

# Instructors' Guide to Case Studies

## Contents

### Part 1

|  |   |
|--|---|
| 101 – The European Savings Bank        | 3 |
| 102 – The ethical dilemma at Northlake | 6 |
| 103 – Electronic Boards plc            | 7 |

### Part 2

|                               |    |
|-------------------------------|----|
| 201 – Permaclean Products plc | 11 |
| 202 – The Good Night Motel    | 14 |

### Part 3

|                        |    |
|------------------------|----|
| 301 – Zeros plc        | 17 |
| 302 – Instrumental Ltd | 22 |

### Part 4

|               |    |
|---------------|----|
| 401 – BBR plc | 27 |
|---------------|----|

### Part 5

|  |    |
|--|----|
| 501 – High-Tech Limited                                | 32 |
| 502 – Tanner Pharmaceuticals and the price of new drug | 37 |
| 503 – Osram  | 39 |

**PART I**

**Management and cost accounting fundamentals**

## CASE 101

# The European Savings Bank

This case provides a unique vehicle for covering the legal issues and raising the ethical awareness of students with regard to software piracy. The case allows students to apply ethical reasoning in a legal framework with which students may not be completely familiar, but of which they are aware. This is especially appropriate with today's increased copyright awareness, with cases such as Napster taking over the news headlines.

The software case can also be used to discuss other ethical issues, such as unethical behaviour. The motivations include a compulsion to win, a fear about economic uncertainty and/or the future and self-esteem. If an act is legal, does that make it ethical? Conversely, if an act is ethical, should it be legal? Since software piracy behaviour is so prevalent despite its illegality, it is particularly suited to this issue. The various issues related to copying software provide robust discussions in the classroom. Before presenting the case, it is helpful to present an overview of the legal issues related to software piracy. This will allow students to have an adequate background for the case discussion and will also highlight the variation in the rights granted to the licensees of different software packages. A comparison of the laws and the licensing agreements points out how difficult it is always to adhere to legal constraints and introduces areas where ethical judgement enters the process.

## Software piracy

### *Legal issues*

The laws regarding copying software were not clear for many years. This changed when the US copyright protection for computer software altered. Software became a literary work subject to copyright protection. Software is typically licensed rather than sold in an effort to control software piracy. Under the typical licensing agreement, the software is shrink wrapped with the agreement on the front – by opening the shrink-wrap, the end user automatically agrees to the details of the copyright agreement.

### *Ethical aspects*

Ethical behaviour considers the impact of our actions on others and society as a whole. Software piracy differs from other ethical issues because it is so widespread and prevalent in today's society. The question, 'If everyone does it, then surely it's OK?' arises and this is further exacerbated by the muddle with technology: copyright regarding printed matter is fairly easy – only one person can read a book at any one time; with software, the issue becomes muddled – one person can use the same software on different computers in exactly the same way and if that person uses it on only one computer at a time, is it piracy?

### **Discussion of roles**

To facilitate the use of the case, each role is discussed separately.

#### **Nick Stringham**

The major reason for including Nick in the case is to force the students to identify the creation of software with a particular individual (i.e. to personalise the issue). By attaching the issue to a person, rather than just considering the large software vendor, students recognise that an individual has invested considerable time and money in the creation of the software. Nick's fundamental concern or issue in the case is the fact that the software he has created *is* being stolen. One topic that can be discussed is what, if anything, he can do about his software being pirated. His actions may be limited because he has agreed to have Data Sources, SA, market his software.

#### **Shelly Norduck**

Shelly, as the representative of the software vendor, is mainly concerned with what to do about the software piracy. Some people have argued that companies should encourage software piracy because anyone who uses it will subsequently want to purchase the package – this is a typical ploy of freeware companies. Some options are reinstating copy protection, registration, encouraging whistle-blowing through incentives, hardware or software key and embedded user name and these are a useful starting point for discussion.

#### **Joe Fordham**

Joe is the individual in this case who faces the largest dilemma: what decision is he going to make regarding the software? He believes that the bank would benefit from a wider use of Loan Net, but he is unsure how to proceed. One of the grey areas often identified in the issue of software piracy occurs with work on multiple machines. As discussed before, would the use of multiple copies be a breach of the agreement? Sometimes it is the case that the agreement is unclear thereby adding to the confusion. The discussion of Joe's dilemma should also include other possible courses of action. One alternative is for Joe to talk to Judy Wardley and support his case for purchasing more copies of the software. In addition, Joe should read the actual licensing agreement and talk to the software company to determine what right he has to make extra copies.

#### **Judy Wardley**

Many companies will spend large amounts of money to collect data, but put that same data at risk by using pirated software that is undocumented, unsupported and typically lacking in access to updates. One suggestion usually made by one of the students is that the bank examines the possibility of a site licence. A site licence gives the purchaser the right to use the software on various computers located within a specific area. This is very typical of academic institutions, where IT-purchasing departments obtain licences to cover the whole organisation. Another important part of this discussion is Judy's role as a representative of the company. The group can discuss the costs and merits of establishing a clear policy regarding the copying of software.

### **Dave Saunders**

Software piracy has become so prevalent that some argue it has almost become socially acceptable, despite the fact that it is illegal behaviour. Dave, as CEO of the bank, should recognise the potential costs that software piracy can cause his company. The other serious issue facing Dave is the ethical tone established by top management. One area that Dave should have responsibility for is maintaining a policy on ethical behaviour, including software piracy. How should managers respond when they become aware of unethical or illegal behaviour? This issue can give rise to discussions relating to the actions of those in top management as well as their proposed policies.

### **Society**

Some people argue that unauthorised copying of software has a cost to society while others, following the 'hacker ethic', would argue that piracy results in the free sharing of information. Those who adhere to the hacker ethic argue that all software should be in the public domain, since this encourages the free flow of information. They argue that this will result in a greater benefit to society as a whole since more learning and growth will occur. Software is copyrighted to protect the intellectual rights of the developers. The underlying rationale for copyrights is that they will foster the sharing and growth of knowledge. If copyrights are not observed, the potential developer may well choose to work in another area.

## CASE 102

### The ethical dilemma at Northlake

The case assumes no technical knowledge of management accounting. It is aimed at introducing ‘ethical’ questions, which accountants often face. The following could be useful in guiding class discussion:

- Can professional ‘Standards of Ethical Conduct’ for management accountants help resolve the dilemma? (These could include ‘professional pillars’ such as Competence, Confidentiality, Objectivity and Integrity, established by the Institute of Management Accountants in the United States of America.)
- Is a ‘Hippocratic Oath’ appropriate for the management accounting professional?
- There are no ‘SSAPs’ in management accounting. Should matters of ethics be universally prescribed to management accountants?
- Is ‘whistle-blowing’ justified in this case? Should Frank obtain more accounting facts? What should he do?
- Responses of Canadian management accountants to the dilemma are given in the table below. You may wish to compare these with your students’ reactions.

| Level of management                                 | Junior | Middle | Senior |
|---|--------|--------|--------|
| <b>1. Sources of counsel regarding the dilemma:</b> |        |        |        |
| Him/herself   | 9%     | 9%     | 11%    |
| Family  | 30%    | 24%    | 24%    |
| Friends   | 6%     | 5%     | 7%     |
| Legal   | 23%    | 32%    | 27%    |
| SMA   | 25%    | 24%    | 30%    |
| Other   | 8%     | 5%     | 2%     |
| <b>2. The (professional) Society’s role:</b>        |        |        |        |
| Advice  | 48%    | 53%    | 50%    |
| Employment  | 22%    | 36%    | 33%    |
| Financial help                                      | 16%    | 9%     | 8%     |
| Other   | 12%    | 1%     | 5%     |
| Nothing   | 2%     | 1%     | 4%     |

## CASE 103

# Electronic Boards plc

This is a general case on the design of a management accounting system for a firm operating in a competitive 'high-tech' environment. It provides an opportunity for a broad discussion not only of the appropriateness of particular management accounting techniques, but also of the need to consider behavioural and organisational factors in the design of a management accounting system.

### Use of the case

There are two possible uses for this case:

- (i) At an introductory stage in management accounting, where it can be used to illustrate the basics of management accounting and the role it can play within the firm
- (ii) At the latter stage of a management accounting course, where students may apply their knowledge and consider the appropriateness of various practices in the situation described.

The case has been used with excellent results as a prelude to teaching activity-based costing/management in that it captures the tensions between simplistic costing versus complex operational elements.

It has helped stimulate argument and discussion of the case to split students into several groups of 'managerial consultants' and have each present their proposals (and justify them) to another group representing the 'Board'.

### Teaching notes

#### ***Behavioural/organisational factors***

1. There is the need to obtain the commitment and cooperation of all of the company directors to the creation of the system. The successful development of a management accounting system will be dependent upon the willingness of many non-accountants in the company to provide information (e.g. for budgeting) and to make their information needs known (e.g. for decision making) to the management accountants.
2. The organisational role of management accounting must be clarified. For example, most companies of this size will have a finance director with a responsibility for the total accounting function and for providing financial interpretation and advice to the Board. Such an appointment would help give credibility and authority to the new management accounting function in the company.

3. The placing of management accountants within the firm will be an important factor in determining their effectiveness. In a high-tech environment, it is especially important that they have a good knowledge of the product, business and market. Rather than be set up as an isolated service function, it may be possible to integrate them as part of the operational business team. In this way, a familiarity with operational factors is achieved and a responsiveness to managerial needs fostered.
4. The question of the type and background of new staff also requires attention. Given the lack of accounting expertise in Electronic Boards plc, the appointment of, say, newly qualified staff requiring in-house training appears inappropriate. Consequently, more experienced staff, perhaps from competitor firms, would provide the best possibility of effectively running and amending a new management accounting system.

### **Technical factors**

Given the present poverty of management accounting within the firm, virtually all aspects of management accounting could be discussed. From the case data, however, certain issues are worthy of emphasis.

- a. Costing system: the establishment of an actual costing system would be important to the company for a number of reasons:
  - to ensure the preparation of more accurate profit statements (through more accurate stock revaluation);
  - to judge the profitability of the work being obtained by the company;
  - to assess the appropriateness of price quotations;
  - to build up a data bank of batch costs for future pricing;
  - to assist in cost reduction exercises;
  - to help foster cost awareness throughout the firm;
  - to help monitor direct material acquisition and stockholding (given its relative importance in total costs).
- b. Budgeting: the creation of a more cooperative environment for the management accounting function should help to ensure more success for the budgeting function. While the pace of market change makes forecasting problematic, the commitment of more accounting resources to the budgeting function could help here. To ensure realistic budgets, revisions – perhaps as frequently as every quarter – may be needed. Staff resources must be provided to enable this to happen. Management should be involved in both the preparation and use of the budgets to enhance their relevance and acceptance. A close link between the marketing function and the accountants also needs to be fostered to ensure that budgets set reflect the best available market intelligence.



- c. Capital budgeting: while non-financial criteria have traditionally been of little importance, here the size of the company's capital investment and the changed circumstances of the company, particularly the potential cash-flow problems, merit a financial perspective being included as one factor in capital-investment decisions.
- d. Performance: the current frequency of managerial reports (six monthly) needs to be improved. This should assist in the determination of remedial action for problem areas.

In addition to total profitability, performance reports should cover several of the areas that are critical to the success of the company, such as:

- batch/order profitability (check on pricing);
- cash flow (survival in recession);
- process yields (cost reduction);
- stock control for direct materials (cost reduction/reduction of working capital investment).

**PART II**

**Accounting information for decision making**

## CASE 201

# Permaclean Products plc

The central issue in the Permaclean case is basically one of the product pricing, but the analysis requires the estimation of appropriate costs from the accounting data that are provided and also the construction of a rudimentary price–demand curve from information about past sales. It also permits the use of linear regression analysis in forecasting-expected industry demand, although this is not essential. The case provides a relatively simple situation for the student to analyse, but one which captures the major elements of a real-life pricing problem. However, there is sufficient information in the case for it to provide the basis for a full decision analysis, using either a decision tree approach or a simulation model.

### Use of the case

This case is helpful in two situations. It provides a useful summary case for students completing a basic management accounting course where the topics of variable costing and pricing have been addressed. Such students may need to be given some guidance as to the approach expected of them. Alternatively, we have used it as the first case in a more advanced management control systems course at both undergraduate and Masters level. The accounting information provided is sufficiently confusing to require students to have to think quite carefully about how they are to proceed. It, therefore, serves to sharpen up the previously acquired skills. Finally, the case is sufficiently open-ended to allow it to lead into a more extended discussion of several topics, such as:

- a. Problems in interpreting standard management accounting data, produced on both full and variable costing principles and the provision of relevant data for management decision making.
- b. Issues in pricing, including the advantages that can be obtained from differential pricing.
- c. The use of more advanced analytical techniques, such as decision tree analysis or simulation.

### Teaching note

At its simplest, the problem facing the company can be reduced to make a choice between two alternative strategies. Either it can maintain its present, high-price policy and suffer a continuing fall in demand or it can revert to its previous policy of seeking a competitive price. This latter policy can best be interpreted as pricing at the top end of the competitors' price range. A further alternative that might be considered is for predatory pricing below the competition, but this raises more complicated marketing issues. An analysis of these alternatives requires the following steps:

- a. Projection of total industry demand for the coming year
- b. Estimation of Permashine's market share, at various possible prices
- c. Estimation of the variable costs of production
- d. A contribution analysis using this information.

Total industry sales are best represented on a graph, from which a steadily rising trend can be discerned, despite a slight recent drop. If a straight line is fitted to all seven years' data by linear regression, it is found that

Sales (000s) =  $1771 + 141 \times (\text{Year number} = 1-7)$  giving a prediction of 2,900 for the coming year. However, this is exactly equal to the prior year's sales and recent history indicates a more rapidly rising trend. The final four years of data give a regression line of:

Sales (000s) =  $1165 + 245 \times (\text{Year number} = 4-7)$  and a prediction for next year of 3,125. It would appear that Mr. Williams' estimate of 300,000 bottles for next year is probably conservative, although a slight drop was experienced in one previous year. A range from 2,850 to 3,200 would cover the reasonably possible outcomes.

The market share for Permashine will obviously depend on the price charged. The only information for which we have reliable data is for the 99p price and for a price set at the top end of the competitors' range, which is equivalent to a price of 80p before the increase.

At the higher price, market share fell by 5.5% in the first year and a further 4% in the second year, indicating a considerable degree of product loyalty. This fall also seems consistent with Mr Williams' view that there is a floor below which demand will not fall, although it is not clear on what evidence he bases his opinion. It is, therefore, reasonable to predict that market share may well fall by a further 3.5% in the following year if the 99p price is maintained, giving a demand of  $(3,000 \times 10\%)$  300,000 bottles for the year. A range of 250,000–350,000 bottles would cover most of the likely possibilities.

If the price is dropped to the top end of the competitors' range (i.e. 80p), we could probably assume that the previous market share of 24% could be attained again. The real question is how long it will take to achieve this level of sales. The market was sticky in a downward direction; how sticky will it be upwards? This is difficult to answer, but my own inclination is to think that it may take a couple of years to regain the previous position; some of those who gave up Permaclean because of its price may be satisfied with a competing product and not return. Thus, the movement from 13.5% share back to 24% may well yield only 18 or 19% share next year. Such a view is also consistent with Mr Williams' assertion that a price of 75p would give a 20% market share next year. Thus, the best prediction of demand is probably 540,000 bottles at a price of 80p (and may be 600,000 bottles at 75p).

Finally, there is the issue of estimating the variable costs of production. The direct labour and materials costs are clearly variable, with perhaps a slight increase in labour costs (due to overtime?) at the higher end. Departmental overhead also seems to be categorised correctly, with the fixed element being equivalent to an annual cost of £36,000. Factory overhead is more difficult to assign; however, it can only refer to items not attributable to the Department (as these would come under Departmental overhead). Although it appears to be a variable cost, this is only because it is allocated on the basis of direct labour costs. It is possible that it contains a small variable element (e.g. electricity costs, if these are not separately metered)

but it must also include substantial fixed elements (e.g. rates). However, it is small in total and no great damage will be done to the analysis if it is assumed to be totally fixed. Selling and administration costs are almost certainly totally fixed, for the sales force is remunerated on the basis of a salary, not commission. Thus, the truly variable costs amount to about 35p per bottle (i.e. 17.5p + 8p + 9p + a small proportion of 3.5p); certainly, 40p would be an overstatement.

We are now in a position to perform a contribution analysis. At the 99p price:

$$\text{Contribution} = 300,000 \times (99\text{p} - 35\text{p}) = \text{£}192,000$$

At the 80p price:

$$\text{Contribution} = 540,000 \times (80\text{p} - 35\text{p}) = \text{£}243,000$$

At the 75p price:

$$\text{Contribution} = 600,000 \times (75\text{p} - 35\text{p}) = \text{£}240,000$$

Thus, the lower prices are clearly better than the highest, although there is little to choose between 80p and 75p. Such a choice would require more information.

A decision tree analysis with most likely, optimistic and pessimistic industry sales forecasts and market shares could also be performed, again using two or three possible prices. Crudely, even if pessimistic forecasts are made for the performance with an 80p price, compared with optimistic forecasts at the 99p price, the ordering of the alternatives is only just reversed:

$$\text{Contribution (optimistic)} = 375,000 \times (99\text{p} - 35\text{p}) = \text{£}240,000$$

$$\text{Contribution (pessimistic)} = 500,000 \times (80\text{p} - 35\text{p}) = \text{£}225,000$$

Overall, there is every likelihood that the lower price will give the better results. However, even with the lower price, it is probable that not more than 600,000 bottles will be sold, compared with a plant capacity of 800,000 and a marginal cost of production between 35p and 40p. It may, therefore, be possible for Permaclean to find another outlet for this unused capacity. For example, it may wish to consider export sales, bulk sales to commercial cleaning firms or the production of a supermarket own-label product.

Provided these additional sales do not affect existing sales of Permaclean, any price in excess of the marginal cost of production (plus any additional costs incurred in meeting the special order) will generate additional contribution to profit. To extend the discussion along these lines, students can be asked to give examples of products that are commonly sold at different prices. Supermarket 'own' brands, electricity and telephone services, rail fares and airlines provide some examples. In general, if a market can be effectively segmented, differential pricing provides improved contribution because those consumers who are willing to pay more than the lower 'market' price are made to do so, while only those who would not buy at the higher price are given the benefit of the lower price. The art is segmenting the market!

## CASE 202

# The Good Night Motel

This case demonstrates the use of both qualitative and quantitative analyses in business decision making through the decision. Justin McGregor, owner of the motel, must decide on as to whether or not to accept an offer to fill all 30 of his rooms during the last weekend of October at half the price. We will consider two aspects—finance and reputation in our analysis.

### Financial analysis

The quantitative analysis focuses on the use of cost behaviour; concepts of break-even point, contribution and contribution margin.

Variable costs are heating (\$5/night) and cleaning and laundry expenses (\$2.74/night), totalling \$7.74/night. All other expenses (utilities, maintenance,...) are fixed (do not vary with occupancy rate/number of room occupied). While wages are calculated by the hour, the working time appears to be fixed every day, even for the part-time and seasonal hires. Hence, anything above \$7.74/night will add the motel's contribution margin.

Alward proposed to rent all 30 rooms at half price (\$40/night) for the weekend (2 nights) when the occupancy rate is at most 25%.

Should McGregor accept, revenue will increase by  $\$40 \times 2 \times 30 = \$2400$

Incremental costs incurred will be  $\$7.74 \times 2 \times 30 = \$464.40$

Hence, Contribution margin will be \$1935.60

However, in order to rent out the whole motel for those nights, McGregor will not be able to accept other guests (who could occupy up to 25% of the motel), which means a loss of contribution margin of

$25\% \times 2 \times 30 \times (\$80 - \$7.74) = \$1083.90$ , which is lower than \$1935.60

So, accepting Alward's offer would be beneficial financially.

Alternatively, using break-even analysis, we could look at the number of rooms needed to yield a contribution margin of \$1935.60. This would be:

$$\frac{\$1935.60}{\$80 - \$7.74} = 26.79 \text{ rooms}$$

Or  $\frac{26.79}{2 \times 30} = 44.65\%$  occupancy rate, which is much higher than the usual 25%.

### **Qualitative analysis**

There are a number of non-financial factors that we need to consider.

From the exhibit, we can see that there are other motels which may accept the offer if McGregor turns it down. Good night falls into the “high end” category, while there are cheaper options given Alward’s limited budget.

However, if it becomes public that he is willing to offer the rooms at such a deep discount, other customers may regard it as unfair and demand the same discount later. This could have negative financial impacts, especially during the peak season.

Note also, the net income figure for the motel in 2012 is low at just \$3177, yet McGregor’s salary is very high- at \$100,000. Possibly there may be tax implications that motivate this.

All in all, the motel is better off by accepting the offer given the increase in margin as well as taking up the opportunity to fill the rooms during slow season. However, McGregor should make sure such drastic discounts do not set precedent other customers come to expect and affect the business later. Nor should lower pricing alter the clientele the motel ordinarily aims to attract.

**PART III**

**Planning and budgetary control systems**



## CASE 301

# Zeros plc

This case is concerned with limitations in the use of ROI as the major measurement of divisional performance. It also addresses the problem of using an integrated standard costing system to produce profit statements in a situation where it is difficult to set meaningful standards. Finally, it provides the opportunity to contrast full- and variable-cost approaches to profit measurement and to consider the scope under the former approach for a window-dressed, medium-term performance advised through the physical build-up of stock.

### Use of the case

This case has been used mainly with specialist accounting students undertaking a second level course in management accounting. It calls for a fairly detailed appreciation of not only divisional performance measurement, but also standard costing and variable costing systems. The first of two questions call for an identification and discussion of theoretical issues which are widely discussed in the literature. This case requires that they are backed up by the use of available data. It is perhaps worth emphasising to students at the outset that calculations are an important part of the solution. The third question provides scope for wide-ranging discussion.

### Questions 1 and 2

#### 1. Major problems with the particular ROI denominator used by the board of Zeros Plc:

- 1.1 The artificially low value of assets resulting from the non-revaluation of land or buildings and the age of plant and machinery inflates the ROI. This factor would be compounded by the government grant aid received.
- 1.2 The resultant low depreciation charges, which would inflate divisional profits.
- 1.3 The adverse motivational impact of the above factors on divisional management's investment policies.
- 1.4 The use of total assets as a denominator means financing decisions may not be fully reflected in the ratio.

#### 2. Major problems with the numerator of the ROI ratio:

- 2.1 Standards only revised annually means that variances caused by unfulfilled cost forecasts are almost inevitable.
- 2.2 Standards based on a 'middle of the range' product will result in variances if production levels are skewed to the larger or smaller ends of the range.

- 2.3 Stocks valued at full standard cost result in the carry-forward of fixed costs to future periods. Thus, production levels can be used to influence profits in the short run. See Exhibit 301.4A for identification of the financial effects of this in 2018 and 2019.
- 2.4 No comparison or reference to budgeted profit is made (see Exhibit 301.1A).
- 2.5 Stated profit performance is well below budget but considerably better than that shown on a variable costing basis (Exhibits 301.1A and 301.4A).

**3. Situational factors:**

- 3.1 The divisional managers' basis of remuneration reinforces the importance of ROI and operating profit.
- 3.2 The proximity of Joe Cool to retirement might result in his taking a short-term rather than long-term view of divisional performance.
- 3.3 Joe Cool, being a qualified accountant, has the knowledge to 'massage' the division's financial performance.
- 3.4 The motive, the opportunity and the capability, therefore, exist for the factors outlined in 1.3 and 2.3 to have occurred.

**4. Other factors:**

- 4.1 A standard costing system is designed to enable management to assess not only the 'bottom line' but also a variety of the factors contributing to it.
- 4.2 The use of a rigid pricing policy (standard cost + 33%) may be unsuited to this market. Certainly sales are falling in a growing market.
- 4.3 The 'cost plus 33%' pricing boast is misleading as actual costs considerably exceed standard (as evidenced by the large favourable variances). The actual mark-up is around 10% (see Exhibit 301.2A).
- 4.4 The physical volume of stock held has been allocated to grow considerably and now represents 75% of sales. This has occurred despite budgets which allowed for no stock increase, i.e. a stock level of 10% of sales (see Exhibits 301.1A and 301.3A).
- 4.5 The continuation of investigation of large unfavourable variances appears to indicate a breakdown in the use of the primary control information within the Division.
- 4.6 Sales forecasting (2,000,000 units in each year) has been extremely poor. Why was there no forecast for sales growth given the growing product market?
- 4.7 Unit costs have increased significantly. Cost control seems a problem area (see Exhibit 301.2A).

**Question 3**

Improvement could perhaps be made to the divisional performance assessment by providing additional information or making changes as listed below.

1. Current market values for divisional assets and consequential revision of depreciation charges.
2. Individual product standards to permit product mix and individual product profitability analysis.
3. More accurate unit standards – based on more frequent revisions.
4. Identification of any production constraints (see 4.6 above).
5. Information to produce market share and size variances.
6. Production capacity (to assess the unitisation of fixed overheads).
7. The controllability of divisional costs (e.g. are any the result of central cost allocations?).
8. Measures of product quality and fixed asset investment (to help guard against a short-term perspective being taken by the divisional manager).
9. Contribution-based variance calculations may help to assess the economic impact of problems.
10. Comparisons of divisional results with other divisions and original budgets.

**Exhibit 301.1A Divisional budgets****a. Physical terms**

|  | 2018 (000) units | 2019 (000) units |
|--|------------------|------------------|
| Opening stock                                      | 200              | 600              |
| Production*  | <u>2,000</u>     | <u>2,000</u>     |
|  | <u>2,200</u>     | <u>2,600</u>     |
| Sales **   | 2,000            | 2,000            |
| Closing stock                                      | <u>200</u>       | <u>600</u>       |
|  | <u>2,200</u>     | <u>2,600</u>     |
| * No fixed overhead volume variance.               |                  |                  |
| ** Sales volume variance permits this calculation. |                  |                  |

## b. Financial terms (in variable costing format)\*

|                        | 2018 (£000s) | 2019 (£000s) |
|------------------------|--------------|--------------|
| Sales                  | 8,000        | 10,940       |
| Variable cost of sales | <u>3,500</u> | <u>4,200</u> |
|                        | 4,500        | 6,740        |
| Fixed costs            | <u>2,500</u> | <u>4,000</u> |
|                        | <u>2,000</u> | <u>2,740</u> |

\* As stocks are constant, a full costing format would give the same profit.

## Exhibit 301.2A Actual unit costs

|                   | 2018          |               | 2019         |               |
|-------------------|---------------|---------------|--------------|---------------|
|                   | Total (£000)* | Unit cost (£) | Total (£000) | Unit cost (£) |
| Materials         | 1,320         | 0.66          | 1,560        | 0.78          |
| Labour            | 1,850         | 0.925         | 2,230        | 1.11          |
| Variable overhead | 1,430         | 0.715         | 1,775        | 0.89          |
| Fixed overhead    | 2,620         | <u>1.31</u>   | 4,150        | <u>2.08</u>   |
|                   |               | <u>3.61</u>   |              | <u>4.86</u>   |
| Actual mark-up(%) |               | <u>10.8%</u>  |              | <u>11.2%</u>  |

\* Standard cost of actual production plus relevant unfavourable cost variances.

## Exhibit 301.3A Stock ratios

|                  | 2018                         | 2019                           |
|------------------|------------------------------|--------------------------------|
| Stock Production | $\frac{600}{2,000} = 30\%$   | $\frac{1,400}{2,000} = 55\%$   |
| Stock Production | $\frac{600}{1,600} = 37.5\%$ | $\frac{1,100}{1,500} = 73.3\%$ |

## Exhibit 301.4A Variable costing-based profit report

|                                 | 2018           | 2019           |
|---------------------------------|----------------|----------------|
| Budgeted sales                  | 8,000          | 10,940         |
| Budgeted variable cost of sales | <u>3,500</u>   | <u>4,200</u>   |
| Budgeted contribution           | 4,500          | 6,740          |
|                                 | <u>900 U</u>   | <u>1,685 U</u> |
|                                 | 3,600          | 5,055          |
| Budgeted fixed costs            | <u>2,500</u>   | <u>4,000</u>   |
| 'Standard' profit               | 1,100          | 1,055          |
| Cost variances                  | <u>1,220 U</u> | <u>1,515 U</u> |

|  |              |              |
|--|--------------|--------------|
| Operating profit (loss)                  | <u>(120)</u> | <u>(460)</u> |
| Operating profit (loss) as in case study | <u>380</u>   | <u>540</u>   |
| Difference                               | <u>500</u>   | <u>1,000</u> |
| Accounted for as follows:                |              |              |
| Fixed costs in stock (opening)           | 250          | 1,200        |
| Fixed costs in stock (closing)           | <u>750</u>   | <u>2,200</u> |
|  | <u>500</u>   | <u>1,000</u> |

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## CASE 302

# Instrumental Ltd

There are really three ways in which the Jennifer could analyse the situation.

### Approach 1: The Annual Report approach

|                            | Budget (000s)      | Actual (000s)      |
|----------------------------|--------------------|--------------------|
| Sales                      | 16,872 (100%)      | 17,061 (100%)      |
| Cost of goods sold         | 9,668 (58%)        | 9,865 (58%)        |
| <b>Gross margin</b>        | <b>7,204 (42%)</b> | <b>7,196 (42%)</b> |
| Less other expenses        |                    |                    |
| Marketing                  | 1,856 (11%)        | 1,440 (8%)         |
| R&D                        | 1,480 (9%)         | 932 (6%)           |
| Administration             | 1,340 (8%)         | 1,674 (10%)        |
|                            | 4,676 (28%)        | 4,046 (24%)        |
| <b>Profit before taxes</b> | <b>2,528 (14%)</b> | <b>3,150 (18%)</b> |

### Approach 2: A management-oriented variance analysis

A traditional management accounting analysis might highlight the following:

|   |         |
|---|---------|
| <b>Marketing</b>  |         |
| Market share [(share of market (SOM)) increase benefited the firm;        | 1,443 F |
| But unfortunately sales mix was managed towards the lower margin product; | 921 U   |
| Control over marketing expenditure benefited the firm especially          | 416 F   |
| Net effect  | 938 F   |
| Unfortunately, the overall market declined and cost the firm              | 680 U   |
| Overall evaluation: <b>Very good performance</b>                          |         |
| <b>Manufacturing</b>  |         |
| Manufacturing cost control cost the firm                                  | 48 U    |
| Overall evaluation: <b>Satisfactory performance</b>                       |         |
| <b>R&amp;D</b>  |         |
| Savings in R&D budget   | 548 F   |
| Overall evaluation: <b>Good performance</b>                               |         |
| <b>Administration</b>   |         |
| Administration budget overspent   | 334 U   |
| Overall evaluation: <b>Poor performance</b>                               |         |

**Variance Summary**

|                            |              |
|----------------------------|--------------|
| Overall market decline     | 680 U        |
| Size of market change      | 1,443 U      |
| Sales mix change           | 921 U        |
| Sales price improved       | 198 F        |
| Manufacturing cost control | 48 U         |
| <b>Other:</b>              |              |
| R&D                        | 548 F        |
| Administration             | 334 U        |
| Marketing                  | 416 F        |
| <b>Total</b>               | <b>622 F</b> |

Strategic contexts of the two businesses

|                                | <b>Electric motors<br/>(EM)</b>         | <b>Electronic instruments<br/>(EI)</b>                |
|--------------------------------|---|---|
| <b>Overall market (units):</b> | 1,248,000                               | 440,000   |
| <b>Plan</b>                    | 886,080                                 | 690,800   |
| <b>Actual</b>                  | Declining Market<br>(29% Decrease)      | Growth Market<br>(57% Increase)                       |
| <b>Instrumental's share:</b>   |   |   |
| <b>Plan</b>                    | 10%                                     | 15%   |
| <b>Actual</b>                  | 16%                                     | 9%  |
| <b>Instrumental's prices:</b>  |   |   |
| <b>Plan</b>                    | 40                                      | 180   |
| <b>Actual</b>                  | 30                                      | 20  |
|                                | We apparently cut price to build share. | We apparently raised price to ration the high demand. |
| <b>Instrumental's margin:</b>  |   |   |
| <b>Plan</b>                    | 520                                     | 130   |
| <b>Actual</b>                  | 9                                       | 152   |

|  | <b>Electric motors<br/>(EM)</b> | <b>Electronic instruments<br/>(EI)</b> |
|--|---------------------------------|--|
| <b>Industry prices:</b>                |                                 |  |
| <b>Actual</b>                          | 50                              | 100                                    |
|  | We are well below 'market'.     | We are well above 'market'.            |
| <b>Industry costs:</b>                 |                                 |  |
| <b>Actual</b>                          | 18                              | 46                                     |
| <b>Product/market characteristics:</b> | Mature<br>Lower technology      | Evolving<br>Higher technology          |

|  |  |   |
|--|--|---|
|  | Declining market   | Growth market   |
|  | Lower margins  | Higher margins  |
|  | Low unit price   | High unit price   |
|  | Industry prices holding up   | Industry prices falling rapidly   |
| <b>Instrument's apparent strategic mission</b>                   | 'Build'  | 'Skim' or 'Harvest'   |
| <b>Instrument's apparent competitive strategy</b>                | The low price implies we are trying for low cost position.   | The high price implies we are trying for a differentiation position.  |
| <b>A more plausible strategy</b>                                 | 'Harvest'  | 'Build'   |
| <b>Key success factors (arising from the plausible strategy)</b> | Hold sales prices <i>vis-à-vis</i> Competition<br><br>Do not focus on maintaining and improving SOM.<br><br>Aggressive R&D to reduce unit costs. | Competitively price to gain (share of market) SOM.<br><br>Product R&D to create differentiation.<br><br>Lower costs through experience curve effects. |

### Approach 3: A strategic management accounting analysis

#### Variance summary

|                                       | EM Division  | EI Division |
|---------------------------------------|--------------|-------------|
| <b>Market size</b>                    | 724 U        | 4891 U      |
| <b>Market share</b>                   | 1064 F       | 5389 U      |
| <b>Sales price</b>                    | 1418 U       | 1616 F      |
| <b>Variable manufacturing costs</b>   | 142 U        | 248 U       |
| <b>R&amp;D</b>                        | –            | 548 F       |
| <b>FIRM-WIDE COSTS:</b>               |              |             |
| <b>Manufacturing</b>                  | 342 F        |             |
| <b>Marketing</b>                      | 416 F        |             |
| <b>Administration</b>                 | 334 U        |             |
| <b>Total</b>                          | <b>622 F</b> |             |
| <b>Performance evaluation summary</b> |              |             |



|                               | <b>Electric motors<br/>'Harvest versus Build'</b>   | <b>Electronic instruments<br/>'Build versus Skim'</b>   |
|-------------------------------|---|---|
| <b>Marketing comments</b>     | <p>If we held our prices and share, decline in this mature business would have cost us 724 U.</p> <p>We were further hurt by price cuts to build our SOM (our price was 30 versus industry price of 50) leading to a net 1078 U variance (1418 U (price) and 1064 F (market)).</p> <p>This is a market that has declined by 29% – why are we sacrificing margins to build a position in a declining market?</p> | <p>We raised our price over the industry price to ration our scarce capacity losing significant market share (3,773 U)</p> <p>This is a booming market which grew by 57% – why are we trying to improve margins at the expense of SOM?</p> <p>Growth in the total market improved our profit picture (4,891 F) but we underspent the marketing budget</p> |
| <b>Overall evaluation</b>     | Poor Performance  | Poor Performance  |
| <b>Manufacturing comments</b> | Manufacturing control was awful and cost us 142 U – if we are trying to be a cost leader, where are the benefits of our EOS?  | Does our higher cost compared to the market give us a higher product quality – apparently not, given our declining market share.  |

|                                 | <b>Electric motors<br/>'Harvest versus Build'</b>   | <b>Electronic instruments<br/>'Build versus Skim'</b>                               |
|---------------------------------|---|---|
| <b>Overall performance</b>      | Poor performance                                    | Poor performance  |
| <b>R&amp;D comments:</b>        | N/A   | Why are we not spending enough on R&D? – could this partly explain the fall in SOM? |
| <b>Overall performance</b>      | N/a   | Poor performance  |
| <b>Administration comments:</b> | Inadequate cost control over overhead costs (334 U) | Admin budget overspent (334 U)  |
| <b>Overall performance</b>      | Poor performance                                    | Not satisfactory  |

Lecturers could also take the opportunity in the case to stress the importance of strategy in business management and the use of tools such as the Boston Control Group Matrix and product life cycle diagrams to facilitate business decision making.

## **PART IV**

# **Management control systems and performance issues**

## CASE 401

### BBR plc

This case highlights the classical transfer-pricing problem where divisions operating in their own interests may reduce total company profitability. In addition to requiring the calculations using marginal analysis, the case investigates the potential costs and benefits of a transfer-pricing procedure based on divisional management negotiation. The trade-off between head office involvement as mediator or arbitrator that may allow optimal economic decisions and a ‘hands-off’ policy, which promotes decentralised profit responsibility, but with the danger of suboptimal decision making can be explored.

#### Use of the case

When exploring the many transfer prices which are used in practice and advocated in theory, it is relatively easy to underplay the importance of the procedures whereby the transfer price is set. This case is useful in recognising the fact that the ultimate transfer price is only a part of a transfer-pricing system, which includes administrative procedures. These procedures, as much as the transfer price itself, can influence the degree of control and responsibility, which divisional managers perceive they exercise.

At the postgraduate or final year undergraduate level, the case allows reinforcement of economic marginal analysis and its defects, places the transfer-pricing system in an organisational context and provides a springboard for a far-reaching discussion about implications of alternative transfer-pricing systems.

It is feasible with a well-prepared class to cover these issues within a one-hour period. The open-ended discussion of alternatives and their implications may lead to greater time being taken.

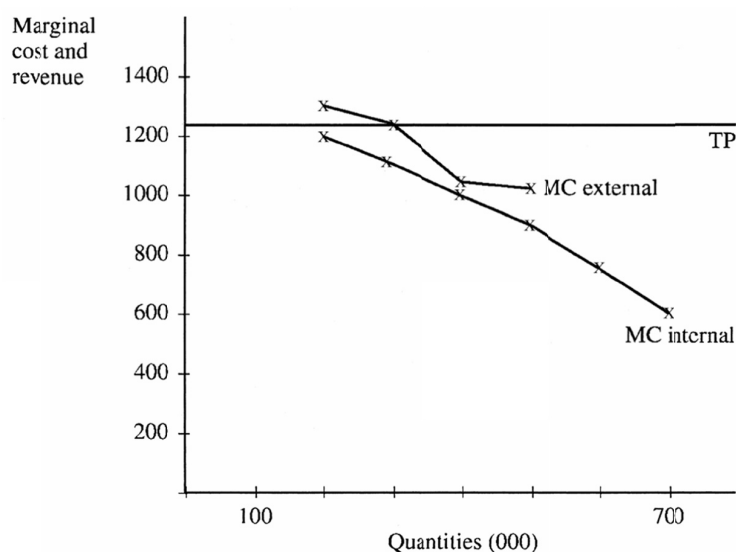
#### Exhibit 401.1A Explanation of Giddings’ argument

##### Preston Division

| Output<br>(000 metres) | Total cost<br>(£000) | Marginal cost<br>(£000) | Total revenue<br>(at TP = £12.50) | Marginal<br>revenue |
|------------------------|----------------------|-------------------------|-----------------------------------|---------------------|
| 100                    | 1,300                | –                       | 1,250                             | –                   |
| 200                    | 2,500                | 1,200                   | 2,500                             | 1,250               |
| 300                    | 3,660                | 1,160                   | 3,750                             | 1,250               |
| 400                    | 4,680                | 1,020                   | 5,000                             | 1,250               |
| 500                    | 5,550                | 870                     | 6,250                             | 1,250               |
| 600                    | 6,300                | 750                     | 7,500                             | 1,250               |
| 700                    | 6,860                | 560                     | 8,750                             | 1,250               |
| 800                    | 7,280                | 420                     | 10,000                            | 1,250               |
| 900                    | 7,560                | 280                     | 11,250                            | 1,250               |
| 1,000                  | 7,700                | 140                     | 12,500                            | 1,250               |

**Shewsbury Division**

| Buy-in quantities<br>(000 metres) | Total cost | Marginal cost |
|-----------------------------------|------------|---------------|
| 100                               | 1,400      | —             |
| 200                               | 2,700      | 1,300         |
| 300                               | 3,900      | 1,200         |
| 400                               | 4,950      | 1,050         |
| 500                               | 5,950      | 1,000         |



A comparison of the marginal costs of internal as opposed to external purchase reveals that Shewsbury Division should buy internally. However, Giddings will base his decision on the price he is charged, the £12.50 transfer price and the external suppliers' price.

**Potential actions**

If Giddings acts rationally, he should be willing to purchase at least 300,000 metres of rubber hose internally (£3.75m vs. £3.9m).

To operate at full capacity, consistent with the objective of increasing market share, Giddings may buy externally either two lots of 100,000 metres as he thinks is likely or one lot of 200,000 metres. The total cost to his division of operating at full capacity is then £6.55m (£3.75m internally + £2.8m externally) and £6.45m, respectively. Internal purchase of the total 500,000 metres will cost £6.25m. However, Giddings argues that while lower than the feasible alternatives, the cost of internal trade at this level is £300,000 more than if he were to place the entire order externally.