



Business Case Studies
Editors: R G Burns & K Midgley



K Midgley & R G Burns

**ACCOUNTING
CASE STUDIES**

BUSINESS CASE STUDIES

General Editors: R. G. BURNS and K. MIDGLEY

The object of the series is to enable students to gain experience in analysing actual business problems and making the decisions necessary to solve those problems.

The student is, of course, keen to become skilled at solving both actual business problems and examination problems and another of the objects of this series of books is to demonstrate that case studies provide a positive link between business problems and examination problems.

Each book consists, firstly, of case studies which either reproduce actual business problems or closely resemble them and, secondly, of a selection of examination problems which students should be able to answer more readily after having studied and discussed the case studies.

After each case study, there is a series of problems designed both to test students' understanding of the facts contained in the case study and to provide the opportunity for solving actual business problems. All the questions set have guidelines to solutions provided. The guidelines are not complete answers but more in the nature of clues as to the means of arriving at answers and starting-points for calculations thereto. The guidelines will be particularly useful for students who are studying without the benefit and stimulation provided by the frequent sharing of ideas in group discussion.

Where appropriate, brief comments on examination questions are also provided.

The earlier volumes in the series give most emphasis to the main business function which is being considered in the volume, e.g. finance, marketing, personnel, etc. Complementary functions are discussed in less detail. Later in the series there is a change of case-form to multi-subject cases, and the emphasis is then on the integrated nature of business activities.

For titles of other volumes in the series see p. 2.

BUSINESS CASE STUDIES

Edited by R. G. BURNS *and* K. MIDGLEY

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Accounting Case Studies

The application of accounting information for
control and decision-making

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and

R. G. BURNS, A.A.C.C.A.

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Introduction to the Series

The case-study method of teaching has become increasingly popular over the last decade, particularly in the field of management education. It is a method which incorporates several of the tenets of sound educational theory: it aims to build up understanding on a framework of experience, to encourage learning by doing, and to promote interest and enthusiasm by requiring the student to solve problems in realistic situations. Case studies may be the subject of group study or may be tackled by individuals: dramatised situations may be employed and case studies may incorporate the use of documents and visual and audio aids.

Unfortunately there is still a comparative shortage of published case studies in this country; and, in particular, students on the fringe of management studies and those without access to college courses may rarely have the opportunity to work through case studies.

This series not only aims to expand the number of studies available for use on courses in colleges and universities but also to make available case studies which can be used by students in private study.

There is no unanimity among educationists as to the nature and format of case studies. Is it essential that cases be written about real situations? Should solutions be provided for the problems set? The criterion which we have applied is that the cases should be presented in such a way as to ensure that the student has the maximum opportunity and incentive to learn by analysing situations and making decisions, where appropriate. In most instances, in order to ensure the verisimilitude of the cases, real situations form the bases of the studies. As for solutions, while we feel that it can be discouraging for students

if no answers to problems are provided, we must take account of the fact that there is frequently more than one solution to a problem. Consequently, we offer guidelines rather than solutions to cases, though clearly some problems call for more incontrovertible and accurate treatment than others.

While it is our hope that this series will prepare the student for dealing with real-life situations in business and administration, we are aware that he is naturally and rightly concerned to prepare himself to cope with examinations. In fact many examination questions take the form of miniature case studies: circumstances are set out briefly, and a solution to a problem is required. This may not always be so – some examination questions simply call for information – but, nevertheless, in that case studies can enrich the understanding of a subject, they can play an important role in the preparation for examination hurdles. For these reasons examination questions are set out at the end of each book, and though they are not always exactly related to the case studies therein, there is sufficient in common to ensure that each booklet taken as a whole, with case studies, guidelines, examination questions and comments, provides a valuable and stimulating supplement to the reading set out in the bibliographies which are also provided.

R. G. B.
K. M.

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Preface

This collection of case studies has been assembled to enable business students to gain experience in producing and using accounting information which will help owners and managers to attain their overall objectives.

There are many textbooks available which explain to business students how to keep an orderly set of bookkeeping records and how to produce sets of accounts therefrom. Similarly, there is an abundance of books and manuals on the calculation of costs, procedures and functions within a business. In contrast, this book seeks rather to illustrate, by means of cases based on actual or closely simulated business situations, how use can be made of accounting information to assist in making decisions and controlling a business.

The six cases are arranged very broadly in two groups of three. The first group is concerned with information used in decision-making, e.g. decisions concerned with the sharing of income between the earners of that income, closing down and replacing a department, and launching a new method of marketing. The second group is concerned with information used in control of operations. This group of cases is progressive in difficulty and generally much more sizable than the first group. They could best be tackled in the order presented, which proceeds from control via an annual comparison of information derived from the adjusted accounts of a selection of firms within an industry, the best results serving as a yardstick; through a fairly conventional budgetary control system; to a sophisticated flexible budgetary control system, using a number of different measures of variability.

Each case has the twin objectives of conveying knowledge of value to the business student, and of providing him with

opportunities to analyse and solve business problems. Additionally, the cases emphasise the composite nature of business activity by including circumstances related to the main accounting theme but overlapping into disciplines such as marketing, production, behavioural science and communications.

These cases may be used in many different situations, e.g. they may be supervised or unsupervised, students may work on them individually or in groups or syndicates, etc. However, it is recommended that if possible cases 5 and 6 should be worked in groups and that ample time should be allowed in order that full benefit be gained.

Finally, we should like to thank those companies and their employees who provided the information which enabled this book to be written, and to our colleagues for many helpful comments. We are particularly indebted to Mr H. Ingham, Director of the Centre for Interfirm Comparison Ltd, for his co-operation and permission to use material published by the Centre, and to Mr D. A. Wall of Creed & Co. Ltd, who has been most generous with advice and suggestions.

K. MIDGLEY
R. G. BURNS

I Partnership Problems

INTRODUCTION

Many successful and thriving businesses commence as partnerships, and as the 1967 Companies Act abolished the exempt private company and requires even the smallest private company to present its accounts with its annual report, partnership as a form of business undertaking is now comparatively more attractive than previously.

Nevertheless, the partnership has its problems, not least that of ensuring that profits and losses are shared according to the agreement. Unfortunately partnership agreements are unlikely to anticipate all contingencies. Moreover it is not always easy to be sure of the exact figure of profit (or loss). A partnership agreement may be put to considerable strain in the early years, and the success and continuity of the partnership may depend on the mutual trust, fairness and confidence of the partners. The following case study illustrates how some of these sort of problems can arise.

CASE STUDY

Larry Dinsdale is a retired army officer who, finding it difficult to get a civilian job appropriate to his enterprise and energy, conceived the idea of organising the production and sale of various gadgets and 'toys' for the car enthusiast. One of his first gadgets was a simple fold-out support, to be fitted to a glove shelf, and which could be used to keep road maps readily visible, or alternatively, would serve as a picnic tray. Other ideas included an attractively printed logbook, a neat first-aid kit, and cheap plastic fit-together models of carburettors,

petrol pumps and other components, so that the amateur could learn and amuse himself by assembling the parts.

Larry perceived that it would be useful and encouraging to have a partner to share the risk, undertake some of the work, and provide business expertise. His wife could help a little, but he decided that it would be worth while approaching a former service colleague, James Brewer, who had retired in his early forties, had taken up a post as an area sales manager to a manufacturer of electrical equipment, and who visited large garages from time to time in the course of his duties.

PROBLEM

1. Some of the advantages of taking James Brewer as a partner are fairly obvious, but what about the possible disadvantages?

James Brewer was enthusiastic about Larry's ideas and they eventually agreed to put up £750 of capital each and to share profits and losses equally, subject to Larry receiving 10 per cent of all sales as a recompense for his undertaking the clerical work, and to James receiving 10 per cent commission on any sales which he personally negotiated. The arrangement was entered into on a loose and friendly basis, both partners being ready to accept that much of their initial capital would be lost, but agreeing that, if after six months the prospects of success were dim, the partnership would be dissolved.

In fact progress was slow at first. It took several weeks to organise production of the map support (which was put to contract with a small workshop) and the first-aid kit, but gradually sales built up, so that twelve months after the idea of the partnership was first conceived on 1 September 1970, Dinsdale, Brewer and Co. was quite a busy little concern – so busy in fact that they decided to appoint an accountant to advise them in the final draft of the accounts and in tax matters.

Larry had kept accounts since the time of the first transaction on 1 December 1970, when the partners paid £750 each into a

TRADING AND PROFIT AND LOSS ACCOUNT TO 31 AUGUST 1971

| | £ | £ |
|---|----------|-------------|
| Sales | | 10,426·82 |
| <i>Less</i> Cost of goods manufactured to order | 5,710·50 | |
| <i>Less</i> Closing stock | 841·00 | |
| | <hr/> | 4,869·50 |
| | | <hr/> |
| | | 5,557·32 |
| Petrol | 69·33 | |
| Stationery and packing materials | 107·72 | |
| Office expenses (including portable typewriter (£25) and duplicator (£30)) | 84·05 | |
| Rail, taxi, bus and tube fares | 82·84 | |
| Postage and telephone | 546·36 | |
| Advertising | 621·00 | |
| | <hr/> | 1,511·30 |
| | | <hr/> |
| | | 4,046·02 |
| L.D.'s salary (clerical work: 10% of £10,426·82) | 1,042·68 | |
| J.B.'s commission (10% of £950) | 95·00 | |
| | <hr/> | 1,137·68 |
| | | <hr/> |
| | | 2,908·34 |
| Profit L.D. | 1,454·17 | |
| J.B. | 1,454·17 | |
| | <hr/> | 2,908·34 |
| | | <hr/> <hr/> |

BALANCE SHEET AT 31 AUGUST 1971

| | £ | £ |
|-----------------------|---------------|-------------|
| Current assets: Stock | | 841·00 |
| Debtors | | 761·42 |
| Bank balances | | 1,634·29 |
| | | <hr/> |
| | | 3,236·71 |
| <i>Less</i> Creditors | | 194·26 |
| | | <hr/> |
| Net assets | | 3,042·45 |
| | | <hr/> <hr/> |
| Fixed capitals | L.D. 750·00 | |
| | J.B. 750·00 | |
| | <hr/> | 1,500·00 |
| Current accounts | L.D. 240·30 | |
| | J.B. 1,302·15 | |
| | <hr/> | 1,542·45 |
| | | <hr/> |
| | | 3,042·45 |
| | | <hr/> <hr/> |

bank account and drew a cheque for £220 to pay for first-aid kits which had been ordered. He had prepared rough draft final accounts up to and including 31 August 1971, and these are set out on p. 13.

The accountant put a lot of questions to Larry and James concerning the partnership and business methods, and the following information emerged:

(i) Although some sales are made to garages on the basis of sale price less 40 per cent trade discount, much the greater part of the business emerges from placing small advertisements in the 'Saturday Market Place' columns of national newspapers and from occasional forays of house-to-house circularising.

(ii) Stocks of goods are kept at Larry's home in lockers specially constructed by him in the rear portion of his very large double garage. A furnished room over the garage is used exclusively as an office, and the Dinsdales' private telephone number doubles as the office telephone.

(iii) Both of the partners' wives help with the packing of the map supports into boxes. Mrs Dinsdale also helps with the duplicating of circulars, with typing and general secretarial work. Frank Brewer (the Brewers' son, who has just completed a college course) also helps out at times during vacations, and has on three occasions delivered circulars in neighbouring towns. He has received generous travelling expenses for this. He has now accepted a post abroad, though Mrs Brewer has offered to undertake such work in future.

(iv) Larry reckons he spends about twenty-five hours a week on organising production and administrative tasks. He also visits garages and exhibitions. He uses his own car (bought in August 1968, price £1,000) for various business purposes.

(v) James finds little time to concern himself with day-to-day business, but he has negotiated a few fairly large sales contracts and both he and his wife occasionally help out with the packing.

(vi) After a good start, sales of the map supports have latterly fallen off badly and these account for most of the closing stock and are valued at cost price. There have been a few complaints about their quality, and some mail-order customers have returned them under the guarantee arrangement. On the

other hand, the first-aid kits are selling increasingly well, and a great advantage of these is that they are of good quality and need no special packing. By August 1971 plans are being made to develop other products, though none was yet available.

(vii) No written partnership agreement is available, the partners relying on a mutual store of goodwill, but Larry has now suggested that in view of developments it may be preferable to formalise the agreement.

PROBLEM

2. What suggested amendments is the accountant likely to make to the draft accounts, and what advice may he give to the partners concerning the partnership agreement, the general running of the business, and tax matters?

2 Stapleford's Departmental Store

INTRODUCTION

This case concerns a departmental store and the possibility of substituting a new department for certain existing ones. The associated problems examine the information necessary for making such a decision and the principles upon which a decision should be based.

CASE STUDY

Philip Stapleford is the managing director of Stapleford's Departmental Store and he has recently returned from a visit to the 'Modern Home' exhibition in London. During a tour of the exhibition he noted considerable interest in the home boat-building stands and is now considering whether he should introduce such goods into his store. His idea is to have a department dealing with a range of water-sports goods, because he thinks that this is a growth area, and moreover there is no specialist shop dealing with water-sports within a radius of many miles from Stapleford's.

Gross profit margins on the water-sports products he might stock are about $33\frac{1}{3}$ per cent on selling price for most items. He is considering a plan to set aside about 25 per cent of one level of his two-storey building for the water-sports department. He estimates that he will need three different staff for a department of that size, and they will incur a total annual wage bill of about £2,500. At this stage he has only very uncertain ideas of the likely future sales of water-sports products.

Philip has mentioned his idea briefly to his brother-in-law (the office manager) and asked him to produce figures which will be helpful when making a decision. A copy of the statement produced by the office manager follows, together with the memo accompanying that statement:

Philip,

I have analysed last year's trading and profit and loss accounts over the various departments in order to produce the information you require.

The principles I used for apportioning expenses to departments were:

Expenses of:

The building – basically departmental areas.

Distribution – basically the sales of departments providing a delivery service.

Administration – a combination of departmental cost of sales and staff numbers.

Goods receivable and general expenses – departmental cost of sales.

Depreciation – departmental asset values.

I hope your brainchild is going to increase profits by more than the £2,000 or so increase we could achieve by merely closing down departments 4, 8 and 9.

Brad.

PROBLEMS

1. Assess Brad's competence as an accountant.
2. How would you use the information in the case study to assist Philip Stapleford to make a decision as to whether he should introduce the new department? Indicate any further information which would be useful when making the decision.

STAPLEFORD'S DEPARTMENTAL STORE

DEPARTMENTAL TRADING AND PROFIT AND LOSS ACCOUNTS FOR THE YEAR ENDED 31 DECEMBER 19..

| DEPARTMENT | Ground Floor | | | | | First Floor | | | | Total |
|---|---------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|--------------|---------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| | £ | £ | £ | £ | £ | £ | £ | £ | £ | £ |
| Sales | 55,000 | 16,000 | 12,000 | 8,000 | 11,000 | 40,000 | 28,000 | 6,000 | 4,000 | 180,000 |
| Cost of sales | 43,000 | 12,000 | 8,000 | 7,000 | 6,000 | 30,000 | 22,000 | 5,000 | 2,000 | 135,000 |
| GROSS PROFIT | 12,000 | 4,000 | 4,000 | 1,000 | 5,000 | 10,000 | 6,000 | 1,000 | 2,000 | 45,000 |
| Expenses of: | | | | | | | | | | |
| Building (including its rent, rates, maintenance and insurance) | 870 | 915 | 810 | 355 | 800 | 2,350 | 665 | 390 | 1,040 | 8,195 |
| Selling (wages of sales staff are in brackets) | 3,465 | 1,350 | 1,635 | 825 | 1,640 | 3,645 | 2,585 | 1,125 | 1,120 | 17,390 |
| Distribution | (3,300) | (1,300) | (1,600) | (800) | (1,600) | (3,500) | (2,500) | (1,100) | (1,100) | (16,800) |
| Administration (including salaries of managing director and wife: £5,000) | 2,010 | 505 | 505 | | | | | | | 3,020 |
| Goods receivable and general expenses | 2,885 | 442 | 312 | 279 | 345 | 3,015 | 1,105 | 212 | 115 | 8,710 |
| Depreciation of fittings, etc. | 559 | 156 | 104 | 91 | 78 | 370 | 286 | 65 | 26 | 1,735 |
| | 100 | 50 | 250 | | 250 | 250 | 200 | 200 | 200 | 1,500 |
| NET PROFIT/(LOSS) | 9,889 | 3,418 | 3,616 | 1,550 | 3,113 | 9,630 | 4,841 | 1,992 | 2,501 | 40,550 |
| | 2,111 | 582 | 384 | (550) | 1,887 | 370 | 1,159 | (992) | (501) | 4,450 |
| | 12,000 | 4,000 | 4,000 | 1,000 | 5,000 | 10,000 | 6,000 | 1,000 | 2,000 | 45,000 |
| No. of sales staff (equivalent full-timers) | 4 | 2 | ⏟ 4 | | 3 | 6 | 3 | 2 | 2 | 26 |

3 Mini Models Ltd: Introducing a New Method of Marketing

INTRODUCTION

The guidelines to problem 2 in the Stapleford's Departmental Store case (pp. 58–61 below) show how accountants can assist management when the latter are taking business decisions. If accountants themselves are going to continue to play a major role in taking such decisions, their interests, skills and training ought to include other aspects of business in addition to the accounting and finance function.

This short case introduces students to some problems which have to be considered when examining whether a different method of marketing could be introduced by a model toy manufacturing company. It also includes certain accounting problems. Both problems in the case have an obvious use for business studies students, and although the major problem is associated with marketing, it will certainly benefit the student training to become an accountant. It should help budding accountants to be more aware of the problems which confront managers of other disciplines and the general managers whose responsibilities have no functional boundaries.

CASE STUDY

Clive Martin is a management consultant to Mini Models Ltd, manufacturers of model toys, and he spends one day each week at the company's premises.

Mini Models is a medium-sized company of good repute whose shares have a Stock Exchange quotation. The range of Mini Model products is extensive and includes miniature models of various animals, buildings, soldiers, fighting vehicles, ships, motor-cars, racing-cars, antique vehicles and construction vehicles. The models are either moulded in plastic or diecast in metal, in a modern factory operating a single shift.

Some models are quality copies of originals and retail at fairly expensive prices in gift shops and stores. Other models are produced for the children's toy market and most of these are sold in stores and shops at cheap prices. Many models can be purchased so as to form a set, and most of the cheaper products have their counterparts in the range produced by one or more competitors. The larger stores buy direct from Mini Models but the smaller outlets buy their stock from wholesalers.

Clive has just received, as an ordinary member of the public, a postal offer to subscribe at a favourable rate to a weekly journal. The main incentive feature of the offer, apart from a description of the journal's contents, is reproduced below:

The retail price of *Viewpoint* is 7½p weekly and the subscription rate £3·90 a year – but to help you get 'acquainted' we will send it to you for 30 weeks for ONLY £1 (instead of the normal £2·25) – LESS THAN HALF PRICE. Simply complete and return the enclosed card and your first copy will arrive within a few days.

PROBLEMS

1. Discuss whether in your opinion Mini Models could introduce a similar type of postal offer in order to expand its sale of Mini Models.

2. What accounting information would general management require to assess the profitability of such an offer?

Note that although this is a short case there is considerable scope for individual ingenuity and treatment of the problems in depth. Certainly the short length of the case does not imply that only short answers to the problems are required.

4 Interfirm Comparison

INTRODUCTION

There is much to be learned about the past progress, the present financial position and the future prospects of a business from the study of a set of final accounts, but there are pitfalls for the inexperienced and overconfident, and even to skilled accountants a scrutiny of figures and management ratios, in isolation from those of other firms, can yield only a limited amount of information. This case study, written in co-operation with the Centre for Interfirm Comparison Ltd, illustrates the importance of placing the measures of a firm's operating and trading results in perspective, so that its relative place is clear in the league table of success represented by the management ratios of competing firms. Comparisons with these ratios enable management to see where their business is weaker or stronger than their competitors' and indicates areas where action may be taken to improve results.

CASE STUDY

The scene is set in the managing director's office at Slimgear Ltd, a medium-sized light engineering company with rather less than 1,000 employees on its payroll. The recently appointed managing director and the management accountant are discussing the following summarised and rounded figures (rounded to the nearest £1,000) from the accounts for the last two years:

TABLE 4.1 (£'000 throughout)

| | <i>Year 2 (this year)</i> <i>to 31 December</i> | | <i>Year 1 (last year)</i> <i>to 31 December</i> | |
|--|--|--------|--|--------|
| | £ | | £ | |
| Sales | | 3,157 | | 3,000 |
| <i>Production costs</i> | | | | |
| Materials cost | | 1,050 | | 1,125 |
| Works labour cost | | 870 | | 922 |
| Other production costs (repairs, depreciation, fuel, rates, insurance, etc.) | | 483 | | 502 |
| | | <hr/> | | <hr/> |
| | | 2,403 | | 2,549 |
| + Opening stocks of | | | | |
| work-in-progress | 462 | | 295 | |
| Finished goods | 105 | | 72 | |
| | <hr/> | | <hr/> | |
| | 567 | | 367 | |
| - Closing stocks of | | | | |
| work-in-progress | 410 | | 462 | |
| Finished goods | 126 | | 105 | |
| | <hr/> | | <hr/> | |
| | 536 | | 567 | |
| | <hr/> | 31 | <hr/> | 200 |
| | | <hr/> | | <hr/> |
| | | 2,434 | | 2,349 |
| <i>Distribution and marketing costs</i> | | 205 | | 192 |
| <i>General and administrative costs</i> | | 234 | | 222 |
| Total operating costs | | <hr/> | | <hr/> |
| | | 2,873 | | 2,763 |
| <i>Operating profit</i> | | <hr/> | | <hr/> |
| | | 284 | | 237 |
| <i>Less Loan interest</i> | | 16 | | 16 |
| | | <hr/> | | <hr/> |
| Net profit | | £268 | | £221 |
| | | <hr/> | | <hr/> |
| <i>Fixed assets</i> | | 870 | | 811 |
| (land, buildings, plant and machinery, vehicles) | | | | |
| <i>Current assets</i> | | 1,512 | | 1,572 |
| <i>Less Current liabilities</i> | | 694 | | 782 |
| | | <hr/> | | <hr/> |
| | | 818 | | 790 |
| | | <hr/> | | <hr/> |
| | | £1,688 | | £1,601 |
| | | <hr/> | | <hr/> |
| <i>Capital (Ordinary shares and reserves)</i> | | 1,488 | | 1,401 |
| <i>Loan</i> | | 200 | | 200 |
| | | <hr/> | | <hr/> |
| | | £1,688 | | £1,601 |
| | | <hr/> | | <hr/> |

The conversation proceeds as follows:

M.A. (Management Accountant): I think this is the sort of rough draft that you wanted. The detailed figures, with a few useful ratios, will be out next week, but this gives a fair idea of progress over the past year.

M.D. (Managing Director): This is fine. I'm sorry to have been pestering you for information when you've hardly had time to get the figures to hand, but you may have heard that I'm off to Copenhagen next week to discuss the new plant project, so I wanted to get a preview of the results before I go.

M.A.: Well, as you see, they don't look too bad, though of course trade conditions generally have been improving compared with last year. It's just a pity we couldn't have reached our target for the increase in sales of stock-produced standard products – particularly the new bicycle gears.

M.D.: Oh yes, we must certainly continue to try to produce more standard products. . .

M.A.: . . . and sell 'em. In the meantime we've made a small step in that direction and the results look a bit healthier.

M.D.: You sound a bit grudging about them. They look pretty good to me. Not that I claim any credit for them: the old man held firmly on to the reins until I took over in October, and I've been content to follow in father's footsteps for the time being at any rate. Now let's see: net profit up by £47,000 to £268,000. What's that as a return to capital?

M.A. (grinning): Which capital?

M.D. (with feigned exasperation): You accountants! You choose.

M.A.: Well, net profit on equity works out at about 18 per cent, net profit on all long-term capital (before charging loan interest) nearly 17 per cent, and operating profit on operating assets¹ just nearly 12 per cent.

M.D.: Hmmm. Well, I still think it's pretty good in view of all the difficulties we've faced over the last couple of years: the credit squeeze, the strike, increased home competition and foreign dumping.

¹ Fixed and current assets.

M.A.: At the same time, it would be interesting to know just how good we are.

M.D.: You mean compared with Plexco and firms of that calibre?

M.A.: Firms of any calibre, providing they are broadly in our type of light engineering.

M.D.: I suppose for a start we could get hold of the Annual Reports of Plexco and Lecpac Holdings. I don't know why I haven't thought of that before.

M.A.: It might be worth while, but the useful information we should get would be very limited and the figures would be unreliable. For one thing, companies are not required to publish much detail of manufacturing costs, and for another, though they must show asset figures and trading profits, the different methods of valuation and depreciation, different definitions of assets, and different year-end dates, make comparisons . . . er . . .

M.D.: Odious!

M.A.: Not quite as undesirable as that, but superficial and unscientific.

M.D.: In any case we shouldn't have easy access to figures from private companies like our own, except by going to the Registrar of Companies, and that would be rather tiresome.

M.A.: Agreed. On the other hand we could think about participating in a properly organised interfirm comparison scheme.

M.D.: Now that's interesting; I was reading something about this a few weeks ago. I think it was an article in *The Director*; but a scheme of this sort isn't exactly a panacea for all company ills, as far as I remember. However, the sort of difficulties you mentioned, concerning incomparability of different company figures, are largely ironed out, though no doubt there are snags – not least the cost.

M.A.: I gather that the cost depends on how the scheme is organised and the extent of the services provided, but it's pretty reasonable, and I can say with complete confidence that it would cost a lot less per annum than, for example, Jenny, our latest in a long line of scatty part-time typists.

M.D. (reflectively): Ah, but not as decorative, I dare say.

M.A.: Of course, there's the time spent in licking the figures into shape.

M.D. (banteringly): Oh well, that's your problem: I'm all in favour of any scheme that ensures that you earn your salary. Any other snags? We're a fairly mixed bunch of firms in our trade; are we really comparable? What about confidential information? We don't want to find ourselves giving away trade secrets. And how do you suggest we get a scheme started?

M.A.: Dealing with the last question first, the best approach is for us to get in touch with the Centre for Interfirm Comparison. As far as I know there is no existing scheme which covers us, but the Centre would advise us on this, and it would no doubt consult our trade association and consider setting up a scheme, assuming that other firms are interested. Now as for the other questions . . .

The conversation continues, but we shall pause at this point, and tackle the first of our problems:

PROBLEMS

1. How useful, for purposes of interpretation and analysis, are the figures which appear in Table 4.1, and what methods would you use to compare the results for the two years?

2. To what extent, if at all, does a problem of comparability arise in the case of a study of the trading results and balance sheet figures of firms of different size which produce somewhat different products, e.g. within an industry such as light engineering?

The management accountant of Slimgear was soon in touch with the Centre for Interfirm Comparison and he found that several other firms in this type of light engineering expressed an interest in a scheme. An arrangement was agreed upon and Slimgear was eventually required to submit adjusted figures, under a code number given by the C.I.F.C.

Details concerning size, production processes, etc., and

policies and practices in such areas as production and marketing were also required to facilitate the understanding and interpretation of the varying patterns of ratios for the different companies. The adjustments required to Slimgear's figures (arising from the necessity for participating firms to submit figures based on the same definitions of terms and valuation principles) were not excessive. Some aspects taken into consideration were as follows:

Sales. The definition clarified the basis on which items were included or excluded, e.g. cash discounts, trade discounts, delivery charges, etc.

Fixed assets. Current values had to be calculated in accordance with a carefully worked-out set of rules. (This meant, in Slimgear's case, that the figures submitted for both land and buildings, and plant, machinery and works equipment, were well above book values.) Slimgear owns its premises, but firms which do not are required to place an imputed value on land and buildings and to deduct rent paid from operating costs.

Stocks. The average investment in stocks throughout the year, rather than year-ending figures, were used, and work-in-progress was carefully defined.

Depreciation. A uniform and comparable method was laid down.

The various elements of cost were carefully defined, e.g. where production costs end and where distribution costs begin.

In due course Slimgear received sets of ratios relating to the accounts of a number of companies. The following table is an extract from the information received. Slimgear is in fact company F in the list and the figures in brackets in the F column are the ratios of Slimgear (as adjusted) for the previous year. (The bracketed figures would not actually appear in the table as received from C.I.F.C., but are shown for purposes of discussion.) With the comparative table Slimgear received a confidential individual report explaining reasons for differences between the ratios of the seven, and drawing the attention of its management to possibilities for improvement.

TABLE 4.2

COMPARISON OF SEVEN COMPANIES

| Ratios | Companies | | | | | | |
|---|-----------|------|------|------|------|-------------|-------|
| | A | B | C | D | E | F | G |
| <i>Return on assets</i> | | | | | | | |
| 1. Operating profit/operating assets (%) | 22.9 | 20.7 | 16.6 | 13.1 | 10.3 | 9.8 (8.2) | 4.2 |
| <i>Profit margin on sales and turnover of assets</i> | | | | | | | |
| 2. Operating profit/sales (%) | 18.9 | 18.0 | 14.4 | 12.4 | 9.9 | 9.0 (7.9) | 4.7 |
| 3. Sales/operating assets (times a year) | 1.21 | 1.15 | 1.15 | 1.06 | 1.04 | 1.09 (1.04) | 0.89 |
| <i>Departmental costs (as % of sales)</i> | | | | | | | |
| 4. Production cost of sales | 66.0 | 67.5 | 71.0 | 74.0 | 76.2 | 77.1 (78.3) | 81.7 |
| 5. Distribution and marketing costs | 8.2 | 7.9 | 7.4 | 5.9 | 6.0 | 6.5 (6.4) | 5.6 |
| 6. General and administrative costs | 6.9 | 6.6 | 7.2 | 7.7 | 7.9 | 7.4 (7.4) | 8.0 |
| <i>Production costs (as % of sales value of production)</i> | | | | | | | |
| 7. Materials cost | 33.1 | 32.7 | 32.9 | 33.7 | 33.9 | 33.7 (33.8) | 35.8 |
| 8. Works labour cost | 18.8 | 21.1 | 24.2 | 25.1 | 26.8 | 27.9 (28.8) | 29.4 |
| 9. Other production costs | 14.1 | 13.7 | 13.9 | 15.2 | 15.5 | 15.5 (15.7) | 16.5 |
| <i>General asset utilisation (£s per £1,000 of sales)</i> | | | | | | | |
| 3A. Operating assets | 827 | 872 | 866 | 942 | 958 | 913 (961) | 1,127 |
| 10. Current assets | 448 | 469 | 477 | 529 | 534 | 479 (524) | 654 |
| 11. Fixed assets | 379 | 403 | 389 | 413 | 424 | 434 (437) | 473 |

TABLE 4.2 *continued*

COMPARISON OF SEVEN COMPANIES

| Ratios | Companies | | | | | | |
|---|-----------|-----|-----|-----|-----|-----|-----|
| | A | B | C | D | E | F | G |
| <i>Current asset utilisation</i> (£s per £1,000 of sales) | | | | | | | |
| 12. Materials stock | 80 | 95 | 105 | 97 | 107 | 100 | 110 |
| 13. Work-in-progress | 71 | 76 | 87 | 105 | 147 | 130 | 205 |
| 14. Finished goods stock | 87 | 85 | 77 | 108 | 58 | 40 | 115 |
| 15. Debtors | 210 | 213 | 208 | 219 | 222 | 209 | 224 |
| <i>Fixed asset utilisation</i> (£s per £1,000 of sales) | | | | | | | |
| 16. Land and buildings | 188 | 207 | 190 | 197 | 200 | 200 | 214 |
| 17. Plant and machinery | 185 | 191 | 194 | 213 | 221 | 230 | 256 |
| 18. Vehicles | 6 | 5 | 5 | 3 | 3 | 4 | 3 |

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(Included in the report was the information that sales of products which are neither made for stock nor can be assembled from standard components represent 57 per cent of total sales, compared with percentages of 21, 33 and 41 for companies A, B and C respectively.)

PROBLEM

3. What points do you consider might have been raised in the report, and what benefits might be derived from an exercise of this sort?

5 Binton Manufacturing Ltd: A Case Study in Control Accounting

INTRODUCTION

This is a two-part case concerning a smaller-sized engineering company which has been inadequately controlled. The case is intended to encourage students to diagnose where things are going wrong and to participate in setting up a factory operational control system.

It is likely that the detailed application by students which is necessary to solve Binton's problems will give a useful insight into the workings of a smaller engineering company, so at the end of the guidelines to the problems posed in Part II a number of discussion topics in non-accounting areas have been listed.

CASE STUDY: PART I

The Binton Manufacturing Company has been taken over during the last year by the Oldweather Company which is the parent company of a diversified manufacturing group. Binton employs about 300 people at present and they seem fairly satisfied with the departmental bonus system which is operated. The ground-level manufacturing area is nearly all engaged in producing pressed parts for the motor industry. The remaining production departments are:

Small pressings – e.g. case handles, lock covers, and sundry pressings and manufactures for domestic hardware and electrical industries.

Spring manufacture – for the radio, television and various other industries.

Assembly – of own-manufactured and bought-out parts for domestic hardware and electrical industries.

Tool manufacture – mainly cutting tools for various press machines.

The profit record of Binton was very unsatisfactory in the five years preceding the takeover. The losses or low profits were attributable both to insufficient work to occupy the whole factory area, a fault which had been much remedied recently by a large increase in press work for the motor industry, and insufficient internal control. The pre-takeover management acknowledged the latter shortcoming but excused it by saying that they were fully occupied in searching for other work, and because the company had been making losses it was decided that the extra staff necessary to improve the internal control could not be afforded.

However, it was confidently predicted that the current year would be the most profitable for some time, and in fact

TABLE 5.1
BINTON MANUFACTURING LTD
PROFIT STATEMENT FOR YEAR TO 31 DECEMBER 19..

| | <i>This year</i> | | <i>Last year</i> | |
|--|--|--|--|--|
| | <i>Actual</i> (9 months to 30 Sep) | <i>Budget</i> (3 months to 31 Dec) | <i>Actual</i> (9 months to 30 Sep) | <i>Actual</i> (3 months to 31 Dec) |
| | (£'000) | (£'000) | (£'000) | (£'000) |
| Sales | 310 | 150 | 191 | 50 |
| <i>Less</i> Cost of sales | 150 | 75 | 98 | 23.5 |
| Gross margin | 160 | 75 | 93 | 26.5 |
| <i>Less</i> overhead expenses incurred for: | | | | |
| Factory | 87 | 35 | 69 | 20 |
| Sales and distribution | 13 | 5 | 12 | 4 |
| Administration | 15 | 6 | 14 | 4 |
| Others | 2 | 1 | 2 | 0.5 |
| Net profit | £43 | £28 | £-4 | £-2 |

Oldweather had not purchased a 'lame duck'. The accountant at Binton had produced the profit statement shown in Table 5.1 as an indication of what was expected from the company during the year. That statement was supported by a number of other documents, one of which analysed sales, their direct cost and gross margin over the five production departments of the company. A copy of that analysis is given in Table 5.2.

The monthly accounts revealed that the actual profits earned during the remaining three months of the year were quite close to those budgeted, and the management of Oldweather assumed Binton's provisional annual profit figure to be reasonably accurate even though they had been warned that an adjustment was usually required after the figures from the annual stocktaking became available.

Towards the end of February, the managing director of Oldweather returned from a business visit to South Africa to find a memo from his counterpart at Binton which read as follows:

Date: 20 February 19..

From David Exeter

To Peter Maitland

Binton Manufacturing

Oldweather Company

I very much regret that the annual stocktaking (valued at direct costs only) at Binton revealed that the estimated stock value used in our monthly accounts was substantially overstated. The exact extent of this is still being agreed with our auditors, but meanwhile perhaps I could see you to discuss the unfortunate discrepancy.

The suggested meeting took place and is one which David Exeter has not recounted in detail but which he has admitted was 'also constructive'. During that meeting it was suggested that Binton's accounting system should be investigated and eventually brought into a form similar to the integrated standard costing/accounting system of the other Oldweather subsidiaries. The first improvements to the system should be to facilitate better control and enable more reliable accounting statements to be produced; stock should be properly controlled, and inefficiencies located to a department.

TABLE 5.2
 BINTON MANUFACTURING LTD
 STATEMENT OF GROSS MARGIN ANALYSIS, 19..

| <i>Actual</i> (9 months to 30 Sept) | <i>Total</i> | <i>Motor pressings</i> | <i>Small pressings</i> | <i>Spring manufacture</i> | <i>Assembly</i> | <i>Tool manufacture</i> |
|--|----------------|------------------------|------------------------|---------------------------|-----------------|-------------------------|
| Sales | (£'000) 310 | (£'000) 205 | (£'000) 44 | (£'000) 17 | (£'000) 19 | (£'000) 15 |
| Less Cost of sales | 150 | 111 | 15.5 | 7 | 10.5 | 6 |
| Gross margin | £160 | £94 | £28.5 | £10 | £18.5 | £9 |
| <i>Budget</i> | | | | | | |
| (3 months to 31 Dec) | | | | | | |
| Sales | 150 | 115 | 20 | 3 | 7 | 5 |
| Less Cost of sales | 75 | 61 | 8 | 1.5 | 2.5 | 2 |
| Gross margin | £75 | £54 | £12 | £1.5 | £4.5 | £3 |

An early step in the investigation was to ask the accountant at Binton to produce a report on the company's factory accounting system, and that report revealed the following relevant facts:

1. The accounting system to a large extent relied upon the 'cost card' for each item produced in the factory. That card contained the standard direct labour and standard direct material costs of each operation on a product.

The standard direct labour cost was taken as the product of the standard time (i.e. the time which the work-study engineer thought the job should take together with an allowance for changing from one job to another, etc.) and the standard rate per hour applicable to that type of employee.

The standard direct material cost was taken as the materials required for the job (as extracted from the technical drawing for the job and listed on a materials specification sheet) priced at the latest price existing when the cost card was produced.

A copy of a blank cost card is shown in Fig. 5.1. As can be seen, the cost card incorporates spaces for the updating of direct labour and material costs resulting from price changes or other reasons.

2. The cost of sales figure in the monthly accounts consists of direct labour and material costs and is calculated by 'costing' every sales invoice issued during the accounting period. The 'costing' is effected by multiplying the units sold per the invoice by the direct cost per unit as indicated on the cost card.

3. The accountant pointed out that this system enabled the accounts to be produced without keeping detailed stock records for each item, and in practice very few detailed stock records were kept. The stock at the end of each monthly accounting period was calculated as follows:

| PART NUMBER: | | DESCRIPTION | | | | | | | |
|--|--|-------------|---|---------------|---|-------------|---|---------------|---|
| Operation number (as per job instruction) | | Date: | | Date: | | Date: | | Date: | |
| | | Labour cost | | Material cost | | Labour cost | | Material cost | |
| Hourly rate | | Mins. | £ | Mins. | £ | Mins. | £ | Mins. | £ |
| 1. | | | | | | | | | |
| 2. | | | | | | | | | |
| 3. | | | | | | | | | |
| 4. | | | | | | | | | |
| 5. | | | | | | | | | |
| 5% waste allowance | | | | | | | | | |
| TOTAL | | | | | | | | | |

Fig. 5.1 Cost card

| | | |
|--|-------------------------------|---|
| Opening position: | | |
| Raw materials | } at direct cost ¹ | X |
| Work-in-progress | | |
| Finished goods | | |
| + Direct wages payable for month | | X |
| + Material purchases for month | | X |
| | | — |
| | | X |
| – Cost of sales for the month (calculated as in 2 above) | | X |
| | | — |

This gave an estimated closing position of

| | | |
|------------------|------------------|---|
| Raw materials | } at direct cost | X |
| Work-in-progress | | |
| Finished goods | | |
| | | — |

4. Stocktaking took place annually on 31 December when administrative employees were engaged on the count. Stock sheets (examples of which are shown in Fig. 5.2) were priced from the cost cards and to those direct costs was added a sum for overheads, the latter amount being first agreed with the company's auditors.

¹ In the January monthly accounts this is the value as revealed by the annual stocktaking. For February onwards it will be an estimate, i.e., the same as the estimate of closing stock, etc., for the preceding month.

RAW MATERIAL

| Location | Part No. | Description | Units | Unit Cost | | Value | |
|-----------------|----------|-------------------------|------------------|-------------------|----------------|--------|-----------|
| | | | | Lab. | Mat. | Lab. | Mat. |
| Row C Bin 15 | 12479 | ½" Hex nuts etc. | 10 gross + 50 | £ n.a. n.a. | £ 0.01 each | £ - | £ 14.9 |

FINISHED GOODS: Assembly

| Location | Part No. | Description | Units | Unit Cost | | Value | |
|----------------|----------|---------------------------------------|-------|-----------|----------|------------|-----------|
| | | | | Lab. | Mat. | Lab. | Mat. |
| I Row H. 47 | 52831 | Sub-assembly for 67911 etc. | 353 | £ 0.8 | £ 0.2 | £ 282.4 | £ 70.6 |

Fig. 5.2. Stock sheets

PROBLEMS

At this stage you are asked to answer the following:

1. Explain why during the current year, whilst the budgeted sales for the three months from October to December were approximately 50 per cent of the sales for the nine months from January to September, the budgeted profit for the three-month period was much higher than 50 per cent of the profit for the nine-month period.

2. To what extent does the existing accounting system enable the overvaluation to be localised?

3. Suggest possible causes of the overvaluation of stock at direct costs only.

CASE STUDY: PART II

When Oldweather's managing director received his copy of the accountant's report from Binton he handed it to Max Wellcome, the group financial controller, and suggested that Max should visit the Binton plant and discuss with local management any changes to the accounting and control systems which appeared to be necessary.

The suggested visit took place, and during it Max toured all the buildings (see building plan, Fig. 5.3). Whilst on the tour Max noticed that the ground-floor production area was well utilised, but that on the first floor machinery was well spaced out and a fairly high proportion of the machinery was inactive. He also noticed that some finished products were stored in open bins along one wall in both production areas.

As a result of the discussions Max had with the personnel at Binton he was confident that with just a little help they could implement many improvements to the accounting and control systems. In fact the local staff made many useful suggestions for better systems, and explained that improvements had not been introduced earlier because Binton had for a number of years been unprofitable and short of cash.

Quite soon after his visit Max Wellcome was able to write to Binton's managing director pointing out the improvements which should be made as soon as possible. He decided to leave over a discussion of longer-term systems improvements until after the local staff had proved themselves capable of coping with the change, and gained more confidence in themselves. Max's letter and recommendations were as follows:

Date: 27 March 19..

From Max Wellcome

To David Exeter

Oldweather Company

Binton Manufacturing

Many thanks for everyone's co-operation during my recent visit to Binton, and for the telephone call letting me know that the stock overvaluation was mainly on the labour content of your estimated value.

I have given a good deal of thought to the system shortcomings at Binton and as to how they can be overcome. My

suggestions are enclosed, and have been prepared so as to include many recommendations made by the local staff. I trust that they read clearly, and I will shortly be visiting Binton to discuss any queries you have, and any additional staff you may require to implement the suggested improvements.

BINTON MANUFACTURING LTD

Suggested improvements to accounting and control systems.

(a) *Security of goods and installation of stock records*

1. Scales big enough to check the weight of all deliveries should be installed in the goods inwards areas.
2. All goods which are not the subject of a factory operation should be stored in an enclosed area.
3. Finished goods being inspected and awaiting inspection must be held in an enclosed area, and operators should not have access to goods which have already been included in their output for bonus purposes.
4. Raw material and finished goods stock records should be installed and these should be written up by the production control department within two working days following the product's movement. All receipts and issues should be valued at standard cost. (Initially only direct costs will be included.)
5. A regular stock-checking programme should be installed. The object should be to check all stock items three times per year. The number of checks can be reduced if it becomes apparent that there are few physical shortages.
6. All stocks and work-in-progress should be counted as soon as the stock recording system has been installed, and that count will provide the opening balance on the records.
7. Storekeepers will not be required to keep any stock records, and reordering will be activated by the production control department.

(b) Expansion of accounting information

At present the only statements produced by the accounts department are the monthly profit and loss statements. No information is produced to facilitate closer control of operating efficiency or to enable decisions to be made about various alternative actions. I consider that one of the first improvements must be to introduce a system which will enable factory costs to be controlled and statements to be circulated illustrating how those with responsibility for controlling factory costs have succeeded in that task.

The form of these statements – known as Departmental Operating Statements – will be to compare the following costs in respect of direct labour and direct materials:

- (i) the amount incurred during the period, with
- (ii) the amount which should have been incurred for the level of output achieved during that period, thereby introducing Binton to what is known as flexible budgetary control.

Other statements will analyse the cause of differences between (i) and (ii).

The information in (ii) is found by multiplying the output by its standard direct cost.

An example of what you as managing director of Binton, and myself as group controller, might expect to receive is given on the attached Form O.1 (Fig. 5.4). Each departmental manager will receive similar information but only in respect of his own department.

Subsequently the system and statements produced therefrom for managers should include all factory costs, i.e. both those controlled within the section and those controlled elsewhere. A full budgetary control system is the eventual objective.

It is group policy to let the management of subsidiary companies decide how necessary improvements are to be implemented within the time-scale laid down. We have a number of specialists at group headquarters and I suggest you make full use of those colleagues. One further point is that exercises of a similar kind by other group companies have proved that operational control systems stand a much greater

**BINTON MANUFACTURING LTD
DEPARTMENTAL OPERATING STATEMENT**

4 weeks ending:

| | | Departmental Number | | | | |
|------------------------|---|---------------------|-----|-----|-----|-----|
| | | 1 | 2 | 3 | 4 | 5 |
| | | £ % | £ % | £ % | £ % | £ % |
| DIRECT LABOUR | | | | | | |
| Input | (paid hours × standard wage rate) | | | | | |
| Output | (actual production × standard cost of labour content) | | | | | |
| Gain } Loss } | Analysed on form O.11 | | | | | |
| DIRECT MATERIAL | | | | | | |
| Input | (actual quantities issued × standard material cost) | | | | | |
| Output | (actual production × standard cost of material content) | | | | | |
| Gain } Loss } | Analysed on form O.12 | | | | | |

Note: Outputs have been adjusted to incorporate changes between opening and closing work-in-progress.

Fig. 5.4. Departmental Operating Statement (Form O.1)

chance of being accepted by departmental managers and supervisors if they have been well briefed before the introduction date with the objectives of the system and how it works. You at Binton, I would imagine, are also likely to benefit from a preliminary 'spreading of the gospel of control'.

PROBLEMS

1. Are you now any more certain as to the cause of the stock overvaluation?

2. Assume that Max Wellcome's recommendations for stock records and security, and departmental operating statements (direct costs only), have been implemented.

(i) State the sources of information from which the departmental operating statement could be prepared.

(ii) Draw a flow chart illustrating the flow of information necessary to enable stock records to be maintained, and the departmental operating statement to be produced.

Note: Students tackling this problem will not find all the information they require in the case study; they must use their own practical experiences, or research the information, perhaps with the help of the bibliography on p. 96.

3. What other statements would be required if Binton's factory costs are to be adequately controlled?

6 Application of Cost Control Systems

INTRODUCTION

This case is concerned with the practical application of a flexible budgetary control system and the use of cost variances. It is based on the system actually used by a large public company and at first sight it may appear to represent a departure from traditional textbook examples of flexible budgets and variances. The system is indeed more sophisticated than most of the simple examples set out in textbooks, but nevertheless it embodies the same principles. We have provided detailed explanations of the circumstances associated with the calculation of standard hours and variances, and an ample amount of time should be allowed for the thorough reading of the case before the problems are attempted.

CASE STUDY

Barry Stockdale had joined V.B. (Office Aids) Ltd at a time of crisis in the company's affairs. The business had been founded thirty years ago by Mr Victor Brunel, a skilled engineer and inventor, the basic product being an inexpensive add-listing machine. The nature of the business has not changed, though three different versions of the machine are now manufactured, and the work force is now approaching 2,000 employees compared with the nine workers on the payroll when the company was originally formed.

Barry, a qualified accountant in his late twenties, was appointed to replace John Pilling, an adequately competent accountant, but who had qualified many years ago and whose

ideas on costing methods were unsophisticated and outdated. Mr Pilling had to retire a little prematurely after an unexpected operation, and so Barry Stockdale, young, keen, well versed in theory but with limited experience, had been dropped in at the deep end.

The manufacturing part of the business was divided for costing purposes into twelve production cost centres: grinding, turning, machining, presses, drills, bench, casting, barrel cams, gears, diecasting, type moulding and assembly. An historical costing system was in operation and an analysis to establish overhead rates was prepared each quarter.

Overhead rates were calculated in accordance with the following procedure:

- (i) Overheads were analysed so that those specifically incurred by a cost centre were *allocated* to that centre.
- (ii) Overheads not specifically incurred by any one cost centre were *apportioned* on common-sense and customary lines to cost centres.
- (iii) The costs were totalled for each centre, and the total cost of each *service* centre was apportioned as appropriate to production centres until all costs were fully charged to production cost centres.
- (iv) An overhead rate per production hour was then calculated so as to spread the total cost of each production centre over the cost units which had passed through the centre.

This quarterly analysis represented the formal extent of the cost and control system, though occasional *ad hoc* figures and reports were presented as required at monthly board meetings.

Mr Brunel called Barry into his office shortly after he had been engaged as accountant. After passing a few pleasantries, the founder and managing director fell into a reminiscent and somewhat nostalgic mood.

'Until comparatively recently,' he told Barry, 'I exercised control over this company in a way that you might not fully appreciate. I knew practically every man-jack in the factory by name, and, without boasting, I could do most of their jobs as well as they could do them themselves. This was well known: when I was on my daily round of the factory, if I

wasn't satisfied, I'd take over a piece of work just to show the chap how it *should* be done. I appointed all the foremen and many of the shop-floor workers myself, and their rates of pay were at least as high as they could possibly get elsewhere. My factory manager and the foremen knew exactly what was expected of them – we used to have frequent meetings to discuss new developments and progress – and I enjoyed their complete loyalty and respect.

'Of course,' Mr Brunel went on, 'things have changed over these last few years. The number on the payroll is double that of five years ago. The personal touch has gone. My fingers are not so tight on the reins any more. We even had a strike a couple of years ago, and in spite of expanding rapidly we don't seem to be getting the return on equity capital that we ought to have. Last year we barely made 12 per cent, whereas in all my experience before then we'd never made less than 18 per cent.'

Mr Brunel suddenly looked tired and disinterested. 'I'll tell you straight,' he concluded, 'I haven't a lot of time for some of these airy-fairy management theories, though I dare say you'll think that our systems are a bit rusty and in need of a new broom. If you do think so – that is after you've had time to get to know how things are done around here – let me have a report making it clear what's wrong with the present set-up, and how you think it can be improved.'

PROBLEM

1. What further general information would Barry need to collect and what are the main points which he is likely to raise in his support?

The managing director was sufficiently impressed with Barry's report to ask for further information, and in particular he wanted to see a worked example, with explanations, of how control could be exercised over a budget centre.

When faced with the need to present figures and accompanying explanations which could easily be understood, not only

by the managing director but also, for example, by foremen, Barry found that his task was by no means as simple as he had envisaged. He wanted to draw on his previous experience with the subsidiary of an American firm, but he was faced with the problem of making fairly complex figures intelligible to men who may well have a built-in prejudice against new systems.

As a first approach to the problem, Barry set down some imaginary figures, which nevertheless would be a fairly typical presentation, for one of his proposed budget centres, though the variances are exaggerated for greater ease of understanding.

TABLE 6.1
'X' CENTRE FIGURES FOR THE THIRD WEEK IN JUNE

| | <i>Budget</i> £ | <i>Actual</i> £ | <i>Variance</i> £ |
|---|--------------------|--------------------|----------------------|
| Incentive wage payments, operating supplies, inspection, etc. | 360 | 225 | 135 |
| Power, etc. | 540 | 400 | 140 |
| Lighting, basic wage payments, etc. | 180 | 125 | 55 |
| Fixed expenses | 1,620 | 1,670 | (50) |
| | <u>£2,700</u> | <u>£2,420</u> | <u>£280</u> |
| No. of units of output expressed as standard hours | 720 | 360 | |

It will have been noted that output is measured in terms of standard hours and that the budgeted cost per unit of output is

$$\frac{\underline{\underline{£2,700}}}{720} = £3.75$$

You should note also that Barry was envisaging a system of wage payment whereby operatives were paid a basic wage for attendance hours plus incentive payment for allowed hours of production.

PROBLEM

2. How would you explain the nature of the explicit and implicit variances in the above example, and what are the limitations to this sort of presentation?

With the intention of contrasting the limitations of fixed budgets with the advantages of flexible budgets, Barry now considered how the costs set out above would be likely to vary with output. Drawing on his previous experience, he assumed three categories of variability of cost with a linear relationship for each. These three categories as they affect budget centre X are shown in Table 6.2, where Barry also shows for each expense the budgeted rate per standard hour of output.

TABLE 6.2

| <i>Categories of variability</i> | <i>Code letters</i> | <i>Example of costs in X centre</i> | <i>Budgetary rates per standard hour of production</i> |
|--|---------------------|---|--|
| Expenditure varying with attendance (shop) hours | V.S. | Lighting, basic wage payment, etc. | £ 0.25, i.e. $\frac{£180}{720 \text{ hrs}}$ |
| Expenditure varying with operating hours | V.O. | Power, etc. | 0.75, i.e. $\frac{£540}{720 \text{ hrs}}$ |
| Expenditure varying with allowed hours | V.A. | Incentive wage payments, operating supplies, inspection, etc. | 0.50, i.e. $\frac{£360}{720 \text{ hrs}}$ |
| Fixed costs | F | Rent, etc. | 2.25, i.e. $\frac{£1,620}{720 \text{ hrs}}$ |

Barry then set out to explain the relationship of the hours described above (under the heading 'Categories of Variability') to planned capacity hours and standard hours of production.

He produced the following example for budget centre X, starting with the end product of 720 budgeted standard hours of production.

| BUDGET CENTRE X | | <i>hours</i> |
|---|--|----------------------------|
| BUDGETED STANDARD HOURS OF PRODUCTION (P) | | 720 |
| Add <i>budgeted rework and rectification hours</i> for the period | | 80 |
| | | <hr style="width: 100%;"/> |
| to give BUDGETED ALLOWED HOURS (V.A.) | | 800 |
| Add <i>budgeted loss on efficiency</i> (in accordance with an agreed target for operating speed relative to the standard hours) | | 100 |
| | | <hr style="width: 100%;"/> |
| to give BUDGETED OPERATING HOURS (V.O.) | | 900 |
| (i.e. budgeted clock hours during which operators are working on the product) | | |
| Add <i>budgeted unproductive hours</i> (due to idle time, training time, reassigned time, etc.) | | 60 |
| | | <hr style="width: 100%;"/> |
| to give BUDGETED ATTENDANCE HOURS (V.S.) | | 960 |
| (i.e. budgeted number of hours for which operators are in the factory) | | |
| Add <i>planned capacity margin</i> (arising from absence, sickness and shortage of workers) | | 240 |
| | | <hr style="width: 100%;"/> |
| to give BUDGETED PLANNED CAPACITY (C) | | 1,200 |
| | | <hr style="width: 100%;"/> |

The ratios of budgeted standard hours of production (P) to each of the other classifications of hours are as follows:

- P is 90 per cent of V.A.
- P is 80 per cent of V.O.
- P is 75 per cent of V.S.
- P is 60 per cent of C.

It will be appreciated that each of the above classifications of hours could be reduced to the equivalent of standard hours of output by multiplying it by the relevant ratio. Moreover, if in practice the actual hours for a classification stage conform to the budget, they will convert to 720 standard hours of output after an application of that relevant ratio. However, if the

actual performance at a particular stage is different from the budget, an application of the relevant ratio to the actual hours will show an equivalent of final output of more or less than the budgeted standard hours.

The next step was to set out the budgeted hours for each classification stage, together with their output equivalent in terms of standard hours, and compare them with a series of imputed actual hours and the equivalent standard output hours of those actual hours. (In practice, actual hours would be built up from output tickets and the usual production control documentation for rework and unproductive time – all related to and reconciled with payroll hours.)

TABLE 6.3

| <i>Classification</i> | <i>Budget</i> | | | <i>Actual Hours × Ratio (%) = Equivalent standard hours</i> | |
|-------------------------|---------------|------------------|----------------------------------|---|-------------------|
| | <i>Hours</i> | <i>Ratio (%)</i> | <i>Equivalent standard hours</i> | | |
| Planned capacity | 1,200 | 60 | 60% × 1,200 | } 720 st. hours | 1,200 × 60% = 720 |
| Attendance hours | 960 | 75 | 75% × 960 | | 800 × 75% = 600 |
| Operating hours | 900 | 80 | 80% × 900 | | 700 × 80% = 560 |
| Allowed hours | 800 | 90 | 90% × 800 | | 500 × 90% = 450 |
| Standard hours produced | 720 | 100 | 100% × 720 | | 360 × 100% = 360 |

Barry now referred to the (imputed) actual costs for the week (as in Table 6.1):

| <i>Actual Costs</i> | £ |
|---|-------|
| Incentive wage payments, operating supplies, inspection, etc. | 225 |
| Power, etc. | 400 |
| Lighting, basic wages, etc. | 125 |
| Rent, etc. | 1,670 |

PROBLEM

3. Using such figures as you require from the previous tables, draw up a further table showing the flexed budgeted expenditure figures for the budget period, comparing them with the actual costs for each category of expense, and set out the individual expenditure variances and overall net expenditure variance. How could Barry explain the meaning of this latter variance to Mr Brunel?

Barry's aim, of course, was to demonstrate the importance of being aware of divergences from the original plan, and at the same time to know the true cause of the divergence. His example of flexible budgeting in the guidelines to problem 3 has indicated that the true expenditure variance was an adverse figure of £5, not a favourable figure of £280 as given in Table 6.1. Nevertheless the overall variance of £1,070 between the actual cost (£2,420) and the actual value of production at budget rates of £1,350 (i.e. 360 standard hours achieved \times £3.75 recovery rate) had still to be explained. It thus remained to analyse the volume or activity variances arising from the difference between the overall adverse variance of £1,070 and the adverse expenditure variance of £5, i.e. £1,065. Management would want to know, for example, not only the expenditure on lighting to be expected for 600 standard hours of production, but also the cost in terms of rent and lighting incurred whilst operators are employed less productively than was budgeted.

One approach to the problem was to ascertain the causes of the lost 360 standard hours of production, and reference to Table 6.3 enabled the analysis in Table 6.4 to be extracted.

The lost standard hours were then converted into money values. The cost of these losses depends on the stage at which the losses occur. Though all lost hours incur fixed costs, the inclusion of variable costs is progressive. A capacity usage loss, for example, simply involves loss of fixed cost recovery, i.e. $120 \times$ fixed cost recovery rate of £2.25. Excessive unproductive time means a failure to recover *not only* fixed costs but also

TABLE 6.4

| | <i>Equivalent standard hours of production</i> | | <i>Lost standard hours</i> | | <i>Cause of loss</i> |
|-------------------------|--|---------------|----------------------------|----------------------|------------------------------|
| | <i>Budget</i> | <i>Actual</i> | <i>Cumulative</i> | <i>At each stage</i> | |
| Planned capacity | 720 | 720 | Nil | Nil | |
| Attendance hours | 720 | 600 | (120) | (120) | Excessive underusage |
| Operating hours | 720 | 560 | (160) | (40) | Excessive unproductive hours |
| Allowed hours | 720 | 450 | (270) | (110) | Excessive inefficiency |
| Standard hours produced | 720 | 360 | (360) | (90) | Excessive rework |
| | | | Total loss | <u>360</u> | |

V.S. items – lighting, basic wages, etc. Thus the loss of 40 standard hours because of excessive unproductive hours
 $= 40 \times (\text{fixed cost recovery rate} + \text{V.S. rate})$
 $= 40 \times (\pounds 2.25 + \pounds 0.25).$

The total activity variance was then set out as shown in Table 6.5.

An alternative approach was to concentrate on the failure to recover a certain part of the rent, etc., lighting, power, wages, and supplies cost as a result of only producing the equivalent of 360 standard hours. For example, in Table 6.3 the flexed budget indicates 720 standard hours as the equivalent of planned capacity hours, so that in respect of rent, etc., 360 standard hours at $\pounds 2.25$ each have been lost. Similarly, in respect of lighting, etc., the flexed budget indicates 600 standard hours as the equivalent of 800 attendance hours. In

TABLE 6.5

| Cause of loss | Standard Hours gained/ (lost) | Rates | | Activity variance £ |
|---------------------------|----------------------------------|------------------------|-----------|------------------------|
| | | Base | Total (£) | |
| Excess underusage | (120) | F | 2.25 | (270) |
| Excess unproductive time | (40) | F + V.S. | 2.50 | (100) |
| Excess in efficiency loss | (110) | F + V.S. + V.O. | 3.25 | (357) |
| Excess rework | (90) | F + V.S. + V.O. + V.A. | 3.75 | (338) |
| | | | | <u>(£1,065)</u> |

this case $600 - 360 = 240$ standard hours at £0.25 have been lost. The alternative table then appears as follows:

TABLE 6.6
UNRECOVERED COSTS

| Expenditure | Standard hours lost | Budgeted rate per standard hour (Table 6.2) | | | £ |
|---|---------------------|---|------|---|-----------------|
| | | £ | | £ | |
| Rent, etc. | 360 | × | 2.25 | = | (810) |
| Lighting, basic wage payments, etc. | 240 | × | 0.25 | = | (60) |
| Power, etc. | 200 | × | 0.75 | = | (150) |
| Incentive wage payments, operating supplies, inspection, etc. | 90 | × | 0.50 | = | (45) |
| | | | | | <u>(£1,065)</u> |

The disadvantage of this alternative is that it does not associate the variance with the cause of the variance.

PROBLEM

4. How could Barry best explain the meaning of this last variance of £1,065?

Barry presented a worked example along the lines of the foregoing to Mr Brunel, and in fact duplicated copies were circulated among members of the board and senior officials for comment. A fairly typical reaction was that while Barry's paper required some concentrated study effort before the method was thoroughly understood, the scheme, coupled with proper reporting and follow-ups, could promote better control over costs. But it was thought that the concept of 'equivalent standard hours' might be difficult for lower levels of management to grasp; another disadvantage raised was that there would be no immediate tie-up in reports between actual hours and the variance hours shown. Thus, in Barry's example (Table 6.3), actual attendance hours are 800, and operating hours are 700, but the unfavourable variance for excessive unproductive time (in Table 6.5) is 40 (standard hours). In fact the variance of 40 standard hours is the difference between the equivalent standard hours applicable to both the 800 attendance hours and the 700 operating hours (i.e. $600 - 560 = 40$).

PROBLEMS

5. Consider whether it would be feasible to express the variances from budget in terms of actual hours rather than standard hours.

6. Outline the main procedures which Barry would have to introduce, briefly explaining the reason for their introduction.

Guidelines

PARTNERSHIP PROBLEMS

1. *Some of the advantages of taking James Brewer as a partner are fairly obvious, but what about the possible disadvantages?*

Many of the disadvantages of forming a partnership are those which everyone has experienced in undertaking any project (sharing a flat, organising a joint holiday, running a club or charity) with another person or persons: possibilities of incompatibility, differences of views and temperaments, unwillingness to undertake fair shares of the work involved, and even unreliability, apathy and distrust. A business partnership, however, is so much more serious than casual and temporary undertakings; the partners may have to work with each other every day, and money may be lost as well as gained.

A major disadvantage is that a bad decision by one partner may result in a loss for both partners. Furthermore, an irresponsible partner may incur debts, both privately and on behalf of the partnership, become personally bankrupt and leave a solvent and more responsible partner to meet all outstanding partnership debts. Joint decision-making and an arrangement whereby both partners sign contracts and cheques may help to avoid these difficulties, but this can be inconvenient and frustrating for a sound and go-ahead partner.

Even where an efficient, dynamic and responsible partner is able to make the decisions and build up the business, friction may arise over the question of fair remuneration for work done. Difficulties may arise from illness of one partner, who may not then be able to fulfil his undertaking, or because one partner wishes to dissolve the partnership at an inconvenient time for the other.

2. What suggested amendments is the accountant likely to make to the draft accounts, and what advice may he give to the partners concerning the partnership agreement, the general running of the business and tax matters?

Several amendments may be concerned with ensuring adequate remuneration to partners and wives. It appears from the accounts that the wives have received no remuneration at all, and it seems that Larry Dinsdale's remuneration is calculated in a rough and ready manner. Nevertheless, in the latter case it may cause friction to suggest an alternative method of remuneration with a retrogressive effect, and therefore this may be a matter to resolve in a revised and formalised partnership agreement. In the circumstances it would be desirable that the wives should be paid on the basis of work done during the year, though difficulties associated with P.A.Y.E. and tax liabilities generally may dictate that individual wages should not exceed about £400 during the first year (given the current tax regulations at that time). It may also be possible, by agreement, to pay Frank Brewer for work done, assuming that his 'travelling expenses' no more than covered the travel and meals associated with his excursions.

Various expenses relating to the provision of storage and office accommodation should be included in the accounts, e.g. a proportionate charge for rates and rent, and also for cleaning. Appropriate credits should be made to Larry's current account, or in the case of the cleaning charge, if Mrs Dinsdale rather than a domestic help does the cleaning, a further wage payment may be due to her.

The charge for petrol should be investigated. A normal procedure in this situation would be to calculate the total expenses of running the car for the period (including road tax, repairs, servicing, petrol, oil, insurance, cleaning and rates of the garage) and allocate these to the business in the ratio of business mileage to total mileage. Similarly, a proportionate writing-down allowance (based on the written-down value of the car at the beginning of the trading period) will be due to Larry.

The total telephone charge, including rental, should also be allocated on the basis of business to total usage, and,

if necessary, an adjustment should be made.

Typewriter and duplicator costs should not be charged to revenue account, but all office furniture (drawers, desks, etc.) provided by the Dinsdales may, subject to agreement, be brought into the partnership assets at an appropriate price, or alternatively Larry may claim writing-down allowances on a personal basis.

Closing stocks may well have been overvalued if the remaining map supports prove to be unsaleable and in the circumstances these stocks may be valued at what is considered to be the realisation value, which could be well below cost.

The effect of such adjustments would certainly be to reduce the net profit (and incidentally the income tax liability), and on balance Larry Dinsdale is likely to gain as a result of the more thorough investigation into real costs.

A further accounting consideration is whether in fact the accounts should be treated as for *the year* ended 31 August 1971, in view of the delay in commencement of actual business transactions, and whether possibly the account should be run on to a later date. On the whole, as business appears to be expanding, it seems preferable from a tax point of view to let the accounting year be regarded as running to 31 August 1971, as the rather informal partnership agreement appears to date from 1 September 1970. Thus partnership taxation for the income tax years 1970–71, 1971–72 and 1972–73 will be based on the adjusted profits to 31 August 1971 which may be lower than those of subsequent years.

The accountant would almost certainly recommend that a formal and revised partnership agreement should be drawn up (and that the partnership name should be registered with the Registrar of Business Names, if this has not already been done).

A more fitting method of remuneration for Larry is desirable in view of the fact that he is undertaking the main decision-making and administrative functions. He should not be receiving less for his administrative work than a competent manager of a small office, and for his management and entrepreneurial skills it may be deemed appropriate that he should receive a percentage of profit rather than of sales. As sales to garages are subject to 40 per cent discount and therefore

probably not as profitable as direct sales to customers (though advertising costs may more than offset the larger basic profit margin here), the rate of commission on such garage sales may require reconsideration.

Any agreement should be sufficiently flexible to anticipate future developments. If the business goes from strength to strength it may be desirable that James Brewer joins the business on a full-time basis, though possibly in the near future it may be preferable for both wives to give more time to the business and take more responsibility, assuming they have a mind to it and are not tied down with other commitments. In this event the question arises whether or not they should be brought into partnership. Such an arrangement would certainly ease problems of P.A.Y.E. and other taxation aspects. Procedures as to drawings, internal interest arrangements and investment of cash surpluses should be considered; also the need for provisions for future expenditure, and procedures in the case of one or more partners wishing to dissolve the partnership.

Clearly there should be careful deliberation before any agreement is reached, and the consequence of any written agreement should be thoroughly understood.

STAPLEFORD'S DEPARTMENTAL STORE

1. *Assess Brad's competence as an accountant.*

There is only a limited opportunity for assessing Brad's competence as an accountant, but that is enough to indicate that he has committed the error of using total costs in a situation where an application of differential costing is required. That is to say he should have considered the changes in costs resulting from the proposed variation in operating.

Even if future costs and revenues are the same as those for the last year, Brad's assertion that merely closing down departments 4, 8 and 9 would increase profits by £2,000 is clearly most improbable. He is assuming that all of the expenses will be saved if the loss-making departments were closed down, but in fact most of the expenses are likely to continue to be

incurred by Stapleford's in those circumstances. If for example department 9 were closed and its sales staff dismissed, the difference in total gross profit would be a reduction of £2,000 but the change in expenses would probably not be much more than the saving in staff wages of £1,100. Such a position would *increase* the loss of £501 by £900 to £1,401, which is of course the total of the continuing expenses which have been apportioned to department 9.

The departmental trading and profit and loss account is a neat-looking document and it must have taken a long time to produce, but it does not highlight some important information needed by Philip Stapleford in the case situation.

2. How would you use the information in the case study to assist Philip Stapleford to make a decision as to whether he should introduce the new department? Indicate any further information which would be useful when making the decision.

Philip Stapleford would be assisted when coming to a decision if the case details were used to provide a type of break-even statement. Such information might show the sales which are required from the new department in order to maintain total profits at the same level as they would have been without a replacement of departments. One method of calculating the break-even position is described in the following paragraphs where we assume students are familiar with the normal accounting meaning of fixed costs, variable costs and contribution:

(i) Ascertain which departments in the last completed accounting period earned the smallest contribution towards paying for apportioned costs. (Actually what is required is not the absolute value of contribution, but the contribution per unit of floor space;¹ this is because it is shortage of floor space which is preventing Philip Stapleford from adding another department to the nine departments he already operates, i.e. floor space is the limiting factor.)

Your calculations are likely to indicate that department 8 provided a negative contribution – a position which if repeated

¹ Relative space occupation by each department is provided by the relationship of building expenses in the case.

would make this department a candidate for closure with or without a replacement being introduced. Departments 4 and 9 also make a considerably smaller unit contribution than the other departments.

(ii) Although it will be apparent that department 9 occupies approximately the amount of floor area which would be required by the new department it is assumed, for reasons mentioned in the previous paragraph, that department 8 would also be closed.

(iii) If we assume that all the costs of departments 8 and 9 other than the cost of goods sold are fixed, then the contribution of those departments to fixed costs for the last accounting year was

| | |
|---|--------|
| | £ |
| Sales | 10,000 |
| Less Cost of goods sold (variable costs) | 7,000 |
| Contribution | £3,000 |

(iv) Similar profits would be earned by a water-sports goods department if it provided a contribution of £3,300 (the larger contribution is necessary because of differential wages costs of +£300). That contribution would be derived from sales of £9,900 if the expected gross profit margin of 33½ per cent on sales is achieved in practice.

The above break-even sales figure is crude information, but it is the first useful information to Philip Stapleford because he has something on which to base a decision. If he is convinced that sales of water-sports goods will significantly exceed £10,000, then it is likely that the replacement of departments 8 and 9 is on.

(v) Philip would also find it useful to know certain other information, e.g. the sales level at which it is estimated the water-sports department would cover all its costs including those apportioned to it, i.e. the conventional break-even point, and the profits anticipated at various sales levels from, say, £15,000 p.a. upwards. He could also be introduced to the concept of the margin of safety.

(vi) In practice the information used for the various statements should be more refined than so far indicated and should accommodate various points, among which are:

- (a) The need to base the decision on forecasts of future costs and revenues and not on historical figures. Perhaps sales of the type of products which are now stocked in departments 8 and 9 can be significantly increased in future years and therefore provide a much higher contribution than £3,000.
- (b) The need for a reliable estimate of future sales of water-sports goods.
- (c) The need to assess whether closing departments 8 and 9 would affect the demand for products in departments 1–7.
- (d) There may be other differential costs, e.g. distribution costs may increase because a delivery service for the new goods may be essential, and financial costs may alter because of changed stock levels.
- (e) Certain capital costs may have to be incurred on new display and storage equipment.
- (f) Staff redundancy costs may be incurred.
- (g) An assessment of the largely unquantifiable ill-effects of staff dismissals on the morale and work effort of the remaining staff.

MINI MODELS LTD

1. *Discuss whether in your opinion Mini Models could introduce a similar type of postal offer in order to expand its sale of Mini Models.*

As a starting-point to answering this problem consider the marketing objective of the *Viewpoint* offer. That objective would appear to be to provide an incentive which is attractive enough to capture new readers and to supply them with a copy of the journal sufficiently often to encourage a regular, habitual reading of it, and add to the publisher's total profit.

The profitability objective of a Mini Models special subscription offer would also probably be one of earning more profits overall from such an offer than could be earned from ex-

pending a similar amount of cash and effort on something else.

Mini Models could possibly utilise the subscription offer marketing idea for selling its *sets* of models. The offer might apply to half a set, each one of which would be sent by post to customers over, say, a six-month period with the objective of building up a regular pattern of customers' expectation and satisfaction each month. Ideally that pattern should have become so established that by the time the offer has finished there would be a tremendous desire by the customer for a continuation of the regular monthly parcel until the whole set has been purchased. The second half of the set might again be offered on a subscription basis, but this time at the full retail price.

A decision would have to be made as to the frequency of any subscription offers, and that frequency could vary from once or twice a year to a regular and continuous circulation of different markets. However, if the offer became a regular feature of the marketing programme it would create certain problems, one of which would be the need to set up an enlarged and reorganised dispatch department. It is certain that at present Mini Models dispatches much larger orders than would be the case following the introduction of the offer programme. Another and much more serious problem is the effect of the offer programme on the orders placed by existing Mini Models customers, for if they thought that Mini Models was attacking their market and profit, they would stop buying from the company altogether and transfer their custom to competitors.

The occasional special offer may not attract sanctions from existing customers.

If it seems certain that a programme of regular and continuous special offers is desirable, some way must be found to enable existing customers to participate in the special offer programme or to exclude them *without their being aware of the new scheme*.

Since the Companies Act, 1967, secrecy can no longer be maintained by operating through a quite differently named subsidiary company, but another company with the same shareholders as Mini Models (or nominees thereof) might be

run in secret. A further possibility for a secret operation is to enter into a joint venture with a mail-order firm whereby Mini Models supplies the products and the mail-order firm provides the dispatch organisation. They might both share the cost of discount on retail prices allowed to the public during the special offer period. Secrecy would be assisted by the use of special models and different brand names. However, if such a joint venture were operated Mini Models directors might feel that they were a 'sitting duck' for commercial blackmail and they might not wish to take such a risk.

Another possibility for the continuous special offer programme is a series of joint ventures with larger departmental stores. The stores could supply the dispatch service in their area and the products from their stock; Mini Models could bear the cost of circularising the special subscription offer; and both the store and Mini Models might share the profit forgone on the products dispatched under the special offer. It would certainly be prudent to test the market by undertaking a pilot scheme operating from just two or three selected areas before undertaking large financial commitments to the scheme.

If it becomes necessary to placate customers who are adversely affected by the postal offers, then the easiest method of achieving this will be via an adjustment of their trade discount terms. But Mini Models must be careful not to start a price-cutting war either as a result of the increased discounts or by the new marketing strategy.

If Mini Models were to embark on the special subscription offer, several further problems would be encountered in addition to those discussed above. Among those problems which must be solved are included:

- (a) Who should be mailed with the postal offer? Is it children, their parents, or perhaps grandparents? Often parents are beleaguered at Christmas and children's birthday times with questions of what presents to buy, and the subscription offer could provide a novel solution.
- (b) How does one locate those to be mailed?
- (c) The production problem associated with large peaks of demand for the few products covered by the current offer.

2. *What accounting information would general management require to assess the profitability of such an offer?*

The form of accounting information to assist the decision-makers will depend on the type of special subscription plan which is to be implemented, and for that reason there are numerous possible formats which could reasonably answer problem 2. Whatever marketing plan is introduced, the accountant will require the help of Mini Models market research staff when calculating revenue figures. He will be more certain of cost figures, particularly production cost figures, because these will have been prepared already for other purposes.

The accountant will distinguish between costs which will be incurred because of the special subscription plan and those which would be incurred anyway. He will possibly add a note to his report that for decision-making purposes there is no need to apportion existing fixed costs to the project, and therefore they have been omitted from his calculations.

By way of example, it has been assumed that special offers will be introduced on a limited scale and occasions only, and the accountant has been asked to prepare information useful to those who have to decide the terms of the first special offer. The accountant's information might appear as in the report which follows. In that report the only costs appertaining to existing staff which would be included are the extra wages or salaries they would earn because of the offer.

If the special subscription plan is being proposed as a permanent feature of Mini Models' operations, account will need to be taken of the permanent investment in increased stocks and dispatch facilities, and the probable reduction in sales to existing customers. The project will then take on the characteristics of a long-term investment and any evaluation thereof should include an allowance for timing, probably by using a discounting technique.

Finally, although the case problems and their guidelines have concentrated on a postal offer, in practice it will be only one of several alternatives to be examined. Study groups might now like to consider some of those alternatives.

ACCOUNTANT'S REPORT:
SPECIAL SUBSCRIPTION RATE MARKETING PLAN

| | Plan 1 25% discount | Plan 2 40% discount | Plan 3 50% discount | Plan 4 60% discount |
|--|---------------------------|---------------------------|---------------------------|---------------------------|
| <i>Phase I.</i> The initial special-price offer. | | | | |
| Forecasts of: | | | | |
| Pilot scheme costs | | | | |
| Circularisation costs | | | | |
| Marginal costs of: | | | | |
| production } for | | | | |
| dispatch and } six | | | | |
| administration } dispatches | | | | |
| Total costs of special subscription offer | | | | |
| Revenue from acceptances of special subscription offer | | | | |
| (Loss) contribution to profit £ | | | | |
| <i>Phase II.</i> The follow-up full-price offer. | | | | |
| Forecasts for a 10% acceptance of the follow-up offer: | | | | |
| Marginal costs of: | | | | |
| production } for six | | | | |
| dispatch and } further | | | | |
| administration } dispatches | | | | |
| + Phase I loss (if any) | | | | |
| Revenue from acceptances of follow-up offer | | | | |
| Phase I contribution to profit (if any) | | | | |
| Total contribution to profit £ | | | | |

(Note: Other reports on Phase II will be provided for other levels of acceptance of the follow-up offer.)

INTERFIRM COMPARISON

1. *How useful, for purposes of interpretation and analysis, are the figures which appear in Table 4.1, and what methods would you use to compare the results for the two years?*

One of the shortcomings of the figures in Table 4.1 is that the current market values of certain of the assets may differ substantially from their book values. Land and buildings, in particular, are likely to be shown in the books at a valuation below current market values unless they have been revalued recently. Such an undervaluation would cause any ratios of profit to assets to appear greater than they are.

Also, of course, Table 4.1 is of limited use as it does not even raise the idea of comparison with other firms, and in any case the unreliability of asset values would invalidate any attempts at such comparisons (hence the desirability of a properly organised interfirm comparison). Thus there is no indication of how Slimgear is progressing compared with other firms.

However, the fact that certain assets may be under- or over-valued does not destroy the usefulness of a comparison of Slimgear's accounting ratios for the two years to ascertain trends in income and costs, and the liquidity position. But, having said this, it must be added that an adjustment of assets to true current values would make possible an even more useful comparison of the ratios for the two years.

There are numerous ratios which can be employed in the interpretation of accounts. For example, in order to assess the liquidity of a firm, current assets or liquid assets may be compared with current liabilities, and in order to measure the gearing, fixed-interest capital may be compared with equity capital. The main concern of any business, though, is that a satisfactory profit is earned on the capital employed in the business. The return on capital may be expressed in different ways: for example, as net trading profit (after interest charges) in relation to equity capital. The ratio which best measures operating efficiency (and indeed the primary ratio used by the

C.I.F.C.) is that of $\frac{\text{operating profit}^1}{\text{operating assets}}$ The other ratios used in interfirm comparison could also be used to compare one year with another, and these key ratios are briefly discussed and set out as follows.

The ratios are divided into two sets according to the two main explanations for the level of the primary ratio. Thus there is one set of ratios (on the left of the pyramid in Fig. G.1) which covers various costs in relation to sales, and another (on the right of the pyramid) which covers various classifications of assets in relation to sales. If one of the 'higher' ratios raises a query, e.g. why is the operating profit/sales relatively low, then one can look to the ratios lower down in the pyramid for an explanation, e.g. because the ratio of production cost of sales/sales is high, particularly because the works labour cost/sales value of production is relatively high. And so on.

Those in Fig. G.1 below are key explanatory ratios, but there are others, of course, which may be brought into use.

2. To what extent, if at all, does a problem of comparability arise in the case of a study of the trading results and balance sheet figures of firms of different size which produce somewhat different products, e.g. within an industry, such as light engineering?

Assuming that the figures from the individual firms taking part in the interfirm comparison are adjusted where necessary to conform with standard definitions of terms and valuation principles (as explained in the second part of the case study, p. 26 above), the main point at issue is whether it is necessary that the firms taking part should be broadly similar.

The immediate answer is that if firms were identical in every respect *there would be nothing to be learned from comparing them*. Thus participants need not be of identical size, operate in the same

¹ Operating profit is the profit (before tax) earned through the normal operations of the business; it excludes income from investments outside the business. Operating assets are (in manufacturing business): land and buildings, plant and machinery and other fixed assets; plus stocks and debtors (investment outside the business is excluded).

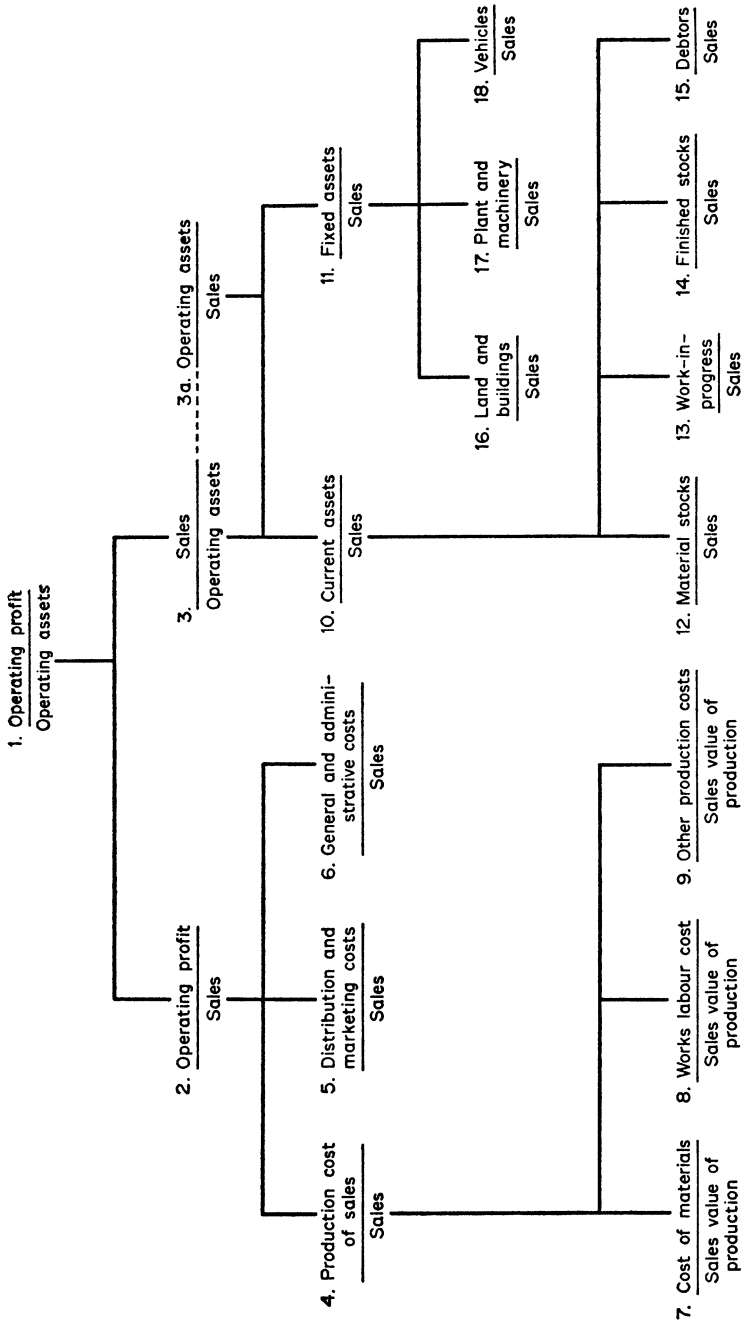


Fig. G.1

locality, produce similar commodities, and employ exactly the same kind of plant and methods of distribution. On the other hand, it would be almost futile to attempt to gain useful information from a comparison of, say, small street corner grocers with national chains of supermarkets, or small manufacturers of nuts and bolts with aircraft body manufacturers. In short, the firms must be fairly similar and they must be sufficiently comparable for useful conclusions to be drawn from the comparison; and though they may be making somewhat different products in different ways, their managements must have sufficient problems in common to make a comparison worth while. For instance, they may all face the problem of co-ordination of production with sales, difficulties associated with under-utilisation of capacity, etc., and an interfirm comparison may reveal how some firms are coping much better than others and stimulate the weaker firms to action. It is thus preferable to avoid dogmatism on the similarity of firms which fall within a type suitable for comparison. The criterion to be applied is that this comparison shall yield results in accordance with the objects of the inquiry.

3. *What points do you consider might have been raised in the report, and what benefits might be derived from an exercise of this sort?*

Two of the main points which might emerge from the report are:

(i) that the original unadjusted figures were giving an illusion of success. The true return to operating assets is well below the original figure based on the historic cost of land and buildings and over-depreciated figures for plant and machinery. Slimgear is in fact second to the bottom in this particular league table.

(ii) As indicated in the discussion between the managing director and the management accountant, there has been an only partially successful attempt to increase sales of stock-produced standard products, and this is reflected in a slight reduction in production cost ratios (4, 8 and 9) (achieved via longer runs) and in stock ratios 12 and 13. But the failure to achieve the higher sales target has resulted in the higher *finished* stock ratio (14) and distribution and marketing cost

ratios (5). In spite of some effort to increase sales of 'standard' products, the report indicates that Slimgear's production and sales in this area are well below those of companies A, B and C. The higher comparative finished stock and distribution and marketing cost ratios of companies A, B and C reflect their policy of reducing production planning problems via economic runs for stock of both finished products and components common to end products – a policy achieved by comparatively greater marketing efforts than Slimgear. Clearly this is a policy which Slimgear could pursue more vigorously.

Some of the benefits to be derived from an exercise of this sort are as follows:

(i) The individual firm is able to compare its profitability and productivity with other firms in the same industry and this enables it to place its own results in true perspective.

(ii) The comparison of ratios will almost certainly reveal areas of strength and weakness.

(iii) The table of results acts as a spur to all participating firms, disturbing any sense of complacency among inefficient firms, providing target figures to work towards, and also perhaps hardening the determination of league leaders to maintain their position in the field, in the face of renewed competition. C.I.F.C. returns have often shown improved returns on capital for most participants during the years subsequent to the introduction of a scheme.

(iv) The comparisons may throw light on policy, but the provision of a check on operating efficiency is even more important. Indeed for many firms an I.F.C. exercise may be as stimulating as an expensive engagement of consultants. Furthermore, for the firm which cannot afford an elaborate system of budgetary control, an I.F.C. may offer facilities of annual target setting and control which are less expensive but quite effective.

(v) Even without comparison, the ratios for an individual firm can provide an index of many kinds of progress.

(vi) Some specific advantages, as stated by various managing directors in C.I.F.C. literature, are:

(a) pinpointing of weaknesses such as slow turnover of stock and debtors;

- (b) raising the issue as to the quality and efficiency of plant and machinery in use;
- (c) providing a gauge of success for unquoted companies (though the share-price barometer is in any case a very rough and ready instrument for quoted companies);
- (d) indicating marketing economies (e.g. such as selling by telephone).

BINTON MANUFACTURING LTD

PART I

1. *Explain why during the current year, whilst the budgeted sales for the three months from October to December were approximately 50 per cent of the sales for the nine months from January to September, the budgeted profit for the three-month period was much higher than 50 per cent of the profit for the nine-month period.*

The problem could be reworded without changing its meaning to one of asking why the budgeted profit for the three months October to December should be a higher proportion of sales than the relationship of profit to sales for the nine months January to September. In such a format it is perhaps more obvious that the most likely reason stems from the fact that some costs are fixed, or at least do not vary exactly in proportion with changes in the volume of sales. Therefore in periods of high sales, such as the three months to 31 December, the proportion of costs to sales falls, and the proportion of profit to sales rises.

2. *To what extent does the existing accounting system enable the overvaluation to be localised?*

The causes of the overvaluation cannot be identified from the information available in the case, but items 2 to 4 in the accountant's report (pp. 34–7 above) could assist an investigator to localise those causes. One starting-point for such an investigation would be to prepare a statement similar to that in the Binton accountant's report but in this case to cover a year, and

to provide an analysis between direct labour and direct material. Such a statement might be similar to the one which follows.

SUMMARY OF YEAR'S STOCK MOVEMENT

| | | <i>Cost content</i> | |
|-------|--|---------------------------------------|-----------------|
| | | <i>Direct</i> | <i>Direct</i> |
| | | <i>labour</i> | <i>material</i> |
| (i) | Opening stocks: raw materials work-in-progress finished goods | - | - |
| | | } from last year's stock sheets | |
| (ii) | Add: direct labour costs from payroll | | - |
| (iii) | purchases of materials | - | |
| (iv) | Less: cost of sales | | |
| (v) | To give a balance which is the estimated total of direct labour and direct material in the closing stock of raw materials, work-in-progress and finished goods | | |
| (vi) | Less: the value of direct labour and direct material in the stocks and work-in-progress <i>actually counted</i> and recorded on this year's stock sheets | | |
| (vii) | Overvaluation | £ | £ |
| | | | |

Such a statement would provide an analysis of the overvaluation between direct labour and direct materials, and the relationship between those two amounts could provide clues as to the possible causes of the error. Clearly if it were nearly all associated with direct material, one should investigate raw material controls. This might include, for example, stock handling and raw materials storage.

On the other hand it is likely that the proportion of total direct costs provided by direct labour will increase as the number of completed labour operations increases. If the overvaluation showed a high direct labour content the investigation might be concentrated in the workshops and finished goods areas.

3. *Suggest possible causes of the overvaluation of stock at direct costs only.*

There are a number of possible causes for the overvaluation

and it is not at all surprising that the actual stock valued at standard direct labour and material costs differs from the accountant's 'balancing' figure.

The more obvious of the possible causes for the actual stock value differing from the 'balancing' figure are associated with physical shortages of stock, e.g. pilferage, scrapped production and short deliveries to Binton.

However, the statement in guideline 2 is in terms of values and not quantities, and therefore one should look for monetary causes for the overvaluation as well as physical causes. Both purchases and wages costs could have differed from the standard cost which is being used to value the cost of sales, and if that were the case then part of the overvaluation of stock could have been attributable to material price and labour rate variances. Furthermore, operators are often paid for idle time, but paragraph 3 of the accountant's report implies that he treats all direct wage payments as generating exactly the same value of output.

Clearly such an assumption ignores payments to operators during idle periods, and outputs from operators at speeds which differ from the standard. Therefore two further causes for the accountant's balancing figure differing from the actual stock value are that the accountant had overlooked the need to adjust his 'balancing' figure by

- (a) the amount of payments for idle time; and
- (b) the amount by which the actual efficiency of labour varied from the standard efficiency used when preparing the standard costs, i.e. the costs at which closing stock was valued.

Note: The reasons suggested above for the overvaluation are deliberately incomplete, and the subject will be re-examined later.

PART II

1. *Are you now any more certain as to the cause of the stock overvaluation?*

In the case it mentions that the stock overvaluation was

mainly on labour content, and at this point one could usefully re-read the guidelines to problems 2 and 3 in Part I, where there are mentioned the areas on which to concentrate investigations in such circumstances.

In the actual incident on which this case study is based, the difference between the theoretical and actual stock positions was caused to an appreciable extent by an overpayment of bonus 'earnings' to employees who added handfuls of previous outputs stored in open bins (see Fig. 5.3) to their current outputs, and thus received a double count (or perhaps more) of the same production for bonus purposes.

2. Assume that Max Wellcome's recommendations for stock records and security and departmental operating statements (direct costs only), have been implemented.

- (i) State the sources of information from which the departmental operating statement could be prepared.*
- (ii) Draw a flow chart illustrating the flow of information necessary to enable stock records to be maintained, and the departmental operating statement to be produced.*

The Binton case study was designed to enable students to utilise their own experiences and researches when answering this problem. There are numerous possible 'answers', and what follows by way of our guidelines is just one of those possibilities; there are certainly others which could work equally well in practice.

(i) Sources of information for preparing departmental operating statements

Direct labour:

Input: Departmental payroll analysis from which the differences between actual and standard labour rates have been removed.

Output: Job cards on which good and rejected output have been entered by the inspection department. The job cards will have been issued by production control to workshop foremen, completed by the latter in respect of the time of starting and finishing jobs, and passed to inspectors for them to enter details of the quantity and quality of output.

Gain/loss: Scrapped production – from job cards. Idle time (analysed over causes) – from idle time cards issued by the foreman when operators, etc., are idle. Efficiency gains/other losses – this will often be a difference figure obtained from the following equation:

Input pay – holiday and sick pay – scrapped work (labour content) – idle time – indirect work by direct workers – actual output = labour efficiency/inefficiency.

A footnote could be appended to the operating statement showing the labour rate variance.

Direct materials:

Input: Material issues analysis priced at standard cost.

Output: See above, under 'Direct Labour: Output'.

Gain/loss: See above, under 'Direct Labour: Gain/loss' for both scrapped production and footnote. Efficiency gains or other losses from inefficiencies in the use of material would often be a derived figure.

Adjustments for changes in the size of opening and closing work-in-progress

When the output figure is taken from job cards, as has been suggested, the period in which a job has been completed will be given the benefit of the total output unless an adjustment is made to remove, for example, that part which was produced in a previous period. Therefore it is common to calculate more accurately the output for a period, and this will probably be done as follows:

From work completed in this period, first deduct the part thereof produced in the previous period, i.e. opening work-in-progress, then add the closing work-in-progress to give the output for the period.

The above calculation requires a valuation of work-in-progress and this can be undertaken in a number of ways, one of which is for accounts personnel to locate all unfinished jobs, ascertain their state of completion, and value each to the last completed operation. Such a procedure is best used in conjunction with a system providing job numbers for incom-

plete jobs, and one possibility is given below:

- (a) As a job is scheduled by production control it is given a number which is placed on all documents associated with that job, including job cards.
- (b) When a job is started the job number is given to the accounts department, which keeps a record of each job starting and finishing dates (they know the latter from the completed job cards which they process).
- (c) Accounts can establish by inspecting the job number records those jobs which have been started but not finished at the end of an accounting period, and it is those jobs which should be located in the production areas.¹

(ii) *Flow of information*

See Fig. G.2.

3. *What other statements would be required if Binton's factory costs are to be adequately controlled?*

When the new control system is installed at Binton there will be a monthly departmental operating statement and supporting schedules providing reasons why the standard cost of production and the actual cost of production differed in respect of direct costs. An assessment of the further statements or reports which will be required in order adequately to control factory costs must incorporate two major points:

(a) *Control of overheads*

Overhead costs, as well as direct costs, are capable of control, and Table 5.1 in the case study indicates that factory overhead costs were considerable and a high percentage of direct costs.

(b) *Proper timing of reports*

A rather different and much more fundamental point is that control information is not very useful unless it is received quickly enough for remedial action to take place.

In the case of Binton the size and reason for gains and losses at present reported monthly should be reported much sooner to those who can take corrective action. It is suggested that

¹ These numbers can be cross-checked with production control records as part of a control procedure.

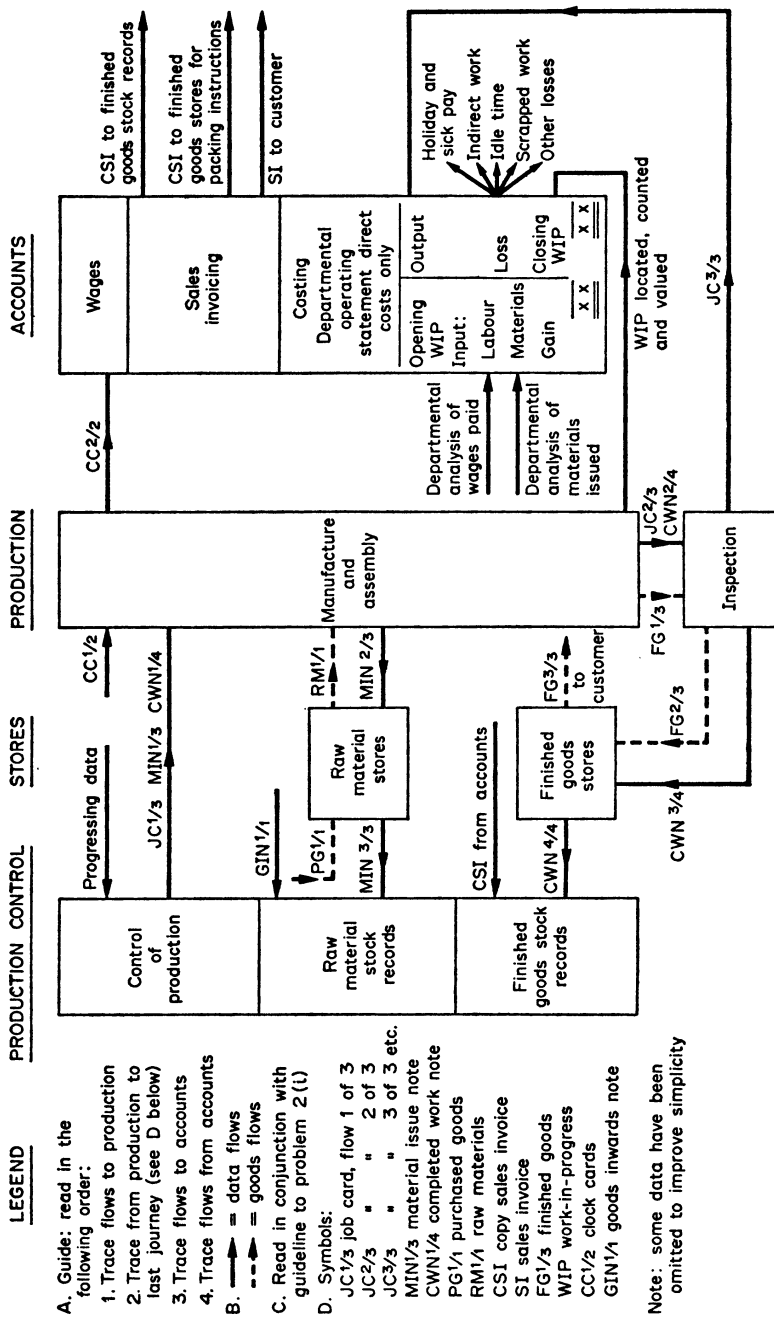


Fig. G.2. Binton Manufacturing Ltd: stores records and operating control data flow

departmental managers should receive the departmental operating statement weekly rather than monthly.

Additionally, foremen could beneficially use daily information in respect of idle time and output efficiency ratings of direct labour. It is also probable that a system incorporating the immediate scrutiny of idle time cards, and their dispatch to the official who has the facility for putting a stop to the idle time, will be well rewarded.

Students who have applied themselves diligently to the problems in this case and compared their answers with the guidelines will have obtained a good deal of information about the detailed workings of a smaller-sized engineering company. It is possible that enough interest has been generated to examine some of the non-accounting and control aspects of such a company. Possible discussion topics could embrace:

The marketing effort by Binton, and how a company such as Binton organises its marketing function.

Suggestions for making greater use of the first-floor production area at Binton.

Centralised decision and communication problems in a diversified group of manufacturing companies.

APPLICATION OF COST CONTROL SYSTEMS

1. *What further general information would Barry need to collect and what are the main points which he is likely to raise in his report?*

Barry would first of all try to ascertain the cause of the fall in return to equity during the past year. He would also test the validity of the figures used in order to ensure that they gave a reliable indication of the true return to equity. A critical scrutiny of manufacturing and trading results for the past few years would be undertaken, and particular attention would be paid to costing methods and valuations of stocks. Has there, for example, been any change in the method of valuation of work-in-progress?

The fall in the rate of return may be traced to increasing costs, under-utilisation of capacity (arising from failure to maintain or expand sales), a fall in sale price, or a combination

of these causes. This would lead to inquiry into such things as methods of control, wage payments systems, budgeting and forward planning.

From what has been said it appears that there is no formal system of budgetary control, and Barry would no doubt draw particular attention in his report, to the limitations for control purposes of the existing cost analysis. He would emphasise the need for the planning of production, sales and finance and the involvement of staff at all levels: the need for ready access to up-to-date figures of costs and speedy reporting of variances from planned expenditures and from planned capacity utilisation – in short a fairly comprehensive system of budgetary control including activity, expenditure and other variances, reports being submitted at various levels – section cost centres, budget centres, works management and top management – as appropriate.

2. How would you explain the nature of the explicit and implicit variances in Table 6.1, and what are the limitations to this sort of presentation?

Table 6.1 shows the differences between the actual and the budgeted expenditures for the different categories of cost. But management should naturally expect to know the reasons for the difference between actual expenditure (£2,420) and the value of production at the budgeted rate of £3.75 per standard hour (£1,350), that is £1,070.

Given the limitations of Table 6.1, it can be explained that there is a variance due to the achievement of only 360 units (standard hours) instead of the planned output of 720 units (standard hours), i.e.

Variance due to loss of output = $(720 - 360) \times £3.75 = £1,350$ (unfavourable). The total variance can then be shown to be:

| | |
|----------------------|----------------------------|
| Volume variance | |
| (as above) | = £1,350 (unfavourable) |
| Expenditure variance | |
| (as in Table 6.1) | = <u>£280</u> (favourable) |
| Total variance | = £1,070 (unfavourable) |

The shortcoming of this fixed budget type of analysis is that

it fails to take account of the variability of costs at different levels of output. This shortcoming is illustrated by the following very simple example, assuming budgeted fully variable costs £200, fixed costs £100, budgeted output 100 (standard hours), actual output being 50 (standard hours) and variable cost £95 and fixed costs £100. Using the method of analysis already discussed, the expenditure variances and the volume variances are:

| <i>Expenditure variance</i> | <i>Fixed budget</i> | <i>Actual</i> | <i>Variance</i> |
|-----------------------------|---------------------|---------------|-----------------|
| | £ | £ | £ |
| Variable costs | 200 | 95 | 105 Fav. |
| Fixed costs | 100 | 100 | nil |

Volume variance
 = (100 – 50) standard hours × £3 = (£150) Adv.
 Total variance = (£45) Adv.

Clearly it is invalid to compare variable expenses budgeted for 100 units with those for 50 units and to treat this as an *expenditure* variance. A much more useful approach is to adjust (flex) the budget in accordance with the level of output, i.e. introduce a flexible budget. Thus a flexed budget for 50 units would give the following results:

| | <i>Flexed budget</i> | <i>Actual</i> | <i>Expenditure variance</i> |
|----------------|----------------------|---------------|-----------------------------|
| | £ | £ | £ |
| Variable costs | 100 | 95 | 5 Fav. |
| Fixed costs | 100 | 100 | nil |

Volume variance
 (100 – 50) standard hours × £1, i.e. $\frac{£100 \text{ fixed costs}}{100 \text{ standard hours}}$
 = (£50) Adv.
 Total variance = (£45) Adv.

The true position is that the failure to produce 100 units *in itself* gives rise to no unfavourable variance of variable costs, always assuming that cost per unit is as budgeted. The production of 50 instead of 100, assuming the variable cost per unit

(£2) is maintained, gives a total expected variable cost of £100. In fact the actual cost is £95, so that there is a saving (expenditure variance) of £5.

But the production of 50 instead of 100 does mean a failure to recover some fixed costs, which, at £1 a unit ($£100 \div 100$ units), can only be recovered if output reaches the budgeted 100 units. The true volume variance is therefore £50 (adverse) and the true expenditure variance £5 (favourable).

3. Using such figures as you require from the previous tables, draw up a further table showing the flexed budgeted expenditure figures for the budget period, comparing them with the actual costs for each category of expense, and set out the individual expenditure variances and overall net expenditure variance. How could Barry explain the meaning of this latter variance to Mr Brunel?

The table could be similar to the following:

| | Original budget £ | Flexed budget | | | Actual £ | Expenditure variance £ |
|---|----------------------|---------------|---------------------|---------------|---------------|---------------------------|
| | | Base | Rate | Hours | | |
| | | | £ | £ | | |
| Incentive wage payments, operating supplies, inspection, etc. | 360 | V.A. | $0.50 \times 450 =$ | 225 | 225 | — |
| Power, etc. | 540 | V.O. | $0.75 \times 560 =$ | 420 | 400 | 20 |
| Lighting, basic wage payments, etc. | 180 | V.S. | $0.25 \times 600 =$ | 150 | 125 | 25 |
| Rent, etc. | 1,620 | F | $2.25 \times 720 =$ | 1,620 | 1,670 | (50) |
| | | | | <u>£2,415</u> | <u>£2,420</u> | <u>£ (5) Adv.</u> |

(Alternatively you may have worked in clock hours rather than in equivalent standard hours of output, in which case your table may have been similar to that above except that the

flexed budget figures would be calculated by dividing the original budgeted cost by the original budget clock hours (rather than standard hours of production) and multiplying by the actual hours; e.g. the flexed budget cost for incentive wages, etc., would be: $\frac{\pounds 360}{800} \times 500 \text{ hrs} = \pounds 225$, and the flexed budget cost for power, etc., would be $\frac{\pounds 540}{900} \times 700 \text{ hrs} = \pounds 420$.

Barry would explain that, given the changed output, actual cost should not be compared with the original fixed budget (as in Table 6.1). For if output is well down, it is only to be expected that expenditure should be down, and a comparison of actual expenditure with the original budget will in these circumstances almost certainly show a favourable variance, but one which is not very meaningful. It is far more informative to compare actual expenditure with the budgeted figures *as adjusted* for the achieved level of output, i.e. with the flexed budget. Thus, for example, whereas the Table 6.1 analysis suggests that there have been economies in incentive wage payments, etc., the flexed budget compares the actual expenditure with that appropriate to an output not much over half of the fixed budget (450 total standard hours compared with the 720 budgeted). This shows that far from there being economies in incentive wage payments, etc., costs have been as expected for the output level achieved.

4. *How could Barry best explain the meaning of this last variance of £1,065?*

It is the variance arising from the failure to achieve the budgeted level of output, i.e. the volume variance arising from achieving only 360 standard hours instead of 720. The *cause* of the lost hours is analysed in Tables 6.4 and 6.5 along with their effect on different types of expenditure. Alternatively, the manner in which the lost standard hours affect the recovery of rent, lighting, power, etc., is illustrated in Table 6.6.

5. *Consider whether it would be feasible to express the variances from budget in terms of actual hours rather than standard hours.*

There are one or two possibilities. The first thing to do is to

calculate the appropriate percentage allowances for underuse of capacity, for unproductive time and inefficiency, etc. Using the same figures as in the basic example, a table can be drawn up as follows:

| | <i>Original budgeted hours</i> | <i>Allowances</i> | <i>% Allowances (based on the reduced hours*)</i> |
|---------------------------------|--|-------------------|---|
| Planned capacity | 1,200 | | |
| | ↑ | 240 | 25.0 (Capacity) |
| Attendance hours | 960 | | |
| | ↑ | 60 | 6.67 (Unproductive time) |
| Operating hours | 900 | | |
| | ↑ | 100 | 12.5 (Efficiency) |
| Allowed hours | 800 | | |
| | ↑ | 80 | 11.1 (Rework) |
| Standard hours of production | 720 | | |

* The percentage has been applied to the reduced hours because Barry, when building up his budgeted hours, started with the small figure, i.e. budgeted standard hours of production, and worked towards the budgeted planned capacity, as was previously explained.

These percentage allowances can then be applied to the actual hours (see Table 6.3) to find the variances, as follows:

| | <i>Actual hours</i> | <i>Actual difference</i> | <i>% Allowances on reduced hours</i> | <i>Difference hours allowed</i> | <i>Variances (all unfavourable)</i> |
|----------------------------|-------------------------|------------------------------|--|---|---|
| Planned capacity | 1,200 | | | | |
| | ↑ | 400 | 25.0 | 200 | 200 |
| Attendance hours | 800 | | | | |
| | ↑ | 100 | 6.67 | 47 | 53 |
| Operating hours | 700 | | | | |
| | ↑ | 200 | 12.5 | 63 | 137 |
| Allowed hours | 500 | | | | |
| | ↑ | 140 | 11.1 | 40 | 100 |
| Standard hours produced | 360 | | | | |

The various rates per hour are found by dividing the budgeted levels of expense by the budgeted hours as follows:

| | | |
|-------------------------------|---------------------------------|----------------|
| <u>F</u> | <u>£1,620</u> | <u>= £1.35</u> |
| Planned capacity hours | 1,200 | |
| <u>F + V.S.</u> | <u>£1,620 + 180</u> | <u>= £1.88</u> |
| Attendance hours | 960 | |
| <u>F + V.S. + V.O.</u> | <u>£1,620 + 180 + 540</u> | <u>= £2.60</u> |
| Operating hours | 900 | |
| <u>F + V.S. + V.O. + V.A.</u> | <u>£1,620 + 180 + 540 + 360</u> | <u>= £3.38</u> |
| Allowed hours | 800 | |

The cost of the activity variances is then found as follows:

| | <i>Hours lost</i> | | <i>Rates (as above)</i> | | £ |
|---------------------------------|-----------------------|---|-----------------------------|---|--------|
| Capacity | 200 | × | 1.35 | = | 270 |
| Unproductive time | 53 | × | 1.88 | = | 100 |
| Efficiency | 137 | × | 2.60 | = | 357 |
| Rework | 100 | × | 3.38 | = | 338 |
| Total adverse activity variance | | | | | £1,065 |

6. *Outline the main procedures which Barry would have to introduce, briefly explaining the reason for their introduction.*

There would be no point in introducing a system which assisted in the tracing of the causes of variances between the budgeted cost of production, the cost recovered, and the actual cost, unless those in control (a) took a responsible part in the preparation of budgets, (b) were speedily informed of variances from the budget within their area of control, and (c) were required to explain the reasons for the variances for which they are responsible.

In addition, therefore, to the participation in the planning of levels of activity and expenditure for incorporation into the production budget, those responsible at different levels would receive reports, and would be required to submit reports on activity and expenditure variances. The extent of the reports can be indicated as shown in the table opposite.

| In respect of: | <i>Sections</i> | <i>Cost centres</i> | <i>Budget centres</i> | <i>Works and top management</i> |
|-------------------------------------|---|--|--|---------------------------------|
| ACTIVITY EFFICIENCY REPORTING | Weekly performance reports for: operator/team/section | Weekly reports with monthly summaries of: hours, efficiencies, costs, time, etc., for each cost centre, e.g. the machine shops: grinding, turning, machining, etc. | Monthly summary reports of machine shops and assembly | Monthly company summary |
| EXPENSE REPORTING | - | - | Monthly reports by expenses for various budget centres, including manufacturing (including plant maintenance, machine shop, assembly, etc.) and general works services (including operations administration, stores, shipping, etc.) | Monthly company summary |

Examination Questions

The following questions have been taken from various examination papers and we gratefully acknowledge permission to publish granted by:

The Association of Certified and Corporate Accountants
(A.C.C.A.)

The Chartered Institute of Secretaries (C.I.S.)

The Institute of Chartered Accountants (I.C.A.)

The Institute of Cost and Works Accountants (I.C.W.A.)

1. Comment on the ratios of profit to capital employed and profit to sales as measures of profitability. (H.N.D.)

2. Explain fully how the technique known as 'flexible budgeting' may be used by a manufacturing concern for the control of expense. (I.C.A.)

3. Discuss the nature, scope and purposes of budgetary control, making appropriate references in your answer to (a) organisation structure; (b) the planning and control functions of management; and (c) the principle of management by exception. (A.C.C.A.)

4. Discuss briefly the relevance of accounting ratios and the conclusions which may be drawn therefrom, noting any shortcomings which may arise from their application in practice. Illustrate your answer by defining what you consider to be four principal ratios in terms of practical value and give details of their usual constituents. (A.C.C.A.)

5. A company owns a large number of retail hardware stores located throughout the country. In one provincial town there are two stores; the accounts of one show a modest profit, but the other reports a loss as shown by the accounts for the year 19... :

| | | |
|--------------------------------|--------|---------------|
| Sales | £ | £ |
| | | 40,000 |
| Cost of goods sold: | | |
| Stock at 1 January 19.. | 6,500 | |
| Purchases | 33,200 | |
| | <hr/> | |
| | 39,700 | |
| Less Stock at 31 December 19.. | 6,900 | |
| | <hr/> | |
| | | 32,800 |
| | | <hr/> |
| | | 7,200 |
| Gross margin | | |
| Expenses | | |
| Assistants' wages | 5,500 | |
| Driver's wages | 360 | |
| Manager's salary | 800 | |
| Staff bonus | 400 | |
| Rent | 1,300 | |
| Heating and lighting | 200 | |
| Postage and telephone | 130 | |
| Wrapping materials | 200 | |
| National advertising | 400 | |
| Motor running expenses | 160 | |
| Depreciation on motor-van | 100 | |
| Regional office charge | 300 | |
| | <hr/> | |
| | | 9,850 |
| | | <hr/> |
| Loss for year | | <u>£2,650</u> |

You are given the following information:

- (1) There is one motor-van and driver for the delivery of goods to customers of the two stores. The total costs of this service are apportioned between the stores on the basis of turnover.
- (2) The manager is responsible for both the stores; his salary of £1,600 is allocated equally between them.
- (3) The staff bonus is calculated for each store as a percentage on its turnover.
- (4) The charge for national advertising is allocated to stores by head office.

Prepare a report explaining:

- (a) the financial implications for the company of closing this store;

(b) your opinions as to the advisability of closing the store on the assumption that at least 20 per cent of its turnover will thereby be gained by the remaining store without its taking on additional staff.

State any assumptions made in reaching your conclusions and any other matters that should be investigated before a final decision is taken. Ignore taxation. (I.C.A.)

6. A company draws up the standard cost of a product as follows:

| | P | P |
|---------------------|-----|----------------------------|
| Direct materials | | 120 |
| Direct wages: | | |
| Dept. A 3 hours | 150 | |
| Dept. B 2 hours | 120 | |
| Dept. C 5 hours | 200 | |
| | — | 470 |
| Factory overheads: | | |
| Dept. A | 180 | |
| Dept. B | 180 | |
| Dept. C | 400 | |
| | — | 760 |
| | | <hr style="width: 100%;"/> |
| Factory cost | | 1,350 |
| Administration cost | | 120 |
| Selling cost | | 150 |
| Distribution cost | | 180 |
| | | <hr style="width: 100%;"/> |
| Total cost | | 1,800 |
| Net profit | | 200 |
| | | <hr style="width: 100%;"/> |
| Selling price | | <u>2,000</u> |

Factory overheads are absorbed by means of departmental hour rates. Analysis of these overheads reveals that in each department a rate of 20p per hour is required to absorb the variable portion, the balance being of a fixed nature. As a general rule all production is of first-class quality.

After a batch of 1,000 units has been processed through all three departments inspection reveals that half are faulty. The faulty products can be rectified by completely re-processing through departments B and C. Alternatively, they can be sold for £12 each.

Present figures which will indicate to management the most economic method of dealing with the faulty products.

(I.C.W.A.)

7. Precision Instruments Ltd is a small company which has built up a reputation for excellent workmanship in the manufacture of ultra-sensitive instruments used in space research. Its 15 employees are highly skilled engineers who assemble the instruments by hand and, using precision equipment, produce most of the components, although some are bought in. The engineers work a 36-hour week for which they are paid £27. It is the company policy not to work overtime owing to the highly skilled nature of the work, and it is not practicable in the short term to increase the labour force.

Two orders have recently been received, each of which would absorb the whole of the company's resources for ten weeks; only one can be accepted.

Cost estimates for the orders in question are as follows:

| | <i>Order No. 84</i> | <i>Order No. 88</i> |
|----------|---------------------|---------------------|
| Material | £50 | £23 |
| Labour | £18 | £39 |

The prices the customers are prepared to pay are £96 per instrument for Order No. 84 and £110 per instrument for Order No. 88.

The company's overhead runs at £270 per week and this is absorbed into product costs on a direct labour hour basis.

You are required to calculate in respect of each order:

(a) the unit total cost and profit, and

(b) the profit/sales percentage,

and advise the company which order to accept, giving your reasons.

(A.C.C.A.)

8. A decision has to be taken relating to the possible introduction of a new product. There are three basic design versions of this product, aimed at different sections of the consumer market. The relevant figures are shown overleaf.

| | <i>Model I</i> | <i>Model II</i> | <i>Model III</i> |
|---|----------------|-----------------|------------------|
| | P | P | P |
| Variable cost (per unit): | | | |
| Materials | 154 | 122 | 86 |
| Labour | 106 | 95 | 58 |
| Variable overheads | 40 | 33 | 31 |
| | <u>300</u> | <u>250</u> | <u>175</u> |
| Selling price per unit | <u>425</u> | <u>350</u> | <u>250</u> |
| Expected sales volume per month (units) | 800 | 2,000 | 4,000 |
| Capital expenditure necessary before production can commence (financed by bank overdraft at 9 per cent per annum) | £5,500 | £20,000 | £26,500 |
| Fixed overheads per month attributable to new models, including depreciation on capital, but excluding interest | £280 | £850 | £1,100 |

You are required to prepare:

- a schedule of relative profitability showing for each model the figures making up expected total cost per unit, the expected net profit per unit, and the percentage of net profit to selling price at the expected sales volume;
- a graph of net profit (or loss) against sales, for Model II only, showing the effect on net profit (or loss) as sales rise from nil to the expected level of 2,000 units per month. Ignore taxation. (I.C.A.)

9. The following information relates to three products, A, B and C, each of which has the same selling price and the same potential level of sales but only one of which can be included in the next period's budget. Present this information in a suitable graphical form and comment on it in respect of the particular problem under consideration.

| | A | B | C |
|-------------------------|--------|--------|--------|
| Selling price | £1 | £1 | £1 |
| Profit/volume ratio | 20% | 15% | 10% |
| Fixed costs | £9,500 | £6,000 | £3,750 |
| Estimated sales (units) | 60,000 | 60,000 | 60,000 |

(A.C.C.A.)

10. W.C.H. Ltd manufactures a standard product by a certain process (Process X). The directors are now considering the adoption of an alternative process (Process Y) which will require new machinery and more expensive material but will save labour costs.

You are given the following information:

| | Process X | Process Y |
|--|-----------|-------------|
| | £ | £ |
| <i>Machinery</i> : original cost (actual or estimated) | 47,000 | 75,000 |
| | (actual) | (estimated) |
| Current book value | 41,000 | — |
| Saleable value now if abandoned | 18,000 | — |
| <i>Material cost</i> per unit of product | 12 | 14 |
| <i>Direct labour cost</i> per unit of product | 20 | 13 |

It is expected that a further 12,000 units of product can be made and sold before the market is exhausted in four years' time. At that date, the saleable value of the machinery (which will not be required for further use inside the business, whichever process is used) is expected to be:

Process X machinery, £10,000

Process Y machinery, £16,000

A stock of material for Process X, enough to make 1,000 units of product, costing £12,000, is now held in stock. It could be sold now for £3,000.

Overhead expenses (other than depreciation and interest on capital) will be £5,000 a year, whichever process is used.

You are required:

- (i) to prepare a statement, based on the above data and excluding any other considerations, showing the calculations by which a decision between the alternative process (X and Y) can be reached, ignoring interest on capital; and
 - (ii) to state how the decision might be affected by taking interest on capital into account.
- (C.I.S.)

11. The table set out below shows the accounting ratios of a light engineering firm for two years. These ratios are based on the actual figures extracted from the firm's books. The book value of the operating assets has been approximately the same for the two years, and product prices have remained unchanged.

| RATIOS | <i>Last Year</i> | <i>This Year</i> |
|---|------------------|------------------|
| Return on assets: | | |
| 1. Operating profit/Operating assets (%) | 8.7 | 10.8 |
| Profit margin on sales and turnover of assets: | | |
| 2. Operating profit/Sales (%) | 8.9 | 10.7 |
| 3. Sales/Operating assets (times per year) | 0.97 | 1.01 |
| Departmental costs (as a percentage of sales): | | |
| 4. Production cost of sales | 77.4 | 75.4 |
| 5. Distribution and marketing costs | 4.6 | 4.9 |
| 6. General and administrative costs | 9.1 | 8.0 |
| Production costs (as a percentage of sales value of production): | | |
| 7. Material costs | 34.7 | 33.1 |
| 8. Works labour costs | 27.4 | 26.8 |
| 9. Other production costs | 15.3 | 15.5 |
| General asset utilisation (£ per £1,000 of sales): | | |
| 3a. Operating assets | 1,031 | 990 |
| 10. Current assets | 582 | 549 |
| 11. Fixed assets | 449 | 441 |
| Current asset utilisation (£ per £1,000 of sales): | | |
| 12. Material stocks | 101 | 100 |
| 13. Work-in-progress | 215 | 188 |
| 14. Finished stocks | 53 | 44 |
| 15. Debtors | 213 | 217 |
| Fixed asset utilisation (£ per £1,000 of sales): | | |
| 16. Land and buildings | 206 | 201 |
| 17. Plant, machinery and works equipment | 237 | 233 |
| 18. Vehicles | 6 | 7 |

- (a) Comment briefly on the changes revealed by these ratios for the past year and discuss the limitations of such figures for purposes of assessing the progress of the firm.
- (b) What sort of adjustments might be necessary to the book figures if the firm were to submit ratios as part of a scheme for an interfirm comparison, and what advantages might be derived from participating in such a scheme?
- (I.C.A. Polytechnic paper)

12. (i) Explain what is meant by budgetary control and point out why it is usually desirable that flexible budgets be prepared.

(ii) Criticise the analysis of variances in the following examples and suggest a more useful approach, illustrating your point with figures:

Budget Data for Budget Centre (1 month)

| | |
|----------------------------|--------|
| Standard hours | 1,000 |
| Budgeted fixed overhead | £1,000 |
| Budgeted variable overhead | £1,000 |

Period Information

| | |
|--------------------------------------|--------|
| Standard hours for actual production | 800 |
| Actual hours worked | 790 |
| Actual overhead incurred | £1,900 |

$$\text{Overhead variance} = £1,900 - (800 \times £2) = \underline{\underline{(\pounds 300)}}$$

$$\text{Volume variance } (1,000 - 790) \times £2 = (\pounds 420)$$

$$\text{Cost variance } £2,000 - £1,900 = £100$$

$$\text{Efficiency variance } (800 - 790) \times £2 = 20$$

$$\text{—————} = (\pounds 300)$$

(I.C.A. Polytechnic paper)

13. The machine shop of a factory using flexible budgetary control has a budget for April 19.. of:

| | |
|------------------------|--------|
| Budgeted machine hours | 10,000 |
|------------------------|--------|

| | |
|----------------------------|-------|
| Budgeted overheads: | £ |
| Variable with machine time | 6,000 |
| Variable with output | 4,000 |
| Fixed | 5,000 |

| | |
|-------------------------|--------|
| Machine hours worked | 9,500 |
| Standard hours produced | 10,200 |

| | |
|-----------------------------|-------|
| Variable overheads varying: | £ |
| with machine time | 6,400 |
| with output | 4,300 |
| fixed overheads | 5,200 |

Present the above details on a statement for works management, analysing the variances which have arisen. (I.C.W.A.)

14. The standard profit per unit of Product A is £0.0625 as follows:

| | | |
|--|--------|-------------|
| Standard selling price | £ | £ |
| Standard cost: | | 0.3 |
| Material: 1 lb. of A at £0.125 per lb. | 0.125 | |
| Labour: 5 minutes at £0.60 per hour | 0.05 | |
| Variable expenses | 0.0125 | |
| Fixed expenses (absorption rate) | 0.05 | |
| | <hr/> | 0.2375 |
| Standard profit | | <hr/> <hr/> |
| | | 0.0625 |
| | | <hr/> <hr/> |

Note: Fixed expenses have been absorbed on the basis of budgeted annual expenditure of £120,000 and budgeted annual output of 2,400,000 units. The year is divided into twelve equal periods and production is expected to be carried on evenly throughout the year.

By the end of period three 520,000 units had been produced and sold, but instead of showing a profit of £32,500 the actual profit was only £23,000 as follows:

| | | |
|--|--------|-------------|
| Sales (520,000 × £0.2875) | £ | £ |
| Material: 520,000 lb. of A at £0.125 per lb. | 65,000 | 149,500 |
| Labour: 48,000 hours at £0.625 per hour | 30,000 | |
| Variable expenses | 6,000 | |
| Fixed expenses | 25,500 | |
| | <hr/> | 126,500 |
| | | <hr/> |
| | | £ 23,000 |
| | | <hr/> <hr/> |

'Work to rule' action was taken by employees in period three and productivity was affected. Although budgeted hours were worked, output and sales in that period were only 75 per cent of budget.

You are required to:

- (a) Prepare a fixed and flexible budget for the three-monthly period covered by the data given above; and**
- (b) Compose a variance statement to reconcile the actual profit made to the profit shown in your fixed budget and the profit figure of £32,500 quoted in the question. (Separate the effect of normal inefficiency from that of the 'work to rule' action.)** (A.C.C.A.)

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