantifying and managing risk	138
9.8	Another approach to risk quantification	140
9.9	Summary	143
10	Business Case Accounting	145
10.1	Introduction	147
10.2	Basic approach	147

10.3	Cost framework	148
10.4	Basic concepts required for business case accounting	150
10.5	Detailed cost items	157
10.6	Pattern of costs	159
10.7	Sources of cost estimates	160
10.8	Sources of benefit estimates	160
10.9	Different approaches to business case accounting	161
10.10	Combining these approaches to business case accounting	169
10.11	Difficulty in estimating investment variables	169
10.12	Using deterministic analysis	171
10.13	Using risk analysis	173
10.14	A risk analysis example	174
10.15	Investment decision rules	176
10.16	Leasing	177
10.17	Summary	179
11	Evaluating a Business Case	181
11.1	The preparation of a business case is challenging	183
11.2	The hallmark of a professionally produced business case	184
11.3	Summative and formative evaluations	185
11.4	A checklist for evaluating a business case	186
11.5	Weighting and scoring for prioritising projects	189
11.6	Summary	191
12	Using the Business Case as a Project Management Tool	193
12.1	Introduction	195
12.2	Phases of investment project management	196

12.3 A reiterative process	196
12.4 A route to successful IT implementation	197
12.5 Summary	201

Appendices 203

Appendix A Business outcome details	205
Appendix B Stakeholder details	209
Appendix C Strategy	211
Appendix D Technology	213
Appendix E Cost benefit analysis	215
Appendix F Evaluating a business case	223
Appendix G Dealing with risk	225
Appendix H Financial measures used in cost-benefit analysis	227
Appendix I Glossary of terms	231
Appendix J Bibliography	239

Index 245

Preface

Investment has never been more important to business success. At the same time knowing how to invest appropriately for business sustainability and growth has never been more difficult. The old ideas of simple numeric cost benefit analysis are no longer viable in the complex and turbulent times of the twenty-first century.

What is needed today is a deeper understanding of the existing business model and a view of how the investment will lead to better business performance. This book describes how this can be done through the use of a business case.

A business case takes a multi-lens view of a business opportunity and examines how it may be made to deliver the desired results. This is a complex process and requires the organisation to reflect on and understand a wide range of issues. The issues include its corporate strategy, its stakeholders and their views, its technology employment as well as the financial issues and risks involved. Whereas cost-benefit analysis was almost exclusively focused on financial number the business case uses numbers more appropriately to support the business ideas. Furthermore by involving the major stakeholders a business case is likely to represent a more objective view of the potential of the investment to deliver the required benefits. This encourages organisations to move away from the position whereby investments were made only on the whim of top management.

But there are two important issues which have to be mentioned. A business case is not a business event in its own right with a stream of corresponding benefits. At best a business case is a statement of intention which will provide a sound route map from which a project may be initiated.

A business case is also a great foundation and a loadstone for business success. But intentions and plans alone do not do the trick in business. There is an aphorism which says that *Fine words butter no parsnips* and this is especially true when it comes to business success. It is the actions of all the individuals at all levels in the organisation which produce the benefits and thus the profits. In this respect a well prepared business may serve as a *call to action* for the organisation. The second issue relates to the protean nature of business cases. Nothing stands still in the helter skelter world of the twenty-first century. So what is an opportunity one week may not be so a week later. The aphorism here is much older than the one quoted above and is in the original *carpe diem* – size the day or opportunity seldom knocks twice.

Producing comprehensive business cases is sound business practice and every organisation should incorporate the process of business case development into their investment routines. The payback on the production of a business case can be extraordinarily large.

Dan Remenyi

dan.remenyi@mcil.co.uk

About the Authors

Dr Dan Remenyi has specialised in the area of the formulation and the implementation of strategic information systems and how to evaluate the performance of these and other systems. He has also worked extensively in the field of information systems project management specialising in the area of project risk identification and management. He has written a number of books and papers in the field of IT management and regularly conducts courses and seminar as well as working as a consultant in this area.



Dan Remenyi holds a B.Soc.Sc., an MBA and a PhD. He is a Visiting Professor in the School of Data and Systems Studies at Trinity College in Dublin and a visiting academic fellow at Henley Business School in the United Kingdom.

E-mail: dan.remenyi@mcil.co.uk

Brendan Remenyi completed a Diploma in Electrical Engineering and then spent some twelve years working with a large range of projects in Africa, Europe and North America. He then established a specialized ICT bureau offering computer aided design facilities to the clothing industry in Montreal. During this period he continually developed business cases for his organization and that of their clients including such projects as ISO9002 certification and establishing a computer aided manufacturing division deploying multiple robotic systems. In recent years his focus has shifted to cases involving cultivating growth within e-Business enhanced applications.



In addition to his involvement with the ICT industry he has served as a subject matter expert in the development of examinations for the Canadian government's recreational boating competency card. Brendan is an instructor with the Canadian Power Squadron and teaches novices basic boating/navigational skills required to obtain a competency certificate.

How to Use this Book

This book offers practical hands-on type advice as to how to prepare a business case for investment. The text of the book is supported by a series of forms which are shown in the Appendices and these forms are available electronically if required.

It is not necessary to read this book from page one as readers may prefer to dip into the book for Chapters which are particularly relevant to them.

Chapters 1 and 2, focus on why it is necessary to create a business case for an investment.

Chapters 3 and 4 move on to look at what preparation is required within the organisation before a business case can be developed.

Chapter 5 discusses the range of business outcomes, which are defined at three different levels, macro, i.e. high level, meso, i.e. some detail and micro, i.e. fully detailed financial statement.

Chapters 6, 7, 8 and 9 cover the management issues on which the business case is actually built. These include identifying and understanding the business strategy, investment stakeholders, the technology and the risks. As this is perhaps the most difficult aspect of preparing a business case, readers may need to spend more time considering these issues.

Chapter 10 addresses the issue of business case accounting. A variety of different approaches are discussed and the reader will have to choose which approach is appropriate for different potential investment situations. Practical examples have been created in this chapter using Excel.

Chapter 11 shows how to evaluate competing business cases and Chapter 12 discusses the use of a business case as part of the project management process.

This page intentionally left blank



Why a Business Case
for Investment?

This page intentionally left blank

Our lives teem with numbers, but we sometimes forget that numbers are only tools. They have no soul; they may indeed become fetishes. Many of our most critical decisions are made by computers, contraptions that devour numbers like voracious monsters and insist on being nourished with ever-greater quantities of digits to crunch, digest, and spew back.

P Bernstein, *Against the Gods* (1996, p. 7)

The difficulty lies, not in the new ideas, but in escaping from the old ones.

John Maynard Keynes, *The general Theory of Employment, Interest and Money* (1964)

1.1 Introduction

A new approach to develop a business case for investment which will directly help the organisation produce improved results is long overdue. But before embarking on a detailed discussion of how business case for investment may be used to optimise returns on investment it is important to make clear what is meant by investment. The word investment is used in business in a number of different senses. The owners of the business had to invest in order to bring about the existence of the business. They had to supply some share capital and perhaps some loans. The money required to do this is referred to as investment and this is what this book is about. Sometimes a business may purchase shares in another business and this is referred to as investing in the other business. This book does not deal with the evaluation of such purchases, although many of the techniques used in these two activities have a lot in common.

The money spent by the business to acquire the assets which the business needs to function is also referred to as investment. These assets may consist of land and buildings, factories, machinery and equipment, information and communications technology systems,¹ vehicles of all sizes etc. In general when money is spent on fixed assets we speak of the outlay for these

¹ Research suggests that more than 50% of all funds invested by organisations is spent on information and communications technology systems.

Fixed Assets	Current Assets	Intangible Assets
Land	Inventory	Trademarks
Buildings	Debtors	Copyrights
Machinery and equipment	Prepayments	Goodwill
ICT Systems	Cash in bank	Other Intellectual Property Rights
Vehicles		

Figure 1.1 The three types of investment assets which an organisation display in its balance sheet

items as being investments in the business. There are other assets in which an organisation has to spend its resources on including inventories, debtors, prepaid expenses etc. These items are referred to as current assets and they also require investment. Current assets are also referred to as working capital.² Finally there are intangible investments which include items such as trademarks, copyrights and goodwill and funds may be required for these. It is sometimes difficult to value these intangible assets but it is worth mentioning that the value of goodwill is the difference between the net asset value of a business and the price which was paid for it. Thus if goodwill appears in the accounts of a business it means that another business has been previously purchased. An organisation's typical asset profile is shown in [Figure 1.1](#).

Investment money needs to be contrasted with current expenditure. We pay monthly or weekly salaries or wages. This is not investment but expenses or disbursements. The same would be said of all other business costs which are used up at the time they are paid for.

It is important to give at least one example of the misuse of the word investment. Sometimes it is said that sending staff on a course is investing in them and the company's future. Strictly speaking this is not an investment but rather an expense – using the word investment sounds better and gives

² The strict definition of working capital is current assets less current liabilities.

the impression that the benefit is intended to last some time.³

Some organisations talk about their having an investment cycle. The cycle refers to the process of identifying an investment opportunity, developing a business case, spending the money, making sure that the investment works and reporting on the success (or failure) of the investment. This book limits itself to how to evaluate a proposed investment in fixed assets and any expansion in the current assets which might accompany an increase in fixed assets.

Historically, organisations have frequently not bothered to produce a business case or if they have, they have tended to cobble together some financial figures based on a combination of historical records and/or semi-valid assumptions and estimates. Sometimes organisations have produced so-called cost-benefit analysis or even feasibility studies in the form of rather simplistic financial generalisations about paybacks and return on investment⁴ that have not looked carefully at the business issues involved with or behind the actual investment. On the other hand these cost-benefit analysis or feasibility studies have sometimes led to confusion and redundant effort which was clearly demonstrated by Drucker when he said:

We have known for a long time that there is no one right way to analyse a proposed capital investment. To understand it we need at least six analyses: the expected rate of return: the payout period and the investment's expected productive life: the discounted present value of all returns through the productive lifetime of the investment: the risk in not making the investment or deferring it: the cost and risk in case of failure: and finally the opportunity cost. (Drucker, 1988)

³ This is not a book on accounting so I will not venture into the grey area between business expenses and business investment. Suffice it to say that the rules for declaring an item an investment as opposed to an expense and vice versa are open to a degree of interpretation.

⁴ Both payback and return on investment are critical issues in a comprehensive business case where they are supported by other detailed considerations. Chapter 9 will examine these ratios in some detail.

Cost-benefit analysis, which may be defined as a financial statement reflecting the expected expenditure and the possible quantifiable benefits, does not on its own constitute a complete or comprehensive, or a properly rigorous business case. Cost-benefit analysis is typically only a relatively small part of a bigger story, and Fig. 1.2 shows what might be considered as the relative significance of cost-benefit analysis in a comprehensively produced business case.

The comprehensively produced business case is a greater piece of work than the relatively superficial cost-benefit analysis.

Besides cost-benefit analysis a comprehensively produced business case needs to consider a number of other issues such as the stakeholders, the strategic alignment potential of the investment, the technology involved and the various risks associated with the project. Just gathering financial estimates is simply not enough in the twenty-first century. The reason for this has been well summarised by Laudon in the information and communication technology context when he said:

Building an information system, ... an online, distributed, integrated customer service system, ... is generally not an exercise in 'rationality'. It is a statement of war or at the very least a threat to all interests that are in any way involved with customer service.
(Laudon, 1989)

Thus a traditional cost-benefit analysis in a feasibility study is simply not adequate or rigorous enough for an appropriate

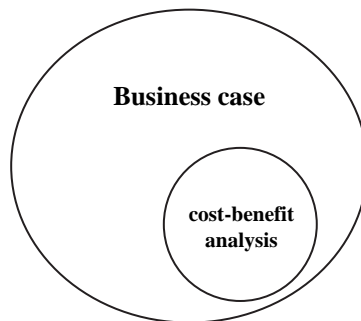


Figure 1.2 Cost-benefit analysis as a sub-set of the business case

understanding of the important issues involved in an investment which may go to the heart of the business.⁵

This traditional lack of rigour in business case development has occurred because it has been thought that the key business issues do not easily lend themselves to proper business analysis, let alone sensible financial quantification. This pessimistic view is not as eccentric as it might first sound. It is supported by no less a personage than John Maynard Keynes who is still regarded by many as being one of the greatest economists on the twentieth century. Keynes pointed out as far back as 1936 that the analysis of future business investment was extremely difficult, when he said:

We are merely reminding ourselves that human decision affecting the future, whether personal or political or economic, cannot depend on strict mathematical expectations, since the basis for making such calculations does not exist; and that it is our innate urge to activity which makes the wheels go round, our rational selves choosing between the alternatives as best we are able, calculating where we can, but often falling back for our motive or whim or sentiment or chance. (Keynes 1964)

He went on to say:

Our knowledge of the factors which will govern the yield of an investment some years hence is usually very slight and often negligible. If we speak frankly, we have to admit that our basis of knowledge for estimating the yield ten years hence ... amounts to little and sometimes to nothing; or even five years hence. (Keynes, 1964)

There are of course those who would say that the comment of Keynes should have referred to three years hence or even one year hence. This remark goes some way to explain why cost-benefit analysis for investments sometimes has so little credibility and why it is sometimes simply seen as satisfying capital budgeting bureaucratic requirements.

⁵ Of course not all investments are of this type. But increasingly organisations want to find investment opportunities that will deliver the type of competitive advantage potential referred to here.

Despite Keynes' comments, financial quantification of the costs and benefits related to an investment, even when imperfectly estimated, are useful to managers and to the business. But it is important to understand that they are always only part of the greater overall picture. By the way there is a range of approaches to cost-benefit analysis and it is important to comment on the impact of Zero Based Budgeting techniques. Some organisations when creating a set of financial figures for an investment will extract the figures used last time and adjust them for inflation and business growth. This approach is sometimes called the traditional approach to budgeting and there are numerous reasons why this is a flawed approach. The Zero Based Budgeting approach is not simply based on adjusted historical figures but on current estimates of costs and benefits. But the issue here is that estimates of costs and benefits for capital investment are only part of the picture.

One of the recurring criticisms of the traditional approach, or even a Zero Based approach, to cost-benefit analysis has been that it was too easy to produce cost-benefit numbers that were based on unsafe assumptions. Thus although a cost-benefit statement may include an impressive array of numbers which purport to represent all the appropriate cost items required to build a new factory, they could be based on totally unfounded guesses or questionable assumptions. This is an even greater problem when it comes to the estimation of the improved benefits from the investment. Because of the fact that some cost-benefit statements have been based on questionable assumptions their credibility has frequently been put in question. Managers, who can sometimes be quite cynical, just do not believe the estimates that are sometimes produced, and this has led to the problem of obtaining the appropriate level of stakeholder commitment. And it is often said that the appropriate level of stakeholder commitment is the single most important factor towards ensuring the success of any investment project.

1.2 The comprehensive business case

A comprehensive investment business case involves a process which looks beyond financial estimates to the central business

issues concerning the processes and practices that are the fundamental reasons why organisations invest. This does not imply that financial estimates are not frequently of critical importance, but because of their inability to capture certain issues, financial figures alone are not sufficient for a full business justification of an investment. At the same time it is important to understand that the estimates, financial and others, which are used for investment evaluation, are always opinions about the future and are thus often not as accurate as is suggested or thought.

Furthermore the traditional approaches to understand the nature of the costs and the benefits of an investment have usually missed an important opportunity, because a well-constructed business case or investment proposal is an important tool in the process of managing the investment itself. As investments have become increasingly more sophisticated, and as they increasingly require larger and larger amounts of funds, it is important that a comprehensive and professional approach to developing business cases be employed.

1.3 A business case as a model

A business case for an investment is a model⁶ of what the organisation expects to be able to achieve when it uses the investment to support improvements in its process and practices. It is a sophisticated model which is produced to facilitate decision making and to help in this respect with what-if questions.

The business case model may be created at different levels. A high-level or macro-model may be produced which addresses general issues at a high level. The purpose of the macro-model

⁶ The word model is used to describe a wide range of different things. A model may be a representation of an artefact, a construction, a system or an event or sequence of events. The representation may be abstracted into symbols, equations and numbers, i.e. mathematical expectations; it may consist of a picture or a drawing, or a fabricated likeness such as a model aeroplane, or it may be an expression of a situation or relationship in words.

is to present a conceptual picture which will contextualise the problem or opportunity which the organisation faces as well as provide a suggested solution. An intermediate or meso-level model adds some detail, and will also express the dimensions of the problem and proposed solution, but will still be expressed primarily in generalities. A detailed or micro-level model attempts to be closer to the actual activities which will be required and thus to use specific values. The primary purpose of the micro-model is to understand the detailed impact of the proposed investment. However, all the models are by their nature simplifications of the reality which they represent. In fact sometimes the simpler the model the more useful it may be. Complex models may actually cloud the central nature of the issues being studied and thus reduce the explanatory power and consequently the value of the model.

1.4 Definition of a business case

A business case is a justification for pursuing a course of action in an organisational context to meet the stated organisational objectives or goals. A business case frequently involves assessing the value of an investment in terms of its potential benefits and the resources required to set it up and to sustain it, i.e. its on-going costs. One of the major difficulties in producing a business case is the fact that the benefits of an investment are often a function of the values of the organisation and the executives who are making the investment decisions. Thus a business case will inevitably have a significant degree of subjectivity associated with it. It is because of this potential to view the business issues subjectively through the eyes of the agendas of the different business groups involved that the individual developing the business case needs to be as objective as possible and strive for consensus among the stakeholders.

1.4.1 Components of an IT business case

A professionally produced business case or investment proposal consists of:

- (1) A clearly expressed business objective and set of outcomes. These high-level business outcomes need to be comprehensively expressed as a set of opportunities the organisation can take advantage of, or problems that need to be rectified; a list of specific and detailed benefits, their appropriate metrics, measuring methods and responsibility points represented by particular stakeholders, and a justification that the proposed plan will produce an acceptable organisational return. This involves the quantification, the contribution made by the outcomes, which requires associating financial numbers or benefit values with outcomes wherever possible;
- (2) A list of stakeholders and beneficiaries of the investment;
- (3) A statement of how the proposed investment will support the corporate strategy;
- (4) An evaluation of the appropriateness of any technology to be used;
- (5) An evaluation of the risks associated with the investment.

To be of value to an organisation the business case should be expressed in terms of identifiable or quantifiable objectives and actions. Thus it should start with the big picture of what will be achieved by the investment. It should be a multi-dimensional high-level picture of the intentions of the investment. Then a detailed drill-down exercise is needed to establish the precise outcomes, which can be seen in Fig. 1.3. These should be highlighted and expressed in such a way that they can be controlled by appropriate stakeholders, and that it

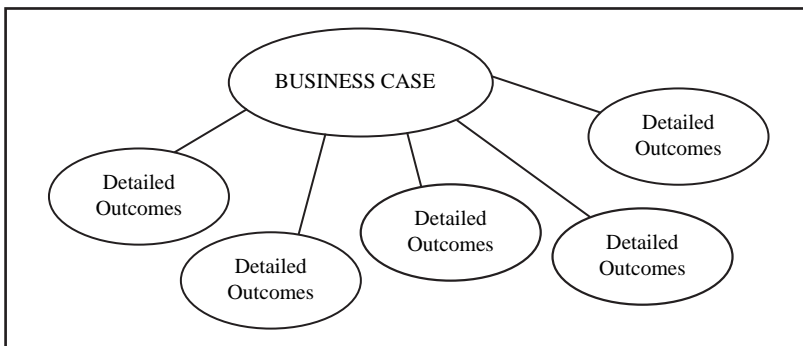


Figure 1.3 The multi-dimensional high-level picture is then drilled-down for detail

can be ascertained if these outcomes have actually been realised. Chapter 4 shows how this may be done by using a *macro*-, *meso*- and *micro*-model. Thus the business case is a cornerstone of the process of ensuring value-for-money investments.

In the final analysis a comprehensively produced business case is as much a plan as a justification. It is worth noting that very often a business case can only be formally produced after a considerable amount of initial work with stakeholders and process analysts has already been done. Thus the business case is not the first step in the process of introducing a new information system.

1.5 Corporate culture is central to a business case

It is critical to note that the approach to be taken in developing a business case is particular to each organisation, and its specific corporate culture.⁷ Consequently there is no uniquely correct approach nor is it possible to produce a template which will satisfy all or even most organisations. Despite this there are some helpful checklists discussed in this book. Copies are supplied in the appendices.

Corporate culture is central and is the determinant of the format of the business case. Possible approaches vary considerably and they differ in terms of the input to the business case, how the business case is calculated and processed within the organisation and the sort of results that are obtained. Corporate culture will also determine if the business case will be used as a management control device after the investment is made.

Some organisations require strong emphasis on detailed financial projections, while others believe that summary of financial figures is more than adequate. Some organisations are more interested in descriptions of how their new investment will change the way things are done and do not necessarily require these benefits to be quantified in detail.

⁷ In fact some corporate cultures will simply not require the production of a business case.

In some organisations top management determines the structure of the business case and it is handed down for more junior staff to action. In other cases the business case is essentially a bottom-up event where the individuals who will actually do the work will create the business case.

However whatever the particular culture the law of parsimony, sometimes known as *Occam's razor*,⁸ is always an important issue, i.e. a 20-page business case can be substantially more effective than a 200-page treatise. Also the business case should not take weeks or months to develop, nor should it cost a material proportion of the amount to be invested.

1.6 A caution

Before ending this section it would be remiss of us if we did not point out that the benefits of a business case (sometimes referred to as a business plan) may be exaggerated. One of the clearest examples of this exaggeration may be found on the website

<http://www.visitask.com/Business-plan-decision-making-tool.asp>

where it is said that:

By the time you have finished writing your Business Plan (the word case and plan could be interchanged here) you will have a total understanding of your business; its strengths and weaknesses, the environment it operates in, what could potentially go wrong, and what you can do to ensure your success.

There is no doubt that having a comprehensively developed business case or business plan is of considerable value but it also needs to be realised that planning is one thing and the execution of the plan is quite a different matter. This thought has been addressed a number of times in literature including

⁸ William of Occam (c. 1285–1349), a notable English monk, scholar and philosopher and theologian coined the expression, which translates into English as “It is vain to do with more what may be done with less”. The twentieth century equivalent of this is the KIS principle, which means Keep It Simple.

the famous book *Of Men and Mice* by Nobel Laureate John Steinbeck who said “The best-laid plans of mice and men often go awry”. Steinbeck had borrowed this thought from Robert Burns whose version of this thought was “The best laid schemes o’ mice an’ men, Gang aft agley”. In twenty-first century language this could be translated into *Planners Beware*.

1.7 Who owns the business case?

A question which is frequently raised is Who owns the business case? This is an important issue which needs to be addressed at an early stage in the business case process. Organisations do not expend large sums of money on fixed assets unless there is good reason for doing so. In order to make sure that such funds are not spent inappropriately, investments require a sponsor who is normally a senior member of the organisation’s executive team. The sponsor motivates the investment and becomes involved in the preparation of the business case. However it is highly unusual for a sponsor to become involved in the commissioning or even the operation of the investment. Once the investment business case has been approved then the work in bringing the investment into life is usually undertaken by a project management team. When the work of the project management team is finalised and the investment is commissioned, the organisation will normally appoint an investment champion. The role the investment champion is to ensure that the implementation works according to plan and that the ongoing costs are kept under control and that the ongoing benefits are realised.

Thus it may be seen that in a sense the business case will be owned by a number of different people at different stages in the creation and the operation of the investment. In the early stages the investment sponsor may be regarded as owning the business case. During the development phase the project manager becomes the owner of the business case. Once the project has been completed and is up and running then someone whom we referred to as the champion will take over and own a business case. Finally when the project has been well-bedded into the

organisation and its operation has become routine, a departmental head will normally own the investment. As investments are frequently audited – performance against projected costs and benefits the departmental head could be seen as the owner of the ongoing business case.

1.8 Summary

The current importance that is being attributed to the business case rests on the fact that investment evaluation is seen as a key strategy by which investment management can be improved. The main issues to which a comprehensively produced business case can contribute include:

- (1) Facilitating the creation of corporate knowledge and learning in terms of what is really expected from the investment and how to manage the development project better in order to achieve its objectives; this includes a full assessment of the viability of the investment project;
- (2) An opportunity to acquire the full commitment of the principal stakeholders who will have to play a part in ensuring the success of the investment; this includes creating a framework for stakeholder management which is central to ensuring that when the investment is commissioned there will be no surprises for any of the major stakeholders;
- (3) Understanding the risks involved in making the investment deliver the anticipated benefits; this includes putting into place any necessary precautions to reduce the risk or to counter its effects if it actually materialises.

If these three objectives are achieved then the investment in producing the business case will have more than paid off. Thus a business case represents a new way of thinking about investment, which is a major step in the professionalisation of corporate investment management.

This page intentionally left blank



2

Different Investment
Decisions and the
Business Case

This page intentionally left blank

Much of the knowledge required to make efficient economics decisions cannot be expressed as statistical aggregates but is highly idiosyncratic in nature.

Mary Lacity and Rudy Hirschheim, *Information Systems Outsourcing, Myths, Metaphors and Realities* (1995)

The apparent success of ROI for non-IT projects has led organisations to search for some other single technique which can deal with all IT projects in all circumstances. This quest for the 'one best method' is proving fruitless because of the range of circumstances to which that technique would have to be applied is so wide that no one technique can cope, even though some authors have claimed that the method they espouse provides the answer for all situations.

Barbara Farby, Frank Land and David Targett, *IT Investment – A Study of Methods and Practices* (1993)

2.1 Investment decisions and the business case

This chapter considers some characteristics of decisions about investment. Investment decisions are often complex and it is important that the organisation clearly understands what are the main objectives of the investment so that an appropriate approach may be taken to prepare a business case. The business case will differ considerably depending on what type of investment is being considered. At one end of the spectrum relatively simple business case may suffice while on other occasions the detailed and complex business case should be produced.

Generally an organisation only invests if it considers that the return on the capital utilised is sufficient to meet the long-term objectives or needs of the organisation. In other words the benefit gained is worth the expenditure. The capital utilised in this way costs the same whatever its intended application, and there are likely to be a number of ways the funds can be spent to gain a similar goal. It should therefore be expected that the same appraisal rules and criteria apply to all investment.

Four different types of investment may be discerned in many organisations. These are

- (1) Must-do investments
- (2) Core business investment

- (3) Investment in prestige projects
- (4) Investment in corn seed projects

Each of these four types of investments is examined.

2.2 Must-do investments

There will be occasions when an organisation undertakes an investment that gives no return at all or perhaps gives an intangible return that is difficult or impossible to measure. Complying with some legal requirements is an example of the first; PR or training might be examples of the second.

With Must-do investments a business case will not be discussed in any detail. A business case for a Must-do investment only involves establishing that the investment is being done at a good price. Because the organisation has no choice but to comply, there is little point in indulging in a formal justification or worrying about complex decision criteria. But, even in these cases, there is considerable merit in investigating, and costing, alternatives. If there are realistic alternatives, as there certainly are in the examples above, then the appropriate Must-do solution is often the cheapest. The more expensive solutions are optional. The additional expenditure, over and above that required for the cheapest solution, needs to be justified as though it were an optional project.

The cheapest solution is only the right choice if there is no question of the cheapest being of an inferior quality. The well known anecdote concerning the thoughts of the astronaut on the launch pad at NASA's Space Port was that he was sitting on a very large number of components all of which had been supplied by whichever organisation had the cheapest price.

2.3 A core business investment decision

Decisions about investment in core business are, by definition, what the organisation's managers know most about. The decision to re-equip the production line is relatively

easy to cost, so many machines at so much each, plus installation. The number of options will probably not be large, the new machines have to fit the existing space, work with the remaining machines and be capable of producing the product.

The benefits will be inherent in the reason for considering the decision. It might be that the old machines are getting too expensive to maintain, having too much down time, or are turning out products of insufficient quality. Or it might be that the organisation is changing its product line and this change is necessary to accommodate the new products. The benefits are thus fairly easy to identify and generally fairly easy to cost.

Similarly, the implications of not proceeding with the project, or not changing the machines, are fairly easy to identify; continuing high maintenance costs, high reject ratio, or the inability to produce the new product. However, this 'do-nothing' option is often not fully costed, especially when the alternative is not to undertake some new work. The people putting together the financial case are likely to be departmental managers and have limited accounting, financial or investment appraisal expertise. They will probably be emotionally committed to the project and may be under an implied directive from above. This leads to the observation that many such investment cases are a result of an earlier decision, and do not, in fact, represent a true choice but are a means of exercising management control of capital expenditure that needs to be undertaken because of that earlier decision. The decision to launch a new product is a case in point.

There will also be intangible benefits; the production line workers may prefer newer machines, feel they are participating in technological progress, feel pride in using leading edge technology. And they may feel more content that the organisation has enough faith in them and itself to invest in their future. So their morale, and maybe their productivity, will rise. On the other hand some workers may not like the change; the new machines are likely to be from a different manufacturer, perhaps foreign, and they may feel that 'all change is for the

worst'. Some upheaval and retraining is probably inevitable. These attitudes would be a distinct disincentive.

The intangible benefits and disadvantages would not normally be costed. Indeed, in some organisations even to mention them in an investment appraisal case would be to risk the accusation of going soft.

However, the difference between the positive and negative attitude is quite likely to result from the way that management proposes the change. In other words, in any project, managing the way that the subsequent changes to working practice are communicated will be an important part of the implementation process. The difference between doing this well and doing it badly or not at all may well make the difference between a successful implementation and a disaster. Ignoring the value of a change in the workers' attitude in the investment appraisal may be acceptable, but if that leads to the issue being ignored altogether it may sink the project.

The case for investment will be prepared by managers in the department concerned, and then will be pushed up the management chain, each level committing its own personal credibility to the case, until it eventually arrives at the board of directors, or capital approvals committee. It is likely to be considered very much on the merits of the case as presented, and on the financial situation of the organisation. The people making the decision will be well versed in the issues surrounding the decision, or at least believe that they are (or want other members of the committee to believe that they are).

The above case can be summarised in the following way:

- ◆ There are relatively few options.
- ◆ The decision-makers are 'at home' relevant issues.
- ◆ It is comparatively simple to cost and the benefits are relatively obvious.
- ◆ The cost of not undertaking the expenditure is obvious, though probably not fully calculated.

Any intangible benefits will probably get no more than a passing reference.

2.4 Investment in a prestige project

For most organisations investment in prestige projects is not a regular event. However, the prestige project case has strong parallels with much expenditure that does not have an easily quantifiable return, such as advertising or PR for example. These decisions will generally not require much specialist knowledge. Even though experts will probably be invited to give advice, most managers involved will feel fully qualified to give an opinion, or hold an opinion at variance with the experts.

Consider a fairly new, rapidly expanding organisation, which has its head office in a small building in a back street of a provincial city. It has outgrown this office and is looking for larger accommodation. Having illusions, or perhaps delusions of grandeur it is looking for a building that will become the corporate headquarters of a large conglomerate. It will have a number of alternatives available, from old office blocks just like the present one but bigger, to glass and chrome monstrosities in the science park. Or it could just take over the equally small building next door and join them together. This last alternative is likely to be the cheapest option.

The financial case, or justification, for these alternatives is somewhat more difficult to put together. There will be many possible options, albeit many of the elements will be common and a few large costs will tend to swamp the smaller variables. Not all of the costs will be fully predictable, especially if the proposed new office is at some distance from the existing one.

In these circumstances the investment will almost certainly show a large negative figure at the end. The costs of moving office are very large. What are the measurable money benefits? Practically none.

The most obvious implication of not moving is that the organisation cannot expand; but this may be stated in a loaded manner, 'organisations either expand or die'.

In this case there are lots of intangible benefits to be considered:

- ◆ A smart office will impress customers and creditors, so will be a benefit in itself.

- ◆ A smarter location will improve staff morale, and thus improve productivity and staff retention.
- ◆ A purpose-built office will improve efficiency.

There is probably some validity in these arguments. But how does the project manager go about costing them, measuring them or controlling them? In the event there will almost certainly be no real attempt made to cost them. Whether they are considered to justify the expenditure will be a rationalisation after the decision is made.

Board members will probably have overseen the case from the start. They will have a fair bit of personal credibility tied up in the issue; indeed the genesis of the project may owe more to their view of the organisation than any real need to expand. The decision will probably eventually hinge on the personal views of one or two influential people, essentially 'the Boss'.

Lest the above be considered an excessively cynical view of the decision making process in organisations, it is only necessary to look at the centre of London. The headquarter buildings of many large organisations are built at vast expense on ruinously expensive plots, and rely on staff spending large parts of their days in useless and tiring commuting. While the expense of the buildings and of attracting high calibre staff to central London is readily admitted, the location is generally justified on the grounds that an organisation of this importance is 'expected' to have a presence in the Capital. This is so even amongst organisations whose main product is communications – whether physical or electronic – failing to take the advice they liberally offer to others.

With this type of investment the spending of large amounts of money on a project which shows a negative Net Present Value (NPV), or whose benefits are not assured, is not unusual. Prestige projects aside, mention has already been made of training and PR. Neither of these types of investment can be objectively evaluated in strict financial terms. The launch of a new product is surrounded by uncertain estimates of likely benefits. However, most organisations will have launched new products before and will thus have a track record on which to form a judgement of the realism of the sales estimates. The new

product will also probably be related to existing core business; indeed, organisations that launch into totally new fields have a much lower chance of success.

In the case of a negative NPV for an optional project it needs to be assumed, if the organisation is behaving rationally, that the un-costed intangible benefits are considered to generate an adequate return. In these cases the organisation has put an implied or imputed cash value to those intangible benefits.

This case may be summarised in the following way:

- ◆ There are a large number of options.
- ◆ The decision-makers are probably driving the project.
- ◆ It is not straightforward to cost and there are few obvious financial benefits.
- ◆ The cost of not undertaking the project is not obvious.
- ◆ The intangible benefits will probably carry the case. The weight given to these benefits will be decided arbitrarily.

A simple observation that flows from some of the comments above which should come as no surprise, but which is frequently overlooked, is that organisations are made up of people. These people do not in general behave as automata, following strictly logical and predictable paths. Emotion, personal preferences and even sheer cussedness play an important part in decision making in many organisations. A consideration of the likely personal views of the individuals is thus important in understanding much company behaviour. The imprecision that dogs much social policy, because people do not always behave exactly as predicted, affects large-scale changes in organisations as well.

2.5 Investments in research and development

Research and development investments, which are sometimes called corn seed investments, are investments in the future of the business. Money spent in this area will help the organisation to maintain a competitive advantage in the future. Organisations will frequently spend substantial amounts of funds on corn seed investments with little or no cost

justification. Research and development money is normally treated as an investment from which an economically viable proposal is produced; otherwise such monies are treated as an expense.

The amount of money spent on corn seed investments varies substantially from industry to industry and from organisation to organisation. In making corn seed investment decision some organisations will use benchmarks which can be quite helpful in ensuring that your organisation does not fall behind the industry standard. On the other hand when using benchmarks it needs to be kept in mind that every organisation is different. On top of this benchmarks are sometimes based on averages for the industry and therefore can be misleading.

In a general sense corn seed investments represent that the managements believe that the future of the industrial sector and that through research and development new products and new services can be developed. When seen in this light a useful rule of thumb might be that an organisation should invest as much as possible in corn seed investments, at least up to the point that they can comfortably afford. This may take the form of a portfolio of different corn investments.

2.6 Investment matrix and the business case

It is possible to describe these four types of investments in a 2×2 matrix, where the vertical axis is risk and the horizontal axis is profit. This is shown in Fig. 2.1. From this diagram it is possible to see that prestige investments are high risk/high profit and that core investments are medium risk/medium profit, etc.

The matrix in Fig. 2.1 highlights the risk and the short-term profitability of the four different types of investment.

Although the Must-do investment may involve substantial amounts of funding, typically only a high-level business case will be produced. And as mentioned above this business case will focus on finding a relatively inexpensive option for this investment category.

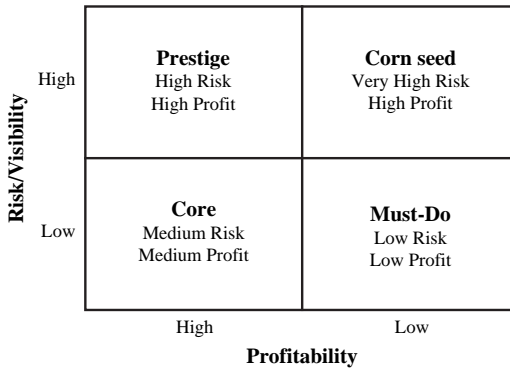


Figure 2.1 Business investment types

The core investment should receive the most attention in terms of the business case. Competent core investment is a major driver of business success and so this investment should be made with considerable attention in terms of all the five dimensions of a business case discussed in Chapter 1.

The corn seed investment is shown under the heading of low profitability and it needs to be appreciated that in the short term this will be the case. Not every corn seed investment leads to a new and successful product or service and it therefore needs to be understood that there will be casualties in this sector. However, those corn seed investments which do succeed will produce large profit and associated cash flows. For the above reasons a business case for a corn seed investment will often be very superficial.

Special comment should also be made on the location of the prestige in this matrix. The prestige investment is considered to be both high risk and high probability. The problem with this location is that it is very often quite difficult to know whether the new corporate headquarters or the new fleet of executive limousines make any contribution to the organisation's success. With prestige investments we are often simply talking about enhancing the morale of the executive team or trying to impress clients with external trappings of success. It will be appreciated that measurability in this arena is extremely difficult. Therefore these other investments are not often accompanied by extensive business cases.

2.7 Intangible benefits

Significant intangible benefits will be possible and some will be quoted in the project justification:

- ◆ Customer perception of the organisation will improve.
- ◆ A mention in trade journals or general press because of a large new system is good publicity.
- ◆ Giving management access to better, more immediate, technology will improve effectiveness.

Equally, large disadvantages are likely if the investment is not all that it should be. Also, intangible benefits are unlikely to be well understood and will often not be costed. The putting of financial values to such intangible benefits is not easy.

A summary of the above shows the following characteristics of decisions:

- ◆ There are a large number of options.
- ◆ The decision-makers will probably not understand the details of the project, though they may have an understanding of the process to be automated.
- ◆ Not straightforward to cost, low confidence in the estimates.
- ◆ Relatively difficult to estimate benefits. Low confidence in those estimates based on past experience.
- ◆ Cost of not undertaking the project may not be understood or accepted except by a few managers.
- ◆ Intangible benefits will not be quantified, though they may be an important part of the final justification.

2.8 The Protean nature of investment business cases

An important aspect of an investment business case is its protean nature. The term protean means that the business case is likely to change or mutate over time. It is inevitable that the circumstances applicable to the investment changes over time. Obviously costs will vary, often increase, and opportunities will fluctuate. It is therefore important to bear in mind that the

implementation of an investment based on a particular business case should take place without long delays. The aphorism 'he who hesitates is lost' comes to mind when thinking about business cases reflecting investment opportunities.

2.9 Summary

Investment in organisations is a complex issue and the nature of the investment needs to be clearly understood right from the outset.

There are four quite different types of investment which an organisation typically makes. Different investment types require different approaches to the production of a business case. These different investment types can deliver benefits which may be tangible or intangible. All tangible costs and benefits need to be taken into account in the business case. However, it is sometimes not possible to incorporate intangible costs or benefits in a numeric form. If this is the case it is important that the intangible costs and benefits are not simply ignored. These elements of an investment can often be keys in reaching the decision as to whether or not to invest. Therefore it is always essential that intangible costs and benefits are clearly articulated and understood and that they are given appropriate weight when the final decision to invest is being made.

Finally, it is worth pointing out that business cases should not be prepared and left unimplemented for any length of time. Business circumstances are normally in a constant state of change and once it has been decided that an investment is appropriate, the organisation should proceed with its implementation.

This page intentionally left blank



3

Preparing a Business
Case

This page intentionally left blank

The final conclusion is that we know very little, and yet it is astonishing that we know so much, and still more astonishing that so little knowledge can give us so much power.

Bertrand Russell, *The ABC of Relativity* (1925)

We need the courage to let go of the old world, to relinquish most of what we have cherished, to abandon our interpretations about what does and doesn't work.

Margaret Wheatley, *Leadership and the New Science* (1992)

3.1 Introduction

Before embarking on the process of the preparation of the business case it is important to bear in mind that it is as much a corporate cultural process than just a strictly technical event. As mentioned in Chapter 1, corporate culture determines the length and the format of the business case, who initiates the business case and how it will be presented and processed in the organisation. Thus the first step is to establish the *house rules* for the investment business case.¹ If business cases have not been generally in use then it is possible to establish ab initio the ground rules for producing them. This type of green-field situation is of course ideal, but in fact most organisations have already been using some sort of approach to produce a business case, or at least a feasibility study, or cost-benefit analysis, and it will probably be necessary to some extent to follow the precedents set up by the rules underpinning these approaches. Furthermore corporate culture will determine what issues are important to the organisation and which issues are not. Although, it is sometimes thought that facts and figures are unassailable, in most cases they are not. This has been pointed out by Stephen Gould, who although writing in a more general vein made a point that is relevant to business when he said:

¹ Even before commencing this aspect of the process it is, of course, important to obtain the backing of the top management team and specifically the managing director or chief executive.

Facts are not pure and unsullied bits of information; culture also influences what we see and how we see it. (Gould, 1992)

It also needs to be remembered that before a business case can be developed a considerable amount of background work will already need to have been done. This background work will have involved some degree of validation of the proposed investment. It may have included some process modelling and it will certainly have involved in-depth discussions with the principal stakeholders. Depending on the proposed investment this background research work may take several weeks or even months before it is possible to proceed with the development of the business case itself.

Although there are several different approaches to business case development any comprehensive business case needs to address five major areas or elements of concern.

3.2 The elements of a business case

The five elements to a comprehensively produced investment business case are the business outcome(s), stakeholder management, strategic alignment, technology issues and project² risks. These five elements are shown in Fig. 3.1 below. Each of these

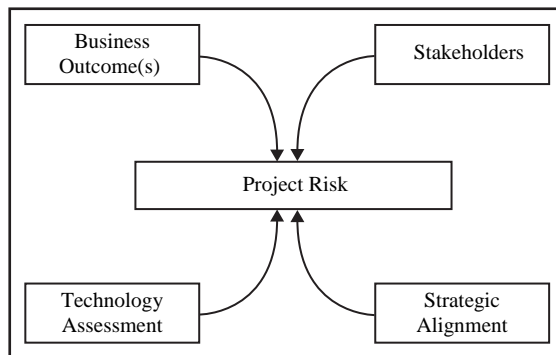


Figure 3.1 An overview of the business case

² The term project is being used to describe the work related to commissioning the investment. In the context of this book both these words are used to refer to the investment. The investment may be thought of as the asset(s) at work and the project is all the work required to make the investment a functional reality.

elements is part of the process of preparing an investment business case and that process is described in Fig. 3.4.

Each of these five elements requires detailed analysis which forms a substantial section of the business case. Chapters 4–9 describe how these elements of the business case need to be produced. Chapter 5 discusses the business outcome, and the material in this chapter is supported by a detailed discussion of business case accounting in Chapter 10. Chapter 6 discusses the question of stakeholders. Chapter 7 discusses the issues related to strategic alignment, while Chapter 8 discusses the subject of the technology. Chapter 9 looks at the important question of the risk associated with an investment. Thus there are five distinct parts or modules to the investment business case. Each module needs to be developed separately by the appropriate stakeholders. As described in Chapter 6 there are at least two groups of primary stakeholders. These are the investment owners and the finance and administration staff.

All five modules of the investment business case need to be completed with input from all the stakeholder groups on a collaborative basis. However, the investment owners, represented by the investment sponsor need to assume overall responsibility for the production and the final integration of the business case.

The business outcome module should be produced primarily by the investment owners with some significant help from the finance and administration staff with the business case accounting section. The strategic alignment module needs to be prepared by a group comprising the investment owners as well as members of the top management team and the strategic planning group. The stakeholder module should be produced primarily by the original proposer or sponsor of the investment. This individual or group of individuals needs to be either part of the investment owners, or be closely aligned with them. The technology module needs to be prepared by the technology professionals or consultants in collaboration with the investment owners and the risk management module will require input from all the different primary stakeholders. The four arrows in Fig. 3.1, flowing from the four corner boxes into

the risk box have been drawn to reflect the fact that their composition directly affects the risk profile of the investment. Any changes in any of these four issues will most probably directly affect the risk profile.

In this chapter some of the background issues that are of importance to all of these elements, and without which the investment business case cannot be developed, are discussed. These background issues include consensus, acceptance of change, the importance of delivery options, etc.

3.3 The consensus issue

An important aspect of the business case is that it is a vehicle for producing a consensus between the principal stakeholders as to how the investment will proceed. This consensus of understanding and commitment will have been arrived at through a process of research, evaluations, discussions and dialogues whereby differences and conflicts will have been resolved. This may have required several reiterations of the investment business case document before agreement has been reached. The final version of the business case needs to be as objective as possible with individual departmental agendas minimised. Although complete objectivity is often impossible, there is still a need to strive for it.

In producing the business case, the philosophical underpinnings or the values of the organisation and the principal stakeholders need to be articulated, understood and agreed. Consensus is central to the successful implementation of an investment as disagreements can lead to major difficulties with the project and cause it to fail. In fact an investment project should not be commenced until there is a high degree of consensus between all the principal stakeholders. When consensus is not obtained then the risk profile the project faces is substantially heightened.

3.4 The acceptance of change

Change of any sort is always a challenge in organisations. New investment often means a change in the way process and

procedures are conducted or a change in the location of activities. The lack of acceptance of the inevitability of change is at the core of many investment failures. Therefore time needs to be spent on preparing the individuals concerned for any forthcoming change. Having individuals participant in the preparation of the investment business case is often a useful way of introducing the notion of change and how it will affect the various individuals concerned.

Unfortunately when an investment project begins it is sometimes not clear exactly how the project will develop. Putting in a new line of machinery in a factory or building a new information system may have a number of implications some of which may not have been foreseen at the out set. When this happens the objective of the investment project may have to be changed. And from time to time the objectives will be changed more than once. This is sometimes referred to as the moving goal-post syndrome.³

There are different ways of coping with the moving goal-post syndrome but as a general rule it is much better to try to avoid this situation from occurring in the first place.

The first step is to try not to burden the high-level definitions and descriptions of the outcome space with too much specific detail and it is essential to be prepared to allow project specification changes to be identified and accommodated while the project developments are in progress. This means that all the details of the investment business case should not be regarded as being set in concrete but rather as a possible scenario to which the organisation and the principal stakeholders wish to aim (Fig. 3.2).

³ The moving goal-post syndrome is not the same as project scope creep. As the word 'creep' implies project scope creep describes small marginal changes which delay the final delivery of the project but the main project objectives will remain much unchanged. The moving goal-post syndrome can refer to major changes in project objectives.

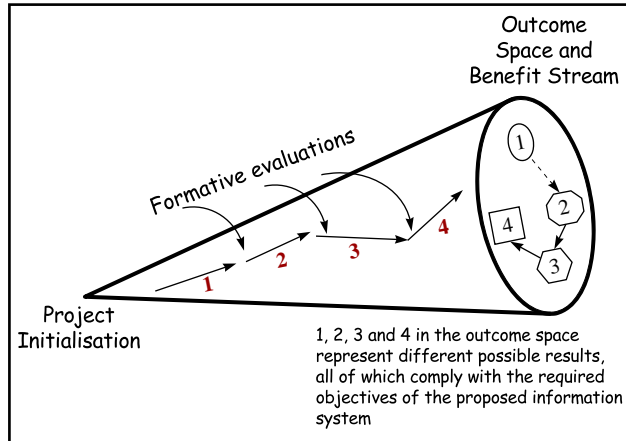


Figure 3.2 Outcome space and formative evaluations

This preparedness to recognise the inevitability of change may be regarded as a post-modern⁴ idea underpinning the use of the business case in this way. Employing values and concepts such as contingency, continuous participative evaluation, co-evolution is perfectly valid for activities within project environments. Although the post-modernist concept as it is applied to project development concentrates on a number of issues, one of the most important is the contingent mind-set to the project development.

3.4.1 The importance of phased delivery

Tied in with the notion of the outcome space and formative evaluation is the fact that phased delivery is an important way of

⁴ The author has taken some licence in the use of the term *post-modernism*. According to the *Fontana Dictionary of Modern Thought*, 'post-modernism is increasingly familiar if still controversial term for defining or suggesting the overall character or direction of experimental tendencies in Western arts, architecture, etc. since the 1940s or 1950s and particularly more recent developments associated with post-industrial society.' In the context of this book post-modernism is used to suggest new and somewhat experimental directions in management thinking, especially as it applies to information systems development. These rely on, inter alia, the contingency notion, which recognises that organisations cannot stop the world from changing during the period of information systems development. The best such organisations can do is adapt quickly.

containing unforeseen moving goal-posts. By phased delivery it is meant that the project outcomes are divided into a series of outputs and that these outputs are delivered over a period of time and not held back for a one final big event or big-bang delivery.

Big-bang delivery is increasingly believed to be problematic for project success. Thus it is necessary to divide the project up into manageable parts and implement a continuous programme of delivery, whereby the stakeholders' commitment to the project as each part is delivered is ensured. If at any time the stakeholder commitment diminishes then the validity of the project is thrown into question. Formative or participatory or learning evaluation is helpful as a means of ensuring this commitment.

3.4.2 Stakeholder governance

The idea of the governance of projects be undertaken by its primary stakeholders relates to the fact that they need to be involved or rather committed to the success of the project and that this involvement or rather commitment needs to be sustained right up to project delivery. With this in mind the stakeholder involvement in the initial business case development is a fundamental requirement. It is the improvement in the efficiency and effectiveness of these individuals that causes the organisation to experience a benefit stream. In turn the new benefit stream will be reflected in the organisation's profit and return on investment calculations (See Fig. 3.3).

Only if the principal stakeholders are fully committed, and only if they are actually governing the project, is there any real likelihood of success. Of course, even with stakeholder governance/management, project success is never guaranteed.

3.5 Accuracy of estimation

In the business case there will invariably be a series of financial projections estimating costs and benefits. The estimation of these costs, the benefits and the other variables can be relatively straightforward. These estimations can be based

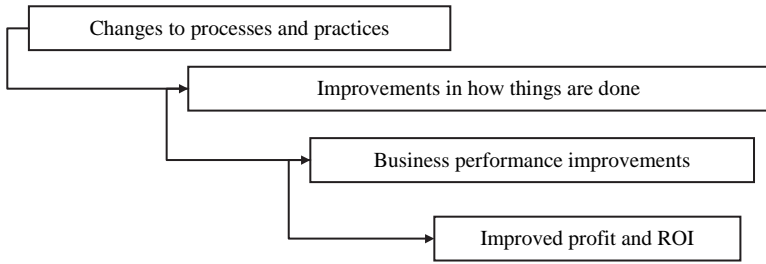


Figure 3.3 How profit and ROI are improved

on quotations or on historical experience or on expert judgement.

Accuracy in project estimates is always welcome, but accurate financial estimates are not the main issue. Sometimes estimates that are within parameters such as plus or minus 10% can be perfectly adequate. A higher degree of accuracy may be too expensive and take too much time and sometimes concentration on accuracy is a distraction and is not really essential in the production of adequate cost and benefit estimates for an investment project.

3.6 Strategic alignment

The organisation's corporate strategy is of central importance to its effective use of investment funds. Strategic mismatches or misalignments are major causes of investment project failure and any professionally produced business case needs to rigorously address this subject. It is not always an easy matter to ensure that investment is aligned with corporate strategy for a number of reasons including the fact that corporate strategy may not be known to the proposers or sponsors or investment owners. Furthermore it is possible that the corporate strategy may change during the period when the investment project is under development.

Strategic alignment is fully discussed in Chapter 7.

3.7 Technology

Investment will normally have a technology dimension. Choosing the right technology is no trivial matter. It is therefore

necessary to consider the technology which will be used in the investment project under a separate heading. To do this it is necessary to develop a technology feasibility statement that outlines the various technology options available. The technology feasibility statement needs to be completed by specialists either from the organisation or by consultants or by outsourcers.

The issue of technology is fully discussed in Chapter 8.

3.8 Risk – project and system

Risk can be defined as the propensity of the actual costs and outputs of the investment to vary from the original business case. In simple terms this can be regarded as being equivalent to *what can go wrong*. It is of prime importance for a business case to address the risk issue, as without doing this the business case is at best incomplete and at worst a misunderstanding of what may be expected during the project.

The issue of risk is discussed in Chapter 9.

3.9 An investment business case as a process

Although the results of an investment business case are presented as a document, its production or development is best understood as a business process in its own right. The activities required in this business process are shown in Fig. 3.4.

This process has three major activity groups which are:

- (1) The identification of the business opportunity;
- (2) The identification of the stakeholders who will work on the development of the business case;
- (3) The production of the business case itself which requires reiteration.

This process requires input from various stakeholders mentioned above. The different stakeholders may have quite different views as to how they see the proposed new investment. Sometimes these different stakeholders may even have conflicting objectives. Where there are differences and

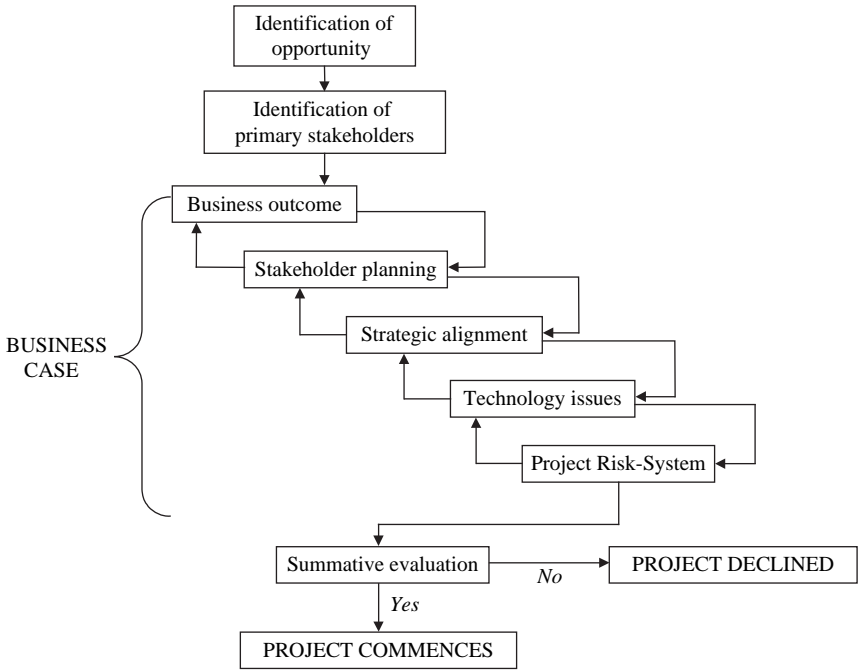


Figure 3.4 The business case as a process

conflicts the probability of investment success is low. It is part of the investment business case process to attempt to resolve any such differences and conflicts. The required approach here is to hold a series of meeting/discussions during which all the different views are aired. Through the process of skilled negotiations, gaps may be closed and different stakeholders' requirements may be brought closer together. The series of feedback loops shown in Fig. 3.4 suggests that the development of the different parts of the business case may require several reiterations.

Once the investment business case has been developed a decision has to be taken whether or not to proceed. This is done by summative evaluation which is discussed in Chapter 4.

3.10 Multi-stage large scale investments

When a large investment with multiple stages is being undertaken then sometimes there are a number of specific

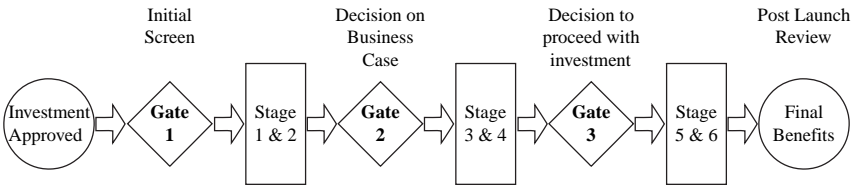


Figure 3.5 Basic Stage–Gate flow

parts to the business case. In such a situation each part of the business case may be seen as a gate through which the investment business case must pass before the next stage is begun. Thus this Stage–Gate process may be seen as an endeavor to assure that each stage is on track and if a wrong turn is taken the shortest distance is traveled down the wrong road before it is detected.

Figure 3.5 shows a large scale investment with three occasions (gates) at which the key stakeholders have to be satisfied.

This Stage–Gate approach is similar to the continuous evaluation which is discussed in Chapter 4 but it differs in that the Stage–Gate evaluations happen at set times whereas the continuous evaluation may take place at any time at the bequest of a stakeholder.

If the investment business case is considered sound then the project carries on, if the investment business case is not considered sound then the proposed project is halted or re-conceptualised.

A few words on the cost of the business case. Management information is always expensive and useful management information may cost a considerable amount of money. The initial process required to develop the investment business case may take weeks or even months to conclude and may cost the organisation a non-trivial amount of money.⁵ Thus there

⁵ Sometimes the question is asked, *How long should it take to prepare a comprehensive business case?* There is no simple answer to this question. However, if the business case is rushed due to the urgency to commence the project then it is likely that the success of the project will be put at risk.

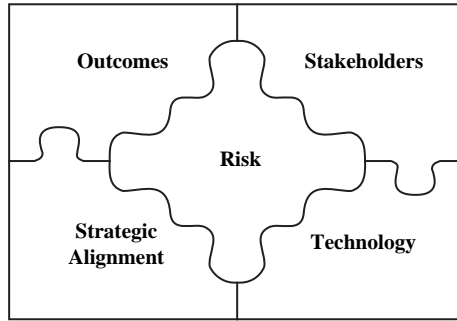


Figure 3.6 The integration of the five issues central to the business case

needs to be a budget for the costs of producing the investment business case. Some organisations say that anywhere between 1% and 5% of the final investment amount may need to be spent on preparing a professional business case.

3.11 Summary

A comprehensively produced business case for an investment serves two distinct purposes. In the first place it is the basis for making a decision as to whether or not to invest in the proposed project. For this reason it is necessary to consider in detail the five dimensions or issues shown in Fig. 3.1, i.e. business outcomes, stakeholders, strategic alignment, technology issues and project risk. It is important that these issues are considered in a holistic manner and this is well demonstrated by the jigsaw diagram used in Fig. 3.6.

In the second place the business case should be central to the process of managing an investment project, with the business case being used to set targets and obtain stakeholder commitment. Stakeholders' commitment and their involvement in the project management are of fundamental importance to any project. Perhaps the single most important reason why projects fail is the lack of stakeholder commitment.

Thus, a business case should not simply be a document which is produced to approve or authorise a project, but rather it should be at the centre of the project management process.



4

The Art of Evaluation

This page intentionally left blank

The word 'belief' is a difficult thing for me. I don't believe. I must have a reason for a certain hypothesis. Either I know a thing, and then I know it — I don't need to believe it.

Carl Jung, *interview* (1959)

'One can't believe impossible things', said Alice. 'I dare say you haven't had much practice,' said the Queen. 'When I was your age, I always did it for half-an-hour a day. Why, sometimes I've believed as many as six impossible things before breakfast.'

Lewis Carroll, *Through the Looking Glass* (1872)

4.1 Introduction

The business case can be regarded as part of the general evaluation of business performance activity within the organisation and one which is increasingly seen as central to the delivery of quality management. It is not easy to ensure that any activity is being performed well if there are not mechanisms in place to monitor how that activity is living up to the expectations of its consumers. This is the role of evaluation activities and the investment business case sets the standard to which the evaluation activities need to be compared.

Furthermore to understand the mechanisms behind the business case it is necessary to examine the concepts and techniques used in evaluation. These become especially important when the investment business case is used as part of a project management process.

Most of the concepts and techniques used in evaluation are not new. Many of them have been used in private business and the public sector for many years. However, they are increasingly being used in business and management.

4.2 Evaluation and the business case

At the heart of a business case is an evaluation of the investment. This evaluation needs to address business issues, financial issues, strategic issues, stakeholder issues, technical issues and risk issues. In addressing this range of different issues it is essential to have a clear definition and understanding of what is involved in evaluation.

Evaluation is a process that is intuitively known, or at least instinctively undertaken by just about everyone. It is either a conscious or instinctive reviewing process, which assesses the value¹ of an object or the merit of a particular situation. Thus cricket teams, motor cars, schools and universities and hospitals, summer holidays as well as business investments are evaluated at sometime, in some way. More formally evaluation according to Scriven is:

usually defined as the determination of the worth or value of something ... judged according to appropriate criteria, with those criteria explicated and justified. (Scriven, 1991)

Evaluation and the techniques associated with it may be used in many different aspects of business and management (Nugent, 1998). In fact, Shadish et al. in the opening chapter of their book state:

We can evaluate anything – including evaluation itself. (Shadish et al., 1991)

During the past few decades, evaluation has been increasingly associated with management in an attempt to improve economic productivity from both an efficiency and effectiveness point of view. In the business environment evaluation is at the heart of all activity. According to Love:

... .. evaluation began to be recognised as an indispensable tool for managers and an essential part of the management process. (Love, 1991)

4.3 Traditional business evaluation

While the concept of corporate or business evaluation has been in existence for some years, this has been largely performed for

¹ The Oxford Dictionary gives the following definition of evaluation: ‘the action of working out the value of something’. Evaluation is a weighing up process to assess the value of an object or the merit of a situation and it is on this basis that the definition used in this book was developed. Evaluation is a process incorporating understanding, assessment and sometimes measurement of some sort against a set of criteria (Symons, 1991). It is most important to note that this does not necessarily mean financial measurement. It can also relate to the determination of the worth of an object. In the context of this book the evaluation process directly supports and enhances the management decision-making process.

the purposes of assessment of the value of the organisation as a going concern. Thus when a business was bought or sold, an evaluation of the business occurred in order to establish a possible price. Businesses or parts of them were also evaluated for banks or other suppliers of debt. The techniques used for these types of evaluation are much the same as the techniques which will be discussed in this book for the evaluation of a single or a group of business investments. It is worth restating that in this book the question of the creating a case for the acquisition of fixed assets such as land and buildings, factories, machinery and equipment, information and communications technology systems, vehicles of all sizes, etc. is the main focal points. Also in the context of a business case for an investment in fixed assets is appropriate to ensure that both detailed ex-ante and ex-post evaluations are undertaken.

Some investment can radically transform the way in which organisations do business, both in terms of established business practices and the work environment for the organisation's staff. For example it is generally recognised that information systems change the social structure of the organisation.

According to Farbey et al.:

At the heart of IT's new role is the wider range of benefits IT can now bring. Traditionally IT applications reduce costs but this does not transform business processes, inter-organisational networks and business scope. (Farbey et al., 1993)

IT is not the only type of investment which can effect such change. New machinery and equipment can completely revolutionise the business. New arrangements for outsourcing or off-shoring² can easily have the same effect. It is these not-easy-to-quantify aspects of a new investment which need to be evaluated and included in the business case.

² Off-shoring is an interesting application for a business case investment. There will often be a substantial cost at the end of an off-shoring contract if the company wishes to bring the work back to its home base. This type of cost can frequently be quite difficult to estimate and as a result it is not often included in the business case. By omitting this cost those individuals who are preparing the business case are effectively assigning a zero value to this cost.

4.4 Dimensions of evaluation

Evaluation may be performed in many different ways and may be said to have several different dimensions and application types. In very broad terms evaluation may be subjective or objective. Evaluation may be qualitative or quantitative or in fact it may include aspects of both qualitative and quantitative techniques. The comprehensive approach to the development of an investment business case as described in this book may be regarded as a hybrid approach employing aspects of qualitative or quantitative techniques.

4.4.1 Types of evaluation

There are several different types of evaluation: there is ex-ante evaluation and ex-post evaluation; there is formative evaluation and summative evaluation; there are quantitative and qualitative evaluation approaches; there are subjective and objective techniques. Each of these is appropriate in different circumstances. There are a number of taxonomies that allow the categorisation of evaluation techniques and methodologies. The following sections examine two of the primary categories of evaluation, which are ex-ante and ex-post evaluations and summative and formative evaluations. A business case is by its nature an ex-ante evaluation. However, it will be argued later in this book that a business case should not be simply evaluated once. Thus by using a business case as part of the project management process some aspects of ex-post evaluation may effectively be used.

4.4.2 Ex-ante and ex-post evaluations

Predictive evaluations performed to forecast and evaluate the impact of future situations are sometimes referred to as *ex-ante* evaluations. Post-implementation evaluations that assess the value of existing situations are sometimes referred to as *ex-post* evaluations. Ex-ante evaluations are normally performed using financial estimates that may be either single point estimates of costs and benefits or range estimates of such figures. In either case this type of analysis attempts to forecast the outcome of

the investment in terms of an indicator or set of indicators (statistics) such as the payback, the net present value (NPV) or the internal rate of return (IRR), to mention only three.

The purpose of ex-ante evaluation is to support purchasing justification. Purchasing justification, which is sometimes confused with evaluation, implies first an evaluation and then the activity of justification, showing that the investment is appropriate for the particular business context. The purpose of ex-post evaluation is to assess and confirm, or refute, the value of a realised design or a completed action. The ex-post or the post-implementation evaluations investigate and analyse the current system to examine ‘what is’ against some previously suggested or predicted situation. This is done to subsequently confirm the value of the investment and support operational decisions about improvements. Ex-post evaluations can be made on the basis of financial indicators such as those described for the ex-ante situation above or they can be made using other non-financial measures such as customer satisfaction or market acceptance surveys.

Ex-ante or predictive evaluations on which business cases are dependent are complex. The evaluator has to understand the existing circumstances in order to predict and understand the future outcomes, as well as be able to estimate the potential impact of other future situations. Ex-ante evaluations only require estimates of likely costs and benefits while ex-post evaluation requires actual costs and actual benefits which are sometimes very difficult to determine.

4.4.3 Formative and summative evaluations

Evaluation activities may also be categorised as *formative* and *summative*. Formative evaluation, which is sometimes referred to as learning evaluation³ has been explained by Finne et al. as:

³ The learning aspect of formative evaluation is sometimes not adequately emphasised. One of the most important reasons for undertaking a formative evaluation of an information systems project is to be able to learn from what has happened and thus be able to perform more efficiently and effectively in the future.

... *Formative evaluation approaches typically aim at improving program performance, take place while the program is in operation, rely to a large extent on qualitative data and are responsive to the focusing needs of program owners and operators.* (Finne et al., 1995)

This theme is expanded by Patton, who points out:

Formative evaluations are conducted for the purpose of improving programs in contrast to those evaluations which are done for the purpose of making basic decisions about whether or not the program is effective. (Patton, 1980)

Thus formative evaluation is central to sound management processes and practice. If used correctly formative evaluation will lead to a much higher rate of project success.

The term formative is taken from the word *form*, ‘to mould by discipline and education’. Formative evaluation is viewed as an iterative evaluation and decision-making process continually influencing the social programme and influencing the participants, with the overall objective of achieving a more acceptable and beneficial outcome from the programme. Summative evaluation on the other hand, derived from the word *sum* or *summary*, is viewed as an act of evaluation assessing the final (summary) impact of the programme. Business cases are by their nature initially summative. Summative and formative are conditions of the evaluator in contrast to process and product, which are conditions of the evaluation.

4.4.4 Investment business case and summative evaluation

When the business case document has been prepared, a judgement has to be made as to whether or not to proceed with the investment or decline the suggested opportunity. This judgement requires a summative evaluation which leads to a *yes* or a *no* answer.

4.4.5 Investment business case and formative evaluation

Once the business case has been accepted and the project has begun, formative evaluation has a major role to play in

ensuring that the project remains on track and delivers a satisfactory result.

4.4.6 Formative evaluation and participation

Formative evaluation is not only about measuring the contribution, but also about the inclusion of the views and opinions of a wide range of the stakeholders. This type of evaluation does not stop at summary statistics, but probes the reality behind the numbers in order to understand what is really going on, i.e. what is being achieved, what is to be achieved and what the current and potential problems are. Adelman suggests:

that formative admits more representational equity than summative and giving equal voice to all stakeholders⁴ also admits diversity. (Adelman, 1996)

Thus formative evaluation is sometime referred to as participatory evaluation. Also the same process is sometimes called learning evaluation as is explained by Brunner and Guzman when they said:

Participatory evaluation is an educational process through which the social groups produce action-oriented knowledge about their reality, clarify and articulate their norms and values, and reach a consensus about future action. (Brunner and Guzman, 1989)

The terms formative and summative do not in themselves imply participation for formative evaluation and non-participation for summative evaluation. From its definition ‘moulding by discipline and education’ there is at least an expectation that stakeholders are involved in a formative evaluation process. But it is also clear that a participatory summative evaluation can take place.

4.4.7 Formative evaluation and reiteration

Formative evaluation is a reiterative process whereby a system’s requirements are refined or co-evolved in a controlled

⁴ It is unlikely that all stakeholders will actually have equal voice as the most influence is usually taken by the most powerful stakeholders.

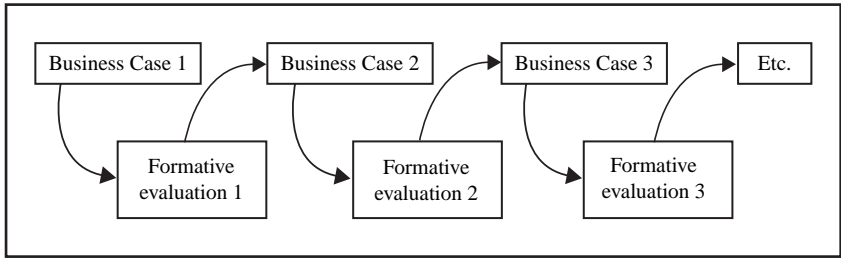


Figure 4.1 Reiterative process of formative evaluation

manner. Formative evaluation may take place many times during the tenure of a project. The actual number of times will depend upon the type of project and the environment in which it is being pursued. At the end of each formative evaluation the business case may be changed to reflect new circumstances and the project will, hopefully, continue with a new or adjusted set of objectives and requirements. Figure 4.1 shows the reiterative nature of this activity.

4.5 Other evaluation issues

There are several other evaluation issues that need to be understood as part of a business case. These issues include the question of whether the evaluation should be performed on quantitative or qualitative evidence and whether the evaluation should be continuous or periodic.

In general the use of both quantitative and qualitative evidences is preferable. The financial estimates that are part of the micro-model in the outcome section of the business case, will be intrinsically quantitative where investment statistics such as payback, return on investment and net present values, etc., will be calculated. This is discussed in detail in Chapter 10. There may also be other survey type evidence such as the responses to questionnaires, which will also be somewhat quantitative. But in addition to these numbers there will also be opinions concerning the strategic alignment, the stakeholder management, etc., which will be qualitative. These opinions are just as important as the quantitative part of the business case.

Although the business case is generally only produced at the outset of the project it can be reviewed a number of times. In fact the business case should be reviewed at each major milestone during the project. This would be a periodic approach to the review of the business case. There is also the argument that the business case should be under continuous review in the sense that any stakeholder could ask for a review session whenever they feel it is appropriate to so do. This would be referred to a continuous approach to the business case evaluation.

4.6 A professional approach to the evaluation process

Professional evaluation is not a simple matter that can be conducted quickly and simply. Evaluation, especially as it is practised in the preparation and use of a business case for an investment, is a management process requiring a high degree of knowledge and discipline. The evaluation should focus on a full range of business outcomes which include direct business benefits as well as financial estimates of them. It is important to include both tangible and intangible benefits. Tests of materiality and credibility need to be applied especially to intangible benefits and these are discussed in Chapter 5.

In addition the evaluation needs to be conducted by all the primary or major stakeholders. Without involving the opinions of all the major stakeholders the business case will simply not be useful.

4.7 A word about assumptions

No discussion about evaluation would be complete without addressing the issue of assumptions. A dictionary definition tells us that an assumption is ‘The act of taking something for granted, or something taken for granted.’

Neville Turbit from Project Perfect adds:

it is something that we cannot establish as being true at this point in time, but it is likely to be true

In order to move forward with evaluating investment decisions we need to make assumptions. In making investment decisions there is always some degree of the unknown. If we were to wait until every last piece of information was available we would probably never start. Unavoidably human nature is such that at some point in time assumptions are regarded as truths. Assumptions can be and often are wrong. When this is revealed, all decisions based on these assumptions need to be reviewed. In a way assumption can be looked upon as a mirror image of risk. Risk is discussed more fully in Chapter 9.

4.8 Summary

Evaluation theory has its roots in social or public sector programme assessment, which was initiated more than one hundred years ago, and has today become an important field of study in its own right, with distinct implications for business and management performance. Evaluation theory is central to the production of a comprehensive business case for investment in that evaluation techniques underpin all aspects of the production of the business case.

The investment business case will be an ex-ante, summative evaluation which will require a significant degree of participation from all the important stakeholders. The investment business case may well have to go through several reiterations before the process of producing this document is complete.

Although the production of a business case for an investment can be expensive and time consuming, there is frequently a large payback associated with this activity.⁵ Of the several different levels of payback to be derived from a business case,

⁵ As already noted in Chapter 3 it is not possible to say how long it should take to develop a comprehensive investment business case as this will clearly depend on the precise nature of the investment. However, except for very small and simple investments it is likely or at least possible that a well produced business case will require several person weeks of effort. On the question of the cost of a comprehensive investment business case, many practitioners have made the point that it is worthwhile spending a material amount of money on this activity if it can ensure a more sound approach to the project when it is finally approved.

the facilitation of corporate learning is regarded by many to be the most positive and perhaps the most important reason for undertaking this evaluation work. Thus a business case for an investment not only helps to decide whether to proceed with a particular opportunity and assist the capital rationing process in order to prioritise projects, but also creates a platform from which the organisation can learn to manage projects more successfully.

This page intentionally left blank



5

The Business Outcome

This page intentionally left blank

Nowadays people know the price of everything and the value of nothing.

Oscar Wilde, *The Picture of Dorian Gray* (1891)

We inhabit a world that is always subjective and shaped by our interactions with it. Our world is impossible to pin down, constantly and infinitely, more interesting than we ever imagined.

Margaret Wheatley, *Leadership and the New Science* (1992)

5.1 Introduction

In this chapter the factors required for the creation of the business outcome statements will be examined in detail and will be illustrated through the use of an information and communications technology (ICT) example.

Traditional feasibility studies or project justifications tended to be one-dimensional statements focusing on financial estimates. This approach was always seen as a limitation but it was often felt that it was too difficult, would take too long and be too complicated to present a more rounded evaluation of the investment proposal. Today at the heart of the comprehensive business case is the understanding that financial numbers alone are not good enough for making investment decisions and that a more holistic approach is much more appropriate.

Thus when using the comprehensive approach to producing a business case it is necessary to consider multiple views – a view of the investment outcomes (including financial cost and benefit estimates), a view of the degree of strategic alignment inherent in the investment, a view of the stakeholders, a view of the technology to be employed and a view of the project and inherent risks involved. Looking again at the overview of the business case (Fig. 5.1) it can be seen that the risks are at the centre of the project.

These five views are the most important perspectives that need to be taken into account when an information systems investment proposal is presented. Notice that the five views of the investment are interconnected through the project risk which is the central issue.

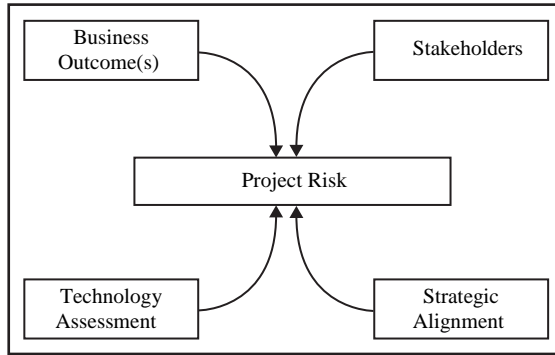


Figure 5.1 An overview of the business case

These views or perspectives need to be reduced to documents that are not trivial to complete, but neither are they so complicated as to be burdensome. Each view needs to be developed separately by the appropriate stakeholder in association with, or in consultation with the other primary stakeholders. This collaboration is important as each of these sets of issues have a bearing on each other.

5.2 Outcome statement or statements

Before discussing the development of an outcome statement it is important to be clear on the definition of both an outcome and an output of an investment. The outcome of an investment may be defined as the desired effect of an intervention or change to a business process or practice or procedure or arrangement. It is a business result, which has a measurable impact on the performance of the organisation. The output of an investment is the physical change to a business process or practice which will lead to the business result as required in the outcome.

Investment outcomes need to be expressed as statements. The outcome statement is a comprehensive statement or sometimes a set of statements of the expected results in precise business terms of the investment or initiative. It relates to the primary business problem or opportunity and represents in quite specific terms the vision of how the business will perform

when the opportunity is realised. It is derived or developed directly from the primary business problem or opportunity statement. Some organisations may wish to use planning techniques such as the analysis of strengths, weakness, opportunities and threats (SWOT). So, for example, if the investment is targeted at changing the profile of the company's customer base from having many small customers to a more restricted group of large highly creditworthy customers then the outcome can be expressed as: *more sales revenues on fewer invoices from well-established customers of good financial standing who pay promptly.*

An investment opportunity may have several outcomes. Thus another expected outcome, in the above example, could be that the business relationship with the customer will be closer or tighter and that the salesperson will call more frequently on the customer and spend more time with them, which will result on more sales per invoice.

As the business outcome is at the heart of the investment business case, a comprehensive statement or set of statements of business outcome will need to be thoroughly developed and will thus consist of three distinct levels or components.¹ These components, which are shown in Fig. 5.2, are as mentioned

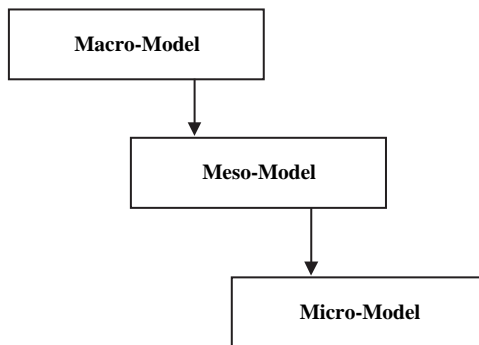


Figure 5.2 The three steps in the business outcome

¹ It is possible that the business outcome dimension could require as much as 30–50% of the effort of the entire business case exercise.

above referred to as the macro-model, the meso-model and the micro-model. These three models need to be produced sequentially beginning with the macro-model, then proceeding to the meso-model and finally completing the micro-model.² The detail required in each of these models grows from perhaps as little as a few paragraphs for the macro-model to maybe a dozen pages or so for the micro-model.

It is important that the macro-model is fully concluded and agreed to by the stakeholders before the meso-model and the micro-model are produced. Misunderstandings with regard to the macro-model are one of the more common causes of project failure.

5.2.1 The macro-model

A macro-model is a high level statement in words and diagrams of the result of the proposed investment in terms of organisational intervention or change. A macro-model should contain a statement of the problem or opportunity, what will be done by who, when to take advantage of it, and what the expected outcome or business result will be. A macro-model will typically require the seven items of information listed in Fig. 5.3.

The information that will be collected by completing the seven parts of the macro-model form will constitute the text of the model. As well as by producing the macro-model in words it is also useful to describe the business intervention by means of a diagram and an example of this can be seen in Figs 5.6 and 5.7.

² Although the business outcome modelling is generally regarded as the place to start the investment business case, the three models cannot be finalised until other dimensions of the business case have been addressed. For example to produce a convincing macro-model it is necessary to have performed a strategic alignment check. To be able to produce the detailed costing required for the micro-model it is necessary to have performed at least some of the work required for the technology statement. Thus in an important sense the different elements of the business case are contingent upon each other.

	Macro-model	Details
1.1	Name of the proposed investment <i>Limit this to around 10 words</i>	
1.2	State the perceived problem or opportunity <i>Limit this to around 100 words</i>	
1.3	Why is it a problem or opportunity? <i>Limit this to around 75 words</i>	
1.4	What is the nature of the investment? <i>Limit this to around 50 words</i>	
1.5	What will be the result of the investment? <i>Limit this to around 75 words</i>	
1.6	Identify the owner-users (key stakeholders) <i>List up to five possible owners-users of the intervention</i>	
1.7	State the time frame required giving most likely as well as worst and best estimates	

Figure 5.3 The macro-model form to be completed

5.2.2 Example of a macro-model for credit control process

The following is an example of a macro-model that has been developed to describe a requirement for a credit control and administration system. The macro-model is initially presented in detailed format in Fig. 5.4 and then subsequently presented as an integrated whole. The macro-model form is simply a checklist which assisted the modeller to ensure that all the main issues have been addressed.

Integrating and summarising the information in the macro-model form will produce the high level description of the proposed intervention and its outcomes together with the stakeholders, time frame, etc. This will appear as shown in Fig. 5.5.

The macro-model can also be represented diagrammatically to help clarify the key stages required. Figure 5.6 identifies the problem the system is to solve as described in Fig. 5.4 and Fig. 5.7 describes the proposed system as described in Fig. 5.5.

	Macro-model	Details
1.1	Name of the proposed investment <i>Limit this to around 10 words</i>	<i>Electronic credit control system</i>
1.2	State the perceived problem or opportunity <i>Limit this to around 100 words</i>	<i>There has been a steady deterioration in the performance of the credit control activities of the organisation. Where as the average rate of bad debts was 0.025% during the 1980s, the rate during the 1990s has been 0.040%. In addition the average number of days in debtors during the 1980s was 35 and this number has increased during the 1990s to 47 days. There is no doubt that there are several reasons for this, including the tough economic and financial climate, generally experienced during the 1990s</i>
1.3	Why is it a problem or opportunity? <i>Limit this to around 75 words</i>	<i>Credit control activities have not been given as much attention in recent years as perhaps they should have been. As a result of a benchmarking exercise it is now established that the industry average for bad debts is 0.02% and the average number of days in debtors in the industry is 40.</i>
1.4	What is the nature of the investment? <i>Limit this to around 50 words</i>	<i>To establish an electronic link to the local credit rating operators To provide an on-line interface between the sales order processing activities and the billing and debtors activities which will highlight if a particular client is about to be given further credit when their account is overdue or over their credit limit To make on-line reports available to credit chasers to ensure that payment is made within the agreed number of days</i>
1.5	What will be the result of the investment? <i>Limit this to around 75 words</i>	<i>The organisation's credit control activities will be brought into line with the industry averages The outcome of the new sales and credit process will be an improvement in profit and cash flow, which will produce a payback of less than one year and an ROI of 120%</i>
1.6	Identify the owner–users (key stakeholders) <i>List up to five possible owners–users of the intervention</i>	<i>Chief accountant Credit controller Sales manager Credit rating controllers Credit chasers</i>
1.7	State the time frame required giving most likely as well as worst and best estimates	<i>This needs to be achieved within a six-month period</i>

Figure 5.4 The macro-model form completed

There has been a steady deterioration in the performance of the credit control activities of the organisation. Whereas the average rate of bad debts was 0.025% during the 1980s, the rate during the 1990s has been 0.040%. In addition the average number of days in debtors during the 1980s was 35 and this number has increased during the 1990s to 47 days. There are no doubt several reasons for this including the tough economic and financial climate generally experienced during the 1990s.

It is also true to say that the credit control activities have not been given as much attention in recent years as perhaps they should have been. As a result of a benchmarking exercise it is now established that the industry average for bad debts is 0.02% and the average number of days in debtors in the industry is 40. It is now considered necessary to take action to bring the organisation's experience in this respect into line with the industry averages and then to improve on its performance in this respect again from that position.

It has been decided that the chief accountant takes direct responsibility for the credit control activities and work on new systems in collaboration with the credit controller and the sales manager. Together these individuals will implement a credit control system that will identify potential bad debts before a sale is made so that an insightful decision can be made as to whether or not to do business with the potential client.

Establishing an electronic link to the local credit rating operators will do this. In addition there will be an on-line interface between the sales order processing activities and the billing and debtors activities which will highlight if a particular client is about to be given further credit when their account is overdue or over their credit limit. Furthermore on-line reports will be made available to credit chasers to ensure that payment is made within the agreed number of days. The outcome of the new sales and credit process will be an improvement in profit and cash flow, which will produce a payback of less than one year and an ROI of 120%. This needs to be achieved within a six-month period.

Figure 5.5 An integrated high level macro-model

5.3 Another example of the macro-model for a sales administration system

The following is an example of a macro-model that is expressed in words only. This model describes the business problem, it suggests a solution and it explains how the solution will solve the problem.

Average gross sales invoice values are generally too small to provide the required return on investment. If the average gross sales invoice value is increased by a factor of five, then the cost of administration will come into line with the industry average and this will result in a higher profit and thus a satisfactory return on investment. The average gross sales invoice value may be increased by the more effective selection of clients as well as by a greater concentration on cross selling. Clients may be more effectively

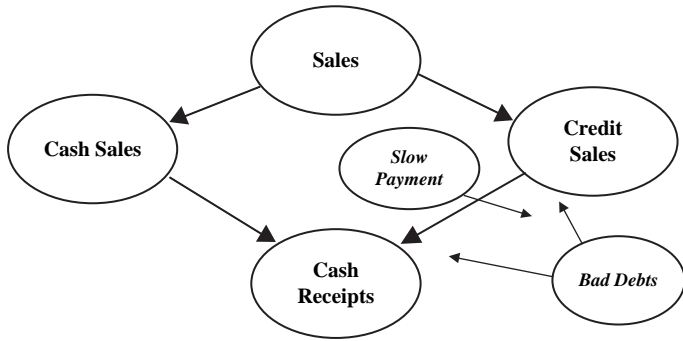


Figure 5.6 Diagrammatic view of the problem

selected if the relevant sales persons have access to appropriate sales history and market potential information. Similarly, appropriate information systems may enhance the opportunity for cross-selling by identifying potential needs for a wider range of our products in our already established client base.

The above statement qualifies as a model because:

- ◆ it is a clear description of a problem, a proposed process which is expected to improve the situation, and it suggests a likely result;
- ◆ it facilitates a discussion of the proposed intervention and possible alternative courses of action.

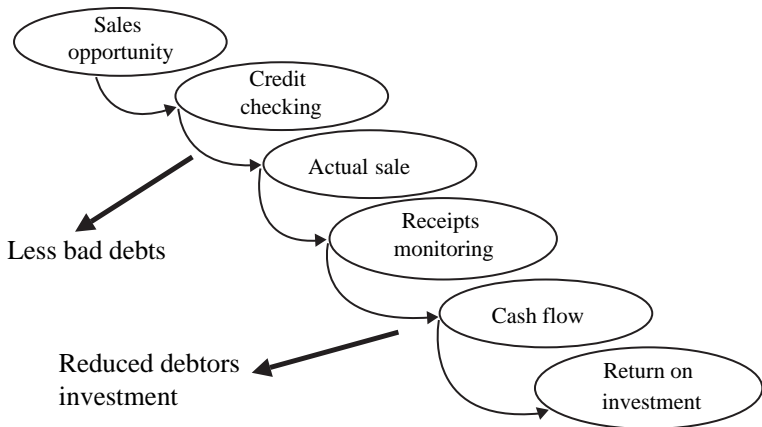


Figure 5.7 Diagrammatic view of the macro-model for the proposed system

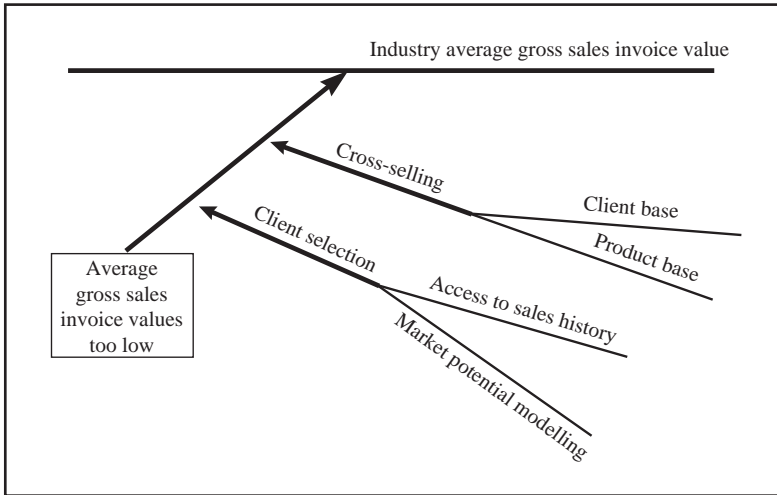


Figure 5.8 Macro-model for the sales administration system – graphic form

This macro-model can also be expressed in a fish-bone chart.³ Figure 5.8 presents the written macro-model statement above. This type of graphical model usually does not include much detail but rather the general issues that are involved and the direction in which the organisation intends to move.

5.4 Meso-model

A meso-model provides a half-way stage between the high level, overview of the macro-model and the detailed financial statement which constitutes the micro-model. Figures 5.9 and 5.10 are examples of meso-models derived from the macro-models for the credit control system and sales administration system described above.

An essential feature of a meso-model is that all the possible benefits are listed and that each benefit has a specific metric matched with it. Benefits that do not have a suitable metric should not be listed. It is the meso-model that provides the raw material from which the micro-model will ultimately be produced.

³ The fish-bone diagram is sometimes referred to as an Ishikawa diagram as it was proposed by Kaoru Ishikawa in the 1960s in Japan.

Output	Business outcome	Specific benefits	Measurement method	Specific metric	Responsibility	Time frame
Credit history of prospective client	Better return on the firm's sales efforts	Less bad debts	Reduction in accounts handed over for collection and less write off	Number of interactions with lawyers Lower legal fees Less bad debts	Credit controller	Three months from start of project
Reports on law suits	Protection of profit margins	Less bad debts	Reduction in accounts handed over for collection and less write off	Number of interactions with lawyers Lower legal fees Less bad debts	Sales manager	Four months from start of project
Monthly receipts report	Collect cash and slow down or stop credit to doubtful debtors	Faster cash flow More interest earned at bank More supplier discounts available Less bad debts	Cash balance Lower cost of purchases Reduction in accounts handed over for collection and less write off	Cash, Profit, etc.	Chief accountant Credit controller Sales manager	Six months from start of project

Figure 5.9 Meso-model for the credit control system

Output	Business outcome	Specific benefits	Measurement method	Specific metric	Responsibility	Time frame
Reports on sales per client	Better return on the firm's sales efforts	Better customer service	Customer satisfaction surveys		Sales manager	Six months
			(1) Distributed questionnaires	SERVQUAL Determination of expected service and the service which the customer perceives		
			(2) Personal interviews	Qualitative data to be analysed using interpretative techniques		
Reports on unfulfilled orders	Forecast clients' requirements	Better utilisation of inventory	Inventory and sales statistics	Inventory turnover. Number of days' sales in inventory	Corporate planner	Six months
Vehicle tracking reports	Improve utilisation of corporate assets	Better employment of transport fleet	Vehicle tracking system	Petrol consumption	Commercial manager	Three months
			Matching vehicles to customer orders	Number of deliveries per day. Number of vehicles on the road vs. number of deliveries		
Speed of servicing client complaints	Better utilisation of corporate resources	Better job satisfaction of personnel from sales administration	Staff satisfaction survey	Gap between expectations and performance	Sales administrator	Six months
Cost reports	Lower cost profile	Lower administrative costs	Accounting system	Cost per invoice/credit note, etc.	Accountants	Six months

Figure 5.10 Meso-model for the sales administration system

For benefits to be achieved they need to be in some way measurable i.e. a stakeholder should be able to assess whether they have been delivered. Thus it is necessary to establish metrics that can be associated with any benefits that have been specified as possibly stemming from the information systems investment. This will allow an objective assessment to be made as to the extent to which the information system has delivered the benefits.

The primary benefits of some systems will essentially be simple functional requirements that will either exist or not exist. Such benefits will be evaluated on a yes/no binary scale. Others will be qualitative benefits that can only be evaluated

on a qualitative scale (very good, good, satisfactory, poor, very poor). Finally some benefits will be measurable on an agreed numeric scale. For example, 'average invoice value' can be measured on a '£ per Invoice' scale and a target set to define a satisfactory business benefit resulting from the information system development project.

5.5 How to develop a meso-model

In developing the meso-model the following questions need to be asked and satisfactory answers need to be found.

- (1) Which specific changes to procedures or practices will be initiated by the investment?
- (2) How will these changes affect a specific business result?
- (3) How will these business results be measured?
- (4) What metric will be used in this measurement process?
- (5) Who will be responsible for ensuring that the investment will produce the required output and outcome?
- (6) In what time frame are these outcomes required?

These questions are best answered by the principal stakeholders, who may wish to negotiate how some of these matters will be managed. It is important that these types of questions are not simply left to technical professionals, for although they need to provide input here, it should be the investment owner who has the loudest say in matters such as these. Chapter 6 discusses the issue of the principal stakeholders.

It may not be a simple matter to produce a convincing meso-model. Some of the outcomes may produce intangible benefits and these do present challenges from the point of view of the measurement and metric issues. However, there are several different approaches to quantifying benefits and in the case of the meso-model it is not necessary to only rely on financial quantification of benefits. Therefore in the meso-model a metric such as *ServeQual*, which has been adapted to measure user satisfaction may be employed. Other measures may be statistics with regard to the number of new clients or an increase in the length of service of staff, etc.

5.6 Generic categories of benefit

There are two generic categories of benefit which can be referred to as *tangible* and *intangible*.

A tangible benefit is one which directly affects the firm's profitability, whereas an intangible benefit is one which can be seen to have a positive effect on the firm's business, but does not necessarily directly influence the firm's profitability.

Within the broad categories of tangible and intangible benefits a further classification is required as different types of benefit may be *quantifiable* or *unquantifiable*.

A quantifiable tangible benefit is one which directly affects the firm's profitability and the effect of which is such that it may be objectively measured, for example, reduction in costs or assets or an increase in revenue. An unquantifiable tangible benefit can also be seen to directly affect the firm's profitability, but the precise *extent* to which it does cannot be directly measured. Examples include the ability to obtain better information through the use of, improving the corporate risk profile and improving the firm's security.

Intangible benefits can also be sub-classified in the same way. A quantifiable intangible benefit is one which can be measured, but its impact does not necessarily directly affect the firm's profitability. For example, obtaining information faster, providing better customer satisfaction or improved staff satisfaction. Perhaps the most difficult type of benefit is the unquantifiable intangible benefit. This refers to benefits that cannot easily be measured and the impact of the benefit does not necessarily directly affect the firm's profitability. Examples include improved market reaction to the firm, customer perception or potential employees' perception to the firm's product.

The benefits described above are relevant to a number of different types of investment but this is particularly the case with respect to the results of an ICT investment.

These different types of generic benefits can be illustrated in a 2×2 matrix as shown in Fig. 5.11.

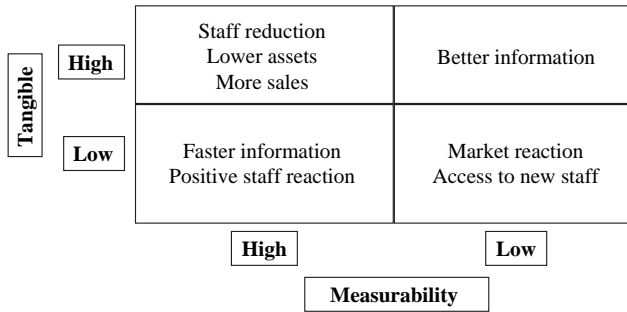


Figure 5.11 ICT benefit matrix

Typically organisations focus on the first quadrant i.e. the top left as these are the easiest to quantify in terms of financial number which drive the business processes. But it is really quite important not to ignore the other quadrants. If an organisation does not address the benefits derived from the more difficult to quantify quadrants then in effect the organisation is saying that no value may be derived from these types of benefits and clear this is incorrect.

The different benefit types described above can be measured using specific measuring techniques. These are shown in Fig. 5.12.

There are several different types of cost-benefit analysis that can be used to measure the effect of staff reductions, lower

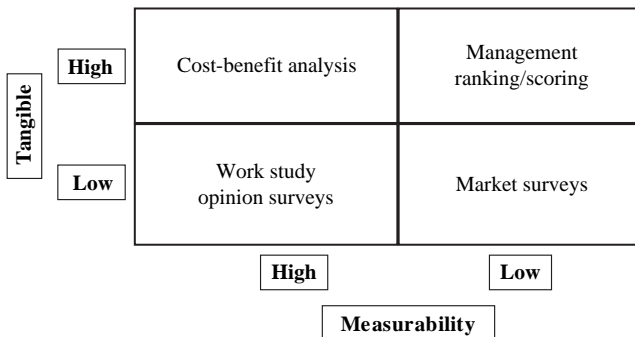


Figure 5.12 Benefit measurement techniques

assets or more sales in financial terms. The techniques are discussed in Chapter 10.

It is generally believed that cost-benefit analysis provides *hard* measures while the other measures are *soft*. In effect, although cost-benefit analysis is always reduced to monetary terms it is not always as hard as it appears. The main reason for this is that assumptions are always required when a benefit is converted to monetary terms and the number which is established is only as good as the assumptions. The problem is that the facts/circumstances/conditions on which assumptions are based may easily change and thus render the assumption incorrect.

From the point of view of preparing the meso-model it is not difficult to include tangible benefits and describe them in the seven different columns provided in Fig. 5.9. The intangible benefits offer a greater challenge, as it will be necessary to decide which type of measuring approaches to use and what an appropriate metric would look like.

5.7 Micro-model

A micro-model is usually presented as a detailed financial representation of how the project will proceed, in which the set-up costs, the on-going cost, the on-going benefits and the net benefits are specifically stated. The micro-model should also include the investment statistics that are commonly used by organisations for their general capital investment appraisals. These performance statistics might include paybacks, return on investment, net present value, internal rate of return and profitability index. These are the sort of measures which were referred to by Peter Drucker and quoted in Chapter 1.

The detailed or micro-model takes the issues described in more general business terms in the meso-model and attempts to quantify them in financial terms. This quantification will usually be undertaken in terms of financial estimates of the costs and the benefits.

Cost displacement statement	
Investment costs	
Hardware	1900
Software	2200
Communications	750
Commissioning	150
Total start up cost	5000
On-going costs	
Maintenance	300
People	150
Consumables	120
Accommodation	50
Total operating expenses	620
Estimated benefits	
Staff no longer required	950
Office expenses	450
Reduction in finance charges due to capital release	550
	1950
Net benefit	1330
ROI	0.266
Payback	4

Figure 5.13 A micro-model showing cost-benefit analysis

The micro-model described in Fig. 5.13 associates financial values to a generic IT investment.

Figure 5.13 shows only one scenario. In fact it is usual to develop more than one such view of the IT investment as well as perhaps what-if analysis or even sensitivity analysis.

In Fig. 5.13 the ROI is the net benefit 1950 divided by 5000 which is 0.266 or 26.6% and the payback is 5000 divided by 1330 which rounded to an integer is 4 years.

Chapter 10 deals with the micro-model in more detail. However, it should be mentioned here that in respect to developing this model it is most important to use marginal costs only, and not to attempt to include all the so-called hidden costs, i.e. not the full range of ownership costs. Care needs to be taken to produce the micro-model for an appropriate time horizon. Also as the numbers in the micro-model are only estimates, it is essential not to become involved in

spurious accuracy and detail. It is useful to remember to test each line in the micro-model for materiality⁴ and credibility.

5.8 Summary

An outcome statement is at the heart of a professionally produced business case for an investment. In fact some practitioners and consultants regard the outcome statement as the single most important part of the business case.

The development of outcome statements is essential for the maximisation of investment effectiveness. Without outcome and associated benefit statements the best that can be hoped for is an unclear view of what the investment may achieve and how this will actually take place. To ensure that there is a clear understanding of how the investment will proceed and how the outcome and associated benefits will be generated it is essential to develop macro-, meso- and micro-models, i.e. at all the three levels described in this chapter.

The outcome statements are regarded by many as the cornerstone on which the rest of the investment business case is built.

Forms which may be used to help produce the deliverables required from this phase of the business case are shown in Appendix A.

⁴ The materiality test implies that very small amounts of costs need not be included in the micro model and that only the substantial cost items are really important. Of course it is sometimes quite difficult to know where this point of materiality actually starts.

This page intentionally left blank



The Stakeholders

This page intentionally left blank

In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists.

Eric Hoffer, *Reflections on the Human Condition* (1973)

Here is Edward Bear, coming downstairs now, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there is another way, if only he could stop bumping for a moment and think of it.

A.A. Milne, *Winnie-the-Pooh* (1926)

6.1 Introduction

Stakeholder knowledge and management is central to the preparation of a comprehensive investment business case. It is also central to the management of the project itself.

Knowing and understanding the requirements and motivation of the investment stakeholders is a critical part of preparing a business case for that investment. To achieve this it is important to be able to identify the relevant stakeholders, pressure groups and other interested parties and to assess their interests in terms of how they will react to the change brought about by the intervention or project. This is because if the principal stakeholders are not satisfied, the investment will be regarded as a failure.

It is important to clarify what is meant by the term stakeholder. According to Svendsen:

The term 'stakeholders' refers to the individual or groups who can affect or be affected by a corporation's activities. (Svendsen, 1998)

In the context of this book an investment stakeholder is defined as any individual or group with an involvement in the project interested in improving the business processes or practices being supported by the proposed investment. This can include senior management, investment owners, financial managers, IT professionals and administrators, vendors, trade unions, as well as a variety of other individuals and groups.

Thus an investment project can have a substantial number of different stakeholders, and one of the challenges is to manage the contributions from a substantial number of different interested parties.

6.2 The importance of stakeholders

During the past few years increasing attention has been given to the issue of stakeholders in corporate affairs generally. There are a number of reasons for this, including the fact that concern for stakeholders is now regarded as good for business practice, especially in the longer term. Svendsen (1998) has succinctly expressed this when she said:

Today, companies are investing in longer-term relationships.

In fact she went on to say that:

Positive stakeholders relationships can also affect profitability indirectly because intangibles like trusting relationships with suppliers, employees' capacity for learning and growth, and a company's reputation and goodwill are key drivers of corporate competitiveness and profitability. (Svendsen, 1998)

Stakeholders concern means that the organisation is aware of the fact that its behaviour has a direct impact on the greater community in which it exists. In the investment context, stakeholders concern amounts to the fact that the organisation realises that the investment sponsor alone cannot ensure the success of an investment. It requires a team effort in which the investment sponsor is only one player. The actual number of stakeholders will vary from organisation to organisation and from application to application but there will inevitably be considerably more people involved than just the investment sponsor.

6.3 The stakeholder

Increasingly, it is being realised that a positive stakeholder relationship is a *sine qua non* for investment success. The presence of a constructive relationship between the key

players in the project makes a big difference between success and failure. In the past, stakeholder relationships were generally not regarded as that important, except perhaps from the point of view of controlling the scope of the project. However, today this attitude has changed for many organisations. Stakeholder relationships before, during, and after a project is commissioned, are seen as central issues. These relationships, however, need to be collaborative and dynamic and this is well expressed by Svendsen when she said:

A collaborative approach to building stakeholders relationships, on the other hand, sees the stakeholders relationships as being reciprocal, evolving, and mutually defined. (Svendsen, 1998)

The importance of stakeholder relationships is such that if for any reason the stakeholders are in conflict, the probability of project's success is significantly reduced. Stakeholder relationships require trust and co-operation from all the parties concerned and this can be difficult to achieve. However, when these relationships are positive it can produce a distinctly significant competitive advantage.

6.4 The three major groups of stakeholders

Although in the investment context there could be many different types of stakeholders, it is useful to discuss them in terms of three major categories. These principal or primary stakeholder categories are the investment sponsor, the project professionals and the finance and administration staff. However, over and above these three groups of stakeholders, top management will often be an important overriding stakeholder. This is partly because the investment in the new processes which require the support may both be very expensive and also because the type of changes required do sometimes go to the very heart of the business.

6.5 The investment owners as stakeholders

Investment owners are probably the most important set of principal stakeholders of any proposed system. The

investment owners are likely to have the most influence in making the business process supported by the investment a success. This group will make intensive use of the investment when they have been developed. The investment owners' group needs to include individuals from various levels within the organisation. This means that it is important to obtain the backing of both senior users/owner managers, as well as the individuals who will routinely use the new processes and systems.

6.5.1 Investment sponsor and investment champion

Within the group which has been referred to as the investment owners there are two key roles which need to be performed. The first is the project sponsor. This is the individual who was sufficiently senior to motivate for the investment. The sponsor may have been the individual whose idea the project was or to may be a colleague of that person who has sufficient authority to have the project approved. In either case the project sponsor is normally a person who is important in the organisation and who needs to take a personal interest in the investment in order to ensure that it is correctly achieved/purchased/developed and commissioned.

In addition to the project sponsor there needs to be a project champion. This person takes on the objective of ensuring that the project is successfully implemented. Sometimes the project champion only appears after the investment business case has been completed and thus has no input to the early planning of the project. On other occasions the champion is identified earlier.

The project champion should not be confused with the project manager. The project manager's role is usually a technical one which involves taking the project to the point where it is capable of functions the way which is required. It is at that point when the project champion becomes a key person for the success of the investment.

It is important that the champion is acquainted with the rules of project governance within the organisation as he/she may

have to be involved in insuring that the right level of resources is available for the project to succeed.

There may also be a number of other users who will work with the system from time to time and thus have an interest in the way the project is conceived and developed, but who may not be regarded as primary stakeholders. One of the tasks of the project manager will be to decide how to represent the interests of these stakeholders. It is important that they are not ignored or forgotten. It may be seen that there is an important political role to be played by the project manager in this respect.

Ideally the investment owner should be responsible for the development of the investment business case. They should be the primary motivators for the investment. The investment owner needs to play a key role in the management of the project and should be the arbitrators of whether or not the investment has succeeded. This is a large role for the investment owner who may not be adequately skilled to be able to perform all these functions well and therefore will frequently need to be supported by the other principal stakeholders.

6.6 Technical professionals as stakeholders

The group of technical professionals who will work with the technical development of the project are clearly stakeholders of some considerable importance. They supply the expertise which will make the technology aspects of the new processes work. These technical specialists may be employed 'in-house' or they may be part of the vendor's team. In other situations they may be outsourced. But whatever the source of this expertise it needs to be recognised as a stakeholder and as such it needs to be included in the business case and managed by the project leader.

6.7 Financial managers and administrators as stakeholders

The third group of principal or primary stakeholders is the financial managers and administrators. Financial managers

and administrators are always stakeholders in any corporate investment as they are instrumental in making the funds available for the purchase of the assets etc. Financial managers and administrators will arrange the contracts and ensure that goods are received and that payments are made.

Financial managers and administrators are often involved with the detail of the business case accounting, as investment owners may not be familiar with the costing approaches required. Investments which are made to improve business processes and practices will often affect the internal controls within the organisation, and for that reason both internal and external auditors may be required to advise on the propriety of the new proposals.

Investments often have to be audited and this will require further involvement from auditors.

6.8 Different stakeholders – different views

There will always be a substantial number of different stakeholders associated with an investment. All investments are people-dependent and the preparation of the business case is highly dependent on the views of the different people, i.e. the different stakeholders. People produce business cases and it is always some individual person's work or department or territory, in some form, that is being considered for change through the acquisition of the investment.

Furthermore, it is people who will make assumptions and predictions about value and worth, who will assemble business cases. In business case development the role of the evaluator is sometimes suggested to be neutral. The business case developer attempts, it is said, to make the evaluation event impersonal by using an objective method and objective data to measure the value and contribution of the investment. This is irrespective of whether an ex-ante or ex-post, or a summative or formative evaluation is being conducted. Of course this has not always been the reality of the situation as it is nearly impossible to be neutral in the assessment of corporate investments. In fact an investment business case should not be

a neutral statement, but rather a statement of what the stakeholders are prepared to commit themselves to in terms of the proposed new processes and practices. Thus it is essential to remember that the business case is purposeful and is carried out to a particular end. The stakeholders interpret the value of the proposed project in their terms, and their view of the particular situation is subject to human values and behaviour. This is identified by Walsham (1993) who states that there are a 'multiplicity of private rationalities' that influence a business case. It is important for the individuals whose systems are being studied to know and to accept the criteria that are being used in the business case. Unfortunately there are no common or universally agreed standards or scales for interpreting the value of investment holistically or even of evaluating individual measurable aspects of an investment.

It is perhaps for this reason that the business case needs to be the concern of all the principal stakeholders. The principal stakeholders should really know what is involved and will be able to lead the organisation into using the investment in the most suitable manner so that an appropriate return will be achieved on the investment.

As may be deduced from the above, each group of stakeholders will have different views about the investment and it will be necessary to resolve these differences as much as possible. This will usually take the form of negotiations over the scope of the project. Typically the investment owners will want the scope to be wide and the technical professionals will want to confine the scope to a level they find to be relatively easily achievable. The financial managers and administrators will have their eye on the cost and the return on investment as well as how the new process or practice or equipment may impact internal controls. [Figure 6.1](#) shows how the negotiation among the three groups of stakeholders will involve feedback loops as they attempt to reach consensus about the scope of the investment. In this context participation from a wide range of individuals in the development of the business case is an important issue. It is not adequate to leave this process to senior managers, who may be distant from the proposed new investment.

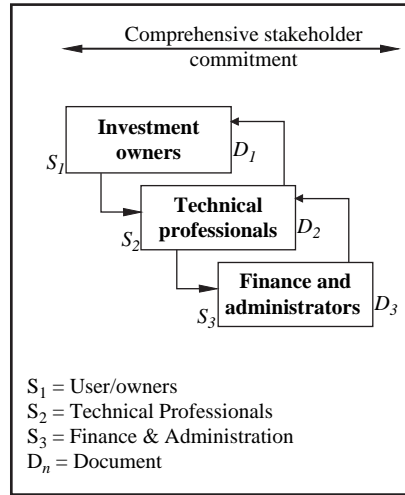


Figure 6.1 Feedback loops between the groups of stakeholders

6.9 Stakeholders – for and against

Some stakeholders may be in favour of the investment while others may not. Thus to ensure the success of a project, it is essential to understand not only who the stakeholders are, but also what their attitudes to the project are.

As well as dividing stakeholders into those who are in favour of the investment and those who are against it may also be viewed in terms of how active or passive they are. Using the two dimensions of *in favour* and *against* and *active* and *passive*, a 2 x 2 matrix may be developed as shown in Fig. 6.2.

Ideally stakeholders should be active promoters or supporters of the project, have an interest in the results, and be involved in the management of the changes brought about by the project. On the other hand stakeholders may not be active at all, but rather play a passive role and thus have no real influence on the project.

Of course sometimes stakeholders may not be supportive and in fact sometimes they may be antagonistic to the project. In any event stakeholders can usually influence the situation, and project managers will need to be able to acquire and retain their support or minimise their antagonism wherever possible.

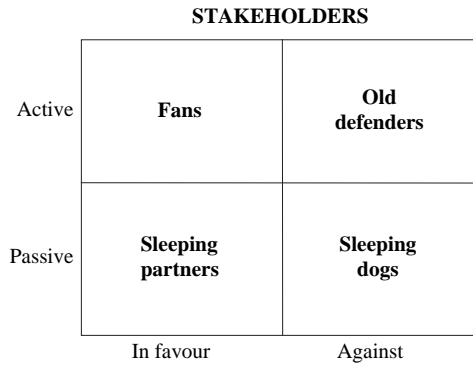


Figure 6.2 Dimensions of stakeholder involvement

It is important to have as many of the different stakeholders in the *fans* quadrant. However, if they are not in that quadrant it is important to try to prevent them from taking a position in the *old defenders* quadrant if possible. The stakeholders in the *old defenders* quadrant will actively resist the project as they see it as a threat to their current position.

Of course, the position of stakeholders does not remain static and a stakeholder who is a *fan*, if not handled correctly, may become an opponent or an *old defender*. It is for this reason that stakeholder management is critical to the success of a project.

A stakeholder management programme should have as an objective to move the *sleeping partners* up into the top left-hand quadrant where they would become a *fan*. Similarly the

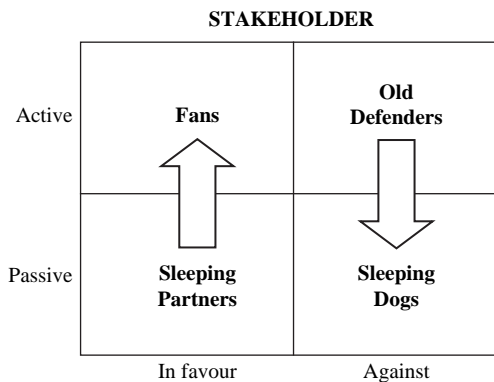


Figure 6.3 Changing the dimensions of stakeholder involvement

stakeholder management programme should attempt to move the *old defenders* down into the bottom right-hand quadrant where they would become one of the *sleeping dogs*. This is illustrated in Fig. 6.3.

6.10 Stakeholder mapping

As an investment will only be successful if it is made so by stakeholders it is really important to understand what the stakeholders think about the investment and to engage those stakeholders who are on our side as much as possible.

Another approach to understanding stakeholders is offered by Neville Turbit and the following four figures are modified version of his approach.¹ In this approach, having identified the stakeholders the first step is to establish how important each category of stakeholder is to the investment's success. Four categories are offered and these are crucial, significant, interested and involved. These categories may be represented as concentric circles as is shown in Fig. 6.4.

When the relative importance of the stakeholders is established then the next task is to consider how each of the individual stakeholders feels about the investment. The framework for understanding how individuals feel is essentially the same as shown in Fig. 6.3 but different words are used to describe the feeling of people. These new words are shown in Fig. 6.5 and are Fanatic, Allies, Luke Warm, Press Ganged.

It is a challenging task to do this job well and the business case developer needs to take the time to get to know the individuals who will be involved with the investment. Also it can be difficult to objectively make the judgements implied by these different categories. But what is sought here is an approximation and thus perfect accuracy is not a requirement.

By mapping Fig. 6.4 on top of Fig. 6.5 we obtain a framework for understanding how to manage the stakeholders.

¹ See <http://projectperfect.com.au/>.

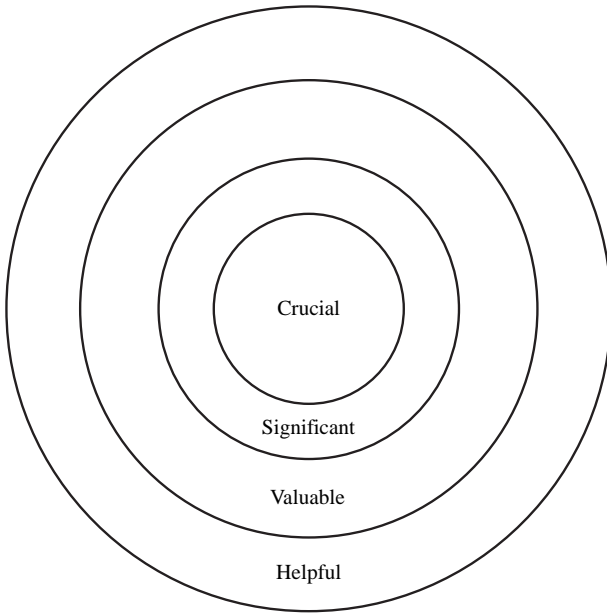


Figure 6.4 Importance of stakeholder

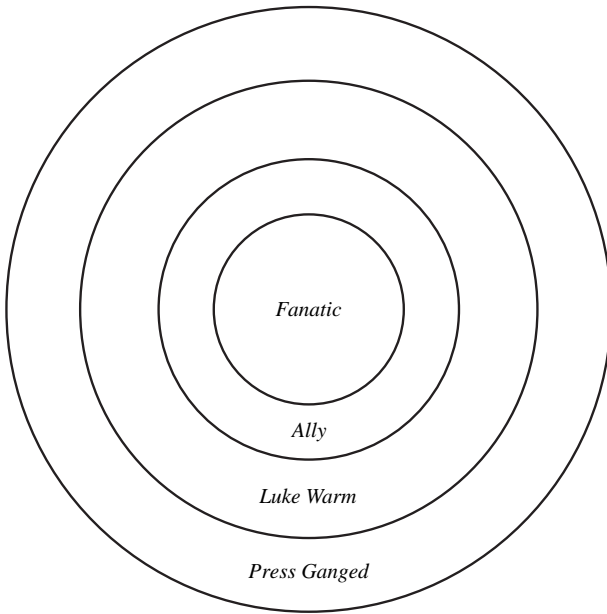


Figure 6.5 Supportiveness of stakeholder

No.	Individual	Importance	Support
1	Ann West	Significant	Luke warm
2	Fred Bush	Significant	Luke warm
3	Roger Biggles	Critical	Involved
4	Lisa Long	Crucial	Ally
5	Tom Brown	Ally	Interested
6	Bill Smith	Helpful	Luke warm

Figure 6.6 Locating the importance and support from different stakeholders

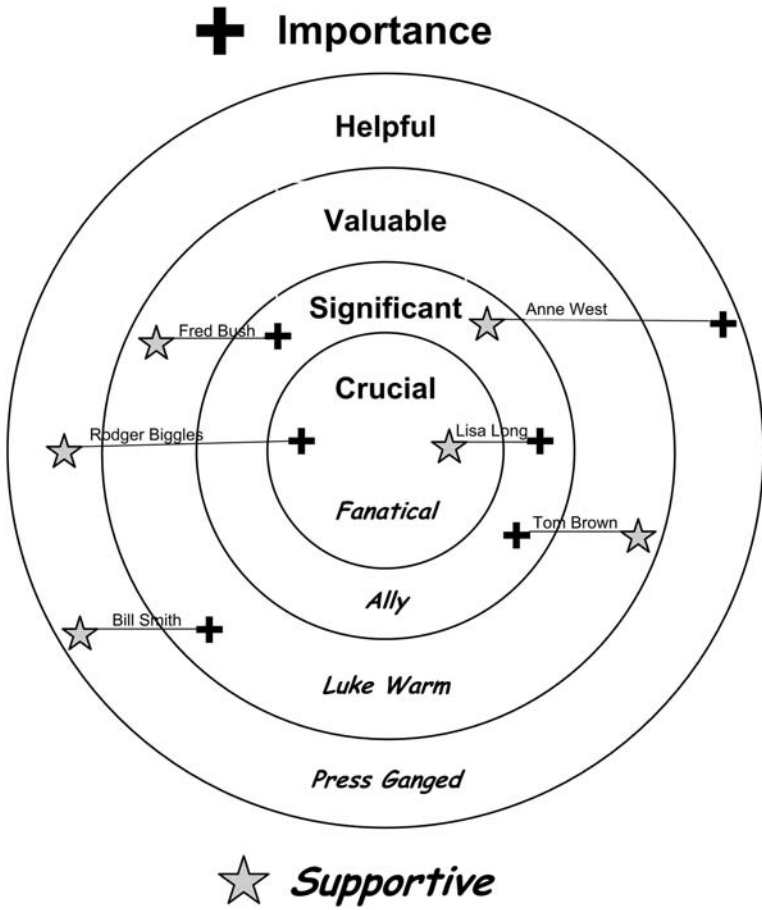


Figure 6.7 Overlay of importance/supportiveness

Figure 6.7. shows how the individuals may be mapped onto the combined diagrams.

6.11 Stakeholder management

The investment business case may be seen as the platform from which a sound programme of project management can be launched. To achieve this it is necessary to be able to manage the stakeholder situation. Thus it is important for the project managers be able to:

- (1) Identify the relevant stakeholders, pressure groups and other interested parties;
- (2) Assess stakeholder interests in terms of how they will react to the change brought about by the project;
- (3) Assess stakeholder commitment or antagonism;
- (4) Assess stakeholder power to promote or hinder the success of the project.

This information is required in order to evaluate stakeholder relations and ensure continued support, as well as to minimise any opposition from the stakeholders.

6.11.1 Identifying stakeholders

When embarking on a large-scale project it is important to itemise the range of activities that will be involved and to identify exactly who the players or actors in the project will be, together with their roles. This is a way of creating a comprehensive list or map of all the principal stakeholders in the project.

6.11.2 The stakeholder map

A stakeholder map is created by placing on a sheet of paper the name of the project that is being contemplated and then drawing circles around the sheet, each circle identifying an individual or group regarded as having a stake in the project. Place the most significant individuals or groups nearer the centre and other less significant individuals or groups around the edge. Have all the stakeholders named in this map and check to see if there have been any omissions, thus ensuring that the map includes all relevant interests, including: senior

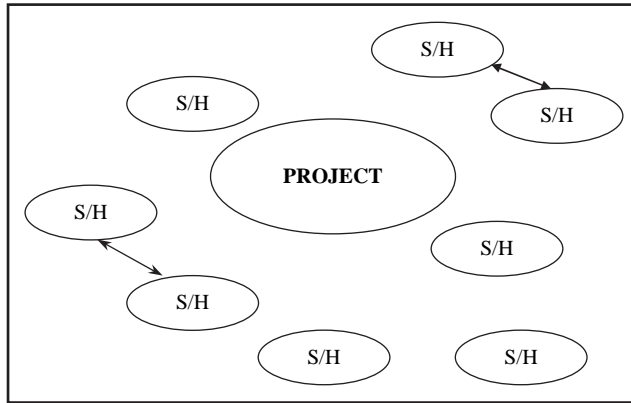


Figure 6.8 Stakeholder map

management, colleagues, staff, people in other organisations. [Figure 6.8](#) is an example of a stakeholder (S/H) map.

Note that the way different stakeholders and stakeholder groups relate to each other may directly affect the project. These types of relationships can be indicated on the stakeholder map by interconnecting lines or by the absence of these interconnecting lines. For example lines which show arrows at both ends may be used to represent complex two-way relationships where both groups of stakeholders may influence one another. If the arrow has only one head then the relationship is only one way with the second stakeholders being influenced but not being able to exert any counter influence. Where stakeholders are unconnected then they are ‘stand alone’ stakeholders who do not influence anyone else.

This type of map can also be used to show how relationships between stakeholders may change during the project. For example, during the course of the project, the reactions of different stakeholder groups may affect the attitudes of others. Concessions given to one group can quite likely affect the expectations of others. This could be shown on the stakeholder map.

6.11.3 Assess stakeholder commitment

Using a stakeholder commitment assessment table such as the one shown in [Fig. 6.9](#), details of the individual key

Key stakeholders	Strongly against	Against	Indifferent	Passively in favour	Actively in favour	Strongly in favour
Capital budgeting officers			x		y	
Internal IT					x	y
User group						x, y

Figure 6.9 Stakeholder commitment assessment table

stakeholders can be entered, and an assessment can be made as to what level of commitment each has towards the project. Figure 6.9 shows some example entries, where an x has to be placed in the column that best fits the current commitment of a particular stakeholder and a y has been entered in the column that corresponds to the level of commitment that is considered adequate.

The stakeholder commitment assessment table is a useful device for clarifying the position of each stakeholder group and it may also be used to discuss with each group where they are and how they could be encouraged to move to a more positive position.

6.11.4 Analysis of stakeholder power

To be able to manage the stakeholders it is important to perform an analysis of their positions and the type of power they may be able to exert. To do this it is necessary to establish:

- (1) Who is the project sponsor?
- (2) Who is the project champion?
- (3) Who is the key project manager?
- (4) Who is/are the investment own?
- (5) Who has most to lose if the project succeeds?
- (6) Who has most to gain from the project?
- (7) Whose attitude do you most want to change?
- (8) What capacity does each stakeholder have to help or hinder the project?
- (9) Which stakeholder should you most concentrate your efforts on?

6.11.5 Assess stakeholder interests

The stakeholder interests and action assessment is another helpful device in the management of the stakeholders. This assessment can be used to enter the key stakeholders and then to record the answers to the following six questions for each stakeholder group. Finding answers to these questions can be challenging, but they are critical to ensuring the success of the project.

- (1) What are the priorities, goals, and interests of each group of stakeholders?
- (2) How have they been involved in similar past projects and how might this information be useful with regard to possible reactions during this project?
- (3) What specific input is required of them during the project, e.g. active intervention on specific tasks, ability to work in a new job?
- (4) What are the possible benefits for each group of stakeholders?
- (5) What are their expectations from the project and what is their attitude to it?
- (6) What is their likely reaction to this investment opportunity and what issues or questions might they raise?

Figure 6.10 is an example assessment of how the capital budget stakeholder group might respond to the questions.

By performing a stakeholder interests and action assessment it should be possible to decide how the stakeholders can be influenced to support the project by identifying which project benefits will add value to each group of stakeholders.

6.12 The stakeholders and the business case

From Fig. 3.4 on page 42 it may be seen that stakeholders are involved in the business case in at least two distinct senses.

In the first instance when the business process or practice improvement opportunity is first raised it is necessary to establish an individual or group of individuals who will propose the project or intervention. Clearly it is very much

Stakeholder group: Capital budgeting officers	
1	<p>What are the priorities, goals, and interests of this group? <i>To ensure that a realistic budget is provided for the investment and that any changes to the detail of the budget are closely monitored throughout the project.</i></p>
2	<p>How has this group been involved in similar past projects and how might this information be useful with regard to possible reactions during this project? <i>This group of stakeholders have traditionally been cautious of estimates of spend provided by Internal and thus further cost-benefit analysis should be considered.</i></p>
3.	<p>What specific input is required of this group during the project, e.g. active intervention on specific tasks, ability to work in a new job? <i>The capital budget group should be prepared to re-evaluate expenditure periodically throughout the project.</i></p>
4	<p>What are the possible benefits for this group of stakeholders? <i>Continuous participation of the capital budget group can ensure closer adherence to budget estimates.</i></p>
5	<p>What are the expectations of this group from the project and what is their attitude to it? <i>The capital budget group is relatively indifferent to this specific project as it is one of several investment programmes they are currently involved with. Their expectations at this stage are that the project will probably exceed its budget and take longer than the estimated time.</i></p>
6	<p>What is the likely reaction of this group to this investment opportunity and what issues or questions might they raise? <i>The capital budget group will usually be conservative and will question the viability of the proposal, especially insofar as its ability to earn a suitable return on investment is concerned. This group of stakeholders will probably call for detailed justification of all the cost and benefit items within the business case accounting statement.</i></p>

Figure 6.10 Example stakeholder interests and action assessment

better if these are stakeholders and ideally principal or primary stakeholders such as the users/owners. But there will always be more than one group of stakeholders and thus the stakeholder issue needs to be addressed again within the business case by establishing who is likely to be for and against the investment and how these views may be managed. This is regarded by many as perhaps one of the greatest challenges which need to be faced if the project is to succeed.

Of course the investment business case will ultimately need to be approved and once again the question of which stakeholders are most involved at this stage is a central issue. If possible a widely representative group of stakeholders should

be involved at this stage as this tends to support later commitment to the project.

6.13 Summary

There can be many stakeholders involved in projects that change business processes and practices. In this chapter three major groups of primary stakeholders are described. However, in addition to these primary stakeholders, top management has always been regarded as supremely important, if not over-riding stakeholder.

It is important to understand that not all stakeholders may be sympathetic to the project and care needs to be given to the management of anyone who may not be supportive of the project.

Stakeholders are actually all-important to the success of a project. It is therefore essential that the stakeholders be on side right from the very start of the investment.

It is critically important for the success of a project that top management does not push projects which do not have wide support from the primary stakeholders.

Forms to help identify stakeholders and their roles are provided in Appendix B.



7

Strategic Alignment and
Benefit Identification

This page intentionally left blank

Strategy can be defined as the determination of the basic long-term goals and objectives of an enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying out these goals.

Chandler (1990, p. 13)

Strategy pertains to a firm's plan of action that causes it to allocate its scarce resources over time to get from where it is to where it wants to go.

Pascale (1986, p. 80)

7.1 Introduction

The organisation's corporate strategy is of central importance to its effectiveness. Strategic mismatches are a major cause when new investment takes place. New investments may pull the organisation in a different way to the overall corporate strategy. Thus the question of alignment is a critical aspect of the development of an investment business case. However, the issues related to corporate strategy are not always well understood, either by investment owners or by other corporate executives. Furthermore in some organisations it is not always clear precisely what their corporate strategy is.

In preparing the business case it is necessary to establish the corporate strategy. The next step is to list in what ways the new investment will support the corporate strategy.

7.2 Strategy? What strategy?

Before discussing the issue of strategic alignment it is important to understand the concept of strategy.

It is not a simple matter to define strategy. The problem is that there are many definitions of corporate strategy. Mintzberg et al. (1998) describes 10 schools of thought on the subject of corporate strategy with considerably more than 10 definitions. As was pointed out by Ansoff as far back as 1965:

All firms have a strategy. Some firms spend much time and money in reducing their strategy to writing, while other simply act out their strategy and do not bother to articulate it. The former are said

to have formulated their business strategy while the latter are said to have an implicit strategy.

Taking Ansoff's point further it is sometimes said that an organisation only needs an articulated corporate strategy when it has lost its original historic dynamic or *raison d'être*. Translated into practical terms this means that the *strategy tells you what it is you are supposed to be doing!* It is however most important to note that even firms which do not appear to have a corporate strategy actually do have an implicit strategy.

Another leading author in the field of corporate strategy offers a different dimension to the subject when he points out that he sees strategy as the master allocator. According to Quinn:

A strategy is the pattern or plan that integrates an organisation's major goals, policies and action sequences into a coherent whole. A well formed strategy helps to marshal and allocate an organisation's resources into a unique and viable posture based on its relative internal competencies and short-comings, anticipated changes in the environment, and contingent moves from intelligent opponents. (Quinn, 1988)

It is also useful to understand where the focus of strategy should be placed. Ansoff points out that:

Strategic decisions are primarily concerned with external, rather than internal, problems of the firm and especially with selection of the product mix which the firm will produce and the markets to which it will sell. (Ansoff, 1965)

And this is reinforced by Porter who said that:

The essence of formulating competitive strategy is relating a company to its environment. Although the relative environment is very broad, encompassing social as well as economic forces, the key aspects of the firm's environment is the industry or industries in which it competes. (Porter, 1985)

Of course these definitions are incomplete without pointing out that strategy is also highly correlated with competencies. Thus Kay makes the point that:

The strategy of the firm is the match between its internal capabilities and its external relationships. It is how it responds to its suppliers, its customers, its competitors, and the social and

economic environment in which it operates. The analysis of strategy uses our experience of the past to develop concepts, tools, data and models which will illustrate these decisions in the future. (Kay, 1993)

Although these definitions of strategy provide useful insights into what corporate strategy is and how it works in an organisation, it is not easy to operationalise these ideas and concepts. A more succinct and useful definition of corporate strategy is that:

Corporate strategy is how an organisation finds, gets and keeps its clients.

Accepting this as a functional definition of strategy means that it is relatively easy to see whether an investment supports the organisation's strategy. When it does, it is said that there is strategic alignment between the corporate strategy and the investment strategy.

7.3 Approaches to strategic thinking

To understand the ways in which an investment can be aligned with the organisation's corporate strategy it is necessary to review some of the more important corporate strategy models. There are many such models available, but it has been decided to restrict the discussion to models developed by Porter and Treacy and Wiersema.

Although the origins of modern strategic thinking date back into the 1950s, the subject really began to gather momentum in the 1980s. Michael Porter is one of a small group of the most influential authors on the subject and his work in this area may best be understood through three models that he proposed. These are the *five forces model*, the *generic strategy model* and the *value chain model*.

7.4 The five forces model

The model portrayed in Fig. 7.1 illustrates Michael Porter's five forces view of what determines an industry's attractiveness. It is maintained that a firm's performance is considerably

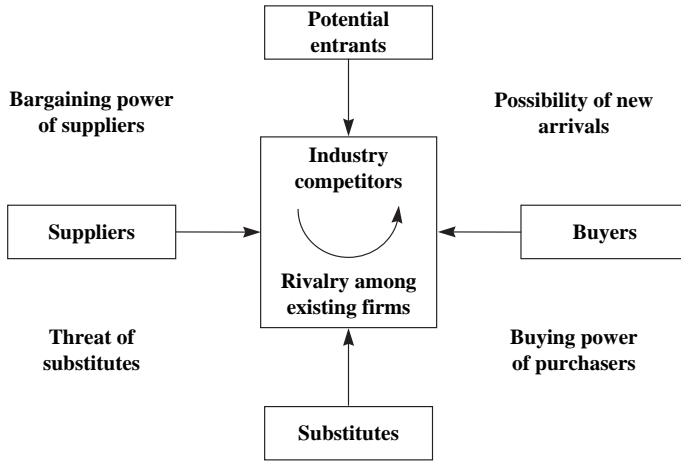


Figure 7.1 The five competitive forces in industry model

confined by the five forces which act upon: the strength of the buyers (1) and suppliers (2); the number of potential new entrants (3) and substitutes available (4); and the rivalry among existing firms in the industry (5).

These five industry drivers or forces determine the relationship of the firm to the other players/stakeholders in the industry environment and this in turn is a major factor in establishing the organisation's opportunity to make profits and sustain reasonable growth levels. The five forces model explains why some industries are intrinsically highly profitable and others are not.

The relationships between the players in a given industry are not immutably fixed. Organisations can change the balance of power among the forces in the industry by techniques such as locking in clients and creating barriers to new entries, etc. If used correctly in this respect investment in assets such as ICT can either transform the relationships or alternatively can lead to the creation of new products, or even new ventures or enterprises.

7.5 Generic strategies model

The second Porter model described in Fig. 7.2 focuses on the two generic strategies that a firm may adopt in its efforts to find and keep its clients.

Generic Strategies for Competitive Advantage

Competitive Scope	Broad Target	Cost Leadership	Differentiation
	Narrow Target	Cost Focus	Differentiation Focus
		Lower Cost	Differentiation

Figure 7.2 Generic strategy model

Despite the fact that there are only two generic strategies, Fig. 6.2 has four boxes. This is because these two generic strategies may be applied independently on a broad or narrow target basis. The only difference between broad target and narrow or niche approaches is the number of potential clients the firm is trying to reach.

In this view a firm could enhance its market image and performance, and as a result obtain a premium price, or offer a low cost no frills product or service. By following one of these two generic strategies firms become superior performers in their industry. It is important to understand that according to Porter every firm has to choose whether it is a cost leader of a differentiator. Failure to chose and attempting to be both simultaneously cause confusion in the market and thus to a lack of success.

7.6 The value chain model

The third, the value chain model, shown in Fig. 7.3 provides a detailed view of the major organisational components comprising a typical business firm. This view argues that a strategy cannot be derived by considering the firm as a whole. The firm has to be de-aggregated. It is suggested that a detailed analysis must be undertaken which will provide sufficient understanding of the business to be able to construct a suitable strategy. The value chain is Porter's tool or framework for carrying out the analysis.

The value chain is described as the interrelationship of the *value activities* for the firm. Value activities divide the

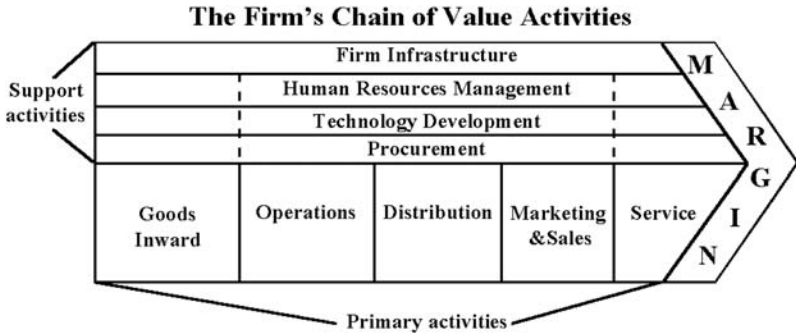


Figure 7.3 Porter's value chain model

firm's operations into technologically and economically distinct activities that must be performed in order to do business. Therefore, by the nature of its business, its strategy and the industry in which it functions, firms will have distinctly different value activities and therefore distinctly different value chains.

7.6.1 Value activities

There are nine categories of value activity in a typical manufacturing firm. These are:

- ◆ Goods inwards,
- ◆ Operations,
- ◆ Distribution,
- ◆ Marketing and sales,
- ◆ Service,
- ◆ Procurement,
- ◆ Technological development,
- ◆ Human resource management,
- ◆ Firm's infrastructure.

This value chain concept simply segments a firm into strategically relevant activities in order that the cost and the potential for differentiation can be examined.

Investment plays a critical role in optimising both the efficiency and the effectiveness of all the value activities in the

value chain. Investment can improve corporate performance in each of the vertical, primary activities or horizontal support activities, sections. For example in the case of goods inwards there are a range of applications that can enhance this process. However, the choice of the most appropriate investment will depend on the corporate strategy. If the organisation is pursuing a cost leadership strategy then the emphasis will need to be on how to minimise cost and also how to apply investment to reduce other costs associated with the goods inwards function. If the organisation is pursuing a differentiation strategy then the emphasis will need to be on how to enhance the goods inwards function in such a way that the organisation can offer a better customer service. This could mean that there are more funds available for investment to support this function.

7.6.2 The industry value chain

As all firms may be seen to have value chains it is possible to also think about supplier and customer value chains. Looked at as a whole, it is therefore also possible to consider the industry value chain. All the value activities of the members of the industry value chain represent a potential for competitive advantage and superior performance through both cost leadership and differentiation.

An important consequence of the value chain analysis is the notion that firms may link different elements of their own value chains to the value chains of other organisations in the industry. [Figure 7.4](#) shows how a firm could link its operations to a buyer's distribution system, and its distribution (outbound logistics) to a client's goods inwards (inbound logistics). Firms could also make useful connections on the support activities level as well as between primary activities and support activities. Such links or joins will really only be effective through close collaborations accompanied by the use of ICT, and show how a firm can take advantage of its industry value chain, as illustrated in [Fig. 7.4](#).

It is also possible for firms in different industry value chains to co-operate. This is usually referred to as establishing strategic

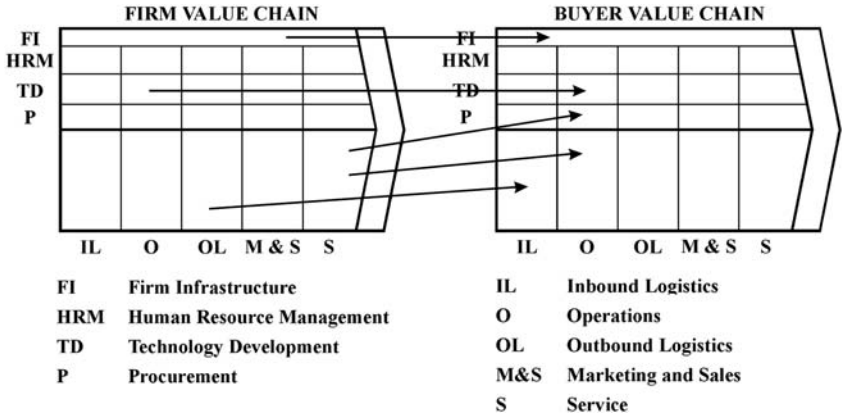


Figure 7.4 The industry value chain showing links between different organisations

alliances. In Fig. 7.5, two industry value chains are shown, indicating how a strategic alliance may be set up. Firms that have successfully used ICT in the above way have in numerous instances transformed their business, or given themselves very significant advantages in the marketplace. Key applications in this respect include inter organisational systems (IOS) which may now be web enhanced and perhaps leading to extranet type systems.

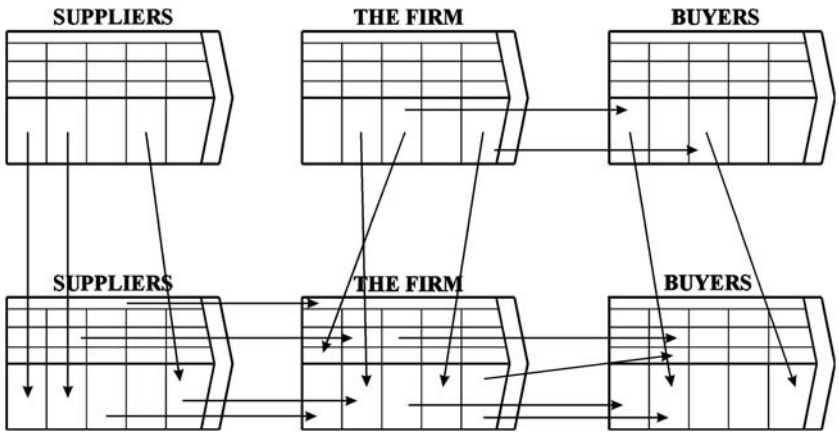


Figure 7.5 Industry value chain showing strategic alliances with suppliers, buyers, competitors, etc.

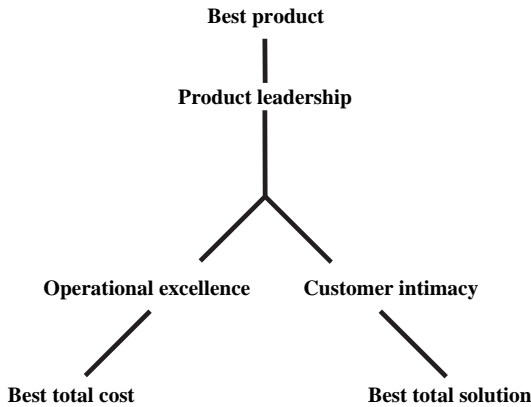


Figure 7.6 The three value propositions

7.7 Strategy and the value package

Another approach to strategic formulation, as defined by Treacy and Wiersema, considers the value package. According to this theory the best value package is centred on one of three approaches. As can be seen in Fig. 7.6 there are three principal business strategies available for delivering a best value package. These are to have *the best product*, to have *the best total cost* or to have *the best total solution*. As it is usually not possible to excel with all three systems, an organisation should focus on being a top performer in one business system and be on par with others in the market place on the other two value package approaches. This need to excel in one strategy and still be competent in the other two is a marked difference between Porter and Treacy and Wiersema.

7.7.1 Operational excellence – best total cost

To deliver a best value package through a best total cost system a firm will strive to deliver operational excellence as shown in Fig. 7.7. A firm adopting this system will usually apply a low price, but limited product variety strategy. A rigid approach to service needs to be applied. For this type of strategy to be successful there would need to be a lot of advertising, but little direct contact with the consumer.

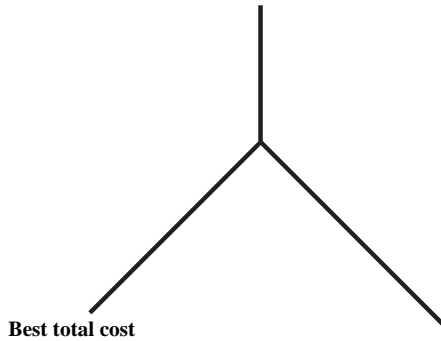


Figure 7.7 Operational systems – best total cost

To be successful along this strategic route the core processes or major challenges will include the need to:

- ◆ optimise the resource conversion process;
- ◆ facilitate end-to-end supply chain management;
- ◆ build sound partnerships within and without the firm;
- ◆ be highly focused on efficiency, cost reduction and waste control and to apply process benchmarking.

All of these four sets of core processes may be supported by investment of various sorts.

Many retail organisations as well as budget airlines follow a strategy of best total cost and operational excellence.

7.7.2 Customer intimacy – best total systems

To deliver a best value package through a best total system approach, a firm will pay much more attention to customer intimacy as shown in Fig. 7.8. By this it is meant that the firm must really understand its clients' business. The result of this will usually be the supply of technically sound products, tailored to the clients' requirements, but normally without much innovation. The expertise required by the firm attempting to follow the best total systems strategy resides in knowing the clients' exact needs and the ability to provide quick follow-up solutions to these needs with appropriate technology. Best total systems need to be able to provide a tailored service with few glitches. The sales representatives

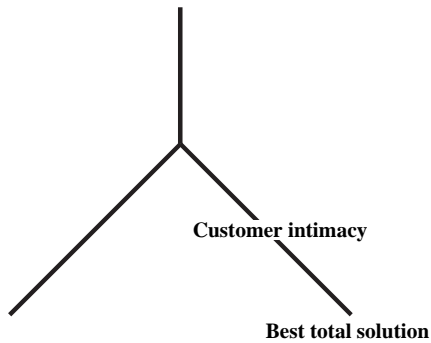


Figure 7.8 Customer intimacy – best total solution

will normally be responsible for ensuring that the client gets what is required. This will usually result in the product being a little more expensive.

To be successful along this strategic route the core processes or major challenges will include the need for a basic win-win philosophy. The firm will need to put much emphasis on knowing in some detail, not only the client but also its market and the competition. There needs to be a high level of flexibility in order to produce the product or service that the client really requires. Management needs to be prepared to listen to the sales team and to the clients and to act upon the information.

Vendors of large capital equipment often follow the strategy of best total systems and customer intimacy, as do firms of management and computer consultants. Merchant banks would also fall into this category.

7.7.3 Product leadership – best product

To deliver a best value package through a product leadership strategy a firm will concentrate on producing the highest quality and most functional product available as shown in Fig. 7.9. This will require attention to the application of technology in order to innovate to produce a better product or service than the competitor. Price is not a key issue when pursuing this strategy. Marketing will often be based on big bang launches as the organisation announces that its products are better than competitors.

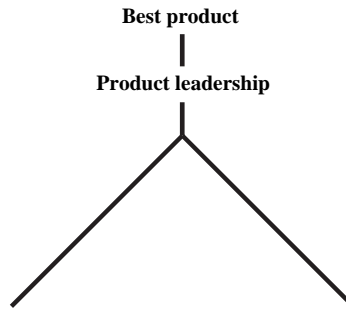


Figure 7.9 Best product – product leadership

To be successful along this route the core processes or major challenges will include the need for considerable investment in research and development to continually create high-quality innovative products. Benchmarking will be important and firms must be prepared to discontinue products. In order to maintain product leadership it is important that new products get to the market quickly.

Hi-tech organisations such as those in the electronics, aviation and pharmaceuticals industries frequently follow a product leadership strategy. These products will always look to capture a price premium when they are launched.

7.8 The question of strategic alignment

Having established the corporate strategy that the organisation is following or attempting to follow, and having developed a list of applications and benefits which the organisation expects to obtain from the investment, the next step is to establish if these are in alignment. An investment may be said to be in alignment with the corporate strategy if the processes or practices supported by the investment will directly assist or contribute to the organisation in achieving its strategy.

For organisations using the generic strategy model of cost leadership the question is then: *‘Will the investment help reduce the direct cost and thus allow the organisation to get its price down or help it keep its low price position?’* For organisations using Porter’s generic strategy model of differentiation the question is then: *‘Will the investment help the organisation*

become or sustain itself as a provider of a high quality and price premium based product or service?"

For organisations using value package strategy model the questions are similarly aimed at the three strategic alternatives.

7.8.1 Strategic alignment using the Porter model

A useful way of working with strategies and investments is to create a Function/Process-Strategy Table as shown in Fig. 7.10. By listing the functions or processes that will be affected by the investment, and by establishing the strategic impact of each

Function/Process	Low Cost	Differentiation
Product design and development	Product engineering systems Project control systems CAD	R&D databases Professional multi-media workstations E-mail CAD Custom engineering systems Integrated systems to manufacturing
Operations	Process engineering systems Process control systems Labour control systems Inventory management systems Just in Time (JIT) processes Procurement systems CAM Systems to suppliers	CAM for flexibility Quality assurance systems Systems to suppliers Quality monitoring systems for suppliers
Marketing	Streamlined distribution systems Centralised control systems Econometric modelling systems Telemarketing	Sophisticated marketing systems Internet marketing Market databases IT display and promotion Web enhanced systems Competition analysis Modelling High service level distribution systems
Sales	Sales control systems Advertising monitoring systems Systems to consolidate sales function Strict incentive monitoring system Customer Relationship Management (CRM) systems	Differential pricing Office to field communications Sales support Dealer support Systems to customers
Administration	Cost control systems Quantitative planning and budgeting systems Enterprise Resource Planning (ERP) systems Office automation for staff reduction	Office automation for integration of functions Environmental scanning and non-quantitative planning systems

Figure 7.10 The Function/Process-Strategy Table – a list of investment applications to support the two generic strategies

investment, it is possible to arrive at a view concerning strategic alignment.

Figure 7.10 shows how prospective investments in ICT could be analysed for their potential to support an organisation's generic corporate strategy.

7.8.2 Strategic alignment using the three-value package strategy model of Treacy and Wiersema

The four-column table in Fig. 7.11 is useful if the three-value package strategy model is being used to match investments/applications to facilitate the corporate strategy.

Function/Process	Best product	Best total cost	Best total solution
Product design and development	CAD and CAM	Integrated systems to manufacturing Web marketing systems	R&D databases Professional multi-media workstations Email Custom engineering systems
Operations	Process engineering systems Process control systems CAD and CAM Systems to suppliers	Labour control systems Inventory management systems Procurement systems	CAM for flexibility Quality assurance systems Systems to suppliers Quality monitoring systems for suppliers
Marketing	Streamlined distribution systems Centralised control systems Econometric modelling systems	Sophisticated marketing systems Internet marketing Market databases IT display and promotion Web enhanced systems Telemarketing	High service level distribution systems Competition analysis Modelling
Sales	Sales control systems Advertising monitoring systems Systems to consolidate sales function EDI applications	Differential pricing Office to field communications Sales support Dealer support Strict incentive monitoring system	Systems to customers
Administration	Cost control systems Quantitative planning and budgeting systems	Office automation for integration of functions Office automation for staff reduction	Environmental scanning and non-quantitative planning systems

Figure 7.11 The Function/Process-Strategy Table – a list of applications to support the three-value package strategies

7.9 Shifting sands

There is no doubt that globalization, deregulation and the accelerated pace of innovation have added a considerable layer of complexity to most business models. The effect of this may undermine the existing strategic alignment even in the short run. In this turbulent environment unexpected opportunities may surface. Management needs to be flexible enough not only to recognize these opportunities but also where possible to acquire a competitive advantage out of them. For today's entrepreneur the watchword should always be '*Carpe diem*', which when roughly translated means grab the opportunity. For this reason alone corporate strategy should not be seen as having been set in concrete but rather being kept in a viscous state so that it can respond to change.

7.10 Summary

Every organisation has a strategy. The corporate strategy does not have to be written down or stated explicitly.

New investment needs to support the corporate strategy, i.e. be in alignment with it rather than working against it. If the investment and corporate strategy are not in alignment then there should be serious concern about the wisdom of the investment and consideration should be given to not to proceed with it.

Using a Function/Process-Strategy Table such as those shown in Figs 7.10 and 7.11 may be helpful in deciding if there is an appropriate alignment.

Forms to help to produce the deliverables required from this phase of the business case are provided in Appendix C.

This page intentionally left blank



Technology Issues

This page intentionally left blank

Despite years of technological improvements and investment there is not yet any evidence that information technology is improving productivity or other measures of business performance on a large scale – or, more importantly, significantly enhancing US economic performance. ... the fundamental blame falls with organisations. Information technology holds great potential, but companies have failed to provide structures and processes that facilitate the use of information technology in ways that create significant net value.¹

Loveman (1991)

It is very often impossible to ascertain immediately a project ends whether or not it has produced any or all of its expected benefits.

Bradley (1996, p. 129)

8.1 Introduction

No matter how good the proposed organisational process or practice intervention is from a business perspective, it is necessary to take a careful look at the technology issues which underpin the proposal. This is done in the technology report which also provides much of the detail required for the actual management of the tasks and the deliverables of the project. This part of the investment business case focuses on the projects' *technobility*, *doability* and *achievability*.

The technology issues report gives the stakeholders a high level view of the key technological challenges influencing the investment business case. This complements the other aspects of the business case discussed earlier.

The impact of the technological investment is on the business processes themselves. However, the technology itself also makes demands on the firm or organisation. These demands require a number of questions to be answered such as whether the technology will really work the way it is envisaged. Is the

¹ This statement by Loveman is today highly controversial. Most authors would argue that there is evidence that technological improvements and investment have shown satisfactory improvements in business performance. However, there is also evidence of considerable waste resulting from investments such as these. On average it is probably true to say that investment in technological improvements is a high risk.

proposed technology state of the art or is it at the end of a technological cycle. What are the social and political implications of using this technology? Should the technology be in-house or bought-in? Should it be off-shored? It will also be necessary to decide which technology to purchase.

The chosen technology directly influences the project management, including the timing of the delivery of the new processes or practices and the schedule for the establishment of the new procedures to realise the benefits of the investment.

8.2 Understanding required by the principal stakeholders

To evaluate the technological investment the stakeholders need to have a clear understanding of six key aspects of the investment being proposed. These are:

- (1) What is the proposed technology and what are the technological building blocks that have to be bought/developed to realise that solution?
- (2) Does the organisation have the competence to use the proposed technology and if not can it be acquired?
- (3) Does the technology have any societal implications?
- (4) What is the proposed schedule for the delivery of the technology and thus the solution?
- (5) Are there any political implications?
- (6) What are the technology related costs of the project?

8.3 A difficult challenge

All six of the above questions are very difficult to answer. Furthermore these are not questions to which there are uncontroversial answers and it is important that there be some consensus among the key stakeholders.

One approach for attempting to reach a consensus is a Delphi study. A Delphi study involves a number of individuals who are knowledgeable on a particular subject and through a process of reiterative reflection attempt to establish a consensus.

In the case of considering the use of a technology or group of technologies in an organisation there might be four or five individuals who would have an informed opinion on this subject. The organisation might also wish to involve one or more vendors or perhaps a consultant. It might also be useful to include a staff representative. This would constitute the Delphi panel.

In a Delphi study a questionnaire is sent to all the members of the panel. The questions are phrased so that panel members indicate how strongly they agree with a proposition. A scale of 1 to 10 or 1 to 9 is often used. An example of the questions which might be asked is, '*Nanotechnology will become the most important technology for our organisation within the next 3 years*'. Another question put to the panel could be, '*Without an interactive web based help service our after sales service ratings will decline*'. The results of the answers to these questions are averaged and a standard deviation for the answers to each question is also calculated. When this is completed the same questionnaire is returned to all the members of the Delphi panel with a summary of the result of the first round. The members of the panel are then asked to reconsider their responses to the questions in the light of knowing the average score and the standard deviation of the first round. This requires a level of reflection which would not normally occur in the day to day running of the organisation.

The usual outcome of this is that the panel members will revise their opinions and that the scores for these revised opinions will tend to move towards the average. This process is sometimes repeated one more time.

A Delphi study will typically take a week to conclude and will certainly bring to the fore issues related to the technology which would not normally be raised without the degree of reflection required by the Delphi. A copy of a typical Delphi questionnaire is provided in Appendix D.

8.4 Create a technology statement

The first step in reviewing the technology involved in the IT investment business case is to create a technology statement.

This is a high level summary of the technological solution and should address the following issues:

- (1) Describe the technology proposed including the components required.
- (2) Are there any training issues for the people concerned?
- (3) Are there any budget issues?
- (4) What alternatives are there?
- (5) Timing of the project?
- (6) What is the timing situation with regards the product life cycle of the technology?

8.4.1 Infrastructure

Sometimes when acquiring new technology there are infrastructure issues. These issues may include the following:

Is the factory big enough to take the new equipment?

Do we need to build a new building to house the equipment?

Is the electrical supply to the buildings adequate?

Are we able to attract the right people to our part of the country to run the new equipments?

There are many more such issues but this short list gives a general idea of the type of questions which need to be asked.

8.4.2 Components

The components section of the technology statement is a list of the hardware required by the project. This needs to include the details of the processors, storage devices, monitors, printers and any other equipment. This hardware requirement may be set out in tabular format suggested by [Fig. 8.1](#) below.

Components Description	Function	Number	Size/Capacity	Special characteristics

Figure 8.1 The hardware requirement

This table summarises what components need to be supplied in high-level non-technical terms. The special characteristics column is an important one that needs to be used to bring to the notice of stakeholders', unusual or high specification items.

The issues that need to be considered here include:

- (1) Reliability: if it is envisaged that the components need to run for 24 h/day then this could be noted here.
- (2) Special features: equipment needs to be portable and robust as they are going to be used in rough territory.

8.4.3 People

People are required to realise the technological solution and implement the change process to put in place the proposed investment.

The presentation of the business case needs to show clearly how the staffing and expertise to deliver the solution can be assembled. This resource and expertise can come from within the organisation or be bought in the form of consultants or contractors, outsourcers, etc. Once again a table can be used to present the information, as shown in Fig. 8.2.

The table summarises the expertise available in-house for this project. It summarises the expertise at a high level and gives a feel of the size and depth of the support available for the technological solution. The information presented needs to cover both the development and operational expertise necessary to build, deliver, commission and maintain the technological solution. It will also highlight areas of particular strength and vulnerability. The Project Leader and his or her deputy should be named in this summary.

Job category	Number of staff	Expertise available – strengths/vulnerability	Proposed start date	Proposed end date

Figure 8.2 People required to realise the solution

Item	Purchased outright	Leased or rented	Outsourced	Developed in-house
<i>Purchases/development</i>				
<i>Commissioning</i>				

Figure 8.3 Budget for the technology required for the investment

8.4.4 Budgets

An estimate of the capital expenditure for the investment is required. This can be divided into several different groups, including purchased outright, leased or rented, developed in-house, etc. [Figure 8.3](#) is an example of the types of issues that need to be included here.

8.4.5 Timing of the project

An important consideration is the lapsed time of the project and this issue needs to be addressed in the technology statement.

In order to be able to be confident about the lapsed time for the development of the project it is necessary to develop a high level project plan. This needs the work to be broken down into detailed activities and requires these to be programmed or scheduled in an appropriate manner. This aspect of the technology statement can be supported by the use of tools such as bar charts or critical path analysis techniques. [Figure 8.4](#) shows a network diagram that illustrates the steps that the project needs to go through.

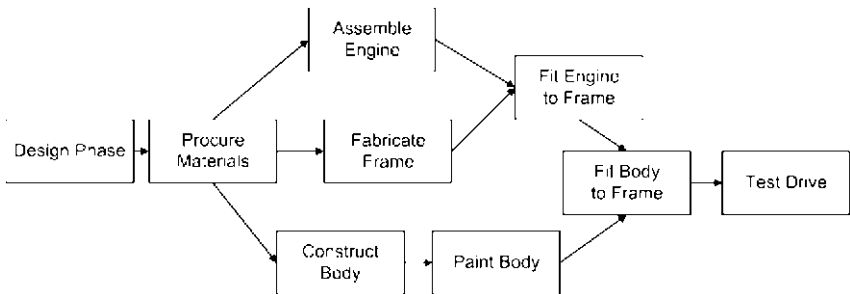


Figure 8.4 High-level network diagram showing the activities of the project

The schedules and timings around the building, delivery and commissioning of the technological solution are of key importance to the business case and its evaluation. There is practically always a serious time constraint on the realisation of a business plan once the decision to go ahead has been made.

To realise the technological solution, set up the required organisation and commission the whole business solution, a full project planning and control system will have to be elaborated and put in place by the project management. However, what is needed for the stakeholders to evaluate the business case and monitor progress is a high level summary of the schedule and subsequently variances from the plan.

8.5 Checklist to assist completing the technology statement

The following eight questions represent a useful checklist in producing the technology statement. The answers to each question needs to be thought through carefully and not rushed.

- (1) Is the proposed project technically doable? Who says this and is this opinion credible?
- (2) Does the organisation infrastructure need changing? If so how extensive are the changes and how will they affect other parts of the organisation?
- (3) Should all or part of the project be outsourced? Would off-shoring be a better alternative?
- (4) Does the organisation have the competencies to deliver? What are the names of the particular individuals who are competent to deliver?
- (5) Can the team produce the required deliverables in an appropriate time scale? Have the team members personally committed to this?
- (6) Does the project budget (purchasing and commissioning) look reasonable? How much contingency is there?
- (7) Is the organisation capable of absorbing the implications of the proposed system? What unforeseen repercussions

- could the introduction of the new technology have? This question by its very nature, cannot be fully answered.
- (8) Is there any other compelling technology reason why the project should not be undertaken?

8.6 Summary

The technology issues are an important aspect of an investment business case. This dimension of the business case should be prepared primarily by technology professionals, in conjunction with the users/owners.

If there is any question that the organisation is unable to provide adequate expertise to produce the technology statement then this may be outsourced to independent consultants. It is important not to outsource the development of this statement to prospective vendors.



Risk – Conceptualising and Measuring

This page intentionally left blank

The only fence against the world is a thorough knowledge of it.
John Locke, *Some Thoughts Concerning Education* (1693)

Risky investments may indeed carry a 'premium' reward but the existence of a precise relationship between the two cannot be demonstrated or verified as there is no objective and generally accepted method of evaluating risk.

Boyadjian and Warren (1987)

9.1 Introduction

Acquiring an understanding of the risks involved in a project is a central part of developing a comprehensive investment business case. The risk profile of the proposed investment needs to be clearly stated and if it is too high the business case should not be approved.

Risk appraisal in business cases has been frequently ignored and as a result many otherwise apparently sound business cases have actually been seriously flawed. When this happens investments fail.

Risk is always present in investments and this was well illustrated by Fortune and Peter when they described the London Ambulance Service computer disaster as follows:

The computer press is littered with examples of information technology fiasco or near disasters. An example is the computer aided dispatch system introduced into the London Ambulance Service in 1992. The £1.5 million system was bought into full use at 07:00 hours on 26 October and almost immediately began to 'lose' ambulances. During that and the next day less than 20% of ambulances reached their destinations within 15 minutes of being summoned, a very poor performance when compared with the 65% arriving within 15 minutes the previous May and the target set by the Government of 95%. The service reverted to semi-computerised methods during the afternoon of 27 October and then right back to manual methods on 4 November when the system locked up altogether and could not be re-booted. (Fortune and Peter, 1995)

Although it is not essential that a full risk analysis be performed in order to produce a business case, a review of the more important risk issues should be addressed and incorporated into the investment business case.

9.2 Defining risk

Risk is a challenging concept to define, understand and ultimately to manage. This is primarily because the idea of risk can mean different things to different people. In terms of a formal definition, risk is described as

The probability that the actual input variables and the outcome results may vary from those originally estimated. (Correia, 1989)

This implies that the extent of the possible/probable difference between the actual and expected values reflects the magnitude of the risk.

Another way of looking at the definition of risk is provided by Chapman and Ward who state that:

A broad definition of project risk is ‘the implication of the existence of significant uncertainty about the level of project performance achievable’. (Chapman and Ward, 1997)

It should also be remembered that project risk management is a relatively new subject. According to Fairley:

Risk management in technical projects is a relatively new discipline, dating from around 1980. (Fairley, 1990)

Clearly investments and the risks associated with them should not be left to luck.

Max Wideman – Chairman of the PMI standards Committee uses a colourful analogy:

You find yourself being shot at. You have 3 choices:

- 1. You can move to avoid the bullet;*
- 2. You can deflect the bullet; or*
- 3. You can repair the damage done by the bullet.*

At no time are you in control of the bullet. What you have to manage is your response to the event (risk) not the event itself.

9.3 A 3 × 3 risk framework for project risk

The management of investment or project risk can be a highly intuitive art. However, there are some frameworks and guidelines to help assess and manage investment project risks. One of these frameworks is the nine-variable approach described here in Fig. 9.1.

In the above figure B indicates business risks, D indicates development risks, and A indicates architectural risks. The business risks are mentioned first as they are the most fundamental risks which an investment faces. The development risk is relatively straight forward and the top levels of risks are the architectural or technical risks which should be the least problematic. However, having said that technology, especially leading edge technology, can still deliver unusual and very difficult challenges.

In this framework the risks are considered in terms of three major groups or categories. These are business risks, development risks and architecture risks. For each of these categories three individual risks are discussed. However, in practice these risks may not balance out symmetrically in this way. On occasions there may only be one or two business risks, perhaps five or six development risks and only one or two technological risks, while on other occasions there may be seven or eight business risks and few development and architecture risks.

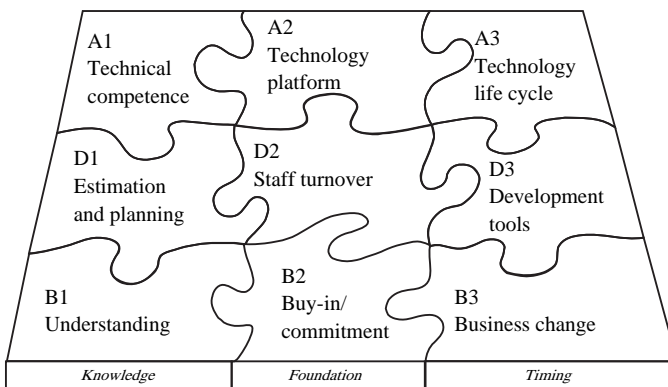


Figure 9.1 Key risks jigsaw

9.3.1 Risks categories: business, development and architecture

In Fig. 9.1 the three major risk categories are represented by a jigsaw metaphor. The jigsaw is appropriate because it suggests the interlocking nature of these issues both horizontally within a risk category and vertically across domains or perspectives. Single development risks seldom occur. Thus it is important when thinking about development risks not to isolate or over exaggerate any one risk, as the components of one category of risk will invariably affect another category.

Although there may be any number of risks within a particular category, the three most important ones are discussed here. Obviously there are frequently more than three risks facing a project under each of these general areas. However, it has been decided to focus on the three most serious potential problems that can be encountered. Of course what is considered to be a potentially serious problem is a function of an organisation's culture and its historic experience, but the three risks mentioned here would be considered to be serious in all organisations.

The order of the risks within the jigsaw in Fig. 9.1 is important. The most basic risks, which can easily destroy a project, and which it is quite possible for an organisation to be completely unaware of, are the business risks. Thus these are the most dangerous or difficult challenges facing any project.

Development risks are usually considered the second most problematic; they can be as devastating to the project as the business risks.

Although still important, infrastructure risks are generally less threatening. This is not to say that a project cannot be wrecked by poor infrastructural decisions.

9.4 Other types of project risk

The following example comes from the ICT world and involves the use of 2×2 matrix to highlight risks associated with using new technology and at the same times creating new

applications. This framework was created by Warren McFarlan of Harvard Business School. Although the example is expressed in ICT language the principles elucidated here are relevant to most investment projects.

McFarlan views some of the risks associated with information systems. He suggests that there are two main categories of risk, which are described as risks associated with failures of execution and risks caused by failures of conceptualisation. This may be expressed as a matrix as is shown in Fig. 9.2.

9.4.1 Risk associated with failures of execution

The risk associated with failures of execution can be categorised under three headings. These are the risks related to the structuredness of a project, the degree to which a project incorporates company-specific technology, and the size of the project. It is possible to use a 2×2 matrix to position the different levels of risk relative to the dimensions of structuredness of the project and novelty of the technology.

The issue of the size of the project simply asserts that the larger the project the higher the risk, which in general terms is relatively obvious. There can however be exceptions to this proposition.

It is useful to consider each of the four quadrants in Fig. 9.2 separately.

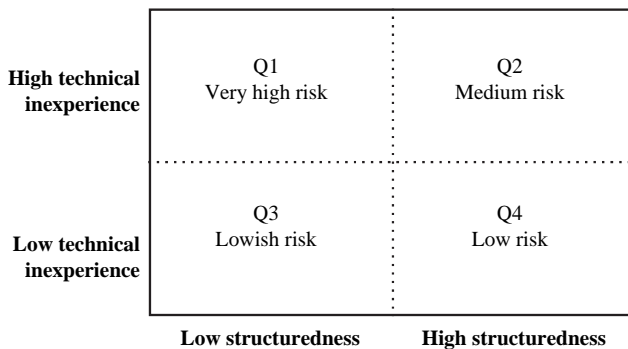


Figure 9.2 Matrix showing different degrees of risk

9.4.2 Quadrant 1 (Q1) – very high risk

In Quadrant 1 the project has low structuredness and makes extensive use of technology that is new to the organisation. Projects in this category should be considered by the organisation to be extremely high-risk projects.

According to McFarlan, project managers with both technical and people skills are required to make these projects work. PERT charts infer the projects' direction, but are otherwise not especially useful in establishing the time position for this class of project. McFarlan asserts that these projects are 'not done until they are done!' Managers of these projects would expect numerous and frequent mid-stream changes. Such projects are always very expensive and their expense is derived primarily from the changes that are inevitably made to the original specification.

9.4.3 Quadrant 2 (Q2) – medium risk

In Quadrant 2 the project has both a high degree of structuredness and the use of technology that is new to the organisation. Projects such as these are generally medium risk projects. It is usual to expect mid-term corrections during these projects. PERT charts offer a fair representation of project status, but should not be totally believed as implications of the new technology that were not originally understood by the organisation may upset production plans. It is suggested that managers who are highly technically competent steer projects of this type.

9.4.4 Quadrant 3 (Q3) – lowish risk

In Quadrant 3 the project has a low degree of structuredness but uses technology that is known to the organisation. These projects are relatively lowish risk projects, but with potential hidden problems. Many projects in this category fail when they should succeed due to the lack of structuredness. To ensure success in projects such as these it is important that a strong and highly assertive user manager be placed in control or at the very least, high user involvement be sought. This

should be not only at the outset of the project, but on a continuous basis for the purpose of verification.

According to McFarlan the problem of risk with this class of project is the potential mid-stream change requests. Strict parameters need to be constructed around the project otherwise a continuous stream of change-requests from users will arise and the project will in all likelihood flounder and fail. The PERT chart offers managers a succinct view for these projects, but should be only utilised if a strong project manager can in some way incorporate a degree of structuredness.

9.4.5 Quadrant 4 (Q4) – low risk

In Quadrant 4 the project has highly specified outputs but low use of technology that is new to the organisation. These projects are low risk projects due to the tight definition of expected outputs and the use of familiar technology. As a result of the low risk level, companies can assign new and relatively inexperienced project managers to these projects.

The use of PERT charts provides accurate indications of the completeness of the work. Due to the constricted nature of the outputs there is minimal user involvement necessary after the project commences. The low risk profile of these projects means that they should be successful with little need for risk management.

From the above it is clear that different types of projects have different types of implementation risk and, that different projects need different project management approaches if they are to be successful. These different types of project management approaches should become apparent in the ICT investment business case as a result of the assessment of the risk profile carried out at that stage.

The project management approach should flow from the project and not the other way around. [Figure 9.3](#) indicates the management approaches that should be applied to different IT investment projects depending on the different risk profiles.

High technical inexperience	Intensive risk management procedures	Strong focus on acquiring expertise
Low technical inexperience	Emphasises understanding the user	Routine management Control
	Low structuredness	High structuredness

Figure 9.3 Management approaches to projects with different risk profiles

Figure 9.4 indicates the level of management activity that is required for different ICT investment projects depending on the risk profile involved.

9.5 'Bad' ideas

'Bad' ideas systems risk refers to failures of conceptualisation. This simply means poor ideas that were not likely to succeed from the beginning. The following categories of projects may be identified that are likely to fail due to poor conceptualisation.

- (1) A project that fails to meet customer requirements, no matter how technically sophisticated it is, is destined to fail. Technology can perform wonders, but if there is no market for the product or service supplied by the investment, it will fail.
- (2) The investment may require behaviour that is not ingrained in existing users, such as the use of terminals or

High technical inexperience	Continuous management and costing intervention	Buy in skills and redevelop own staff
Low technical inexperience	Extensive user education	Low frequency low cost management
	Low structuredness	High structuredness

Figure 9.4 Management activity required with different risk profiles

- smart cards. As people shy away from change, the investment ideas are rejected by the customer's culture and it will fail.
- (3) Investment incapable of evolving will fail. Evolution is an essential aspect of survival in the dynamic business environment of the modern commercial world.
 - (4) The investment not only fails to meet its stated performance objectives but actually disrupts the ability of the organisation to deliver its products or services.
 - (5) Technological investment can be a double-edged sword, lowering entry barriers by reducing the costs of competing. Some Internet and Web 2.0 type applications may fall into this category of system.
 - (6) Investments that are undertaken before all the tactical and strategic resources and commitments are in place are likely to fail.

The McFarlan approach described here is useful as a framework for thinking about risk and information systems, but it does not lead directly to an approach for the management of risks. Some aspects of risk management are addressed here.

9.6 Incorporating risk in the business case

In producing the investment business case it is necessary to review the potential risks in term of the two categories described above.

Some investments will be more prone to implementation risks than conceptualisation risks, whereas others will have the opposite propensities. It is important that the principal stakeholders debate these issues thoroughly and that consensus is reached on what the major risks are, and how they might be minimised.

At this stage in the development of the investment business case a decision needs to be made as to whether or not the risk profile is acceptable. If it is then there is clearly no problem. If on the other hand the risk profile is too high then it is necessary to decide if a risk management programme might be able to

sufficiently reduce the risk to allow the investment to proceed. If this cannot be done then the investment proposal needs to be rejected. On the other hand if a risk management programme is agreed then this needs to be incorporated into the project manager's agenda when and if the proposed investment is approved the project begins.

As mentioned above, risk management is an often neglected aspect of project management, and lack of attention to these issues has frequently resulted in project failure.

9.7 Quantifying and managing risk

In order to manage risk it is necessary to have an idea of the size or magnitude of the risk the investment faces. There are several ways in which it is possible to think about this issue. Firstly, there is the dimension of finance. Risk may be assessed in terms of the financial estimates used in business case accounting and this will be discussed in Chapter 10. Secondly, there is the risk associated with the variability of the resources which may be required to complete the projected. Tightly coupled with the quantity of the resources is the timing when they will be required. Investment resources and their timing are best understood when they are presented diagrammatically either as a Network or as a Gantt diagram.

Before either a Network or as Gantt diagram may be developed a list of activities which are required needs to be developed. Each activity needs to be placed in the order in which it has to be performed. This is shown in Fig. 9.5. Note in Fig. 9.5 the order of the activities is specified in the second column which is entitled Pre-requisite. Each row in the Pre-requisite column shows which activities have to be completed before the current activity can begin.

The second feature of Fig. 9.5 which is critical is the Expected time required for each activity. This is shown in column four of the diagram. With only columns 1, 2 and 4 it is possible to construct a Network diagram as is shown in Fig. 9.6. Note that this plan shows that the investment is expected to be

A	B	C	D	E
Activity	Pre-requisite	Optimistic (<i>o</i>)	Expected (<i>n</i>)	Pessimistic (<i>p</i>)
A		5	10	15
B	A	3	5	9
C	A+B	4	4	7
D	A+B	4	6	10
E	A+B	5	6	10
F	A+B+C+D	5	5	5
G	A+B+E	3	6	8
H	A+B+C+D+E+F+G	2	4	6
I	H	1	3	5
J	I	1	2	4
	Totals	33	51	79

Figure 9.5 A high-level task break down schedule or diagram

completed in 47 days, provided the project commences on time and that there are no delays with regards to any of the activities.

One of the limitations for the Network diagram as shown in Fig. 9.6 is that it is based on one estimate of the time required. Much more management information may be obtained if it is possible to give a range of estimates for the times required. This has been done in Fig. 9.5 and the resulting Network diagrams are produced in Figs 9.7 and 9.8.

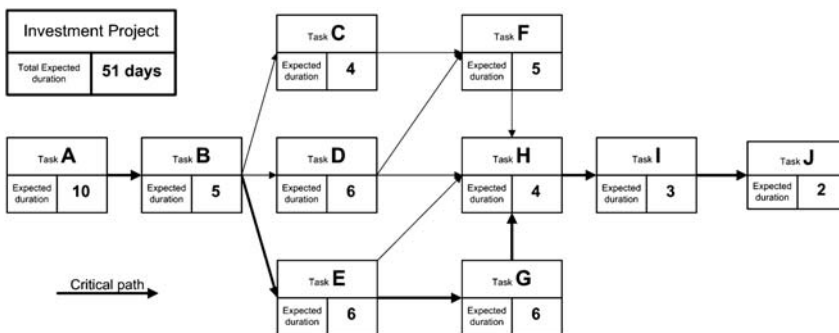


Figure 9.6 A Network diagram showing the tasks and using the expected times for each activity

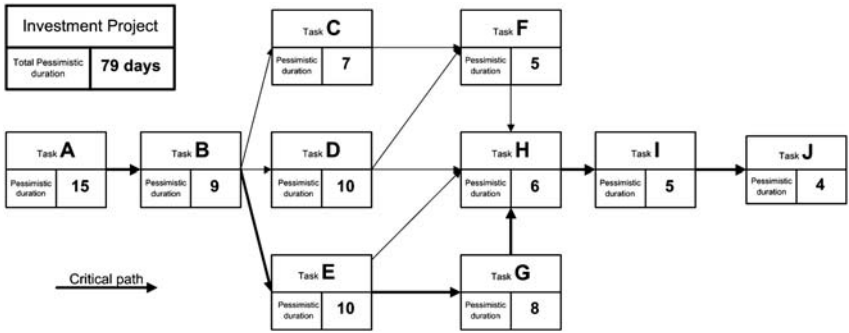


Figure 9.7 A Network diagram showing the tasks and using the pessimistic times for each activity

It is possible to extend the idea of a range of estimates and to create a stochastic model of the project which is sometimes referred to as a PERT diagram.

With regards the Gantt diagram, this consists of a series of bar charts which show the dates of the beginning and end of each activity. Figure 9.9 shows a typical Gantt view.

9.8 Another approach to risk quantification

Early on in the risk assessment process a formalized method for both identifying and mitigating risk should be established. Initially the focus should be on Risk Identification. The

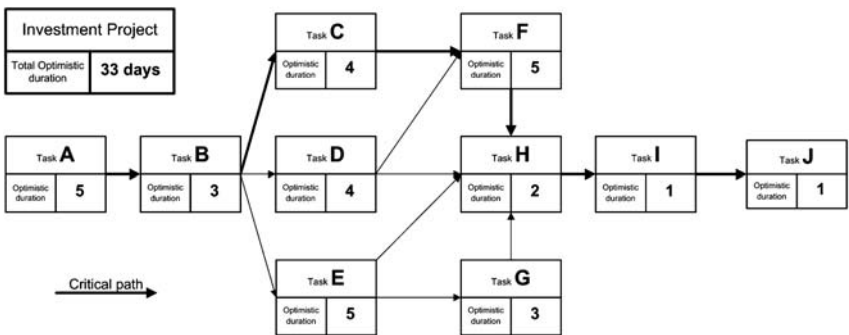


Figure 9.8 A Network diagram showing the tasks and using the optimistic times for each activity

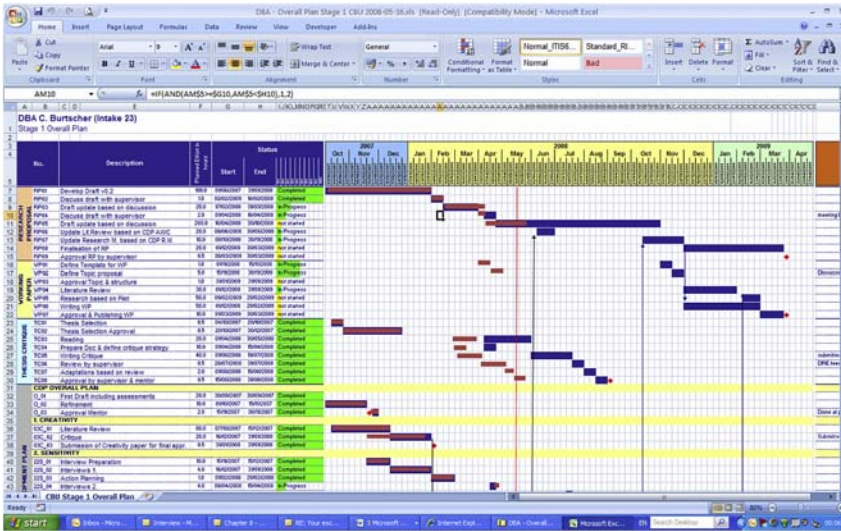
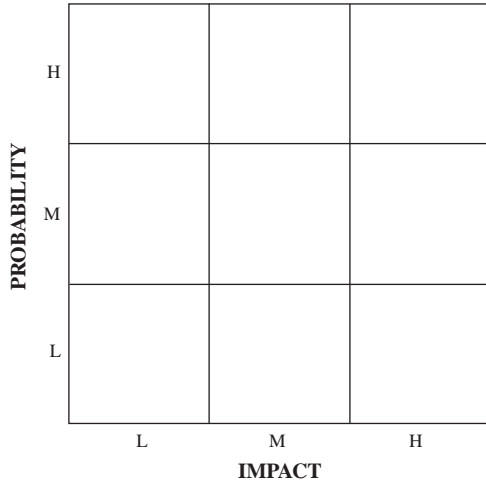


Figure 9.9 A Gantt view showing the tasks, estimated timelines and dependencies

investment assumptions should be carefully reviewed by senior management. Additionally any previous similar investments should be re-examined for lessons learned. Once the risks have been identified a Risk Matrix should be developed using a Risk Management Worksheet (see Appendix G). A Probability Impact (PI) matrix should be completed for each identifiable risk. See Fig. 9.10.

Once we know what the risks are, we can then look at various methods of responding to them. Preventative actions may allow us to avoid the risk completely. On the other hand, contingency planning will allow us to mitigate the impact of any given event. Key to both responses is the definition of appropriate *triggers* that will provide early warning of the likelihood of a risk event coming to pass. These triggers are often linked to specific dates. See Fig. 9.11.

Risk analysis of complex investment decisions may require the use of Program Evaluation and Review Techniques (PERT). Statistical manipulations of time estimates based on optimistic, most likely and pessimistic durations can aid in the formulation of contingency plans.



Probability	Description	Rating
High	Experience dictates likely or expected	9
Medium	Likely to occur but NOT certain	3
Low	Not very likely or unlikely	1

Figure 9.10 A Probability Impact (PI) matrix with simplified rating scale

Risk Element	Impact	Probability	Score	Trigger	Owner	Action

Figure 9.11 A risk control worksheet

9.9 Summary

An assessment of the risks of the project and of the system is an integral part of the investment business case, as it is essential that the principal stakeholders have an appreciation of the potential problems that the proposal might face.

It is important to address the issue of risk under two main categories. The first relates to the risks associated with the implementation process that might cause the project to fail. The second relates to the risk of the system failing to deliver the type of improvements to the business processes and practices that had originally been envisaged.

By reviewing all these issues and incorporating them in the investment business case it is possible to manage the project in such a way that the risk of failure will be significantly reduced.

Investment business cases should not be approved unless the risk issue has been addressed and the stakeholders agreed that the project risk profile is acceptable.

This page intentionally left blank



10

Business Case
Accounting

This page intentionally left blank

Long run is a misleading guide to current affairs. In the long run we are all dead.

Keynes (1923)

There are three kinds of lies: lies, damned lies and statistics.

Benjamin Disraeli, quoted in Neider (1959)

10.1 Introduction

Having decided the direction of the firm's investment at a business level through the development of a macro-model and a meso-model, it is then necessary to perform some detailed analysis of the financial impact the proposed investment is likely to have on the organisation. This has been referred to as the micro-model as discussed in Chapter 5 and usually implies the conducting of a detailed financial study that involves business case accounting which is also sometimes referred to as cost-benefit analysis. The objective of business case accounting is to try to determine if the organisation is likely to be better off as a result of the investment. The figures used in business case accounting are nearly always estimates of future costs and benefits. Estimates are always based on assumptions and so the quality of the figures is a function of the skill of the analyst to produce accurate estimates.

10.2 Basic approach

The techniques used for this type of analysis include capital investment appraisal, which involve the calculation of financial ratios such as the payback, the return on investment (ROI), the net present value (NPV) and the internal rate of return (IRR).¹

It is normal practice not to just produce one financial statement or micro-model but rather to produce several different scenarios or financial pictures. The different scenarios may

¹ See Appendix H for definitions and explanations of the range of investment performance statistic generally used in business.

represent different investment opportunities but sometimes there is only one investment being offered and if this is the case then it is advantageous to produce a financial statement showing what the situation would look like if **no** action is taken and the status quo is maintained. This statement is sometimes called the **do-nothing** option.

In addition to this, what-if² analysis showing what will happen if some of the assumptions are not realised, should accompany the micro-model.

10.3 Cost framework

There is a basic framework for dealing with investment cost which needs to be clearly understood. This involves seeing costs as being incurred at three basic stages in the development of the investment.

The three major categories of investment costs are:

- (1) Pre-commissioning costs,
- (2) Commissioning costs, and
- (3) Running costs.

10.3.1 Pre-commissioning costs

Pre-commissioning cost refers to cost which is incurred before the organisation decides to proceed with the investment. The range of cost involved and the amount which needs to be spent obviously varies enormously. For routine investment this category of cost might be insignificant and the organisation might choose to ignore them. On the other hand the building of an airport might require tens of millions of pounds to be spent before the investment can be initiated.

Other examples include the work required before a motor vehicle manufacturer decides to prepare a new engine for an

² What-if analysis is sometimes referred to as sensitivity analysis. Although from a modelling point of view this is not strictly correct, both what-if analysis and sensitivity analysis do serve a similar function in the sense that they indicate how the outcomes will change under different assumptions.

automobile. Similarly costs are incurred when it is being decided if a new jetliner is to be developed.

The main categories of these costs include:

- Management costs,
- Legal cost,
- Survey costs,
- Lobbying costs,
- Comparing contract costs,
- Compensation to various stakeholders,
- Accountant and auditor costs.

10.3.2 Commissioning costs

Commissioning cost comprises all as the expenses from the time the idea is agreed and initiated to the instant the investment is handed over to the people who will operate it. In a manufacturing operation this might be a matter of the costs incurred over the period of a few weeks while the equipment is selected, delivered and installed. On the other hand it might be a number of years when a new high rise office complex is being erected, or a oil tanker is build or it could be 10 years during which a new runway is required especially if villagers have to be moved and new homes built for them (in the case of Heathrow a village has to be removed and the population resettled).

Typically, the cost incurred during this period includes:

- Purchasing of land and buildings cost,
- Purchasing of machines,
- Project management,
- ICT costs,
- Survey costs,
- Lobbying costs,
- Contracts signing costs,
- Compensation to various stakeholders,
- More accountant and auditor costs.

The funds spent on these cost can represent a major portion of the overall cost and the period of time involved here can be

substantial. But these costs are usually closed when the investment is handed over to the users.

10.3.3 Running costs

Running costs are what is spent there after the investment is regarded as up and running. These are the operating costs of the investment. If the investment is the purchase of aircraft then the running costs are staff both cockpit and cabin crew, fuel, depreciation, airport fees, maintenance of the airframe and the engines and the interior, food for passengers and crew, training for crews, etc.

10.4 Basic concepts required for business case accounting

There are many different financial concepts and issues involved in business case accounting. It is essential that all these elements be addressed in the financial analysis. The concept of costs is generally regarded as being well understood and therefore does not need elaborate definition. However, there are a number of different financial issues that need to be considered when preparing a business case. These include:

- ◆ Hidden costs,
- ◆ Opportunity costs,
- ◆ Marginal costs,
- ◆ Sunk costs,
- ◆ Life time costs,
- ◆ Tax shield,
- ◆ Cost of ensuring business continuity,
- ◆ Cost related to the time value of money,
- ◆ Discounted cash flow,
- ◆ Interest rate or hurdle rate or cost of capital,
- ◆ Horizon or Economic life,
- ◆ Terminal value.

10.4.1 Hidden costs

Any cost which the instigators of an investment did not think of at the time when the decision to invest was made may be

regarded as a hidden cost. A hidden cost is a not so obvious cost that can often fail to be recognised at the time the investment is being conceived. By their very nature they are not easy to list and they will of course vary from one investment to another.

One issue which can give rise to hidden cost is the compensation levels which are required to be paid to staff that are no longer required. Some countries require organisation to pay large sums to individuals who are made redundant. Sometimes this is referred to as closing down costs.

Another closing down cost which may occur is when there is some harm done to the environment. In such case, in some countries, the organisation may have to spend large sums of money restoring the environment, if indeed that is possible.

Hidden cost may also occur if legislation changes and new health and safety requirements are imposed by law. These are particularly difficult to foresee.

Finally hidden cost may result from acts of god through unusual climatic event.

It is possible to distinguish two different types of hidden costs which are:

- Cost omitted;
- Costs arising.

10.4.1.1 Cost omitted

Sometimes a cost is hidden in the sense that it was not known about or not thought of when the business case was originally made. One such cost which often remains hidden is the cost of training the staff to use new equipment. Another hidden cost could relate to the need for more frequent and more thorough maintenance which has not been highlighted at the time of agreeing to proceed with the investment.

10.4.1.2 Costs arising

In a bakery a new oven may produce a number of different types of bread with which the old slicing machines may not be

able to cope. This could result in new equipment having to be bought for another division of the bakery. When this type of situation occurs we can talk about there being a knock-on effect.

10.4.2 Opportunity costs

Opportunity cost is a concept which is derived directly from the study of economics. It looks at what might have been if a different course of action had been taken and a different investment opportunity followed. The opportunity cost of an investment or project is thus the amount the firm could have earned if the sum invested was used in another way. Thus the opportunity cost of an investment in a completely new factory might be the benefits which the organisation would have gained from spending the same amount of money on improving the technology used in the current factories. Also the opportunity cost of the new factory is the amount that could be earned if the funds were invested in an appropriate bank account.

Opportunity costs are not included in the commissioning running costs. They are rather kept in mind by the senior management team and the sponsors of the investment.

Note there will not be a line in the business case which will say opportunity cost.

10.4.3 Marginal costs

This is another concept derived by economists who generally argue that decision making should be on the basis of the direct changes which the decision/investment will make to the organisation and not be averaged over the whole organisation's activities. What this means is that if a new machine is acquired then its success should be reckoned by how much extra benefit (income minus costs) this particular machine brings to the organisation.

Cost-benefit analysis is traditionally performed on a marginal cost and marginal revenue basis. In practice this means that

numbers are based on the variable cost associated with the new investment and that this excludes the general overhead. When it comes to benefit evaluation the same rule applies and thus only new or extra benefits should be included. This marginal costing approach prevents double counting of either the cost or the improvements.

10.4.4 Sunk costs

Business case accounting uses the concept of sunk costs. A sunk cost is money which has previously been spent and which may not be taken into account when preparing a business case for a new investment.

Those inexperienced in business case accounting might note that there is a machine which has not been fully written off in the book of account and they might suggest that this residual depreciation should be included in the cost of setting up the new investment. This should not be done.

10.4.5 Life time costs

In preparing a business case it is always important to keep in mind that the investment will run over several years. The fact that the investment will last over time is an important aspect of the definition of an investment. In general short periods for an investment made be as little as a few years (some new type of office automation system) but as long as several decades (an office block or a luxury cruise liner).

The concept of life time costs is used to focus the mind on one or two of the following facts:

the investment may last many years,
the investment will need maintenance/attention and thus generate cost for many years.

Sometimes the life time cost of an investment is many times greater than the initial pre-commissioning costs and commissioning costs. Some texts refer to this as the Total Cost of Ownership.

10.4.6 Tax shield

The tax shield of an investment is the amount of cash which will be saved by the organisation due to specific tax allowances which are offered by the tax collection authorities by virtue of the investment. Tax shields are actually tax allowances and in some cases these may be substantial and may have a substantial influence on the investment decision. As a general rule however the investment business case should stand on its own. Tax shields and incentives cannot in and of themselves make a bad investment good.

10.4.7 Time value of money

The concept of the time value of money refers to the fact that money today is worth more to the organisation than money tomorrow. The main reason why money today is worth more than money tomorrow is that as soon as the money is received it may be used. Money today avoids erosion by inflation and also allows investment now which will produce more income than if it is invested tomorrow.

It is on the notion of the time value of money that discounted cash flow is based, which is one of the most important methods for the evaluation of any investment proposal.

Investment measures such as Net Present Value (NPV), Profitability Index (PI), Internal Rate of Return (IRR) are all based on the concept of the time value of money.

10.4.8 Discounted cash flow

In most situations money is invested before the investment can be used to produce an income. Sometime when the investment is large such as a new factory, a new office block or a new ocean liner the money is spent over several years before any income is received.

In addition it may take time of the income to develop into its full potential. For example an office block may take several years before a full complement of tenets are found.

The fact that money has a time value needs to be taken into account.

Discounted cash flow is the way that the concept of the time value of money is operationalised. Cash flow is discounted by calculating its present value, which requires the sum to be reduced by a rate of interest equivalent to the organisation's investment opportunity rate. This discounting is done for each year during which the investment produces a cash flow. It is important to remember that in the first years of a large investment there may only be out going cash flows. If this is the case these also need to be discounted.

10.4.9 Cash flow

The term cash flow means that the calculation of the returns on the investment needs to be done on the **cash** which has either flowed out of the organising in terms of the acquisition of the invest and the cash running costs or on the cash receipts. In some cases this is challenging because the cash flow associated with an investment is not the same as the profit produced by the investment.

In business case accounting there are two factors in particular which need to be carefully handled and these are depreciation on the asset purchased and the tax relief which may be available on the particular assets at the particular time.

Depreciation, which is similar to wear and tear allowances, is a non-cash expense. Depreciation is a figure used to create a reserve to help with the replacement of the investment when it is worn out. For this reason if the figures being used in a discount cash flow have been based on profit then the depreciation needs to be added back to the profit so that it represents the cash flow.

Similarly any tax shields from which the investment benefits need to be used in calculating the total investment costs. In some instances governments offer 110 or 120 or 200% of tax relief on the investment amount.

10.4.10 Interest rate or hurdle rate or cost of capital

The interest rate or hurdle rate or cost of capital are three different terms for the rate of interest that is used in the discounted cash flow calculation. It is generally considered that the term cost of capital is the most appropriate name to use.

There are different ways of thinking about and measuring the cost of capital. The approach which is more frequently used is referred to as the average weighted cost of capital. The average weighted cost of capital is a composite number which combines the cost of long-term and short-term debt as well as the cost of equity. The cost of equity in turn may be calculated in different ways but the more usual way of doing this is to calculate the expected dividend yield of the ordinary share capital. Whatever name or approach is used for this interest rate or hurdle rate or cost of capital rate, the number used needs to represent the rate which the organisation has to earn on the funds under its control to retain its earning levels. Thus this is also sometimes referred to as the required rate of return.

Some organisations use what is referred to as the weighted average cost of capital. The weighted cost of capital requires the business analyst to determine separately the cost of the different types of debt such as bank loans, debentures, mortgages, etc. Then the cost of equity is determined and as mentioned above this is the dividend yield adjusted for the expected growth rate and this is expressed as a percentage.

The rate paid for each of these sources of funding is used with the proportion of the amount of funding obtained from each of these sources to calculate the weighted average cost of capital.

10.4.11 Horizon or economic life

Every investment has a life span. There is a physical life span, i.e. how long will the asset continue to function. There is a technological life span which is how long the asset will remain technologically viable and not made redundant by a new wave of technology. Then there is the economic life span. This economic life span which is also sometimes called the horizon is the period for which it is believed that the

investment will be an effective earner and thus for which it will earn an economic return. This is one of the most difficult issues to estimate for an investment business case.

10.4.12 Terminal or residual value

The terminal value of an investment is the amount for which the investment could be sold at the end of its economic life. Some investments can have large terminal values while other can have little or no terminal value.

In some cases there may be a negative terminal value of the organisation which needs to pay redundancy payments or large sums to recover the environment if the investment has done harm to it.

10.5 Detailed cost items

Because of the particular nature of each corporate investment it is not possible to give a complete list of possible costs. Also any list created will have more items than any one situation will require. However, the following is a fairly comprehensive list of the major costs that an investment might incur:

- ◆ Cost of senior management;
- ◆ Costs incurred by planner;
- ◆ Cost of consultants;
- ◆ Cost of purchasing the assets required;
- ◆ Cost of installing the assets;
- ◆ Modifications to the site, buildings and offices necessary to accommodate the new system;
- ◆ Specialist staff costs, including recruitment and training as well as salaries;
- ◆ Costs of training;
- ◆ Cost of new contracts with staff;
- ◆ One-off staff payments to encourage transition to the new system, or redundancy payments if applicable;
- ◆ Hiring and/or leasing costs as required;
- ◆ Costs of communications media, notably telephones and digital lines as required;
- ◆ Cost of Internet and Web connections if required;

- ◆ Support and maintenance costs, either due to in-house specialists or third-party vendors;
- ◆ Consumables;
- ◆ Contractor costs from third party firms;
- ◆ Time spent by management in sorting out problems on the new system;
- ◆ Transition costs when converting to new system;
- ◆ Suppliers' charges for installation and delivery of components;
- ◆ Insurance charges for loss or damage to the equipment and consequential loss of income if the equipment is out of service for a significant period;
- ◆ Charges for provision of backup equipment or services, to cater for the possibility of system failure;
- ◆ Documentation costs;
- ◆ Business continuity guarantee or disaster recover costs;
- ◆ Costs due to inefficient operation, such as poor cash flow, lack of accurate information for planning and decision making;
- ◆ Costs due to delays in implementation, thereby losing the benefits that may have possibly been gained in that period;
- ◆ The cost of failure if the investment proves ineffective, or is constantly out of action due to any problems.

10.5.1 Hard and soft costs

The above list includes both hard and soft costs. Hard costs are those which are readily agreed by everyone as being attributable to the investment and which are easily captured by the firm's accounting system. Hard costs are payments to vendors and others.

Soft costs are those costs that cannot be readily agreed as being directly attributable to the investment and which are not easily identifiable in the firm's accounting records. Soft costs include items such as management and staff time, reduced productivity encountered during the learning experience and opportunities missed which were previously identified and for which there was a target in the budget.

10.6 Pattern of costs

Investments have a limited number of patterns of cost disbursement. Most investments begin with the pre-commissioning costs and the commissioning costs as described earlier in this chapter. These are sometimes called the set up costs – term which is used in the examples below. Developing a business case accounting statement these costs are often referred to as having been incurred in Year 0. In large scale investments where these costs are spread over a number of years then the years prior to the commissioning are sometimes referred to as Year 1, Year 2, Year 3, etc. Figure 10.1 illustrates this.

When an investment has been commissioned it may start earning and have a positive cash flow immediately. However, there are investments for which this will not be the case. An office block may not acquire clients for years. A mine may have to be operating for years before a rich enough vein is encountered and the ore can be extracted. In such cases the running costs still have to be taken into account and this might produce a negative cash flow for some years.

In general the pattern of costs for most investments will be large outgoings in the early year/s to allow the investment to be started followed by relatively minor running cost which should quickly be covered by a stream of positive cash flow (i.e. benefits). Finally sometimes there may be a large positive cash flow at the end if there is a positive terminal value while there may be a negative value at the end of the horizon if there is a dis-investment cost.

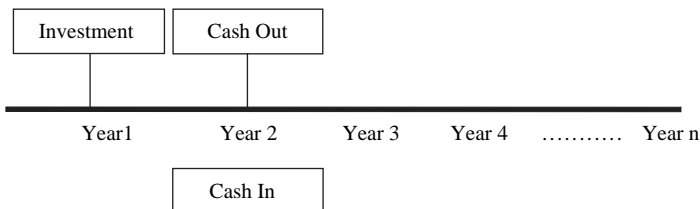


Figure 10.1 Patterns of costs timeline

10.7 Sources of cost estimates

Obtaining reliable cost estimates has always been difficult and this has contributed to the on-going problems with investment project budgets.

There are various sources of cost estimates. These include obtaining quotations from the different contributors to the project. These could include suppliers, contractors, consultants, outsourcers, etc. The cost of these resources can often be negotiated on a fixed fee basis which may then be reliably used in the business case accounting exercise.

Other sources of costs are estimations of the development work to be done by in-house team. There are also the in-house costs of training the staff. The commissioning cost may also be incurred internally. This type of cost estimation is subject to considerable error and some organisations cope with this by comparing the proposed project with previous similar developments. This is, of course, a form of internal benchmarking and can draw on corporate best practice if this has been recorded.

The idea of benchmarking can then be taken outside the organisation where estimations of costs can be gathered by looking at similar projects.

Whichever approach is taken towards cost, estimates have to be produced with considerable care as they are always prone to error. A provision for contingency for cost escalation is often used as a way of coping with this. Another approach to the uncertainty of costs is the use of risk or stochastic analysis, which will be discussed in Section 10.13.

10.8 Sources of benefit estimates

As already mentioned in both Chapter 4 and Chapter 6 it is quite challenging to produce detailed financial estimates of the anticipated benefits. However, some attempt needs to be made in this respect. The key to producing competent financial estimates is to understand how the business processes and practices which will be affected by the investment will actually change the way costs are incurred or revenue is generated or assets are used.

If this is achieved, then useable figures may be estimated. It is important to bear in mind that estimates of benefits or for that matter costs are not required to be very accurate. In fact attempts to be very accurate are often misleading and thus counter productive. Future estimates will always be subject to a degree of uncertainty. In situations where there is a material amount of uncertainty as to the likely result of the investment, a stochastic approach as described below should be used.

10.9 Different approaches to business case accounting

Different approaches to cost-benefit analysis are required for investments with different objectives. The objectives of investment may be categorised under a number of headings. The following are among the most important:

- Investment to reduce or displace costs;
- Investment to prevent other greater costs;
- Investment for new business.

Investment to reduce costs is sometimes described as cost displacement as the investment displaces some other cost. There are many examples of such investment. Whenever labour saving equipment is purchased this type of investment may be a cost displacement. The acquisition of a computer to automate a business function may be described as cost reduction or cost displacement exercise.

The following example shows the business case accounting which would be typical for such an investment.

In the balance of this chapter ICT examples have been used because nearly all organisations will need to take advantage of the benefits which may be derived by the use of this technology. The principles shown in these examples will be exactly the same whatever type of investment is being employed.

10.9.1 Cost reduction/displacement

Cost displacement considers the cost of the investment and compares this to the other costs the system has saved. A cost

displacement justification is a classic automate or efficiency situation. Figure 10.2 shows an example of cost displacement analysis of an investment for one year. It should be noted that the costs and benefits are marginal ones.

This cost displacement approach to assess an investment proposition is an ex-ante analysis of what the firm hopes to achieve. It is a statement of intent. To ensure that these intentions are carried out, a list of details about the system and

	A	B	C	D
1	Investment to automate jobs		All Numbers in 000s	
2	1 year			
3	Cost displacement	Year 0	Year 1	
4	Set up costs			
5	Hardware including PCs, LANs and other peripherals	125		
6	Software including spreadsheet, WP, database and comms.	98		
7	Training	75		
8	Installation and testing	52		
9	Total	350		
10				
11	Monthly on-going costs			
12	Staffing, including support		28	
13	Maintenance and upgrades		20	
14	General		8	
15	Total		56	
16				
17	Monthly benefits			
18	Reduction in clerical salaries		42	
19	Reduction in supervisory salaries		8	
20	Reduction in other staff costs		13	
21	Office space released		5	
22	Other office expenses saved		3	
23	Total		71	
24				
25	Improvement per month		15	
26				
27	Annual net benefit		180	
28				
29	Annual ROI		0.51	
30	Simple payback		2	Years
31				

Figure 10.2 The cost displacement approach – one year

the environment in which it will function should also be supplied. It is sometimes preferable to perform this type of analysis over a number of years and Figs 10.3 and 10.4 show the cost displacement approach for three and five years. There is always a debate as to whether investments should be planned on a three-, five- or even seven-year horizon. The longer the horizon the more likely the business case investment for the investment will show better results. This is especially true in times of low hurdle rates.

	A	B	C	D	E
1	Using IT to automate jobs		All Numbers in 000s		
2	3 years				
3	Cost displacement	Year 0	Year 1	Year 2	
4	Set up costs			1	2
5	Hardware including PCs, LANs and other peripherals	125			
6	Software including spreadsheet, WP, database and comms.	98			
7	Training	75			
8	Installation and testing	52			
9	Total initial cost	350			
10					
11	Monthly On-Going Costs				
12	Staffing, including support		28	29	
13	Maintenance and upgrades		20	21	
14	General		8	8	
15	Total costs		56	58	
16					
17	Monthly Benefits				
18	Reduction in clerical salaries		42	44	
19	Reduction in supervisory salaries		8	8	
20	Reduction in other staff costs		13	14	
21	Office space released		5	5	
22	Other office expenses saved		3	3	
23	Total benefits		71	74	
24					
25	Improvement per month		15	16	
26					
27	Annual net benefit	-350	180	189	
28					

Figure 10.3 The cost displacement approach – three years

	A	B	C	D	E	F	G	H
1	Using IT to automate jobs		All Numbers in 000s					
2	5 Years							
3	Cost displacement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
4	Set up costs							
5	Hardware including PCs, LANs and other peripherals	125						
6	Software including spreadsheet, WP, database and comms.	98						
7	Training	75						
8	Installation and testing	52						
9	Total initial costs	350						
10	Monthly on-going costs							
11	Staffing, including support		28	29	31	32	34	
12	Maintenance and upgrades		20	21	22	23	24	
13	General		8	8	9	9	10	
14	Total costs		56	58	62	64	68	
15								
16	Monthly Benefits							
17	Reduction in clerical salaries		42	44	46	49	51	
18	Reduction in supervisory salaries		8	8	9	9	10	
19	Reduction in other staff costs		13	14	14	15	16	
20	Office space released		5	5	6	6	6	
21	Other office expenses saved		3	3	3	3	4	
22	Total benefits		71	74	78	82	87	
23								
24	Net improvement per month		15	16	17	17	18	
25								
26	Annual net benefit	-350	180	189	198	208	219	
27								
28	Simple annual ROI		0.51	0.54	0.57	0.6	0.63	
29	Simple payback		2 Years					
30								
31	Cost of capital	0.2						
32	Discounted annual net benefit	-350	150	131	115	100	88	
33	Discounted payback		3 Years					
34	Net present value		234.51					
35	Internal rate of return		0.47					
36	Profitability index		1.67					

Figure 10.4 Cost displacement over five years

10.9.2 Cost avoidance

A cost avoidance analysis is similar to cost displacement, except that no cost has been removed from the system because the introduction of the IS has prevented cost from being incurred. Cost avoidance, like cost displacement, is typically used in the more traditional data processing environments which address automation and efficiency and is therefore sometimes thought to be generally less relevant to more modern IT applications. However, a cost avoidance analysis may also be used to support an IT business case for

	A	B	C	D	E	F	G	H
1	Using IT to automate jobs							
2	5 Years		All Numb					
3	Cost avoidance	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	
4	Set up costs							
5	Hardware	345						
6	Software	299						
7	Training	345						
8	Installation and testing	179						
9	Total	1168						
10	Monthly on-going costs							
11	Staffing, including support		55	58	61	64	67	
12	Maintenance and upgrades		78	82	86	90	95	
13	General		44	46	49	51	53	
14	Total		177	186	196	205	215	
15	Monthly benefits							
16	Staff not required		120	126	132	139	146	
17	Other costs avoided		85	89	94	98	103	
18	Total		205	215	226	237	249	
19								
20	Improvement per month		28	29	31	32	34	
21								
22	Annual net benefit		336	353	370	389	408	
23	Annual ROI		0.29	0.3	0.32	0.33	0.35	
24	Simple payback		3 Years					
25								
26	Cost of capital	0.2						
27	Discounted annual net benefit	-1168	280	245	214	188	164	
28								
29	Net present value		-484.05					
30	Internal rate of return		-0.02					
31	Profitability index		0.59					
32								

Figure 10.5 The cost avoidance approach

infrastructure investment. Figure 10.5 shows an example of cost avoidance analysis for an investment over five years.

10.9.3 Decision analysis

Decision analysis attempts to evaluate the benefits that can be derived from better information, which is assumed to lead to better decisions. In turn, better decisions are believed to lead to better performance. As it is hard to define good information, let alone good decisions, cost-benefit analysis performed using this method is difficult.

Decision analysis is a classic informate situation and requires a financial value to be associated with information. In some cases, it is relatively easy to measure the effect of information, although there will frequently be considerable noise in the

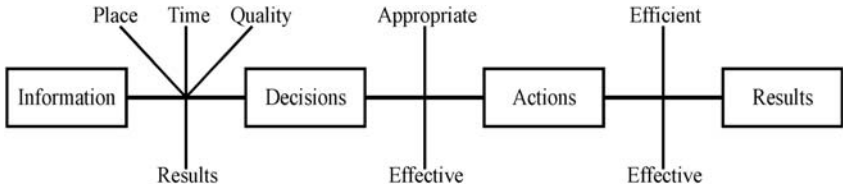


Figure 10.6 Decision analysis model

environment that can obscure the effects of the system. The key to decision analysis is to perform rigorous business analysis of the situation before the introduction of the proposed technology. The types of business relationships at work and their effects on each other must be understood. Also how the proposed IS will disrupt these business relationships, hopefully in a positive way, needs to be explained. A model of how information is used in the firm to make decisions and how these decisions impact upon actions which in turn affect performance is useful when conducting decision analysis. Such a model is shown in Fig. 10.6.

Figure 10.7 shows an example of decision analysis. This case relies on understanding how the firm's credit control works, how the cash flow functions, and how investment availability impacts sales.

10.9.4 Impact or time release analysis

Impact analysis attempts to quantify the effect IT can have on the physical performance of employees. Impact analysis may have elements of automate, informate and even transformate, depending on the exact circumstances involved.

The primary benefit of time release is that staff can do other work, and when this leads to acquiring extra sales it can contribute to transforming the business. Figure 10.8 shows an example of impact analysis.

10.9.5 Transformate analysis

The type of analysis used to assess a transformate opportunity is the same as that employed for any strategic investment.

	A	B	C	D	E	F	G	H	
1	Using IT to improve performance through more information								
2									
3	5 Years								
4	Decision analysis	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5		
5	Set up costs								
6	Hardware	555							
7	Software	450							
8	Initial training	250							
9	Commissioning	150							
10	Installation and testing	300							
11	Total	1705							
12	Monthly on-going costs								
13	Staffing, including support		292	307	322	338	355		
14	On-going training		50	53	55	58	61		
15	Maintenance and upgrades		95	100	105	110	115		
16	General		120	126	132	139	146		
17	Total		557	586	614	645	677		
18									
19	Monthly benefits								
20	Reduction in bad debts		25	25	25	25	25		
21	Interest earned by faster receipts		50	53	55	58	61		
22	Reduction in obsolete inventories		120	126	132	139	146		
23	Increased sales due to better availability		430	452	474	498	523		
24	Total		625	656	686	720	755		
25									
26	Improvement per Month		68	70	72	75	77		
27									
28	Annual net benefit	-1705	816	842	869	897	927		
29	Annual ROI		0.48	0.49	0.51	0.53	0.54		
30	Simple payback		2 Years						
31									
32	Cost of capital	0.2							
33	Discounted annual net benefit		680	585	503	433	373		
34									
35	Net present value		2573						
36	Internal rate of return		0.41						
37	Profitability index		2						

Figure 10.7 An example of decision analysis

Strategic investments often involve many considerations that are particularly difficult to quantify. Issues such as competitive advantage, market share and new product development are just a few examples. Strategic investments are frequently considered so important that a full ex-ante cost justification cannot be undertaken, or if it is, the results of the analysis are simply ignored. Statements such as 'it's too important to ignore' or 'the cost of not doing it will be crippling' are frequently heard in association with strategic investments. Therefore, strategic investment appraisal studies will often contain more words than numbers. The descriptive part of the proposal will contain words such as those shown in Fig. 10.9.

	A	B	C	D
1	Using IT to improve salesperson's productivity			
2	Investment costs for 10 systems	All costs in 000s		
3	Set up costs			
4	PCs, cellular modems and peripherals	125		
5	Database, spreadsheet, WP and communications	23		
6	Training	30		
7	Installation and testing	60		
8	Total initial costs	238		
9				
10	Monthly on-going costs			
11	Staffing, including support		10	
12	Communications costs		2	
13	Maintenance		5	
14	General		3	
15	Amortisation		6	
16	Total monthly costs		26	
17				
18	Monthly benefit analysis			
19	Average no. of sales calls per day		6	
20	Average value of sales per call		1.7	
21	Reduction in average sales call time from 35 to 15 minutes		20	
22	Reduction in time required for daily form filling from 60 to 10 minutes		50	
23	Total Time Release — (50+ (6x20))		170	
24	Average travel time between sales calls		25	
25	Average number of additional sales calls resulting from IT investment		3	
26				
27	Monthly revenue analysis			
28	Resulting additional revenue		5.1	
29	Profit margin %		0.04	
30	Daily profit improvement from 10 systems		0.2	
31	Monthly profit improvement per salesperson (22 days per month)		4.49	
32	Monthly profit improvement from 10 systems		44.88	
33	Annual profit improvement		539	
34	Annual operating cost of system		312	
35				

Figure 10.8 An example of impact analysis

Good practice, however, requires some numeric analysis to be performed. As transformate or strategic investments will have a longer time implication than efficiency or effectiveness investments, the simple ROI and payback methods are not adequate. The time value of money based techniques such as discounted cash flow need to be used.

- 1 This investment represents an extremely attractive opportunity for the firm to penetrate a new and profitable market.
- 2 The demand in the new market is likely to increase at a compound rate of 25% per annum for the rest of the decade.
- 3 The new production facility will reduce our costs so substantially that we will be able to undercut both our nearest competitors.
- 4 Client service will improve substantially.

Figure 10.9 Strategic considerations

10.10 Combining these approaches to business case accounting

From time to time an IT investment will affect the business processes and practices in several different ways. For example the same investment will have a cost displacement effect as well as a transformation effect. When this occurs the different approaches described above will be combined in the one micro-model.

10.11 Difficulty in estimating investment variables

Traditional cost-benefit analysis is undertaken using discounted cash flow techniques involving estimates of the investment amount, the annual benefits and the cost of capital. All these variables are difficult to estimate. However, the cost of the firm's capital is frequently considered the most difficult variable to determine. The rate of interest the firm pays on its debt, or an arbitrarily chosen hurdle or discount rate is sometimes used as a surrogate for the cost of capital.

10.11.1 Deterministic versus stochastic

IT systems evaluation can be undertaken in several different ways using a variety of measures and at least two different processes. The two processes discussed here are the *deterministic* approach using single point estimates for the input values and generating a single estimate for the result, and the *stochastic* approach which uses ranges as input and generates

a range of results. The stochastic method is sometimes referred to as *simulation* or *risk analysis*.

Deterministic analysis assumes a certain world where the exact value of input variables can be known. Once the values of these inputs are entered a unique result, determined by the logic of the algorithm and the precise data, is calculated. Because ex-ante investment analysis exclusively uses estimates of future values for the investment amount in the form of the on-going costs and the benefits, it is frequently said that as soon as the single point values are determined, the input and output will be wrong.

Risk analysis, on the other hand, attempts to accommodate the inherent variability in the input estimates and produces a result that more closely reflects the level of uncertainty frequently experienced in the real world.

In situations where uncertainty is small, deterministic models can provide suitable solutions. However, it is more likely that uncertainty in the input variables, evidenced by their variability, is likely to be relatively high and therefore this uncertainty will have to be taken into consideration.

This uncertainty can be captured by specifying a probability distribution for each of the input variables – such as investment, cash flows, and cost of capital. There are many candidate probability distributions that can be usefully employed for this purpose. Some of the more useful distributions are likely to be the uniform, the triangular and the beta.

Operationalisation of the above uses the Monte Carlo³ method. This involves generating a range of outcomes for the input variables, e.g. investment, described by some specified probability distribution, and then evaluating the behaviour of an associated output variable, e.g. internal rate of return. The Monte Carlo method can also be used to establish how robust and sensitive the outcomes are with respect to the assumptions concerning the input variable(s).

³ This approach is referred to as the Monte Carlo because it relies on the production of random values within the ranges specified for the variables and is therefore likened to the chance aspect of a roulette table.

For more on the properties of a number of probability distributions, and guidance on how to generate random samples from these distributions, see Johnson and Kotz (1970) and Gonin and Money (1990). Also within all major spreadsheets there is a facility to create these types of distributions.

10.12 Using deterministic analysis

Figure 10.10 is the input form of a deterministic model for capital investment appraisal in a spreadsheet. All the data are single point estimates.

The use of inflation adjusted cash flow techniques requires that all figures used actually represent cash dispensed or received by the firm. Therefore, profit figures that include non-cash items such as depreciation or reserves should not be included. Figure 10.11 is an investment report based on the input in Figure 10.10, which shows a number of different investment measures including payback, NPV, PI, IRR, etc.

An important feature of this spreadsheet model is the use of variable costs of capital or interest rates. These interest rates may be used to reflect either anticipated rates of inflation, or more generally, to account for an increasing risk profile. The further into the future the estimated benefit the greater the degree of uncertainty or risk, and therefore the higher the discount or interest rate associated with the investment. The high interest rate has the effect of reducing the future value of the benefit.

	A	B	C	D	E	F	G	H
1	Capital investment appraisal system							
2	A deterministic model							
3		Cash-out	Cash-in					
4	IT investment—cash out	350,000			−350,000			
5	Net IT benefits							
6	Year 1		66,106		66,106			
7	Year 2		99,902		99,902			
8	Year 3		120,901		120,901			
9	Year 4		194,590		194,590			
10	Year 5		249,671		249,671			
11	Fixed cost of capital or interest rate		0.25					
12								
13			Y1	Y2	Y3	Y4	Y5	
14	Forecast inflation rates		0.22	0.3	0.37	0.4	0.42	

Figure 10.10 Input form for a deterministic model

	A	B	C	D	E	F	G
1	Investment reports on IT system						
2	Payback in years and months		3 years		4 months		
3	Rate of return(%)		0.4178				
4	NPV at fixed discount rate (FDR)		-9,760				
5	Profitability index at FDR (PI)		0.97				
6	Internal rate of return (IRR)		0.2391				
7							
8	Variable discount rates (VDR)						
9	NPV at VDR		-55,414				
10	Profitability index (PI) at VDR		0.84				
11							
12	Discounted payback at FDR in years and months		5 years		1 months		

Figure 10.11 Results produced by the deterministic model

The results in Fig. 10.11 are, of course, highly dependent upon the assumptions made concerning the cost of capital, the investment amount and the annual cash flows. As these future estimates are always uncertain it is appropriate to perform what-if analysis on these assumptions. The table in Fig. 10.12 indicates the way in which the NPV and the PI are related to the cost of capital.

	A	B	C	D	E
16	Sensitivity analysis on varying fixed cost of capital				
17			NPV	PI	
18					
19		0.2	38,609	1.11	
20		0.21	28,150	1.08	
21		0.22	18,102	1.05	
22	Cost	0.23	8,448	1.02	
23	of	0.24	-834	1	
24	Capital	0.25	-9,760	0.97	
25		0.26	-18,349	0.95	
26		0.27	-26,615	0.92	
27		0.28	-34,575	0.9	
28		0.29	-42,242	0.88	
29		0.3	-49,631	0.86	
30					

Figure 10.12 Effect of varying the cost of capital on the NPV and PI

	A	B	C	D	E	F	G	H	I
31	Sensitivity analysis on NPV with varying investment and fixed cost of capital								
32									
33					Cost of capital				
34			0.2	0.21	0.22	0.23	0.24	0.25	
35		300,000	88,609	78,150	68,102	58,448	49,166	40,240	
36		310,000	78,609	68,150	58,102	48,448	39,166	30,240	
37		320,000	68,609	58,150	48,102	38,448	29,166	20,240	
38		330,000	58,609	48,150	38,102	28,448	19,166	10,240	
39	Investment	340,000	48,609	38,150	28,102	18,448	9,166	240	
40	Amount	350,000	38,609	28,150	18,102	8,448	-834	-9,760	
41		360,000	28,609	18,150	8,102	-1,552	-10,834	-19,760	
42		370,000	18,609	8,150	-1,898	-11,552	-20,834	-29,760	
43		380,000	8,609	-1,850	-11,898	-21,552	-30,834	-39,760	
44		390,000	-1,391	-11,850	-21,898	-31,552	-40,834	-49,760	
45		400,000	-11,391	-21,850	-31,898	-41,552	-50,834	-59,760	
46		410,000	-21,391	-31,850	-41,898	-51,552	-60,834	-69,760	
47		420,000	-31,391	-41,850	-51,898	-61,552	-70,834	-79,760	
48									

Figure 10.13 Effect of varying the cost of capital and investment amount on NPV

Figure 10.13 shows the combined effect of differing investment amounts and different costs of capital on the project. Looking at this table it can be seen that with an investment of £320,000 and a cost of capital of 21% the resulting NPV will be £58,150.

10.13 Using risk analysis

As mentioned previously, the risk of an investment is the potential of input/output variables to fluctuate from their original estimates. As in the vast majority of cases input/output variables do fluctuate, risk analysis accommodates this by allowing ranges, rather than single point estimates, to be entered into the model. It is generally easier to confidently state that an investment will be between 200,000 and 300,000⁴ than it will be 250,000.

There are a variety of techniques available to assist management in assessing the extent and the size of the risk inherent in a particular investment. For the purposes of this chapter the

⁴ In the context of this chapter it has been assumed that the distribution of the variable specified by this sort of range is uniform, i.e. there is equal probability of the outcome being any value between the minimum and the maximum.

size of the risk involved may be regarded as the range of the estimates.⁵ There are at least three generic approaches to identifying and assessing risk. These are:

- ◆ Group brainstorming,
- ◆ Expert judgement,
- ◆ Assumption analysis.

10.13.1 Group brainstorming

Group brainstorming uses group interaction to identify the variables that carry the most exposure to variability. Once the variables have been identified, the group then attempts to quantify the limits of the variability as well as the probability associated with the range of possible inputs and outputs. Brainstorming groups may meet several times before the estimates of the variables are finalised.

10.13.2 Expert judgement

Expert judgement uses experienced individuals who are aware of the factors causing the investment potential to vary. This is the quickest and easiest way of identifying risk, but considerable care must be taken when choosing the expert.

10.13.3 Assumption analysis

Assumption analysis requires the detailed questioning of each assumption. This analysis requires each assumption to be modified in such a way that the circumstances will be evaluated which are disadvantageous to the investment. The effects of the changes in assumptions are then used as part of the range of variable specification.

10.14 A risk analysis example

Figure 10.14 shows the agreed-upon minimum and maximum investment data for the capital investment model used earlier

⁵ There are other ways of accommodating risk in capital investment modelling such as increasing the cost of capital when projects are perceived to be exposed to a higher than usual risk.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Input form for risk analysis												
2				Minimum	Maximum								
3	IT Investment - cash out			350,000	400,000								
4													
5	Net IT benefits	Year 1		60,000	70,000								
6		Year 2		95,000	105,000								
7		Year 3		120,000	130,000								
8		Year 4		180,000	200,000								
9		Year 5		200,000	250,000								
10													
11	Fixed cost of capital			0.2	0.3								
12													
13	Inflation adjusted cost of capital			Y1 Min	Y1 Max	Y2 Min	Y2 Max	Y3 Min	Y3 Max	Y4 Min	Y4 Max	Y5 Min	Y5 Max
14				0.2	0.25	0.3	0.35	0.35	0.4	0.4	0.45	0.45	0.5
15													
16	Select variable to report		X	NPV (FDR)	-8,757								
17	with an X in the appropriate box			IRR									
18				NPV (VDR)									
19													

Figure 10.14 Risk analysis input form

in this chapter. The initial investment will be between £350,000 and £400,000. Similarly the IT benefits for years 1–5 are also specified as ranges, for example in year 1 the maximum benefit is estimated at £70,000 and the minimum value of the benefit is stated at £60,000. Similarly, the cost of capital is not known, but it is estimated at between 20% and 30% per annum.

10.14.1 The results of risk analysis

From the input data in Fig. 10.14 a range of summary statistics can be produced and Fig. 10.15 shows the effect of applying the risk analysis to the NPV calculation. Figure 10.16 shows the results graphically.

The results in Figs 10.15 and 10.16 would be regarded as being of relatively high risk. The reason for this is that the most likely outcome is an NPV of –43,218 (this lies between –54,924.557 and –40,253.179 in Fig. 10.16 with a standard deviation of 28,800.

In Figs 10.17 and 10.18 the risk analysis has been performed using a different set of input data, and looks at the effect of the ranges of data on the IRR.

These results can be regarded as a relatively low risk. The most likely outcome of this investment is an IRR of 20%.

	A	B	C	D	E	F
23	Summary statistics for	NPV (FDR)		Frequency Table		
24					NPV (FDR)	
25	Mean	-43,218.6		-113,610.1	1	
26	Standard deviation	28,800.54		-98,938.69	27	
27	Range	146,713.8		-84,267.31	125	
28	Minimum	-113,610		-69,595.94	247	
29	Maximum	33,103.71		-54,924.56	328	
30	No. of recalculations	2,000		-40,253.18	366	
31				-25,581.8	349	
32				-10,910.42	251	
33				3,760.954	185	
34				18,432.332	104	
35				33,103.709	17	
36						

Figure 10.15 Results screen for risk analysis on NPV

This kind of spreadsheet-based risk analysis provides a convenient way to adjust the input data in order to re-evaluate the risk patterns. Viewing the results graphically assists in the interpretation of the risk factor.

10.15 Investment decision rules

Every organisation will have its own investment decision rules. Some organisations will not invest in IT unless a payback of two years or less is forecast. Other organisations

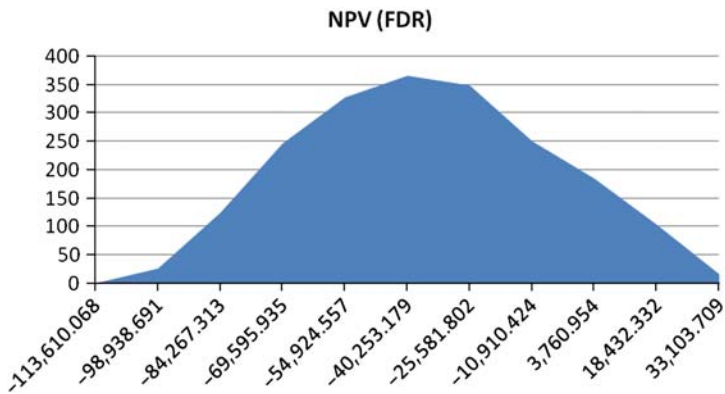


Figure 10.16 Graphical representation of risk analysis results for NPV at a FDR

	A	B	C	D	E	F
37	Summary statistics for	IRR		Frequency Table		
38					IRR	
39	Mean	0.203		0.163	1	
40	Standard deviation	0.016		0.171	12	
41	Range	0.083		0.179	105	
42	Minimum	0.163		0.188	249	
43	Maximum	0.246		0.196	341	
44	No. of recalculations	2,000		0.204	335	
45				0.212	325	
46				0.221	306	
47				0.229	208	
48				0.237	104	
49				0.246	14	
50						

Figure 10.17 Results screen for risk analysis on IRR

are less concerned about payback and thus by implication, ROI.⁶ Such organisations often focus on NPV and IRR.

In discounted cash flow analysis an investment is said to be acceptable if the NPV is equal to or greater than zero. However, some organisations believe that for IT projects there should be a sizeable positive NPV which they regard as a safety factor. Organisations that have difficulty in deciding on the value of their cost of capital, use the IRR and they will often specify an

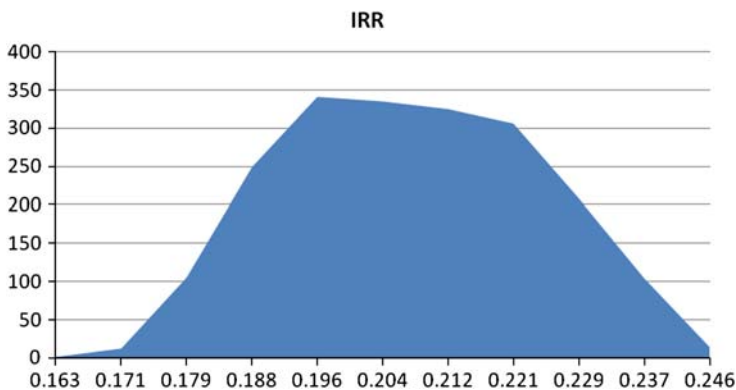


Figure 10.18 Graphical representation of risk analysis results on IRR

⁶ The ROI is by definition the reciprocal of the payback. See Appendix H.

arbitrary value, such as 25%, which if the project exceeds it, will be accepted. For more detail on these investment statistics see Appendix H.

10.16 Leasing

The leasing decision needs to be addressed in any chapter on business case accounting. Leasing is an alternative to the purchasing of investment assets. In general leasing is an expensive approach to acquiring the use of an investment asset. Outright purchase is normally cheaper. Leases are often for multiple years which may range from medium term, perhaps three to five years to long term which could be 10 years or even more.

Leases are often difficult to terminate early, i.e. before the end date, with substantial penalty clauses involved. So if the organisation can find the funds required for the investment in another way than leasing it is often financially better not to lease. Borrowing money on an overdraft basis which typically can be repaid without penalty by the borrower when funds become available is often a better choice.

On the other hand leases on assets such as vehicles can be beneficial from the point of view that the lease can include some of the running cost and the organisation is not left with any of the issues associated with the disposal of the asset when it is no longer required.

In addition leasing which is referred to as off-balance sheet funding or financing has traditionally not been taken into account when calculating the organisation's debt capacity. This can be seen as advantageous.

In preparing a business case for an investment the funding decision should not effect the investment decision. The business case should be produced on the assumption that the organisation has the funds available to pay for the investment. Of course, one of the most important aspects of the business case accounting is the determination of the Interest rate or Hurdle rate or Cost of Capital and this will

be affected by the cost of the leasing. Adjustments have to be made for this.

The main reason for keeping the investment and the funding decision separate is that with a lease almost any investment, besides those which would simply fail as they are a bad idea, could be made to appear beneficial as we would be looking at marginal revenue and marginal cost.

10.17 Summary

There are a number of different approaches to business case accounting or cost-benefit analysis that range from single point estimate techniques to rather sophisticated risk or stochastic analysis. In developing an IT investment business case it is important to choose the appropriate level of sophistication and not to spend an excessive amount of time on the financial numbers.

In some cases, where the amounts are small, it may not be necessary to perform any business case accounting or cost-benefit analysis at all.

Business case accounting is only at best a part of the investment business case and as such needs to be seen as a supporting tool to the main justification of the investment proposal.

Forms to help build a meaningful Cost-Benefit Analysis are provided in Appendix E.

This page intentionally left blank



11

Evaluating a Business
Case

This page intentionally left blank

The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist.

Keynes (1936)

Customer-intimate companies know their customers don't buy a product or a service. They buy its benefits.

Wiersema (1996, p. 31)

11.1 The preparation of a business case is challenging

This chapter provides a checklist which will help to determine if an investment business case has been well prepared and whether or not the investment is likely to meet the organisation's requirements. It is not easy to prepare these business cases. Investment in business has always been a difficult issue. The difficulty has been that the decision to invest is by nature based on a number of predictions or forecasts, which may or may not be reliable. The aphorism that 'prediction is always difficult, especially when it is about the future' clearly expresses this problem. As a result, the performance of some investments has been successfully predicted, while for others it has not. Sometimes it is just impossible to even guess what the future holds. Writing on the issue of the returns of future investments Keynes points out:

The affair was partly a lottery, though with the ultimate result largely governed by whether the abilities and character of the managers were above or below the average. Some would fail and some would succeed. But even after the event no one would know whether the average results in terms of the sums invested had exceeded, equalled or fallen short of the prevailing rate of interest; though, if we exclude the exploitation of natural resources and monopolies, it is probable that the actual average results of investments, even during periods of progress and prosperity, have disappointed the hopes that prompted them. Businessmen play a mixed game of skill and chance, the average

results of which to the players are not known by those who take a hand. (Keynes, 1936)

The point made by Keynes that the success of business investment is dependent on both skill and chance which we would probably call 'luck' should always be remembered when an investment is being made. Most people investing in property, the stock market or any sort of industrial capacity towards the end of 2009 might regard themselves as being unfortunate.

One of the most significant comments made by Keynes about the nature of the investment decision is related to our need to achieve and also to take a risk. Thus he states:

If human nature felt no temptation to take a chance, no satisfaction (profit apart) in constructing a factory, a railway, a mine or a farm, there might not be much investment merely as a result of cold calculation. (Keynes, 1936)

However, fortunately it is generally recognised that business is different from the roulette table or the racecourse. The risk or chances which are taken in business need to be calculated risks, and the calculations need to be based on sound evidence about the nature of markets, organisations, technology and people's performances. Thus there is a need for a comprehensive business case especially when large sums of money are to be invested.

11.2 The hallmark of a professionally produced business case

The primary hallmark of a professionally produced investment business case is that it represents a consensus of understanding and commitment on the part of the principal stakeholders.

This consensus of understanding and commitment would have been arrived at through a process of research, evaluations, discussions and dialogues whereby any differences and conflicts of interests would have been resolved. This may have required several reiterations of the investment business case document before agreement has been reached.

These reiterations can take a number of weeks, or for large-scale investment even a number of months, and many draft

documents will have to be produced before the final investment business case emerges. Furthermore this process can be expensive. However, the return on the professionally produced investment business case can be substantial, as the process of producing this document can dramatically reduce an organisation's propensity to embark upon unsound investments. Unsound investments are enormously wasteful and thus extremely expensive and preventing this type of problem is financially, very beneficial.

The main features of the professionally produced investment business case are:

- (1) An agreement that the proposed investment will suitably enhance the organisation's business both in terms of the required return on investment and strategic and tactical considerations;
- (2) A comprehensive understanding of all the key issues involved, technological and others, in making an investment successful;
- (3) The full commitment of the principal stakeholders who will have to play a part for ensuring the success of the investment;
- (4) An understanding of the major risks involved with the investment;
- (5) A platform which may be used as a management tool for ensuring that the project is on track and thus that a suitable return is achieved on the investment in new or improved business processes and practices. Typically this would involve some form of gated process as outlined in Chapter 3 and the management process outlined in Chapter 12.

Finally, it is perhaps the fact that a professionally produced business case can also be used as a project management framework, which can ensure delivery of benefits envisioned by the investment that makes it most powerful.

11.3 Summative and formative evaluations

The evaluation of an investment business case is essentially a summative process in which it is decided whether the

proposed investment is good enough for the organisation to commit the funds, time and effort required. The result of this summative process will be either to proceed with the investment or to decline the opportunity, i.e. a *yes* or *no* outcome. However, it would be unusual if at the end of this process there was not some aspect, implicitly or explicitly, of a formative evaluation. This simply implies that at the end of the investment business case exercise there would be some learning for the organisation. This learning should take place irrespective of whether the business case is accepted or not.

This learning will afford the organisation the opportunity to improve its ability to produce more comprehensive investment business cases. In so doing this will help the organisation have a more thorough understanding of how it may enhance its business processes and practices and how it may do this with the support of investment.

In fact while the distinction between summative and formative or learning evaluation is an important one, they are closely aligned and there will frequently be some aspect of both approaches present in any evaluation situation.

11.4 A checklist for evaluating a business case

As mentioned before the function of an investment business case is to present a convincing argument to management to spend a sizeable sum of money and a considerable amount of effort on an investment project to improve a process or practice and by extension enhance the profitability. To do this successfully the business case needs to comprehensively address the five key areas that have formed the major part of the discussion in this book, and which are shown again in Fig. 11.1.

At the end of this exercise there will be five sections to a report and each of these has to be appraised both separately and as a whole. In order to assist in the appraisal of these sections of the investment business case the following checklist of questions may be helpful. Note that financial issues are closely linked to the business outcome, but specific

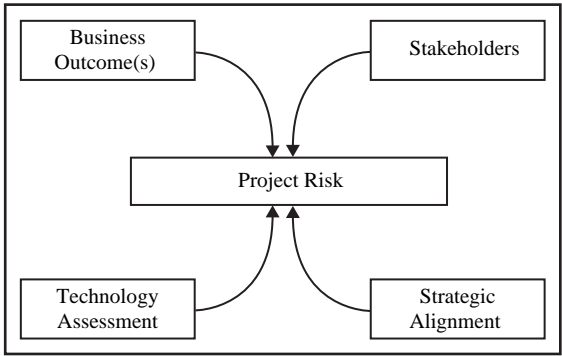


Figure 11.1 The five modules of a business case

financial questions need to be answered. Similarly operational issues are mainly to do with implementing the technology.

Business outcome issues

Business outcome: Is the problem or opportunity well enough understood? Is there a clearly articulated macro-model, meso-model and micro-model? Is it clear that the proposed system directly supports the organisation’s vision, mission, strategy? Does the proposed investment make good business sense?

Business case accounting: Are sufficient funds available to finance the project? Is the estimated ROI or NPV adequate to cover the organisation’s cost of capital? If this is not the case, are there other strategic reasons for this investment that makes it necessary despite the poor forecasted financial return? In this situation the risk of NOT investing must be carefully analysed and understood. The recent experience of the so called Millennium bug (the Y2K issue) forms an excellent case study in this area.

Stakeholder issues

Stakeholder issues: Has a user/owner prepared the business case? Who is the sponsor, the champion and the project manager? Does the project have adversaries? Are all the important stakeholders committed to making this investment a success?

Strategic alignment

Strategic alignment: Is it clear that the proposed investment directly supports the organisation's strategy? If it does, then to what extent is it counterproductive or work against the strategy?

Technology issues

Technology issues: Does the organisation adequately understand the proposed technology? Is the proposed technology readily available? Is there adequate backup and business continuity provided?

Operational issues: Does the organisation have the right people in place and are the time scales proposed realistic? Has adequate attention been given to matters such as training and testing, etc.? Has outsourcing been given appropriate attention?

Risk issues

Risk issues: What are the main risks? Can action be taken to manage and thus minimise this risk? Is the risk profile acceptable to the stakeholders?

Evaluation section by section

As mentioned above each of the five different sections of the report need to be reviewed separately. If any one of these five sections fails to satisfy the group of primary stakeholders then the viability of the whole investment project needs to be questioned. For example, even if the other dimensions of the investment business case are showing satisfactory indications, if any one of them is not up to the required standard, or has some major unanswered questions associated with it, the investment should not proceed.

Overall evaluation

The checklist shown above can be represented on a matrix that allows each of the five different sections of the report to be given a rating. The required rating, which is shown in the second column of Fig. 11.2, and is called the Base Score is the minimum score that is needed for each of the different sections of the report described in the investment business case

Issues	Base score	Current score
Business outcome	5	4
Business case accounting	3	1
Stakeholders	4	3
Strategic alignment	4	4
Technology	3	4
Operational	4	3
Project risk	3	2
Total	26	21

Figure 11.2 Matrix for assessing business case preparedness

checklist. A scale of 1–5 is used and the Base Scores are the target scores required. A score of 5 reflects an aspect of the investment business case which needs to show the highest compliance with the standards laid down by the organisation, while a score of 1 would correspond to an issue of relatively less importance and thus such an aspect of the investment that the business case need not live up to the theoretically required standard. In the third column each issue has been rated in terms of how ready for action it is thought to be. From Fig. 11.2 it is clear that the level of business case accounting is not considered sufficient and on an overall basis the business case in its current state falls 5 points short of the total ideally demanded by the organisation.

If an investment business case were assessed as shown in Fig. 11.2, it would be necessary to return to the business case process and revisit all the components except that relating to the strategic alignment as this has scored 4 out of 4 and technology, which is thought to exceed to stated requirements.

11.5 Weighting and scoring for prioritising projects

Where several projects are to be compared against each other then one approach that extends the above method is to establish prioritisation based on the above list of criteria using weights and scores. These criteria can be weighted and scored

and be used to calculate a value which can then be compared for different investment opportunities.

This process could be partially routinised by preparing a spreadsheet that will calculate these prioritisation values based on the value that is the product of the weights multiplied by the scores. There are a number of ways of weighting these variables, but one is to establish a weighting system for each of the seven issues on a scale of, say, 1–5 where 5 reflects an issue of the highest importance to the organisation and 1 would correspond to an issue of relatively less importance. Note, all the weighting numbers are probably stated as positive numbers. Introducing the use of negative weights, although not impossible, would substantially complicate this process.

Having established the weights of the different variables the next step is to review, for the purposes of scoring, each of the different projects. Each project would be awarded a score on a scale of, say, 1–10. This score is a subjective evaluation of the investment agreed to by the group of principal stakeholders. If there is a difference of opinion among the various stakeholders then an average value may be calculated. If there is a large number of stakeholders involved then a standard deviation may also be calculated.

A value for each variable or issue is then calculated by multiplying the weight by the scale and the values for each project are then summed or totalled.

Care needs to be taken with the variable that represents the risk. Risk is generally regarded as a problem. If this is the case then the score allocated to the risk variable should be stated as a negative, which will mean that the risk value will be calculated as a negative and this number will reduce the total value for the project. If on the other hand the risk variable is seen as a positive opportunity to earn a greater return on the investment then the risk variable should be stated as a positive and this number will increase the total of the value for the project.

Using the type of weighting and scoring method described here the project with the highest value would then appear to

Issues	Project 1			Project 2			Project 3		
	Wt.	Sc.	Value	Wt.	Sc.	Value	Wt.	Sc.	Value
(Wt = weight and Sc = score)									
Business outcome	5	4	20	5	10	50	5	7	35
Business case accounting	2	1	2	2	8	16	2	10	20
Stakeholders	5	3	15	5	4	20	5	3	15
Strategic alignment	5	4	20	5	6	30	5	7	35
Technology	2	4	8	2	5	10	2	9	18
Operational	3	9	27	3	7	21	3	8	24
Project risk	4	10	40	4	3	12	4	9	36
Total			132			159			183

Figure 11.3 Weighting and scoring method for prioritising projects

deserve to have the highest priority. Of course this is a rather mechanistic view and there may well be special circumstances which dictate that a project with less than the top score be considered for top priority. Nonetheless this approach tends to give the project prioritisation decision some structure.

Figure 11.3 is an example of how these seven issues could be rated and prioritised across three different projects.

In Fig. 11.3 Project 3 shows the highest value and therefore would appear to deserve maximum prioritisation.

11.6 Summary

A business case is essential for the professional investment management.

The production or development of an investment business case is a business process in its own right. Although the output of the investment business case is a document it is sometimes argued that the real value of this exercise is in the learning which takes place during its development process.

It is not trivial to produce a competent business case. In fact to produce a credible one is not a simple matter and requires considerable time and resources. However, the return on a professionally produced investment business case can be

substantial, as the process of producing this document can dramatically reduce an organisation's propensity to embark upon unsound investments and thus the benefits of having a business case should far exceed the cost.

An Evaluation Form to help differentiate different investment opportunities is provided in Appendix F.



12

Using the Business Case
as a Project Management
Tool

This page intentionally left blank

There is nothing more difficult to take in hand, more perilous to conduct, or more uncertain in its success, than to take the lead in the introduction of a new order of things

Machiavelli, *The Prince* (1532)

The Somebody Else's Problem field is much simpler and more effective (than other ways of making things invisible) ... This is because it relies on people's natural predisposition not to see anything they don't want to, weren't expecting, or can't explain.

Douglas Adams, *Life, the universe and everything* (1982)

12.1 Introduction

Successful investment management is not so much about acquiring and using project management tools such as Network analysis, Gantt charts or work breakdown approaches, as about achieving and sustaining a set of common understandings of what types of interventions are required to ensure that the target business processes and practices are enhanced.

The investment business case may be used as part of a basis for project management. Using it in this way allows for a new approach to more successful project management. This chapter considers a framework for the implementation of a new approach to project management, through a suitable programme using the investment business case as the starting point and the principles of continuous participative evaluation as discussed in Chapter 4 as a method for tracking the progress of the investment project.

A key issue to better project management is the paying of appropriate and continuous attention to the real business objectives of the investment. Once these business objectives and the implementation risks associated with them, have been clearly understood and agreed to by all the investment's primary stakeholders, it is necessary to continuously track the project's performance and its risks, until the project is delivered and is functioning according to plan.

An important aspect of this new approach to project management is the notion of continuous assessment and co-evolution.

Care needs to be taken to ensure that as the project progresses the stakeholders' understanding of the business objective grows. This requires that there should be a mutually sustained understanding of what the outcome of the investment will be and results in a process of continuous confirmation that the project is on track and that it will produce appropriate benefits. Professionally conducted project management can make a major contribution to the successful implementation and subsequent management of an investment, and especially to the eventual acceptability of it by its stakeholders.

12.2 Phases of investment project management

There are three distinct phases to successful project management programme.

The first of these may be referred to as *Setting the Course* which involves the development of the investment business case under the headings as described in earlier chapters, i.e. business outcomes, stakeholders, strategic alignment, technology and risk.

The second phase is the *Checking the Course* and involves closely assessing the progress of the project, while phase three is called *Staying on Course* which provides a feedback loop which, by the way, should be available, not only during development, but also throughout the entire life of the project.

12.3 A reiterative process

Project management programme is a reiterative process whereby investment are refined or co-evolved in a controlled manner. [Figure 12.1](#) shows the reiterative nature of this activity.

Project management programmes need to begin when the investment is first conceptualised and stay in place at least until it functionality is implemented.

The application of this framework or method to project management leads to a non-traditional approach to

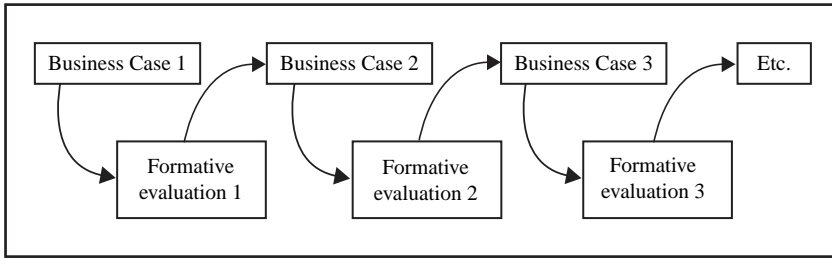


Figure 12.1 Reiterative process of formative evaluation

investment conceptualisation and development as well as to the subsequent assessment of the effectiveness of the funds spent. In addition, through a high degree of openness, which involves expecting organisational professionals to play a co-evolutionary role together with all the other stakeholders.

Although it is not possible to be prescriptive about how a project management programme will or should be conducted on a day-to-day basis, it is possible to say that in general it consists of the three distinct phases described above as:

- (1) *Setting the Course* – by developing the three initial pictures;
- (2) *Checking the Course* – the formative evaluation process;
- (3) *Staying on Course* – moving forward towards the objectives after closing of the feedback loop.

These phases are shown in Fig. 12.2. In addition the process by which these phases operate to ensure focused professional project management will be explained.

12.4 A route to successful IT implementation

The diagram in Fig. 12.2 may be seen as a chart describing the route through which a successful implementer needs to navigate or travel. As using an example help visualise what the actual processes look like an example had to be used here. The chosen example is an information and communications technology systems investment.

At the outset the principal stakeholders need to produce the comprehensive investment business case. As already

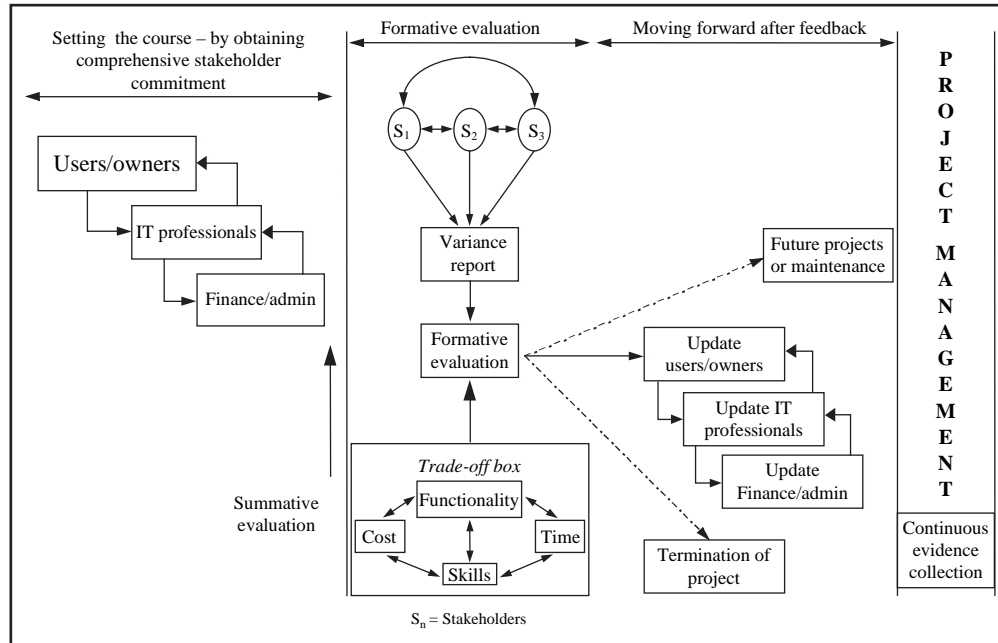


Figure 12.2 Phases of an IT development project

explained this is not a trivial process and will require a considerable amount of time and the involvement of a number of different stakeholders. This ultimately leads to the authorisation of the project aimed at achieving these outcomes and the ICT development work commences.

Project management techniques are then used to control the day-to-day work. However, this new ICT project management programme means that all those involved are sensitive to how the project is progressing and to whether or not it is possible to make improvements to either how the information system is being developed or to the actual business solution itself.

Formative evaluation sessions are held at regular, planned intervals during which progress is reviewed. A key aspect of this review is the notion of continuous assessment and co-evolution as the stakeholders navigate towards an effective information system's solution to their business problem or opportunity. This means that as the ICT project progresses the stakeholders' understanding of the business objectives and requirements grows, and thus there develops a mutually sustained understanding of what the outcome of the information system will be. This effectively requires that there is a process of continuous confirmation that the project is on track and that appropriate benefits will be realised. This also means that there is a continuous evaluation of the ICT investment business case as it is possible for the requirements to change so much that the original ICT investment business case to be no longer relevant. This may amount to Gate Stages as described in Chapter 3.

Figure 12.2 also shows how the three sets of stakeholders, who may be users/owners, ICT Professionals and finance and administration people, interact. Each of these stakeholder groups has their own interests in the ICT project.

12.4.1 Setting the course

The processes required here have been extensively discussed in the earlier chapters of the book. Once the summative evaluation has approved the investment business case the project

begins. Mistakes made at this stage can make the rest of the work doomed to failure.

12.4.2 Checking the course

A formative evaluation sessions will determine whether or not the project is on track and that no changes to the original think are required or it may suggest that substantial rethinking is needed, perhaps even project abandonment.

As can be seen from Fig. 12.2 all the major stakeholders need to be involved during the formative evaluation sessions as input or feedback may be required from all or any of them.

During the formative evaluation session there will frequently be requests for changes to the proposed system. Each suggested change needs to be assessed to ensure that it is important to the success of the project. Proposed changes always require either, more funds, more people and their skill and of course more time. Often there has to be a trade-off between what would be ideally desired and what can be produced within available budgets, time and people resources.

12.4.3 Staying on course

Moving forward refers to accommodating changes and progressing in the ICT project. If the suggested changes are considered to be important then one of four possible courses of action need to be taken.

If the suggested change is relatively small then it is quite possible that it may be accommodated within the original scope of the project. If this is the case then the project plan is simply modified and work continues.

If the suggested change is substantial then the proposer of the change needs to find the funds necessary to have them undertaken. The proposer of the changes may also need to produce a case for the delays which may be inherent in the suggested changes. If this is so, then once the changes have been funded and the time delays agreed, the project plan is modified and work continues.

Sometimes there will be either insufficient additional funds or the project will be too urgent to be delayed in order to accommodate the proposed changes. In such cases the required changes are noted and it is agreed that they are to be incorporated into the systems when the second release is made available. Some organisations do not favour the notion of second releases and in such cases the required enhancements are often undertaken as maintenance.

The final alternative result of the formative evaluation is that the project is actually terminated/abandoned. This can occur when a change is proposed which is so profound that it throws into question the wisdom of the investment itself. This seldom occurs. However, it is generally believed that it should take place more than it does. Projects tend not to be terminated/abandoned but often run to the end of the development phase only to find that the solutions which they represent are no longer relevant or required.

12.5 Summary

Thoroughly integrating the investment business case into a new approach to project management has a number of advantages to offer. This is required because generally speckling project management does not have an especially good track record. There are frequently problems with budget over-runs as well as delays to promised delivery dates. Furthermore in the case of ICT there is far too high an incidence of wasted resources where the delivered system is no longer relevant to the business. This new approach to project management helps alleviate all these problems.

But perhaps the single most important aspect of this new approach to project management is the fact that it builds and sustains consensus among the various stakeholders by recognising their co-creation and co-evolutionary status in developing business solutions. Not only will this approach produce more benefits, but it will also reduce waste. It will tend to decrease the amount of time it takes to deliver effective systems which help produce direct business benefits and thus substantially improve the utilisation of the organisation's resources.

This page intentionally left blank



Appendices

This page intentionally left blank

Appendix A

BUSINESS OUTCOME DETAILS	
Project:	Stage:
Document No:	Date:
Author:	

Macro-model

Macro-model	Details
Name of the proposed intervention <i>Limit this to around 10 words</i>	
State the perceived problem or opportunity <i>Limit this to around 100 words</i>	
Why is it a problem or opportunity? <i>Limit this to around 75 words</i>	
What is the nature of the intervention? <i>Limit this to around 50 words</i>	
What will be the result of the intervention? <i>Limit this to around 75 words</i>	
Identify the owner, users <i>List up to five possible owner, users of the intervention</i>	

Meso-model

Business output	Business outcome	Specific benefits	Measurement method	Specific metric	Responsibility

Micro-model

Using IT to automate jobs	All Numbers in 000's			
	Year 0	Year 1	Year 2	Year 3
Cost displacement				
Set up costs				
Hardware including PCs, LANs and other peripherals				
Software including spreadsheet, W/P, database and comms				
Training				
Installation and testing				
Total initial cost				
Monthly on-going costs				
Staffing, including support				
Maintenance & upgrades				
General				
Total costs				
Monthly benefits				
Reduction in clerical salaries				
Reduction in supervisory salaries				
Reduction in other staff costs				
Office space released				
Other office expenses saved				
Total benefits				
Improvement per month				
Annual net benefit				
Simple annual ROI				
Simple payback				
Cost of capital				
Discounted annual net benefit				
Discounted payback				
Net present value				
Internal rate of return				
Profitability index				

This page intentionally left blank

Appendix B

STAKEHOLDER DETAILS	
Project:	Stage:
Document No:	Date:
Author:	

Stakeholder check list

Key questions	Details
Who has most to gain from the project's success and failure?	
What capacity does each stakeholder have to help or hinder the project?	
Whose attitude do you most want to change and why?	
Which stakeholder should you most concentrate your efforts on?	
Who is the project sponsor?	
Who is the project champion?	
Who is the project's main adversary?	
What action are you going to take with respect to each of the key stakeholders?	

This page intentionally left blank

Appendix C

STRATEGY	
Project:	Stage:
Document No:	Date:
Author:	

Corporate strategy

	Strategic model	Details
1.1	What is the corporate strategy? <i>Limit this to around 50 words</i>	

Strategic alignment using the generic strategy model

Function	Low cost	Differentiation

Strategic alignment using the value discipline model

Function	Best product	Best total cost	Best total solution

This page intentionally left blank

Appendix D

TECHNOLOGY	
Project:	Stage:
Document No:	Date:
Author:	

Technology review

Issue	Current assessment
Is the proposed project technically doable?	
Does the proposed technology conform to the organisation's IT architecture?	
Should all or part of the project be outsourced?	
What would be the primary advantage of outsourcing this project?	
Are there any possible bottlenecks or obstacles, which could prevent delivery?	
Does the organisation have the IT competencies to deliver?	
Can the IT team produce the required deliverables in an appropriate time scale?	
What issues could cause material delays to the proposed timetable for this project?	
Does the project budget look reasonable?	
What aspects of the budget are the most exposed to over-runs?	
Is the organisation capable of absorbing the implications of the proposed system?	
Is there any other compelling reason why the project should not be undertaken?	

Appendix E

Cost-benefit analysis Cost displacement – one year

Using IT to automate jobs		All numbers in 000s	
Cost displacement	Year 0	Year 1	
Set up costs			
Hardware including PCs, LANs and other peripherals			
Software including spreadsheet, WP, database and communications			
Training			
Installation & testing			
Total			
Monthly on-going costs			
Staffing, including support			
Maintenance & upgrades			
General			
Total			
Monthly benefits			
Reduction in clerical salaries			
Reduction in supervisory salaries			
Reduction in other staff costs			
Office space released			
Other office expenses saved			
Total			
Improvement per month			
Annual net benefit			
Annual ROI			
Simple payback			Years

Cost-benefit analysis

Cost displacement – three years

Using IT to automate jobs		All numbers in 000's		
Cost displacement	Year 0	Year 1	Year 2	Year 3
Set up costs				
Hardware including PCs, LANs and other peripherals				
Software including spreadsheet, WP, database and communications				
Training				
Installation & testing				
Total initial cost				
Monthly on-going costs				
Staffing, including support				
Maintenance & upgrades				
General				
Total costs				
Monthly benefits				
Reduction in clerical salaries				
Reduction in supervisory salaries				
Reduction in other staff costs				
Office space released				
Other office expenses saved				
Total benefits				
Improvement per month				
Annual net benefit				
Simple annual ROI				
Simple payback				
Cost of capital				
Discounted annual net benefit				
Discounted payback				
Net present value				
Internal rate of return				
Profitability index				

Cost-benefit analysis

Cost displacement – five years

Using IT to automate jobs		All numbers in 000's				
Cost displacement	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Set up costs						
Hardware including PCs, LANs and other peripherals						
Software including spreadsheet, WP, database and communications						
Training						
Installation & testing						
Total initial costs						
Monthly on-going costs						
Staffing, including support						
Maintenance & upgrades						
General						
Total costs						
Monthly benefits						
Reduction in clerical salaries						
Reduction in supervisory salaries						
Reduction in other staff costs						
Office space released						
Other office expenses saved						
Total benefits						
Net improvement per month						
Annual net benefit						
Simple annual ROI						
Simple payback						
Cost of capital						
Discounted annual net benefit						
Discounted payback						
Net present value						
Internal rate of return						
Profitability index						

Cost-benefit analysis Cost avoidance – five years

Using IT to automate jobs		All numbers in 000's				
Cost avoidance	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Set up costs		1	2	3	4	5
Hardware						
Software						
Training						
Installation & testing						
Total						
Monthly on-going costs						
Staffing, including support						
Maintenance & upgrades						
General						
Total						
Monthly benefits						
Staff no required						
Other costs avoided						
Total						
Improvement per month						
Annual net benefit						
Annual ROI						
Simple payback						
Cost of capital						
Discounted annual net benefit						
Net present value						
Internal rate of return						
Profitability index						

Cost-benefit analysis Decision analysis – five years

Using IT to improve performance through more information		All numbers in 000's				
Decision analysis	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Set up costs		1	2	3	4	5
Hardware						
Software						
Initial training						
Commissioning						
Installation & testing						
Total						
Monthly on-going costs						
Staffing, including support						
On-going training						
Maintenance & upgrades						
General						
Total						
Monthly benefits						
Reduction in bad debts						
Interest earned by faster receipts						
Reduction in obsolete inventories						
Increased sales due to better availability						
Total						
Improvement per month						
Annual net benefit						
Annual ROI						
Simple payback						
Cost of capital						
Discounted annual net benefit						
Net present value						
Internal rate of return						
Profitability index						

Cost-benefit analysis Time release improvement

Using IT to improve salesperson's productivity			
Investment costs for 10 systems	All numbers in 000's		
Set up costs			
PCs, cellular modems and peripherals			
Database, spreadsheet, WP and communications			
Training			
Installation and testing			
Total initial cost			
Monthly on-going costs			
Staffing, including support			
Communications costs			
Maintenance			
General			
Amortisation			
Total monthly cost			
Monthly benefit analysis			
Average no. of sales calls per day			
Average value of sales per call			
Reduction in average sales call time			
Reduction in time required for daily form filling			
Total time release			
Average travel time required between sales calls			
Average additional opportunity as a result of IT investment			
Monthly revenue analysis			
Resulting additional revenue			
Profit margin %			
Daily profit improvement from 10 systems			
Monthly profit improvement per salesperson (22 days per month)			
Monthly profit improvement from 10 systems			
Annual profit improvement			
Annual operating cost of system			
Annual net benefit			
ROI			
Payback			Years

Cost-benefit analysis Transformation Project A

Using IT to improve performance through more information					
Transformation project		All figures in 000s			
	Year 0	Year 1	Year 2	Year 3	Year 4
Set up costs					
Hardware					
Software					
Re-organisation costs					
Initial training					
Commissioning					
Total initial costs					
Annual on-going IT costs of project					
Staff					
Maintenance					
General					
Amortisation					
Total on-going costs					
Annual benefits		Year 1	Year 2	Year 3	Year 4
Additional sales					
Cost of sales					
Net profit					
Tax					
After tax profit					
Amortisation					
Net cash flow					
Cost of capital					
Tax rate					
Economic life of the project in years					
Net present value					
Internal rate of return					
Profitability index					

Cost-benefit analysis Transformation Project B

Using IT to improve performance through more information					
Transformation project					
		All figures in 000s			
	Year 0	Year 1	Year 2	Year 3	Year 4
Set up costs					
Hardware					
Software					
Re-organisation costs					
Training					
Commissioning					
Total project costs					
Annual on-going it costs					
Staff					
Maintenance					
General					
Amortisation					
Total costs					
Annual benefits		Year 1	Year 2	Year 3	Year 4
Additional sales					
Cost of sales					
Net profit					
Tax					
After tax profit					
Amortisation					
Cash flow					
Investment cash flow					
Net cash flow					
Cost of capital					
Tax rate					
Economic life of the project					
Net present value					
Internal rate of return					
Profitability index					

Appendix F

EVALUATING A BUSINESS CASE	
Project:	Stage:
Document No:	Date:
Author:	

Evaluation form

Consider each of the five factors in the figure below and weigh them in their relative importance on a scale of 1 = least important and 5 = most important.

Review each project, one at a time, and ascertain how well each project performs on each of the five factors. Use a scoring system between 1 and 10 where 1 = very poor and 10 = excellent.

Multiply the weights by the scores for each factor and then add the resultant values. The project with the highest total value should, all other things being equal, be the project with the best business case and thus the most suitable project.

Issue	Project 1			Project 2			Project 3		
	Wt.	Sc.	Value	Wt.	Sc.	Value	Wt.	Sc.	Value
Business and finance understanding									
Stakeholder commitment									
Strategic alignment									
Technology competence									
Risk									
Total									

(Wt = Weight and Sc = Score).

Appendix G

Dealing with Risk

What are the risks?

Identifying the various risk elements inherent in any given investment requires input not only from the direct stakeholders but also from other interested parties from both within and external to the organisation. Brainstorming sessions are an effective way of compiling a list of potential risks. With list in hand a Probability Impact (PI) matrix should be completed for each identifiable risk.

	H			
	M			
	L			
		L	M	H
		IMPACT		

Responding to Risk

Once the risks have been identified a Risk Management Worksheet can be built.

Risk element	Impact	Probability	Score	Trigger	Owner	Action

There are two possible strategies of dealing with the risk element. A Preventative Action will attempt to avoid the risk element before it comes to pass. A Contingency Action will help to mitigate the impact of a risk element once it comes to pass (often referred to as Plan B). Key to this strategy is clearly identifying the trigger point to provide earliest possible warning of a given risk materialising.

Financial measures used in cost-benefit analysis

Payback

The payback may be defined as the amount of time, usually expressed in years and months, required for the original investment amount to be repaid by the cash-in flows. This measure is sometimes used with nominal cash-in flows and sometimes used with discounted cash-in flows. Nominal cash flows are the amounts unadjusted for the time value of money. The most popular form of payback used today is referred to as the exhaust method. The exhaust method of payback calculation involves the deduction of each year's cash-in flow from the original investment until the original amount is reduced to zero. This method should be contrasted with the average payback method which only gives a rough approximation of the period of time required to recover the investment amount when the cash-in flows are relatively constant.

Exhaust method

$$\begin{aligned} &\text{Payback in time (years, months, etc.)} \\ &= \text{investment} - \text{cumulative benefit} \end{aligned}$$

The calculation of the payback by the exhaust method is a reiterative process which requires the cumulative benefit to be subtracted from the investment until the result is zero. The time at which the result is zero represents the period which is required for the investment amount to be returned.

Average method

$$\text{Playback in time} = \frac{\text{Investment}}{\text{Average annual benefit}}$$

This average method is only useful if the annual benefits do not materially vary from the average. If there is any substantial variability in the annual benefits this method will produce meaningless results. Many firms use the payback as the primary criterion for deciding whether an investment is suitable or not.

It is generally considered that the cash flows used to calculate the payback should have first been discounted. This is referred to as a discounted payback. If this is done it will produce a time-value-based payback measure which will reflect the cost of capital. A discounted payback will always show a longer period than one based on nominal values.

Net present value (NPV)

The net present value may be defined as the difference between the sum of the values of the cash-in flows, discounted at an appropriate cost of capital, and the present value of the original investment. Provided that the NPV is greater than or equal to zero, the investment will earn the firm's required rate of return. The size of NPV may be considered as either a measure of the surplus which the investment makes over its required return, or as a margin of error in the size of the investment amount.

$$\text{Present value of benefit} = \frac{\text{Benefit}}{(1+i)^n}$$

where i = rate of interest and n = number of years.

$$\text{NPV} = \sum \text{Present value of benefit} - \text{Present value of investment}$$

The interpretation of the NPV should be based on the following rules:

If $NPV \geq 0$ then invest

If $NPV < 0$ then do not invest

The size of the NPV represents the margin of error which may be made in the estimate of the investment amount before the investment will be rejected.

Profitability index (PI)

The profitability index is defined as the sum of the present values of the cash-in flows divided by the present value of the investment. This shows a rate of return expressed as the number of discounted pounds and pence which the investment will earn for every pound originally invested.

$$PI = \frac{\sum \text{Present value of benefits}}{\text{Present value of investment}}$$

Internal rate of return (IRR)

The internal rate of return is the rate of interest which will cause the NPV to be zero. It is the internally generated return which the investment will earn throughout its life. It is also frequently referred to as the yield of the investment.

$$IRR = i \text{ such that } NPV = 0$$

Rate of return or return on investment (ROI)

The rate of return or return on investment, which is sometimes referred to as the simple return on investment, is calculated by considering the annual benefit divided by the investment amount. Sometimes an average rate of return for the whole period of investment is calculated by averaging the annual benefits while on other occasions the rate of return is calculated on a year by year basis using individual benefit amounts.

$$ROI = \frac{\text{Annual benefit}}{\text{Investment amount}}$$

This page intentionally left blank

Glossary of terms

Automate: IT systems that are developed to replace manual activities are referred to as automate systems.

Benefit: A term used to indicate an advantage, profit or gain attained by an individual or organisation. A benefit is normally traded-off against a cost of some sort.

Business objectives: Those objectives a business organisation wishes to achieve. In the context of this book, the organisational changes and improvements that are to be achieved in order to enhance the business performance as a result of the information system's development and commissioning.

Business value: Something of worth to the organisation. Business value refers to how much the information system contributes to the overall worth of the business. This does not simply refer to short-term cost improvements but to a full range of issues including both hard and soft benefits q.v.

Business vision: The business vision is that which the management wants to achieve with the enterprise in the future. A business vision usually refers to the medium to long term. It is often expressed in terms of a series of specific objectives as well as general values.

Capital investment: Funds committed to long-term assets within the firm such as land and building, plant and equipment or computer hardware. In some cases computer software is even regarded as a capital investment.

Co-creation: A co-creation approach means that all the stakeholders' interests are considered in deciding how to specify the proposed information system at the outset.

Co-evolutionary: A co-evolutionary approach means that all the stakeholders' interests are considered in deciding how to proceed with an information system's development. This needs to be contrasted with either the information systems people deciding what the eventual user needs and producing an information system for them, or the user demanding an information system without understanding what is possible or desirable from the different points of view of the other stakeholders.

Competitive advantage: This term is usually used to describe how one particular organisation attracts clients or customers when in competition with another. There are various sources of competitive advantage including low cost and differentiation.

Contingency: The contingency notion or concept states that it is not possible to be fully knowledgeable of the precise outcomes required from an information system at the outset of its development. As a result of this uncertainty information system developers' plan can only be contingent on the current assumptions not changing. Once an assumption changes the development plan will need to reflect this change.

Corporate memory: The ability of the organisation to recall useful information about techniques and procedures required to conduct its business. The term is sometimes associated with the notion of empowering staff to perform tasks requiring greater skills than they would otherwise be able to undertake.

Corporate strategy: A method through which the firm finds, gets and keeps its clients. In a broad sense it refers to how the firm relates to and interacts with its environment, including its stakeholders.

Cost avoidance: A technique used in cost-benefit analysis which attempts to measure the various costs which an organisation will not have to incur when it acquires an information system.

Cost-benefit analysis (CBA): The process of comparing the various costs associated with an investment with the

benefits and the profits which it generates. Cost-benefit analysis attempts to demonstrate whether the investment will earn a sufficient return in order for the organisation to consider it to be economically worth-while. There are a number of different approaches to cost-benefit analysis including cost displacement, cost avoidance, risk analysis, etc.

Cost displacement: A technique used in cost-benefit analysis which attempts to measure the various costs to which an organisation will no longer be committed when it acquires an information system. The new information system will be the cost and the benefits will be the expenses which the firm will no longer have to incur.

Critical success factors (CSF): Those aspects of the business which must be right for the enterprise to succeed in achieving its objectives. It is also sometimes said that even though all other aspects of the business are going well, if the critical success factors are not being achieved, then the business will not succeed.

Culture gap: Term to describe the high degree of misunderstanding and sometimes animosity between management and information systems groups.

Decision analysis: A technique used in cost-benefit analysis which attempts to measure the impact of information systems on decisions made by individuals in the firm. Decision analysis is based on the proposition that better information can lead to better decisions which in turn can lead to better financial results.

Deliverables: The demonstrable results of a system or an initiative.

Direct cost: The cost incurred which may be shown as being incurred specifically due to some activity or project and not simply associated with the general overheads of the business. Direct costs vary in some proportion to the level of output.

Evaluation: In general terms, evaluation can be described as the determination of the worth or value of something judged according to appropriate criteria.

- Ex-ante:** Refers to estimates of the benefits and the costs in advance of an investment.
- Ex-post:** Refers to the actual cost and estimates of the achieved benefits after the implementation of the investment.
- Feedback loop:** In the context of this book, the last part of the evaluation cycle in which documents are used as input to the next formative evaluation session to ensure that the business, financial and project pictures are not out of date or out of touch with the actual current requirements.
- Formative evaluation:** Formative evaluation is an iterative evaluation and decision, making process continually influencing decisions about the information system's development process and the resulting information system. The term 'formative evaluation' has its origins in the evaluation of educational programmes and social programmes (Scriven, 1991; Patton, 1980). The phenomenon of formative evaluation is not new (Chelimsky, 1997). It has been applied for many years in a number of disciplines with the roots of the concept stretching back into the nineteenth century. The word formative derives from to 'mould by discipline and education' (*Shorter Oxford Dictionary*, 1983). This is very close to the approach used by Walsham (1993) which he refers to as interpretative evaluation and which he highlights as an important facet in information systems management. This is also sometimes termed 'learning evaluation'.
- Framework:** It is a fundamental structure for a system of ideas where a structure is a number of parts that are put together in a particular way.
- Generic strategy:** One of the basic ways in which a firm can find, get and keep its clients. According to Porter (1985) there are two generic strategies, which are *cost leadership* and *differentiation*. A generic strategy may be broad based or focused on a niche in the market.
- Hard cost:** Costs associated with an investment that are agreed by everyone to be directly attributable to the investment, and which can be easily captured by accounting procedures.

Hidden cost: A non-obvious cost associated with an investment that may in fact appear to be due to another source.

Informate: IT systems that provide specific information to management, which allow them to make more insightful decisions and therefore use the organisation's resources more effectively, are referred to as informate systems.

Intangible benefit: Benefits produced by an investment which are not immediately obvious and/or measurable in financial terms.

IT benefit: The benefit produced by an investment in information technology. It is likely that such an investment will produce both tangible and intangible IT benefits.

IT business benefits: This normally refers to advantages, profits or gains which are delivered by the use of information systems. This traditionally involves performing tasks faster, with fewer errors and producing higher quality output than could otherwise be achieved.

Macro-model: A high level model employing general concepts, or rough drawings, or imprecise fabrications to present a conceptual picture which will contextualise the problem or opportunity as well as provide a suggested solution.

Marginal cost: The cost associated with the production of one extra unit or the cost involved in a new activity excluding the general overhead.

Meso-model: Adds some detail to a macro-model, but will still be expressed primarily in generalities.

Micro-model: A detailed model which attempts to be closer to reality and thus to use more specific or life-like representations or values.

Model: A representation of an artefact, a construction, a system or an event or sequence of events.

NPV (net present value): It is the difference between the sum of the values of the cash inflows, discounted at an appropriate cost of capital, and the present value of the original investment. Provided that the NPV is greater than or equal to zero, the investment will earn the firm's required rate of return.

Opportunity cost: The opportunity cost of an investment is the amount which the organisation could have earned if the sum invested in IT was used in another way.

Outcome: In the context of this book, the business result of the information system after it has been successfully commissioned and implemented.

Overhead cost: The overhead costs are the costs of running the business which do not vary directly with the level of output. Overhead costs tend to increase in step functions, i.e. the increases are of relatively large amounts associated with such activities as acquiring an additional factory, etc.

Outcome space: Term used to describe the business benefits of an information system.

Payback: The amount of time, usually expressed in years and months, required for an original investment to be repaid by the cash inflows.

Process: In the context of this book a process can be defined as a series of structured activities which are started at project initialisation and continue until project termination.

Risk: The possibility that the actual input variables and the outcomes may vary from those originally estimated.

Risk analysis: A technique used to assess the potential profitability of an investment. It involves the use of ranges as input variables rather than single point estimates. Probabilities may be associated with these ranges. The output of risk analysis is a profile of a series of possible results.

ROI (return on investment): Accounting or financial management term to describe how well the firm has used its resources. It is usually calculated by dividing net profit after tax by total net assets.

Scope creep: The tendency for information system projects to expand in order to embrace a wider range of issues than originally intended.

SDLC (software development life cycle): The traditional approach to information systems development.

Soft cost: Costs associated with an investment that are not readily agreed by everyone to be directly attributable to the investment, and which are not easily captured by accounting procedures.

Stakeholder: Any individual with an involvement in the evaluation process; can include senior management, users, financial managers, technical staff, etc.

Strategic alignment: In the context of this book, strategic alignment refers to ensuring that the information systems effort of the organisation supports the overall corporate strategy.

Strategic evaluation: A necessary preparatory activity to strategic decision making at agreed milestones in the development cycle.

Strategic information system (SIS): An information system which helps a firm to improve its long-term performance by achieving its corporate strategy and thereby directly increasing its contribution to the industry value chain.

Strategic vision: How the top management of an enterprise believes it can achieve its objectives in the medium- to long-term.

Strategy: The formal use of this word refers to the way a firm finds, gets and keeps its clients. Common usage has reduced the meaning of strategy to be synonymous with plan. See also 'corporate strategy' and 'generic strategy'.

Summative evaluation: According to Finne et al. (1995) summative evaluation approaches typically aim at assessing outcomes and impacts; they take place towards the end of the programme or after its conclusion. They go on to point out that summative evaluations may be used conceptually, instrumentally, or persuasively. This means that the results of such an evaluation may be used to reconsider an investment proposal, to redirect investment efforts or to convince others that a new course of action is required.

Tangible benefit: Benefits produced by investments that are immediately obvious and measurable. The term tangible benefit is usually used to refer to benefits that are directly

reflected in the improvement in the profit performance of the organisation.

Transformate: IT systems that make a radical impact on the way in which the organisation conducts its business, either by the transformation of its current activities and processes, or by the introduction of new lines of business are referred to as transformate systems.

Vision: Sometimes referred to as 'strategic vision' or 'business vision' q.v., this term refers to a view as to how the firm can successfully function in the marketplace in the medium- to long-term. It usually encompasses how the firm will find, get and keep its clients.

Bibliography

- Adams, D., 1982. *Life, the Universe and Everything*, Seventh printing. Pan Books Limited, London, p. 33.
- Adelman, C., 1996. Anything goes: evaluation and relativism. *Evaluation* 2 (3), 291–305.
- Akkermans, H., Developing a logistic strategy through participative business modelling. *International Journal of Operations and Production Management* 15 (11), 100–112.
- Ansoff, H.I., 1965. *Corporate Strategy*. Penguin, London.
- Benjamin, R.I., Long, De, Scott-Morton, M.S., 1990. Electronic data interchange: how much competitive advantage?, A collection of papers entitled *Planning for Information as a Corporate Resource: The Best of Long Range Planning*, No. 4. Pergamon Press, Oxford.
- Bernstein, P., 1996. *Against the Gods*. John Wiley and Sons, New York, P.7.
- Boydjarian, Warren, 1987. Cited in *RISKS*, Reading Corporate Signals. John Wiley and Sons Ltd, Chichester.
- Bradley, K., 1996. *PRINCE – A Practical Handbook*. Butterworth Heinemann, Oxford, p. 129.
- Brunner, I., Guzman, A., 1989. Participatory evaluation: a tool to assess projects and empower people. In: Conner, R.F., Hendricks, M. (Eds.), *International Innovations in Evaluation Methodology: New Directions for Evaluation Methodology*, Jossey-Bass, San Francisco, CA.
- Cane, A., 1992. The Number Crunchers Crack. *Financial Times*, June.
- Chandler, A., 1990. *Strategy and Structure: chapters in the History of the American Industrial Enterprise*. MIT Press, Boston, Mass, p. 13.
- Chapman, C., Ward, S., 1997. *Project Risk Management – Processes, Techniques and Insights*. John Wiley, Chichester.
- Chelimsky, E., 1997. The coming transformations in evaluation. In: Chelimsky, E., Shadish, W.R. (Eds.), *Evaluation for the 21st Century*. Sage Publications, London.
- Corbitt, T., 1995. Business modelling techniques. *Management Services* 38 (5), 22–23. May.

- Correia, C., 1989. Financial Management, second ed. Juta & Co., Ltd, Cape Town.
- Disraeli, B., 1959. Cited in: Mark Twain, Autobiography, ch. 29 ed. by Charles Neider.
- Drucker, P., 1997. What executives need to learn, cited by Davenport, T. In: Information Ecology – Mastering the Information and Knowledge Environment. Oxford University Press, New York.
- Earl, M., 1992. Putting IT in its place: a polemic for the nineties. Journal of Information systems September.
- Economist, 1991. Too Many Computers Spoil the Broth, 24 August, p. 30.
- Fairley, R., 1990. Risk Management: the key to successful software projects. In: Experiences with the Management of Software Projects, Workshop Series, No. 9.
- Farbey, B., Land, F., Targett, D., 1993. How to Assess your IT Investment – A Study of Methods and Practice. Butterworth Heinemann, Oxford, p. 41.
- Finne, H., Levin, M., Nilssen, T., 1995. Trailing research: a model for useful program evaluation. Evaluation 1 (1), July. Sage Publications, London, UK.
- Fortune, J., Peters, G., 1995. Learning from Failure – The Systems Approach. John Wiley & Sons, Chichester.
- Gonin, R., Money, A.H., 1990. Nonlinear L_p – norm Estimation. Marcel Dekker.
- Gould, S.J., 1992. The Mismeasure of Man. Penguin Books, London, p. 27.
- Hewett, T.T., 1986. The role of iterative evaluation in designing systems usability. In: Harrison, M.D., Monk, D. (Eds.), Proceedings of 2nd BCS HCI Specialist Group Conference, People and Computers: Designing for Usability. York.
- Hitt, L., Brynjolfsson, E., 1994. The three faces of IT value: theory and evidence. Proceedings of the Fifteenth International Conference on Information Systems. Vancouver, British Columbia, Canada, December 14–17.
- Hochstrasser, B., Griffiths, C., 1990. Regaining Control of IT Investments. Kobler Unit.
- Hopwood, A.G., 1983. Evaluating the real benefits. In: Otway, H.J., Peltu, M. (Eds.), New Office Technology, Human and Organisational Aspect. Pinter Ltd., London.
- Johnson, N.L., Kotz, S., 1970. Distributions in Statistics: Continuous Univariate Distributions, vols. 1 and 2. Houghton Mifflin.
- Kaplan, R.S., Norton, D.P., 1992. The balanced scorecard; measures that drive performance. Harvard Business Review 70 (1).

- Karlin, S., 1982. 11th R.A. Fisher Memorial Lecture. Royal Society, London. April 20.
- Kay, J., 1993. *Foundations of Corporate Success*. Oxford University Press, Oxford.
- Keen, P., 1991. *Shaping the Future – Business Design through Information Technology*. Harvard Business School Press, Boston, pp. 142.
- Keynes, J.M., 1923. *A Tract on Monetary Reform* (Chapter 3).
- Keynes, J.M., 1953. *The General Theory of Employment, Interest and Money* (first published in 1936). Harcourt Brace Jovanivich, Orlando.
- Koella, J., 1991. On the use of mathematical models of malaria transmission. *Acta* 49, 2.
- Lacity, M., Hirschheim, R., 1995. *Information Systems Outsourcing*. John Wiley and Sons, Chichester.
- Laudon, K., 1989. *A General Model for Understanding the Relationship between Information Technology and Organisations*, New York University. Centre for Research on Information Systems, New York. January.
- Lincoln, T., 1986. Do computer systems really pay-off? *Information and Management* 11.
- Love, A.J., 1991. *Internal Evaluation: Building Organisations from Within*, Applied Social Research Methods Series, vol. 24. Sage Publications.
- Loveman, G., *Computerworld*, November 25, 1991, quoted in Tom Peters, *Liberation Management*, p. 125, Alfred A Knopf, New York.
- Lyytinen, K., 1987. Expectation failure concept and systems analysts' view of information systems failures: results of an exploratory study. *Information & Management* 14, 45–46.
- Mayne, J., Zapiro-Goni, E. (Eds.), 1997. *Monitoring Performance in the Public Sector: Future Directions from International Experience*. Transaction Publishers, New Brunswick and London.
- McFarlan, F.W., 1994. Information technology changes the way you compete. *Harvard Business Review*, May–June.
- McFarlan, F.W., 1990. A video produced on the subject of information management. Harvard Business School.
- Meyer, C., 1994. How the right measures help teams excel, *Harvard Business*.
- Nugent, J., 1998. Institutions, markets and development outcomes. In: *Evaluation and Development: The Institutional Dimension*. Transaction Publishers, Rutgers.
- Oz, E., 1994. Information systems MIS-development: the case of Star* doc. *Journal of Systems Management*, September.

- Pascale, R., 1986. *The Art of Japanese Management*. Penguin Books, p. 80.
- Patton, M.Q. 1980. *Qualitative Evaluation Methods*, Sage Publications Inc., Beverly Hills, California.
- Picciotto, R., 1999. Towards an economics of evaluation. *Evaluation* 5 (3), 7–22.
- Porter, M.E., 1985. *Competitive Advantage – Creating and Sustaining Superior Performance*. The Free Press, New York.
- Porter, M.E., 1985. *Competitive Strategy – Techniques for Analysing Industries and Competitors*. The Free Press, New York.
- Proctor, T., 1995. Business modelling on a personal computer. *Management Decision* 33 (9), 38–43.
- Quinn, J.B., cited in Quinn, J.B., Mintzberg, H., James, R.M. (Eds.), 1988. *The Strategic Process, Concepts, Contexts and Cases*, Prentice Hall.
- Remenyi, D.S.J., Money, A., Twite, A., 1993. *A Guide to Measuring and Managing IT Benefits*, second ed. NCC Blackwell, Oxford.
- Remenyi, D., Money, A., Twite, A., 1995. *Effective Measurement and Management of IT Costs and Benefits*. Butterworth-Heinemann Ltd., Oxford.
- Remenyi, D., Sherwood-Smith, M., White, T., 1997. *Achieving Maximum Benefit from your IT Investment*. John Wiley and Son, Chichester.
- Remenyi, D., 1999. *Stop IT Project Failures through Risk Management*. Butterworth & Heinemann, Oxford.
- Romtech Report, 1989. *Computing Opinion Survey*, Romtech.
- Russell, B., 1960. *The ABC of Relativity* 1925 Mentor Books, New American Library, by arrangement with George Allen and Unwin, p. 144.
- Scriven, M.S., 1991. The Science of Valuing, in *Foundations of “Program Evaluation: Theories and Practice”*, by Shadish, W.R. et al. (1991).
- Senge, P., 1992. *The Fifth Discipline – the Art and Practice of the Learning Organisation*. Random House Sydney, Australia.
- Shadish, W.R., Cook, T.D., Leviton, L.C., 1991. *Foundations of Program Evaluation: Theories of Practice*. Sage Publications, Newbury Park, CA.
- Sherwood-Smith, M.H., 1989. *The Evaluation of Computer-Based Office Systems*. Ph.D. Unpublished thesis. University College Dublin.
- Stalk, G., Hout, T., 1990. *Competing Against Time*. The Free Press, New York.
- Strassmann, P.A., 1996. *Information Payoff: the Transformation of Work in the Electronic Age*. Free Press, New York.

- Strassmann, P., 1997. *The Squandered Computer: Evaluating the Business Alignment of Information Technologies*. Information Economics Press.
- Svendsen, A., 1998. *The Stakeholders Strategy*. Berrett-Koehler, San Francisco.
- Treacy, M., Wiersema, F., 1993. Customer intimacy and other value disciplines. *Harvard Business Review*, Jan–Feb, 84–93.
- Turbit, Neville., 2005. *White Paper Collection – Project Perfect*, Australia.
- Turner, J.R., 1995. *The Commercial Project Manager*. McGraw Hill, Maidenhead.
- Walsham, G., 1993. *Interpreting Information Systems in Organisations*. Wiley, Chichester.
- Wheatley, M., 1992. *Leadership and the New Science*. Berrett-Koeler Publishers, San Francisco, p. 8.
- Willcocks, L., 1991. Unpublished Chairman’s Introduction to a Conference on Managing IT Investment, conducted by Business Intelligence, London 20 May.
- Willocks, L., Griffiths, C., 1994. *Beyond 2000: The Source Book for Major Projects*, The Major Projects Society. Templeton College, Oxford.
- Zelm, M., Vernadat, F., Kosanke, K., 1995. The CIMOSA business modelling process. *Computers in Industry* 26 (2), Oct, 123–142.
- Zuboff, S., 1998. *In the Age of the Smart Machine: The Future of Work and Power*. Basic Books, New York.

This page intentionally left blank



Index

This page intentionally left blank

- Adelman, C., 53
- Ansoff, H.I., 101–2
- Architecture risks, 131, 132
See also Risk
- Assets, 3–4
- Assumption analysis, 174
- Assumptions, 55–6
- Automate, 231
- Average weighted cost of capital, 156
- Bad ideas, 136–7
- Base Score, 188–9
- Benchmarking, 160
- Benefits, 231
 generic categories of, 73–5
 intangible, 21–2, 28, 73, 235
 quantifiable, 73
 sources of benefit estimates, 160–1
 tangible, 73, 237–8
 unquantifiable, 73
See also Cost-benefit analysis
- Best total cost, 109–10
- Best total systems, 110–11
- Big-bang delivery, 39
- Brunner, I., 53
- Budget, technology, 124
- Business case, 5–6, 8–9, 61
 as a model, 9–10
 as a process, 41–2
 components of, 10–12, 34–5
 consensus issue, 36
 cost of, 43–4
 estimation accuracy, 39–40
 evaluation and, 47–8
 evaluation of, 183–91, 223–4
 checklist, 186–9
 hallmark of a professionally
 produce business case, 184–5
 summative and formative
 evaluations, 185–6
 weighting and scoring for
 prioritising projects, 189–91
 exaggerated benefits of, 13–14
 ownership of, 14–15
 protean nature of, 28–9
 risk incorporation, 137–8
 stakeholders and, 96–8
- Business case accounting, 147, 187
 approaches, 147–8, 161–9
 cost avoidance, 164–5
 cost reduction/displacement, 161–4
 decision analysis, 165–6, 219
 impact analysis, 166
 time release analysis, 166
 transformate analysis, 166–8
- concepts, 150–7
 cost framework, 148–50
 difficulty in estimating investment
 variables, 169–71
 using deterministic analysis, 171–3
 using risk analysis, 173–6
See also Costs
- Business objectives, 231
- Business outcome, 187
 outcome statement, 62–5, 205–7
- Business risks, 131, 132
See also Risk
- Business value, 231
- Business vision, 231
- Capital investment, 231
- Cash flow, 155
 discounted cash flow, 154–5
- Change:
 acceptance of, 36–9
 importance of phased delivery, 38–9
 stakeholder governance, 39
- Chapman, C., 130
- Co-creation, 231
- Co-evolutionary approach, 232
- Commissioning costs, 149–50
- Competitive advantage, 232
- Conceptualisation, failures of, 136–7
- Consensus issue, 36
- Contingency, 232
- Core business investment, 19,
 20–2, 27
- Corn seed investments, 25–6, 27
- Corporate culture, 12–13
- Corporate memory, 232
- Corporate strategy, 232
See also Strategy
- Correia, C., 130
- Cost avoidance, 164–5, 218, 232
- Cost displacement, 161–4, 215–17, 233
- Cost of capital, 156, 169, 178–9
- Cost-benefit analysis, 5–8, 74–5, 215–22,
 232–3
 financial measures, 227–9
See also Benefits; Costs

- Costs:
- commissioning costs, 149–50
 - detailed cost items, 157–8
 - hard costs, 158
 - hidden costs, 150–2
 - life time costs, 153
 - marginal costs, 152–3
 - of business case, 43–4
 - opportunity costs, 152
 - pattern of, 159
 - pre-commissioning costs, 148–9
 - running costs, 150
 - soft costs, 158
 - sources of cost estimates, 160
 - sunk costs, 153
 - See also* Cost-benefit analysis
- Credit control system:
- macro-model, 65
 - meso-model, 70
- Critical success factors (CSF), 233
- Culture gap, 233
- Current assets, 4
- Customer intimacy, 110–11
- Decision analysis, 165–6, 219, 233
- Deliverables, 233
- Delphi study, 120–1
- Depreciation, 155
- Deterministic analysis, 169–70, 171–3
- Development risks, 131, 132
- See also* Risk
- Direct cost, 233
- Discounted cash flow, 154–5
- Discounted payback, 228
- Do-nothing option, 148
- Drucker, P., 5, 75
- Economic life span, 156–7
- Estimation accuracy, 39–40
- Evaluation, 47–56, 233
- assumptions and, 55–6
 - definition, 48
 - ex-ante evaluation, 50–1
 - ex-post evaluation, 50–1
 - formative evaluation, 51–4, 185–6, 199
 - of business case, 183–91
 - professional approach to, 55
 - strategic evaluation, 237
 - summative evaluation, 51–2
 - traditional business evaluation, 48–9
 - types of, 50
- Ex-ante evaluation, 50–1, 234
- Ex-post evaluation, 50–1, 234
- Execution, failures of, 133–6
- Expert judgement, 174
- Fairley, R., 130
- Farbey, B., 49
- Feasibility studies, 5–8
- Feedback loop, 234
- Financial managers and administrators, 85–6
- Finne, H., 51–2
- Fish-bone diagram, 69
- Five forces model, 103–4
- Fixed assets, 3–4
- Formative evaluation, 51–2, 185–6, 199, 234
- investment business case and, 52–3
 - learning aspect, 51
 - participation and, 53
 - reiteration and, 53–4
- Fortune, J., 129
- Framework, 234
- Function/Process-Strategy table, 113, 114
- Gantt diagram, 138, 140, 141
- Generic strategies model, 104–5, 234
- Gonin, R., 171
- Goodwill, 4
- Gould, Stephen, 33–4
- Group brainstorming, 174
- Guzman, A., 53
- Hard costs, 158, 234
- Hidden costs, 150–2, 235
- cost omitted, 151
 - costs arising, 151–2
- Horizon, 156–7
- Hurdle rate, 156, 178–9
- Impact analysis, 166
- Industry value chain, 107–8
- Informate, 235
- Intangible benefits, 21–2, 28, 73, 235
- Intangible investment, 4
- Inter organisational systems (IOS), 108
- Interest rate, 156, 178–9

- Internal Rate of Return (IRR), 154, 175, 177–8, 229
- Investment, 3–5
 - core business investment, 20–2, 27
 - corn seed investments, 25–6, 27
 - intangible, 4
 - investment decision rules, 176–8
 - investment owners as stakeholders, 83–5
 - multi-stage investments, 42–4
 - must-do investments, 20, 26
 - outcome, 62
 - output, 62
 - prestige project investment, 23–5, 27
 - research and development, 25–6
 - tax shield, 154, 155
 - types of, 19–20
- Investment champions, 84–5
- Investment cycle, 5
- Investment matrix, 26–7
- Investment project management, *See* Project management
- Investment sponsor, 84–5
- Ishikawa diagram, 69

- Johnson, N.L., 171

- Kay, J., 102
- Keynes, John Maynard, 7, 183–4
- Kotz, S., 171

- Laudon, K., 6
- Law of parsimony, 13
- Learning, 51–2, 186
- Leasing, 178–9
- Life time costs, 153
- London Ambulance Service computer disaster, 129
- Love, A.J., 48
- Loveman, G., 119

- McFarlan, Warren, 133–6
- Marginal costs, 152–3, 235
- Materiality test, 77
- Mintzberg, H., 101
- Model, 9, 235
 - business case as, 9–10
 - macro-model, 9–10, 64–9, 205, 235
 - credit control system, 65
 - sales administration system, 67–9
 - meso-model, 10, 69–75, 206, 235
 - credit control system, 70
 - development of, 72
 - sales administration system, 71
 - micro-model, 10, 75–7, 147, 207, 235
 - See also* Business case accounting
- Money, A.H., 171
- Monte Carlo method, 170
- Moving goal-post syndrome, 37
- Multi-stage investments, 42–4
- Must-do investments, 19, 20, 26

- Net Present Value (NPV), 154, 172, 175, 177, 228–9, 235
 - negative, 24–5
- Network diagram, 138–40

- Occan's razor, 13
- Off-balance sheet funding, 178
- Off-shoring, 49
- Operational excellence, 109–10
- Operational issues, 188
- Opportunity costs, 152, 236
- Outcome, 236
- Outcome space, 236
- Outcome statement, 62–5, 205–7
- Outsourcing, 49
- Overhead cost, 236

- Participation, 53
- Patton, M.Q., 52
- Payback, 227–8, 236
 - average method, 228
 - exhaust method, 227
- PERT charts, 134–5
- Peters, G., 129
- Porter, M., 102, 103–6, 113–14
- Post-modernism, 38
- Pre-commissioning costs, 148–9
- Prestige project investment, 20, 23–5, 27
- Probability Impact (PI) matrix, 141, 142
- Process, 236
- Product leadership, 111–12
- Profitability Index (PI), 154, 172, 229
- Project champion, 84–5
- Project management, 195–6
 - as a reiterative process, 196–7
 - phases of, 196
 - successful implementation, 197–201
 - checking the course, 200

- Project management (*continued*)
 - setting the course, 199–200
 - staying on course, 200–1
- Project manager, 84
- Project scope creep, 37, 236
- Projects, 34
 - prioritising, 189–91
- Protean nature of investment business
 - cases, 28–9
- Purchasing justification, 51

- Quantifiable benefits, 73
- Quinn, J.B., 102

- Rate of return, 229
- Reiteration, 53–4, 196–7
- Research and development investment, 25–6
- Residual value, 157
- Return on investment (ROI), 229, 236
- Risk, 41, 129–30, 188, 225–6, 236
 - bad ideas, 136–7
 - categories of, 131, 132
 - definition, 130
 - failures of execution, 133–6
 - identification, 140–1
 - incorporation into business case, 137–8
 - project risk framework, 131
 - quantification, 138–42
 - responding to, 226
 - triggers, 141
- Risk analysis, 170, 173–6, 236
 - assumption analysis, 174
 - example, 174–6
 - expert judgement, 174
 - group brainstorming, 174
- Risk Management Worksheet, 141
- Risk Matrix, 141
- Running costs, 150

- Sales administration system:
 - macro-model, 67–9
 - meso-model, 71
- Scope creep, 37, 236
- Scriven, M.S., 48
- SDLC (software development life cycle), 236
- Sensitivity analysis, 148
- ServeQual, 72

- Set up costs, 159
- Shadish, W.R., 48
- Simulation analysis, 170
- Soft costs, 158, 237
- Stage–Gate process, 43
- Stakeholder governance, 39
- Stakeholder management, 93–6
 - identification of stakeholders, 93
 - stakeholder commitment assessment, 94–5
 - stakeholder interests assessment, 96
 - stakeholder power analysis, 95
- Stakeholder mapping, 90–4
- Stakeholders, 81–3, 187, 209, 237
 - business case and, 96–8
 - differing views of, 86–7
 - for and against investment, 88–90
 - financial managers and administrators, 85–6
 - importance of, 82
 - investment owners, 83–5
 - technical professionals, 85
 - technological understanding required, 120
 - Delphi study, 120–1
- See also* Stakeholder management
- Stochastic analysis, 169–71
- Strategic alignment, 40, 112–15, 188, 237
 - Porter model, 113–14
 - Treacy and Wiersema model, 114
- Strategic alliances, 107–8
- Strategic evaluation, 237
- Strategic information system (SIS), 237
- Strategic vision, 237, 238
- Strategy, 101–3, 211, 237
 - changing environment, 115
 - five forces model, 103–4
 - generic strategies model, 104–5
 - value chain model, 105–8
 - value package and, 109–12
- See also* Strategic alignment
- Summative evaluation, 51–2, 185–6, 237
 - investment business case and, 52
- Sunk costs, 153
- Svendsen, A., 81–3
- SWOT analysis, 63

- Tangible benefits, 73, 237–8
- Tax shield, 154, 155
- Technical professionals, 85

- Technological statement, 121–6
 - budgets, 124
 - checklist, 125–6
 - components, 122–3
 - infrastructure, 122
 - people, 123
 - timing of project, 124–5
- Technology, 40–1, 119–20, 188, 213–14
 - IT benefit, 235
 - IT business benefits, 235
 - understanding required by principal stakeholders, 120
 - Delphi study, 120–1
 - See also* Technological statement
- Terminal value, 157
- Time release analysis, 166, 220
- Time value of money, 154
- Total Cost of Ownership, 153
- Transformate, 238
- Transformate analysis, 166–8, 221–2
- Treacy, M., 109, 114
- Turbit, Neville, 55
- Unquantifiable benefits, 73
- Value chain model, 105–8
 - industry value chain, 107–8
 - value activities, 105, 106–7
- Value package, 109–12
 - customer intimacy, 110–11
 - operational excellence, 109–10
 - product leadership, 111–12
- Vision, 238
- Walsham, G., 87
- Ward, S., 130
- Weighted average cost of capital, 156
- What-if analysis, 148
- Widerman, Max, 130
- Wiersema, F., 109, 114
- Working capital, 4
- Zero Based Budgeting, 8

This page intentionally left blank