Chapter 7
MANAGEMENT ACCOUNTING AND THE CONTROL PROCESS – 2

Key Learning Objectives

By the time you have finished studying this chapter, you should be able to:
- discuss the relevance of, and improvements which might be made to, standard costing in contemporary organisational environments;
- analyse variances in order to provide the most appropriate information;
- calculate the probable benefits of a variance investigation;
- outline the theoretical background to the control process;
- explain and apply within a management accounting context, statistical control methods.

Further Aspects of Standard Costing

In Chapter 6 we looked at the basics of standard costing techniques and noted that, although based on sound principles, the techniques had a number of limitations in certain environments. Here we will look a little further at these limitations and consider approaches that have been suggested for increasing the efficacy of standard costing.

Let us start with a look at one of the more common 'extended' applications of standard costing.

Within the field of material variances, we have already studied the calculation of materials price and usage variances. Although these are useful variances, it is likely that, in at least some cases, those held responsible for variances will want to carry the analysis further in an attempt to isolate the actual causes of the variances and to try resolving them. In the pages that follow, we will see how the various possible factors leading to the existence of a variance may be identified through analysis.

One reasonable, obvious reason why a materials *usage* variance may occur is that, where a product involves the use of a mixture of different materials, the actual proportion of materials used may differ from the standard 'mix'. It is possible to analyse the proportion of the

overall materials usage variance that has resulted from using materials in non-standard proportions. Such a variance may be termed a materials *mix* variance. The principles of calculating and interpreting such variances are illustrated below.

We will also explore other avenues of analysis. Standard costs are based upon standard usages and standard unit costs. In either case the standard itself may be poorly chosen. It is therefore possible, given sufficient information, to isolate the effects of poor planning. Such analysis may establish 'planning variances' (that is, those caused by poor planning) and may go even further in attempting to establish the extent to which this poor planning was unavoidable. The principles are also illustrated in the calculations and discussion below.

Mix Variances

A company produces product X, composed of materials A and B. Standard data for product X are as follows :

	£
Material A: 3 kg @ £3 per kg	= 9
Material B: 2 kg @ £5 per kg	= 10
Total materal cost per unit of Product X = 19	

Actual data were as follows

Units of Product X produced = 20 units

Actual materials usage:

Material A: 55 kg costing £200
Material B: 44 kg costing £230

Analysis of materials variances:

Traditional variances:
Materials *price* variances [actual materials @ std materials price – actual materials @ actual price]:

	£
Material A: [55 kg × £3/kg] − [£200] =	(35) adv
Material B: [44 kg × £5/kg] − [£230] =	(10) adv
Total materials price variance	= (45) adv

Materials *usage* variances (traditional):
{= [std Q allowed for actual production − actual usage] × std material price}

	£
Material A: {[20 units × 3kg] − 55 kg} × £3/kg =	15 fav
Material B: {[20 units × 2kg] − 44 kg} × £5/kg =	(20) adv
Total materials usage variance	= (5) adv

Check:

Total materials variance =

= std material cost allowed for actual production
− actual materials cost

		£
for Material A = [20 units × 3 kg × £3/kg] − £200	=	(20) adv
for Material B = [20 units × 2 kg × £5/kg] − £230	=	(30) adv
Total materials variance[= price + usage variances]	=	(50) adv (correct)

Variances focusing on mix aspects:

Materials mix variance:
By comparing the amount of materials actually used with the proportion of each material that we would expect to see in the finished product, we can isolate the effects of non-standard mixes of materials. (Note that, actually, we are examining here the proportions of each material input to the product, rather than the materials mix evident in the process outputs).

What were the standard proportions of materials A and B?

Well, in the standards the material quantities were in the proportions 3:2, i.e. 0.6 of the material content of each unit of product X should consist of material A.

We can see that, in the actual mix, there were 55 kg of material within the total of 99 kg of material used, i.e. a proportion of material A of 55/99 = 0.555r of the actual mix.

Therefore there is a mismatch between the standard and actual mixes in that there is a lower proportion of material A which has the lower standard cost of £3 per kg. Therefore this will mean that a higher proportion of the more expensive material B will be evident, leading to a higher materials cost per unit of product X.

Materials mix variance =

= [std proportion of material in actual mix − actual quantity of material] × std material price

For *Material A:*

$\quad$ = {[0.6 × 99kg] − 55kg} × £3/kg $\qquad$ = $\qquad$ £13.20 fav

For *Material B:*

$\quad$ = {[0.4 × 99kg] − 44kg} × £5 /kg $\qquad$ = $\qquad$ £(22.00) adv

Total Materials mix variance $\qquad$ = $\qquad$ £(8.80) adv

Of course, the mix variance is just one part of the explanation of the non-standard use of materials. It has isolated the effect of non-standard mix from the rest of the materials usage variance. The remaining part of the materials usage variance, i.e. the 'mix adjusted usage variance' is often referred to as the *materials yield* variance and is calculated thus:

Materials *yield* variance =
= [std allowed usage of material
− std proportion of actual materials usage] × std material price

For material A = {[20 units × 3 kg] − [99 kg × 0.6]} × £3/kg = £1.80 fav
For material B = {[20 units × 2 kg] − [99 kg × 0.4]} × £5/kg = <u>£2.00 fav</u>
Therefore, total materials yield variance   = <u>£3.80 fav</u>

Note: Mix variance + Yield variance = Materials usage variance.

Check: £(8.80)   +   £3.80   =   £(5) adverse   (Correct)

The technique of analysing mix variances separately can be extended to most situations where an element of mix exists. Practising accountants must, however, consider carefully the pay-off between cost and complexity/usefulness of information. Information overload is an evil to be avoided and indulging in it can put the accountant at a distance from his/her colleagues.

   Although mix variances are used in practice (e.g. in steel and chemical processing industries) they are sometimes used selectively. Such variances may be used to highlight specific factors upon which management wishes to focus without necessarily preparing a complete network of variances. Similarly, such variances may be calculated in non-financial terms only rather than attempting to show the effects on budgeted/actual profits. Further analysis of variances could take many forms. Figure 7.1 suggests some possible avenues that could be explored, using a materials cost variance for illustration.
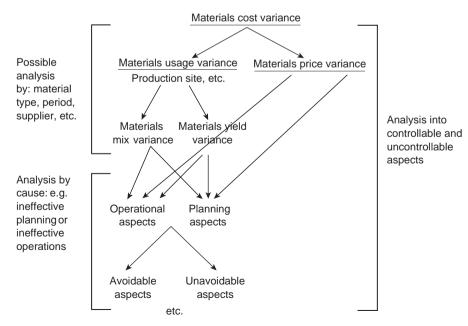

Figure 7.1   Possible avenues for exploring variances in more depth

Another possible way of visualising the richness of possible variance analysis is demonstrated in Figure 7.2, using materials variance as an example.

A numerical illustration

Now let's put some numbers to the above variances to see how they would look in practice. Exhibit 7.1 contains an illustration of the calculation of some of the variances described above.

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**EXHIBIT
7.1**

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Illustration of a More Comprehensive Analysis
of Materials Variances

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A company's materials data for a period were as follows:

Actual data:

  Units of product produced = 110 units

   Materials purchased and used:
   Materials X: 230 kg costing   £720
   Material Y: 280 kg costing   £500

Budget data:

  Budegeted production = 100 units of product

Standard data:
              Per unit of product

Material X: 2 kg @ £3/kg
Material Y: 3 kg @ £2/kg

Ex-post ('after the event') data

With hindsight, it is realised that the person who set the materials standards should have realised that a more realistic usage standard for material X would have been 2.2 kg per unit of product.

Similarly, obvious changes in the market for material Y should have made the person who set the price standards realise that the standard price for Y should have been set at £1.80 per kg.
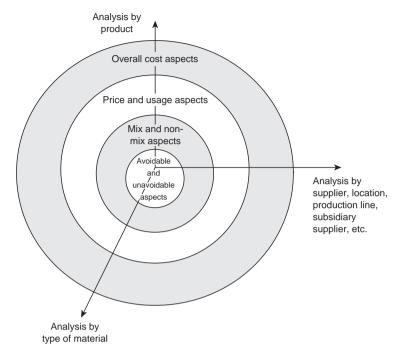
Figure 7.2 The multidimensional aspects of (materials) variance anaylsis

Analysing the data
Let us construct a table which presents the data available in a readily analysable way:
What is the 'standard mix'? In this example, we can calculate it as follows:

Material	**Actual materials @ actual price**	**Actual materials @ std price**	**Actual materials in std proportions @ std price**	**Std quantities allowed for actual production, @ std price**	**Actual material quantities @ *realistic* std price**	**Std allowed quantities (at *realistic* std usage rate) @ original std price**
	(i)	(ii)	(iii)	(iv)	(v)	(vi)
X	230 kg costing **£720**	230 kg @ £3 = **£690**	204 kg @ £3 = **£612**	100 units × 2 kg @ £3 = **£600**	230kg @ £3 = **£690**	100 units × 2.2 kg @ £3 = **660**
Y	280 kg costing **£500**	280 kg @ £2 = **£560**	306 kg @ £2 = **£612**	100 units × 3 kg @ £2 = **£600**	280 kg @ £1.80 = **£504**	100 units × 3 kg @ £2 = **£600**

Standard mix = 2 kg of X + 3kg of Y = 5 kg in total.

i.e. standard proportions are 40% X to 60% Y, by weight.

The total actual usage of materials was 230 kg of X and 280 kg of Y, i.e. 510 kg in total.

Therefore, the actual materials if they had been in the standard proportions would have been in the following proportions:

  Material X [510 × 40%] = 204 kg
  Material Y [510 × 60%] = 306 kg

Variance Analysis:

Let us start by calculating the 'traditional' materials variances (A = adverse, F = favourable)

Materials price variance (= (ii) − (i) in the table above):

                                            £
  Material X = £690 − £720   = (30) A
  Material Y = £560 − £500   = 60 F
  Total materials price variance = 30 F

Materials usage variance (= (iv) − (ii)):

  Material X = £600 − £690   = (90) A
  Material Y = £600 − £560   = 40 F
  Total materials usage variance = (50) A

Now, analysing the materials usage variances further in order to isolate the effects of non-standard mix:

Materials *mix* variances (= (iii) − (ii)):

  Material X: = £612 − £690   = (78) A
  Material Y: = £612 − £560   = 52 F
  Total materials mix variance   = (26) A

Materials *yield* variances ((iv) − (iii)):

  Material X: = £600 − £612   = (12) A
  Material Y: = £600 − £612   = (12) A
  Total materials yield variance = (24) A

Note that the total materials mix variance [(26) A] plus the total materials yield variance [(24) A] must equal the total materials usage variance [(50) A].

Now, analysing the materials price variances – for Material Y – further, to isolate the effects of ineffective planning:

Materials price *planning* variance – for Material Y:

$$= (ii) - (v) = £560 - £504 = £56 \text{ F}$$

Materials price *operational* variance for Material Y:

$$= (v) - (i) = £504 - £500 = £4 \text{ F}$$

Note that the materials price planning variance [£56 F] plus the materials price operational variance [£4 F] must equal the materials price variance for material Y [£60 F – see above].

Taking a similar approach, we can isolate the planning variance aspects of the materials usage variance for *Material X*:

Material usage variance for Material X (see above)   = £(90) A
Materials usage *planning* variance [(iv) – (vi)] = £600 – £660   = £(60) A
Materials usage *operational* variance [(vi) – (ii)] = £660 – £690   = £(30) A

Check:
Material X usage planning variance + usage operational variance = usage variance ($\surd$).

As mentioned earlier, such analyses as those above can be taken to extreme extents. We could, for instance, have calculated the mix and yield variances at the realistic standard materials prices, or have used the realistic standard usage rates for X etc. What, however, would these 'extra' variances have told us? Well, for such variances to be useful, it must be possible for users to understand them. Let us have a go at understanding the meaning of the variances we have calculated above.

Interpreting Mix and Yield Variances

The materials usage variance is a useful indicator of non-standard usage rates but it can be distorted when materials are used in proportions that are not standard. In Exhibit 7.1, the standards assume that materials will be used in proportions 2 kg of X to 3 kg of Y. In the actual mix, these proportions are not maintained.

The adverse mix variance for X tells us that, in total, the use of a non-standard mix cost the business an extra £26. The individual mix variances indicate that the overall £26 adverse variance was caused by using more than the standard allowance of X (which is more expensive) and less of Y (which is less expensive).

The yield variance is simply a reworked usage variance undistorted by the non-standard mix effect.

While mix variances can be useful for identifying the effects of non-standard materials mix, they must be interpreted carefully. Although, for example, using less than the standard proportion of Y has 'saved' material costs, this may mean that the product becomes useless, or that labour costs increase as the product becomes more difficult to operate upon.

A similar approach may be taken to any factors which may be subject to variation in mix, so that variances such as sales mix variances and labour mix variances could be calculated. Again, the full significance of non-standard mixes for quality, marketability and efficiency must be considered carefully.

Interpreting Planning and Operational Variances

We analysed, in Exhibit 7.1, the materials price variance for material Y in the aspects caused by ineffective planning (the sales price planning variance) and by operational factors (the sales price operational variance). What can these variances tell us? Again, we must take care in interpreting them.

The sales price variance tells us the amount by which profits have been affected by the use of non-standard selling process. Of course, the sales price variance might be caused by one of two factors (or both): increases/decreases in sales price above/below the standard; and the use of an inappropriate standard. That is to say, the sales price planning variance tells us how much of the sales price variance was caused by poor planning; whereas the sales price operational variance gives us an adjusted sales price variance, undistorted by the effects of this bad planning.

Once again, questions need to be addressed when interpreting the sales price planning variance, such as:

- How should the realistic standard be established and how should subjectivity be minimised?
- Was the error in setting the standard unavoidable?

Some writers have suggested that planning variances could be split into their 'possibly avoidable' and 'unavoidable' components – but we must take care not to get too carried away! If we were to follow the route suggested by such authors, it would be possible for a manager to argue that his/her adverse planning variance was caused largely by poor planning and that he/she had not been responsible for setting the standards. Attention would then pass to the person who had set the standard who, in turn, might then 'pass the buck' by suggesting that the planning error was largely unavoidable. Splitting the materials usage variance into planning and operational aspects leads us to a similar set of considerations.

Standard Costing in Non-Manufacturing Environments

Standard costing evolved in reponse to a particular type of environment. After all, the term 'standard costing' refers to an environment in which repetitive activities lead to

standardisation of resource usage (standard time, standard resource usage). Such an environment exhibited the features of the mass production of components or products over considerable periods of time.

The nature of today's business environment is rather different. Long production runs of standard products have, in many cases, given way to shorter runs of much more diverse and customised products in response to customer expectations. Wider markets, stimulated by more effective communications technologies, have also led to businesses' needing to become more flexible and responsive. Consequently, in many but not all cases, the manufacturing business environment has moved away from the fundamental characteristics traditionally associated with standard costing techniques.

Of course, the market for services and service organisations has expanded rapidly as have, in many countries, the size and range of public sector organisations. So, does standard costing still play a useful role in such environments? To an extent, yes.

In modern 'high tech' manufacturing environments, elements of standardisation will still be found. Materials will still be used within products, although the use of these materials may change more rapidly as products are redesigned more frequently and as the business responds to consumer tastes. Direct labour input to products will, however, tend to decrease in relevance as technology is increasingly harnessed. Although labour will still be utilised, this will tend to be more in the nature of a fixed overhead than a direct variable cost. Thus the nature of labour variances must change. Overhead costs will become a more significant aspect of the overall cost structure and the emphasis of overhead costs will reflect the greater effort being put into marketing, technological developments, communications, and so on. Thus, the traditional cost structures associated with standard costing have been replaced by a less standardised, overhead-heavy, more non-production-biased cost structure.

Although standard costing approaches can still be applied to such situations, several factors must be considered:

- the extent of standardised processes;
- the benefits to be gained, in terms of improved management information, by applying standard costing approaches;
- the problems associated with trying to 'force' ill-fitting techniques into an unsuitable environment.

Conversely, the 'standard' application of standard costing techniques may be replaced by a more relevant, tailored application by:

- concentrating less on extreme accuracy and detail and more on broader, more strategic issues;
- investing less in time-consuming, over-formal systems and, instead, using standard costing approaches more as a useful aid to planning and cost control;

- making increased use of flexible, user-friendly software to increase the speed with which standard costing techniques may be used and to increase the 'disposability' of the standard costs being used.

Each case must be judged on its merits and care must be taken to avoid dogged attempts to apply outdated techniques. This is, of course, a philosophy that should be followed wherever systems are in danger of becoming outdated or obsolete. Similar questions about the usefulness and appropriateness of standard costing apply to non-manufacturing and public sector environments.

Service (Non-Manufacturing) Environments

Service organisations, although they do not produce physical products, share many (standardised) characteristics with manufacturing organisations:

- They employ labour, though the relationship between hours worked and units of service provided may not always be clear.
- They incur overheads (occupy buildings, use electricity, pay for insurance, etc.).
- They need to market their services at home and overseas.

There are some differences, unsurprisingly, between service and manaufacturing organisations:

- The level of stocks in a service organisation is likely to be much lower, Although consumable materials may be stored, there can be no stocks of 'finished goods' in a service organisation. An airline cannot, for instance, carry a stock of unused travel slots, or places on chartered flights from previous periods – once they have gone, they have gone! Work-in-progess stocks may need to be evaluated, however, for example in the case of 'incomplete work' carried out by solicitors or accountants.
- There is likely to be a greater emphasis on indirect (overhead) costs, although it is feasible to treat labour costs as direct to a unit of service output when hours are recorded to jobs (e.g. in a vehicle repair workshop). Overall, however, and in the shorter term, labour is relatively fixed and is thus essentially an overhead item.
- The focus of the business may be on throughput, rather than on detailed analyses of essentially fixed costs.
- The focus may be more on the customer, or the major contract, than on repeated mass output of small-scale units.

The use of traditional standard costing under such conditions is thus questionable. Although attempts have been made to use standard costing within such environments, this

may be more evidence of resistance to change than a case of applying the most appropriate solution to modern organisational issues. Not a great deal of research appears to have been undertaken on the subject of the application of standard costing techniques to non-manufacturing environments, possibly as a result of the lack of 'fit' of the techniques in such settings.

Non-manufacturing environments, with their emphasis on overhead costs, are likely to be environments in which activity-based costing approaches may be applied to advantage. Drury (2004) mentions the work of Kaplan (1994) and Mak and Roush (1994) who suggest a specialised application of standard costing to activity costs and cost drivers. The resultant variance calculations, however, give the impression of being an academic exercise with little useful application (or comprehensibility) for everyday non-financial managers.

Statistical Approaches to Variance Investigation

We have examined the use of variances to isolate the components of an overall variance. Such analysis will not tell the investigator the answers to the following questions, amongst others:

- What caused the variance?
- Was the variance the outcome of a continuing or one-off issue?
- Was the variance directly related to other variances (i.e. was the underlying cause of the variance a single factor or one of several interconnected factors)?
- How long it would take, and how much it would cost, to investigate the variance further?
- Would such further investigation be likely to identify the cause of the variance?
- Would the cost of the investigation, and any subsequent corrective action, be justified by the benefits?
- How would these benefits be identified and evaluated?

Questions such as these can be presented within a network/tree such as that in Figure 7.3. Such a diagram can be extended almost indefinitely given the number of outcomes that can occur (you might want to try this for yourself).

In Exhibit 7.2 we use some data to illustrate the general approach that might be taken to the process outlined within Figure 7.3. Again we must be careful here. The analysis described in Exhibit 7.2 would be dependent upon a great deal of estimations and it would be foolish to get too carried away with the application of such techniques.
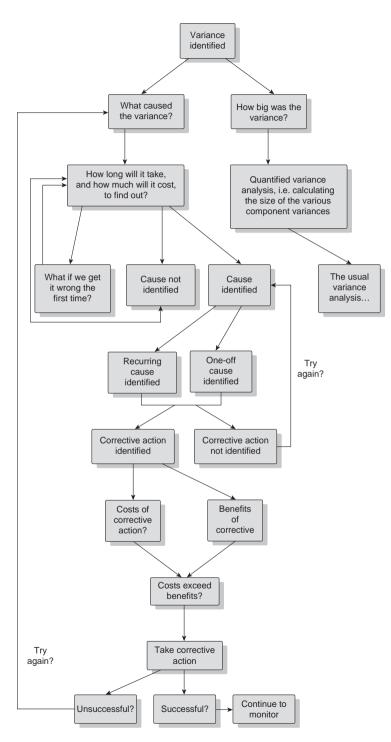
Figure 7.3 Variance investigation tree

Using the data above we can identify the costs and expected value of benefits resulting from an attempt to 'cure' the variance. Figure 7.4 displays the data in the form of a 'probability tree'. In numerical terms:

| EXHIBIT 7.2 | **Application of Statistical Techniques to the Variance Investigation/Correction Decision** |

A company has identified a cost variance for a period. Experienced staff within the company have produced the following estimates:

Probability of the variance having a identifiable cause	=	70%
Probability of being able to identify appropriate corrective action	=	60%
Probability of corrective action being successful	=	80%
Probable cost of identifying the cause	=	£100
Probable cost of identifying appropriate corrective action	=	£80
Probable costs of corrective action	=	£150
Probable benefits:		
if variance is a one-off event	=	£1000
if variance is recurring	=	£5000
Probability of variance being caused by a one-off factor	=	50%

Please bear in mind that these figures have been made up! We are merely trying to illustrate a general approach here. If you think about these data you will see that, in reality, to try to assess all these factors in detail would be highly unfeasible. The likelihood is that, in the practical situation, such techniques would be applied sparingly and, even then, to one subset of the problem at a time.

Cost of successfully 'cured' variance = £100 + £80 + £150 = £330

Probability of achieving success in curing the variance = $0.7 \times 0.6 \times 0.4 = 0.168$

Probability of the variance being a recurring one = $0.168 \times 0.4 = 0.0672$

Therefore, expected value = $0.0672 \times £5000 = £336$

Probability of the variance being non-recurring = $0.168 \times 0.6 = 0.1008$
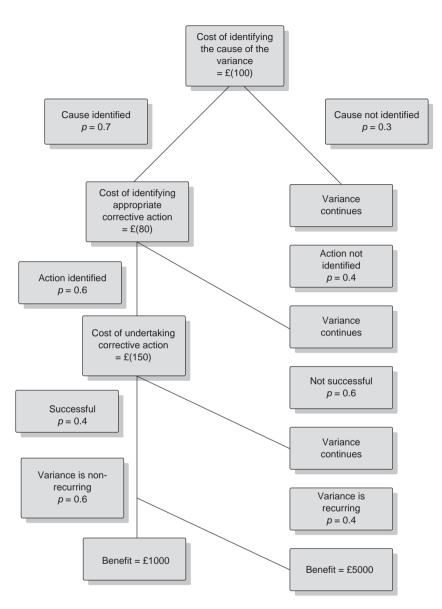
Therefore, expected value = $0.1008 \times £1,000 = £101$

Figure 7.4 Probability tree for Exhibit 7.2 data

Therefore expected net value of the investigation and correction process = £336 + £101 − £330 = £107

Therefore the investigation and correction process has a positive value of £107 and is thus probably worthwhile.

Of course, we must bear in mind the limitations of such a statistical approach to this decision. The reliability of our conclusion is entirely dependent upon the accuracy of the estimated costs, benefits and probabilities in the data used.

Normal Distribution Theory

One of the quantities that would have to be estimated in Exhibit 7.2 is the probability that the observed variance was caused by an identifiable cause (i.e. other than random factors). Any variance can be caused by the everyday, random variations that occur in most observed data. Normal distribution theory is based upon the assumption that data are often normally distributed around a mean and that the use of standard deviation based calculations can identify the probability of an occurrence. Exhibit 7.3 illustrates how such statistical techniques could be applied to variance investigation considerations.

EXHIBIT 7.3	**The Use of Normal Distribution Theory in Variance Investigations**

Statistical investigation of past periods has identified that a particular direct unit variance has a mean value of £100, with a standard deviation of £20. Consequently, a value of £100 has been used as the standard cost per unit for this item. In the latest period, the same cost item had an observed value of £130.

The company wishes to use normal distribution theory to decide whether the variance from standard (i.e. £30 adverse) is likely to be worth investigating – that is, whether the variance is likely to have an identifiable, non-random, cause.

We can present the data above in a normal distribution graph. In Figure 7.5 the shaded area X represents the probability that an observed cost of £130 or greater would occur under normal conditions, that is, that the adverse variance of £30 had a non-random cause.

From normal distribution tables we can see that the probability of a cost of £130 or above is only approx. 7% (i.e. a Z score of 30/20 = 1.5), hence there is a 7% probability that the variance was the result of random unassignable causes. Thus we can conclude that there is only a small chance that the variance would not have an assignable cause.

How useful is this analysis? Well, we would still need to apply some subjective judgement and the analysis is only as good as our assumptions:

- The probability of the variance's occurring is only as reliable as the data upon which the calculations have been based.
- The value calculated does not give a positive yes/no answer to the question of whether it is worth investigating the variance. Although in the research world a figure of 5% or 10% is sometimes used to indicate whether something is significant, this approach is still arbitrary to some extent.
- The likelihood that the variance has an assignable (i.e. non-random) cause does not guarantee that it has a readily identifiable cause.
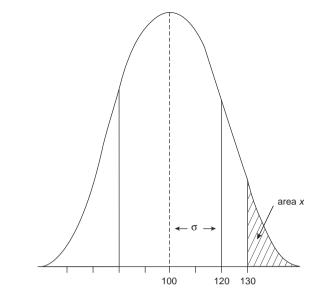
Figure 7.5   Investigation of latest direct unit variance in Exhibit 7.3

Control Systems and their Influence on Organisational Design

The interface between control systems and human behaviour has been a fertile ground for research activity. The application of accounting control systems may always lead to undesired behavioural consequences, sometimes even resulting in behaviour that is the opposite of that which was intended. All management accounting activity, whether in the area of standard costing, budgeting, decision making or control, carries with it the dangers of unintended adverse behavioural responses.

As we have seen in this and earlier chapters, enthusiasm to apply a given control technique may lead one to ignore the potential human reactions. Below are some brief summaries of some of the noted authors in this area. Fuller summaries of these articles are given in the recommended further reading section at the end of this chapter.

Principal–Agent Theory

Principal–agent or agency theory, discussed in more depth in Gietzmann (1995), considers the behavioural impacts of transactional relationships that exist within and between organisational players. In any transaction or business relationship the parties involved will have unequal amounts of power. The party in the stronger position (the principal) will attempt to enforce his/her requirements upon the weaker party (the agent) via the use of monitoring and control mechanisms. Management accounting systems may constitute such controls. The

agent, whose rewards or potential penalties will depend upon being seen to behave in the manner required by the principal, will be keen to be seen to be performing well. Thus the agent may be tempted to induce a degree of bias and incomplete/misleading information into the system ('moral hazard'). The agent's ability to do this will depend on the degree to which each party has access to the 'true position'. Thus 'information asymmetry' is a significant factor in the process. Such ideas are of obvious relevance to management accounting, whose effectiveness is only as good as the reliability of the information it produces.

Gietzmann (1995) gives an introduction to the underlying principles of agency theory, discussing the inferential control problem, moral hazard, and asymmetric information. Although the principal within a principal–agent relationship can select some form of reward system (e.g. results-based wages), there is no guarantee that this will result in desirable actions by the agent. Gietzmann describes, and illustrates mathematically, the principles and assumptions behind agency cost–benefit calculations when trying to optimise the agent's or principal's utility.

Chwastiak (1999) claims that principal–agent theory is loaded with capitalist subjectivity and that it thus legitimises exploitation of weaker parties – it is in the principal's interest. Chwastiak argues that it should have the aim of human enrichment rather than material gains for the owners of businesses. Accounting is seen as being representative of this process of abandonment of human rights/needs in favour of corporate interests. Such systems, Chwastiak argues, see humans as a means to an end, and impose a cold rationality on organisational decision making and control systems. Chwastiak argues that accounting, by taking a more holistic approach, could go some way to righting the balance between the means and ends of production.

Contingency Theory

Contingency theory, as it applies to management accounting, states that no one system is ideal for all situations. The effectiveness of a control or planning system will be dependent upon the extent to which it 'fits' the environment within which it operates. Management accountants must therefore be careful to optimise the appropriateness of the systems that they produce, and to monitor these systems' response to change.

Otley (1980) attempts to construct an improved model of a contingency theory of management accounting based around organisational control and effectiveness. He criticises many models of contingent variables as difficult to monitor/measure and as oversimplistic. He says that it is often 'impossible to separate the effect of an accounting information system from other controls; they act as a package and must be assessed jointly'. He adds that a fundamental issue is to find useful and meaningful ways of measuring effectiveness.

Behavioral Impacts, the Aspects of Power and Social Groupings and the Importance of Ethical Considerations

Robson and Cooper (1989) suggest that organisational goals exist within a 'social world' and are thus 'constructions', so management control systems may be seen as 'power

systems'. They identify several approaches to the idea of power. It is possible, they contend, to see power as either a positive or negative phenomenon, in the context of management accounting/control.

They examine the implications of different views of the sources/effects of power for management control systems and draw the links between their analysis and such areas as principal–agent theory and the 'received wisdom' regarding the traditionally assumed purposes of management accounting systems.

Merchant (1998) identifies the need to consider the rights, values and ethics of all stakeholders, and presents a range of socialist and capitalist views of management issues. He argues that a consideration of the ethical aspects of management issues may prevent managers/management accountants being 'unreservedly optimistic'. He discusses the differences between ethical and legal stances and explains that laws can be oversimplistic (e.g. 'do no harm', 'never lie') in a business context, although he argues that some (e.g. 'do unto others') can work quite well. He presents various models of ethics, describing how they may apply to management control issues. He suggests a framework for analysing ethical issues, which is essentially applicable in a similar fashion to many other decision-making models.

Merchant also gives an analysis of the ethical aspects of the budgetary slack/padding decision (e.g. the advantages of protecting the 'weak' against the disadvantages of inherently fraudulent practice). He provides similar, interesting analyses of the ethical issues involved in management control areas such as the 'massaging' of earnings and 'creative accounting'.

Additional commentaries on the role of power and ethics within management accounting are given by Burns (2000) – see the further reading section at the end of this chapter.

The Theory of Constraints

The theory of constraints is an idea promulgated by Goldratt and Cox (1984). Goldratt argues that commercial organisations should have only one goal – 'to make more profit now and in the future' – thus performance measures must indicate the firm's progress towards this goal.

Goldratt argues that by focusing on the 'cost world', management accountants tend to create 'local optima' which are not necessarily congruent with global optima. The theory of constraints, also known as *throughput accounting,* promotes the idea that global performance (i.e. performance of the whole organisation) may be usefully gauged (Goldratt, 1990a) in terms of:

- *throughput*, which is defined as sales less raw (direct) materials;
- *inventory*, i.e. money invested in things which it is intended to sell (including plant, property, equipment and stocks);
- *operating expense*, i.e. money spent on converting inventory into throughput

(note that Goldratt's definitions of these items are not the traditional ones). The overall aim (goal), according to Goldratt, is to 'increase throughput while decreasing inventory and operating expense'. Goldratt feels that this focus should be enough to ensure the

success of the organisation and, for control purposes, suggests suitable performance measures, including:

- net profit (throughput minus operating expense)
- return on inventory (net profit divided by inventory)
- productivity (throughput divided by operating expense)
- inventory turnover (throughput divided by inventory).

Goldratt argues that, to maintain continuous improvement, management accountants should change their priorities as follows:

Priority	Cost-world orientation (focus)	Throughput-world orientation
1st	operating expense	throughput
2nd	throughput	inventory
3rd	inventory	operating expense

Goldratt argues that, although many apparent constraints exist within an organisation, only a few real constraints (*bottlenecks*) exist, and he calls the process of isolating (and eliminating) these 'focusing'.

A wider reading of Goldratt's work (which evolved and developed over time) is necessary to fully understand his proposals (see Goldratt, 1990b). Many criticisms have been made of Goldratt's work, for example regarding its potential to increase short-termism, although Goldratt has commented that a contingent/flexible approach should be taken when applying the principles of the theory of constraints within any organisation.

The Link between Control and Decision making

One thing should be relatively clear from a reading of the authors mentioned above. The various considerations of ethics, agency relationships and power all have implications for both control and planning systems. The behavioural consequences resulting from control systems set up in the past may also be observed in the future, as a result of the decisions made today. In effect, the planning systems of today lead to the control systems of tomorrow and so planning and control systems are part of a continuum, rather than separate entities. This understanding implies that management accountants should consider both aspects simultaneously within their professional activities.

Conclusions

This chapter has shown that:

- standard costing needs to be adapted in an effort to increase its appropriateness to modern business environments.

- care should be taken not to produce standard costing information that is unnecessary, irrelevant or of little value;
- variances should be analysed in the most appropriate way, to suit the user's needs;
- a significant amount of theoretical background exists to the control process which can help the management accountant to understand the context and impacts of her/his activities;
- among the most significant theories are contingency theory, agency theory and theories associated with ethics and power.

Summary

In this chapter we have considered the extent to which standard costing is still relevant in today's organisational environment. We have seen that standard costing's history is in the industrial, mass-production setting and that its significance may be less today, particularly in non-manufacturing environments. We have looked at some attempts to increase its relevance but have also realised that one should not get too carried away in trying to maintain a technique for its own sake. We have looked in more detail at some of the behavioural theories that underlie the practice of management accounting. It is important to realise that, when studying such theories, we take a critical and enquiring stance and consider the practical applicability of such theories to any given setting.

Recommended Further Reading

Otley, D.T. (1980) 'The contingency theory of management accounting: achievement and prognosis', *Accounting, Organisations and Society*, **5(4): 413–428.**
Otley attempts to construct an improved model of a contingency theory of management accounting based on organisational control and effectiveness.

He cites the contingency approach, according to which 'there is no universally appropriate accounting system'. He mentions the work of Charles T. Horngren who argues that the management accounting system and the organisation structure are inseparable, and that of J. Dermer (*Management Planning and Control System*, 1977), who argues that there is no prescribed system, only possibilities of what might be done in any particular situation. Otley's empirical results (to 1980) suggested the following contingent variables:

- the effect of *technology structure* (production technology, task complexity/variety, etc.)
- the effect of *organisation structure* (hierarchy, rigidity, style of budget use, etc.)
- the effect of the *environment* (competition types/force etc.)

Otley suggests that the earlier contingency theory of organisations led to the applications to management accounting although, since 1979, the contingency theory of organisations had been heavily criticised. He refers to the work of a number of writers in this area:

- Bruns and Waterhouse 'Budgetary control and organization structure', (1975) suggest two modes of control strategy (administrative and interpersonal) suitable for different organisational arrangements.
- In 1977 D.C. Hayes published an article, 'The contingency theory of management accounting', in which he suggests that subunit interdependence, environmental relationship and internal factors of subunits are important to subunit performance.
- L.A. Gordon and D. Miller's article 'A contingency framework for the design of accounting information systems' (1976) tried to construct a comprehensive framework of contingent variables. Waterhouse and Tiesen 'A contingency framework for management accouting systems research', (1978) propose a much simpler framework with two main variables – environment (simple/complex; static/dynamic) and technology (degree of routineness, etc.).
- Dermer suggests that management accounting information system design depends upon the objectives of the system; the differentiation and decentralisation form chosen; the nature and mix of the processes being controlled; and the managerial style of senior managers.

Otley proposes a linear framework of AIS design:

contingent variables—organisational design—type of AI system—organisational effectiveness

He criticises many models of contingent variables as difficult to monitor/measure and as oversimplistic. He says that it is often 'impossible to separate the effect of an [accounting information system] from other controls; they act as a package and must be assessed jointly'.

Otley and Berry (1980) suggest that four characteristics are necessary for effective control:

- clearly specified objectives;
- a measure of the degree of attainment of that objective;
- a predictive model of the likely outcomes (of the control system);
- the ability and motivation to act.

They add that a fundamental issue is to find useful and meaningful ways of measuring effectiveness and of gauging the effect of the accounting information system information.

Robson, K. and Cooper, D.J. (1989) 'Power and management control', in W.F. Chua, E.A. Lowe and A.G. Puxty (eds), *Critical Perspectives in Management Control*, London: Macmillan, pp. 79–114.

Robson and Cooper suggest that organisational goals exist within a 'social world' and are thus 'constructions', so management control systems may be seen as 'power systems'. They identify several approaches to the idea of power, some of which are outlined below. It is possible to see power as either a positive or negative phenomenon, in the context of management accounting/control.

Objectivist approaches have a behavioural concern with 'who has power'. Power is a negative force, denying the interests of others. Empirically:

- *pluralism* concentrates upon observing conflict as society or organisations try to influence others.
- *elitism* also looks at who decides 'what is to be decided', by focusing on observable conflicts.
- *radicalism* involves identifying the 'real interests' of those over whom power is exercised (i.e. not the artificial 'needs' into which they have socialised). This, of course, is difficult to do.

Overall, the objectivist paradigm treats power as 'an exercise and a simple relation between individuals'. Few management control/accounting textbooks mention power, its origins, forms or effects, except when conflict is at issue (e.g. in identifying who influences budgets and strategies). Very few studies of management control and power take either elitist or radical approaches. They all tend to ignore the *source* of power and tend to focus on the actions of individuals.

The *integration* approach is concerned with the 'power to do', that is, power as an 'economic medium'. In this context, power is legitimised through 'binding obligations' secured by those with the capacity to do so, via collective, normative consensus. Here, power need not be linked with conflict if societal, normative consensus exists. It recognises, however, that 'common goals' may arise via manipulation. Power is seen as a property of societies, through social conditioning, for example at school and via everyday life (a view similar in some ways to that of Foucault). Within this paradigm, the management control literature sees power as an 'enabling force' within a reasonably static and harmonious environment. It thinks of principal–agent theory as merely the principal's problem, and that if the principal is satisfied, so will be the agent. Robson and Cooper refer to work of Michael Crozier, who sees the source of power in the control of 'critical uncertainties', and to that of John French, Jr. and Bertram Raven, who identify power as having five main sources or types – reward; expert; coercive; legitimate; referent. Such ideas, similar to those of Talcott Parsons, arise out of the 'social system' concept. Some views add that power comes additionally from environmental, as well as, organisational factors (i.e. from outside as well as within the organisation).

Marx suggests that power is derived from past actions, economic practices and modes of production. *Historical materialism* looks at the social transformation and power relationships that derive from different modes of production. Robson and Cooper refer to Nicos Poulantzas who sees power as the 'capacity of a class to realise its objective interests', but denies that *class* is the foundation of power. He sees power as being an *effect* of the levels in the hierarchical order, rather than as residing within the levels (i.e. power tends to overlook the individual as a 'conscious, self-determining entity'). Robson and Cooper point to other factors affecting power, such as state exploitation, gender conflict and racial discrimination, and criticise historical materialism for adding little to our knowledge of the operation of power in everyday life, while conceding that it does recognise power's historical context.

Robson and Cooper feel that taking a historical materialist approach puts management control in a historical context and sees management control systems as dynamic and contingent, helping to produce the social world in which they operate. Management is seen as having little autonomy (i.e. it must follow the wishes of capitalists, in conflict with labour). Standard costing is, for example, seen as a means of transferring specialist knowledge to managers who can then control the work, thereby dominating labour. Return on capital employed is also seen as a tool of the domination of labour by capitalists. Much academic work has revolved around the 'labour process', the appropriation process, direct surveillance and the coercion of productive labour via formal organisation, planning, reward and training systems all in the interest of capitalists' enlarging the capital. They refer to the work of P. Armstrong, who discusses the increasing centrality of the role of accountants in industry (by taking advantage of their role in the appropriation process).

Concerning disciplinary power, Robson and Cooper also refer to Foucault (1977), who underlines the notion of progress by the delegitimising of the present. He argues that (through surveillance, regulation of the 'self', etc.), power produces knowledge. Foucault argues that power is exercised more efficiently through invisible, 'lenient' approaches to produce the human being as a 'docile body'. Discipline can be seen as a form of domination, or as a way of increasing utility. He argues that disciplinary power creates individuals, how to position/judge them and how to induce self-regulation.

Robson and Cooper discuss the implications for management control (and management accounting) of the foregoing. The surveillance of managers via cost accounting, budgets and performance reports increases the domination of (power over) managers and productive workers, and faster communications increase the ability to dominate/discipline. Much of current accounting systems (see Loft, 1995) relates to the control of industry by the military during the war years, as the idea of 'intelligence' crossed over to the industrial sector. R&C conclude that management control practices have not evolved out of a rational need to control/allocate resources. The desire on the part of capitalists and the state to dominate has, they argue, played a big part. Power (if we agree with Foucault) comes with knowledge.

Merchant, K.A. (1998) 'Management control-related ethical issues and analyses', in *Modern Management Control Systems*, Prentice Hall, pp. 697–712.

Merchant identifies the need to consider the rights, values, and ethics of all stakeholders, and presents a range of socialist and capitalist views of management issues. He argues that a consideration of the ethical aspects of management issues prevent managers and management accountants being 'unreservedly optimistic'. He suggests that senior managers (such as management accountants) have the opportunity to act as 'moral exemplars'. He discusses the differences between ethical and legal stances and explains that laws can be oversimplistic (e.g. 'do no harm', 'never lie') in a business context, although he argues that some (e.g. 'do unto others') can work quite well.

Merchant presents various models of ethics, describing how they may apply to management control issues. He explains that *Utilitarianism* judges the 'righteousness' of actions based on their consequences (and the amount of good or bad they cause). He explains that there is a need to consider group vs. individual utility giving the examples of the decisions that need to be taken wherein 'the needs of the many outweigh the needs of the few'.

Merchant considers the issues of *Right and Duties*. He poses the question of how we know what rights are or whether they actually exist. He comments on the dangers of the over-proliferation of claimed rights. *Justice*, Merchant explains, is based on equity, expressed through the introduction of systems of penalties, compensation and so on. Additionally, Merchant considers the concept of *Virtues* – integrity, loyalty, courage etc. – and he describes how such concepts are difficult to define and impose in the practical situation.

Merchant gives an example of a 'code of conduct' and the difficulties its application might cause. He suggests a framework for analysing ethical issues which is essentially similar to any other decision-making model:

- defining the 'facts';
- defining the ethical issues;
- specifying alternative courses of action;
- evaluating and choosing the best alternative.

Merchant also gives an analysis of the ethical aspects of the budgetary slack/padding decision (e.g. the advantages of protecting the 'weak' against the disadvantages of inherently fraudulent practice). He provides similar, interesting analyses of the ethical issues involved in management control areas such as the 'massaging' of earnings and 'creative accounting'.

Gietzmann, M. (1995), 'Introduction to agency theory in management accounting', in Ashton D, Hopper T and Scapens R, Issues in *Management Accounting* (2nd edition), Hemel Hempstead, Prentice Hall, 259–272.

Principal–agent theory or agency theory relates to decentralised organisations and arises out of the need for delegation. Where delegation exists, the transparency of decision making disappears. Agency theory looks at the 'costs' of delegation arising out of such unobserv-ability of decision making at other levels.

The organisation can be seen as a set of transactions or relationships between princi-pals and agents and controls designed (with their associated cost effects) to ensure that the agent acts in the best interests of the principal.

Gietzmann gives an introduction to the underlying principles of agency theory, focus-ing on the inferential control problem and on moral hazard.

The inferential control problem is that performance measurement is usually carried out by results/outputs and thus the principal can only infer what efforts/actions by the agent caused these (imperfectly measured and represented) results. Chance, for instance, will have some indeterminable effect on results. Similarly, the causal relationship of input/result is not perfectly known by the agent. Agency theory also assumes wealth-maximising and work-averse (theory X) agents.

Moral hazard concerns itself with the problem that, although the principal can select some form of reward system (e.g. results-based wages), there is no guarantee that this will result in desirable actions by the agent.

The article describes, and illustrates mathematically, the principles and assumptions behind agency cost–benefit calculations when trying to optimise the agent's/principal's utility. The illustration presented is worth following through to obtain a feel of the

assumptions and quantifications, which would be necessary, if one were to attempt a practical application of the theory.

One issue to consider (again, an illustration is given) is that the effort required to produce an optimum reward for the agent may not be the highest effort level, nor that which is optimal to the principal.

Throughout the article, the idea of the asymmetry of information is identified, an idea which has implications for many areas of management accounting.

Chwastiak, M. (1999) 'Deconstructing the principal–agent model: a view from the bottom', *Critical Perspectives on Accounting*, **10: 425–441.**

Chwastiak claims that principal–agent theory is loaded with capitalist subjectivity and that it thus legitimises exploitation; that is, principal–agent theory is seen as being in the *principal's* interest. He argues that PAT should have the aim of human enrichment rather than material gains.

Chwastiak argues that principal–agent theory is legitimised by giving the appearance that it is in everyone's interest, good for the labour force as well as for the principal. It does so by equating wealth accumulation with self-realisation, thus ignoring the richer aspects of the human experience. He argues that principal–agent theory supports the growth of the economy, ignoring human needs. Accounting is seen as being representative of this process of abandonment of human interests for corporate ones. Such systems see humans as a means to an end, and impose a cold rationality on organisational decision making and control systems.

Chwastiak suggests that such exploitative systems tend to alienate agents and destroy their potential for autonomy and self-fulfilment. Additionally, such systems, he claims, will tend to have destructive effects upon the environment and world order. Chwastiak recommends that a system that supports organisational 'kinship' rather than partisan relationships (as in principal–agent theory) should be sought and that accounting, by taking a more holistic approach, could go some way to righting the balance between the means and ends of production.

The rather emotional, left-wing, revolutionary style of the article may not find much favour with accounting/finance-based readers, but this may be a result of such readers' entrenched traditionalist views (as a result of their conventional business/accounting education?).

Case study: Dayview Ltd

Dayview Ltd was established in 1975 and manufactures a range of night-sighting optical (NSO) equipment. The company was founded by two brothers, Mike and Terry Scope, both of whom had previously worked as skilled engineers in the optical instrument industry.

Until 1994, the company had produced its products entirely under contracts with the British armed forces. Since 1994, it has supplied, also via annual contracts, three overseas military customers. The new overseas contracts have required modifications to Dayview's standard product specifications and have resulted in a total range of six product variations.

The Scope brothers have recently become increasingly worried about the decline in volume of their company's sales to the military and they have been exploring new product/market possibilities. Several potential new developments have been identified, including the following:

- *Multi-purpose spectacles.* A recent discovery by a Dublin-based sunglasses manufacturer, O'Clea and Co., has made it possible to design spectacles that could provide sun protection during the day as well as enhancing vision if worn at night. It is envisaged that such a new product would appeal to both the outdoor pursuits and fashion markets. A tentative agreement has been reached whereby Dayview Ltd would develop and perfect the products and all marketing services would be managed by O'Clea and Co.
- *Extension of existing markets.* Despite the decline of the military markets, Terry Scope is convinced that the company's existing NSO products could, with some slight modifications, be made attractive to the outdoor pursuits market. Substantial cost savings would have to be made, however, in order to be able to offer such products at prices which would be acceptable to customers in the new market.

The company is quite cash-rich at present and Terry has suggested to Mike and the other shareholders that the company's surplus liquidity could be used to finance a substantial increase in the company's manufacturing equipment and storage facilities.

Hitherto, the company has utilised mainly skilled labour-based methods of manufacture, but Mike insists that the proposed product developments would require a considerable modernisation of production methods, including the introduction of highly automated production systems and the need to embrace modern ideas such as just-in-time manufacturing and total quality management. It is felt by the Scope brothers that the potential increase in the company's markets should counteract the need to make staff redundant as a result of the new technology. Rather, they hope, some of the productive staff will be moved into administrative roles in order to manage the larger and more complex company. The brothers have already earmarked some of the less efficient production staff for these roles, including a large proportion of the company's long-serving employees.

Dayview Ltd's finance manager, Iris Coffey, is worried about the future, although she has not expressed her fears to either of the Scope brothers. They are too busy, she reasons, with the technical side of the business to be bothered with problems of a general managerial or financial nature. Although Iris's official duties are financially-orientated, as the firm has expanded she has additionally become its unofficial general manager and administrative manager. Her concerns about the future are related to several areas:

- Iris is not a formally trained or qualified accountant. What financial knowledge she does have has been acquired through her employment by Dayview Ltd, which she joined nine years ago. She feels that the planned expansion of the company will place her 'out of her depth'.
- Although she has taken upon herself many additional administrative duties, Iris feels that she will not have the time for these in the future, nor does she feel that

she has the experience or skills to manage the additional (ex-production) staff resulting from Terry and Mike's reorganisation plans.

- The company's current financial systems have been developed to satisfy the requirements of Dayview Ltd's auditors. Apart from a rudimentary standard cost-ing system (which has not been altered, since it was installed by a friend of Mike's in 1991) and a budgeted profit and loss account which is produced twice a year, there is little produced in the way of management information.

- The demands being made on Iris's time have meant that a backlog of creditors has built up this year and several component suppliers are complaining that they have not been paid for several months. Iris hopes to settle these matters soon and is keen not to let the Scope brothers know about her inefficiency in this area.

Dayview's existing production operatives have heard, from Iris, about the Scope brothers' plans. Naturally, they are worried about the security of their future employment and, because many of the operatives rely heavily on piecework bonuses and overtime pay, there is great concern about of their future roles within Dayview Ltd. Many of the company's pro-duction workers have worked for Dayview Ltd since it was established and they have become very proficient at producing the company's products well within the standard times. They fear that, even if they remain within production roles, the company's planned new products and production methods will disturb their comfortable working lives. Some operatives have started to seek similar employment elsewhere in the local area.

Dayview employs a production manageress, Ida Seymour, who is very keen to maintain the quality of the company's products. She is concerned that an expansion of Dayview Ltd's product range, combined with new technology and cost-cutting exercises, could have an adverse effect on quality. Although she has been aware for several years that the pro-ductive workforce is not over-stretched by the existing standard times, she has not relayed this information to the Scope brothers as she feels that quality would suffer under a more stringent regime. Additionally, the relaxed factory atmosphere has made it possible for her to maintain good social relationships with members of the productive workforce.

Ida is rather worried that the rumoured reorganisation plans would mean her being in control of technology and production methods with which neither she nor the workforce will have had any previous experience. She is also worried that, if staff are moved to office positions on the basis of their apparently low efficiency, she will lose the very workers who she rates as being responsible for the presently high quality standards.

Given below are examples of Dayview Ltd's existing reports.

Dayview Ltd

Budgeted Profit and Loss Account for January 2004

		£	£	£
Sales:	Military – UK		95,000	
	Military – overseas		20,000	
				115,000

Materials:	direct	20,000		
	bought-in parts	15,000		
			35,000	
Direct labour			30,000	
Factory overhead			20,000	
			85,000	
Stock adjustment			(15,000)	
Factory cost of sales				70,000
Gross profit				45,000
Non-factory overheads				(20,000)
NET PROFIT				25,000

Dayview Ltd

Budget Report December 2003

	Budget £000	Actual £000	Variance £000	%
Sales: Military – UK	100	90	(10)	(10)
Military – o'seas	15	20	5	33
	115	110	(5)	(4)
Materials: Direct	20	23	(3)	(15)
Bought-in	12	14	(2)	(17)
	32	37	(5)	(15)
Direct labour	22	18	4	18
Factory overhead	16	23	(7)	(46)
Stock adjustment	(12)	(12)	—	
Factory cost of sales	58	66	(8)	(14)
Non-factory overheads	20	18	2	10
Total costs	78	84	(6)	(8)
NET PROFIT	37	26	(11)	(30)

Dayview Ltd

Standard Cost Card Product NSO 1

Last Update: 21st Nov 1998

Materials:		Units	£ per unit of resource	£ per unit of product
	Matl'l A	2	15	30
	Mat'l B	1	20	20
	Mat'l C	10	10	10
				60

Components:					
	Comp. L	5	1	5	
	Comp. M	4	2	8	
	Comp. N	1	5	5	
	Comp. O	3	6	18	
	Comp. P	1	2	2	
	Comp. Q	1	12	12	
					50
Direct Labour:					
	Grade I	2	4	8	
	Grade II	5	5	25	
	Grade III	3	3	9	
					42
PRIME COST					152
Factory Overhead @ 30% prime cost					46
Total production cost					198
GROSS PROFIT @ 40% selling price					132
SELLING PRICE					330

1. In a management accounting information system context, identify the main behavioural problems which have occurred, and which are likely to occur in the near future, at Dayview Ltd. You should make reference to appropriate literature in discussing these problems.
2. Discuss the extent to which such problems might be overcome by making changes to Dayview Ltd's management accounting information system.
3. Analyse the extent to which Dayview Ltd's present decision-making process follows a classical decision-making model.
4. Suggest improvements which could be made to Dayview Ltd's current management accounting information system in an effort to improve the company's decision-making, at both an operational and a strategic level. Be *specific* about the information required.

Questions

1. 'The necessity for constantly increasing efficiency is a basic fact of business life. Budgets are utilised as pressure devices for that purpose. But because of the effect of budgets on people, they tend to generate forces which in the long run decrease efficency' (Argyris, 1953). Explain the ways in which budgets can in the long run decrease efficiency and examine how management can prevent this occurring.

2. A new management accountant in your company has sent to managers of the company the following memorandum:

To: Production Plant Managers
From: P. Richards, Management Accountant
Subject: Management Information
Date: April 30, 2004

The first area to which I shall be attending is the budgetary control system. In my view the main problems have been those of quantity and quality of information. You have been receiving too little information to control effectively. I intend to provide you with much more information although, of course, this will mean slight delays in its preparation.

Referring to the issue of quality of information, you have become used to receiving information that is not accurate enough. You cannot be expected to manage effectively without the backup of reliably accurate information. I shall therefore be installing new computerized systems to increase the accuracy and reliability of the control information that you receive.

As you are aware, the manufacturing process is very complex and technical. It seems that current budgetary reports are produced in a form that fails to reflect this degree of complexity. I shall ensure that in future the nature of the control information produced matches the technical complexity of the production process.

Finally, there seems to have been some slowness in preparing annual budgets in the past. In order to overcome this problem, I shall endeavour to provide you with your annual budgets in good time. Should you find that problems arise out of using these budgets, please inform me as soon as possible.

The memorandum has received an unfavourable response from plant managers. Discuss the underlying reasons that are likely to have caused the adverse reaction.

3. The production manager at Breaklack has been called to an urgent meeting by the managing director to discuss his annual performance-related bonus payment.

He has been unhappy in his job for some time, and has found it increasingly difficult to meet the production targets set for him by the sales manager, or to stay within the budget imposed by the management accountant, and has never had any input into the setting of these targets. He knows the level of his bonus payment is dependent on meeting the targets set, and is fearful that he will not receive enough to pay for the summer holiday he has just booked!

Having never had any training in budgetary control, he finds it difficult to understand the adverse variance reports that arrive on his desk every two months, or even how his cost targets are worked out in the first place. He has heard the accountant talking about 'standard costs' but has no idea what these are. Over the past six months the material price adverse variance has been increasing dramatically, but he cannot understand why, as all materials come from the central stores and are bought by the purchasing manager without reference back to the production department.

He has also often wondered why his budget for materials and labour never seems to increase, even though the sales manager regularly asks him to increase production to meet

an increased level of anticipated sales. He usually manages to meet these increased targets, but his staff often have to work overtime to do so. Having discussed the matter with the production supervisor they were in agreement that increasing production was bound to lead to higher costs in some areas – so why was this never reflected in his budget?

(a) Discuss the underlying problems with the budgetary control system in operation at the company.

(b) Identify ways in which the system could be improved.

4. Discuss the key factors that would be considered in determining whether a cost variance should be investigated.

5. Examine the interrelationships of budgeting, creativity and culture and discuss the implications of such interrelationships for management control systems.

6. Contingency theory has played a significant role in the management accounting literature of the past two decades. Critically examine the role of contingency theory in contemporary management accounting thinking.

7. Various writers have commented upon the prerequisites for control, that is, the conditions and control system features that must be in place before effective control may take place. Identify and explain the prerequisites necessary for accounting control and analyse the difficulties that might be experienced in achieving them.

8. Discuss the interrelationships between principal–agent theory and performance measurement systems within multinational corporations.

9. Critically compare the interpretations of management accounting history of the 'relevance lost' and 'traditional/classical' schools of thought, commenting on the implications of such interpretations for the practice of management accountants.

10. The theory of constraints as described by Eliyah Goldratt, has generated some interest in management accounting circles in recent years. Critically examine the conceptual basis of the theory of constraints and evaluate its usefulness to management accounting practitioners.

11. The focus of management accounting research has moved, in recent years, away from a prescriptive/normative mode towards more prescriptive/analytical approaches. Identify the factors influencing this change in research focus, and assess their importance.

12. Preston (1995) suggests that relationships exist between budgeting, creativity and culture. Examine the influence of budgetary processes and styles on creativity within an organisation and explain the associated consequences for strategic management.

13. 'The management accountant's role is that of a servant of managers, assisting them by supplying appropriate information. Management accountants thus have little need to consider ethical or empowerment issues.' Give, and justify, your opinion on this statement.

14. Evaluate the significance of principal–agent theory for management accountants and outline its conceptual and practical limitations.

15. Why would anyone take the trouble to study the history of management accounting? Identify the benefits and beneficiaries of such a study, examining critically the work already carried out in this area.

16. Several writers have drawn attention to the 'contingent variables' which determine management accounting information systems. Identify, and discuss the significance of, such contingent variables and examine the practical value of the contingency theory of management accounting.

17. Various views exist on whether management accounting has been reactive or proactive in the development of western businesses. Critically analyse the role played by management accounting in shaping the evolution of businesses in western economies, and comment on the views of the 'labour process' school of thought.

18. Coad (1999) proposed that the personal orientation of management accountants might affect their choice and application of management accounting systems. Evaluate this proposition.

19. Two theories prominent in management accounting thought are principal–agent theory and contingency theory. For *one* of these theories:

    (i) analyse the main implications for management accounting within a fast-moving environment;
    (ii) critically analyse the theory's underlying assumptions.