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MANAGEMENT CONTROL SYSTEMS

LEARNING OBJECTIVES After studying this chapter, you should be able to:

- describe the three different types of control used in organizations;
- distinguish between feedback and feed-forward controls;
- explain the potential harmful side-effects of results controls;
- define the four different types of responsibility centre;
- explain the different elements of management accounting control systems;
- describe the controllability principle and the methods of implementing it;
- discuss how the level of difficulty of targets impacts on motivation and performance;
- describe the influence of participation in the budgeting process;
- distinguish between the different approaches that managers use to evaluate budgetees' performance.

Control is the process of ensuring that a firm's activities conform to its plan and that its objectives are achieved. There can be no control without objectives and plans, since these predetermine and specify the desirable behaviour and set out the procedures that should be followed by members of the organization to ensure that a firm is operated in a desired manner.

In an article published many years ago Drucker (1964) distinguished between 'controls' and 'control'. **Controls** are measurement and information, whereas control means direction. In other words, 'controls' are purely a means to an end; and that end is control. **Control** is the function that makes sure that actual work is done to fulfil the original intention and 'controls' are used to provide information to assist in determining the control action to be taken. For example, material costs may be greater than budget. 'Controls' will indicate that costs exceed budget and that this may be because the purchase of inferior quality materials causes excessive wastage. 'Control' is the action that is taken to purchase the correct quality materials in the future to reduce excessive wastage. 'Controls' encompass all the methods and procedures that direct employees towards achieving the organization objectives. Many different control mechanisms are used in organizations and the management accounting control system represents only one aspect of the various control mechanisms that companies use to control their managers and

employees. To fully understand the role that management accounting control systems play in the control process, it is necessary to be aware of how they relate to the entire array of control mechanisms used by organizations. Note that the term **management control system** is used to refer to the entire array of controls used by an organization.

This chapter begins by describing the different types of controls that are used by companies. The elements of management accounting control systems will then be described within the context of the overall control process.

CONTROL AT DIFFERENT ORGANIZATIONAL LEVELS

Control is applied at different levels within an organization. Merchant and Van der Stede (2017) distinguish between strategic control and management control. **Strategic control** has an external focus. The emphasis is on how a firm, given its strengths and weaknesses and limitations, can compete with other firms in the same industry. We shall explore some of these issues in Chapter 21 within the context of strategic performance management. In this, and the next four chapters, our emphasis will be on management control systems which consist of a collection of control mechanisms that primarily have a shorter-term internal focus. The aim of management control systems is to influence employee behaviours in desirable ways in order to increase the probability that an organization's objectives will be achieved. Merchant and Van der Stede define management control as dealing with employees' behaviour. They state:

It is people in the organization that make things happen. Management controls are necessary to guard against the possibilities that people will do something the organizations do not want them to do or fail to do something they should do . . . If all employees could always be relied on to do what is best for the organization there would be no need for management control systems.

The terms 'management accounting control systems', 'accounting control systems' and 'management control systems' are often used interchangeably. Both management accounting and accounting control systems refer to the collection of practices such as budgetary planning and control, standard costing and periodic performance reporting that are normally administered by the management accounting function. Management control systems, however, represent a broader term that encompasses management accounting/accounting control systems but also includes other controls such as action, personnel and social controls. These controls are described in the following section.

DIFFERENT TYPES OF CONTROL MECHANISM

Companies use many different control mechanisms to cope with the problem of organizational control. To make sense of the vast number of controls that are used we shall classify them into three categories using approaches that have been adopted by Ouchi (1979) and Merchant and Van der Stede (2017). They are:

- 1** action (or behavioural) controls;
- 2** personnel, cultural and social controls;
- 3** results (or output) controls.

You should note that management accounting systems are normally synonymous with output controls whereas management control systems encompass all the above categories of controls.

Action or behavioural controls

Behavioural controls (also known as **action controls**) involve observing the actions of individuals as they go about their work. They are appropriate where cause and effect relationships are well understood,

so that if the correct actions are followed, the desired outcomes will occur. Under these circumstances, effective control can be achieved by having superiors watch and guide the actions of subordinates. For example, if the supervisor watches the workers on the assembly line and ensures that the work is done exactly as prescribed, then the expected quality and quantity of work should ensue. Forms of action controls described by Merchant and Van der Stede include behavioural constraints, preaction reviews and action accountability.

The aim of *behavioural constraints* is to prevent people from doing things that should not be done. They include physical constraints, such as computer passwords that restrict accessing or updating information sources to authorized personnel, and administrative constraints such as imposing ceilings on the amount of capital expenditure that managers may authorize is an example of an administrative constraint.

Preaction reviews involve the scrutiny and approval of action plans of the individuals being controlled before they can undertake a course of action. Examples include the approval by municipal authorities of plans for the construction of properties prior to building commencing, or the approval by a tutor of a dissertation plan prior to the student being authorized to embark on the dissertation.

Action accountability involves defining actions that are acceptable or unacceptable, observing the actions and rewarding acceptable or punishing unacceptable actions. Examples of action accountability include establishing work rules and procedures and company codes of conduct that employees must follow. Line item budgets that were described in the previous chapter are another form of action accountability whereby an upper limit on an expense category is given for the budget period. If managers exceed these limits they are held accountable and are required to justify their actions.

Action controls that focus on *preventing* undesirable behaviour are the ideal form of control because their aim is to prevent the behaviour from occurring. They are preferable to *detection* controls that are applied after the occurrence of the actions because they avoid the costs of undesirable behaviour. Nevertheless, detection controls can still be useful if they are applied in a timely manner so that they can lead to the early cessation of undesirable actions. Their existence also discourages individuals from engaging in such actions.

Personnel, cultural and social controls

Social or cultural controls involve the selection of people who have already been socialized into adopting particular norms and patterns of behaviour required to achieve an organization's objectives. For example, if the only staff promoted to managerial level are those who display a high commitment to the firm's objectives then the need for other forms of controls can be reduced. Social/cultural controls represent a set of values, social norms and beliefs that are shared by members of the organization and that influence their actions. Control is exercised by individuals over one another – for example, procedures used by groups within an organization to regulate performance of their own members and to bring them into line when they deviate from group norms.

Personnel controls involve helping employees do a good job by building on employees' natural tendencies to control themselves. In particular, they ensure that the employees have the capabilities (in terms of intelligence, qualifications and experience) and the resources needed to do a good job. This requires appropriate training to ensure that employees know how to perform the assigned tasks and to make them fully aware of the results and actions that are expected from them.

Results or output controls

Output or results controls involve collecting and reporting information about the outcomes of work effort. The major advantage of results controls is that senior managers do not have to be knowledgeable about the means required to achieve the desired results or be involved in directly observing the actions of subordinates. They merely rely on performance reports to ascertain whether or not the desired outcomes have been achieved. Management accounting control systems can be described as a form of

output controls. They are mostly defined in monetary terms such as revenues, costs, profits and ratios such as return on investment. Results measures also include non-accounting measures such as the number of units of defective production, the number of loan applications processed or ratio measures such as the number of customer deliveries on time as a percentage of total deliveries.

Results controls involve the following stages:

- 1 establishing performance measures that the organization wishes to monitor;
- 2 establishing performance targets;
- 3 measuring performance;
- 4 providing rewards or punishment.

The *first stage* involves selecting performance measures for those aspects of activities that the organization wishes to monitor. Ideally, desirable behaviour should improve the performance measure and undesirable behaviour should have a detrimental effect on the measure.

The *second stage* requirement of a preset performance target informs individuals what to aim for and enables employees or their superiors to interpret performance. The *third stage* specified above relates to measuring performance. Ability to measure some outputs effectively constrains the use of results measures. In the previous chapter, it was pointed out that the outputs in non-profit organizations are extremely difficult to measure and inhibit the use of results controls. To encourage the right behaviours results, measures should also be timely and understandable. Significant delays in reporting will result in the measures losing most of their motivational impact and a lengthy delay in taking remedial action when outcomes deviate from target. If measures are not understandable it is unlikely that managers will know how their actions will effect the measure and there is a danger that the measures will lose their motivational impact.

The *fourth and final stage* of results controls involves encouraging employees to achieve organizational goals by having rewards (or punishments) linked to their success (or failure) in achieving the results measures. Organizational rewards include salary increases, bonuses, promotions and recognition. Employees can also derive intrinsic rewards through a sense of accomplishment and achievement. Punishments include demotions, failure to obtain the rewards and possibly the loss of one's job.

FEEDBACK AND FEED-FORWARD CONTROLS

Feedback control involves monitoring outputs achieved against desired outputs and taking whatever corrective action is necessary if a deviation exists. In **feed-forward control**, instead of actual outputs being compared against desired outputs, predictions are made of what outputs are expected to be at some future time. If these expectations differ from what is desired, control actions are taken that will minimize these differences. The objective is for control to be achieved before any deviations from desired outputs actually occur. In other words, with feed-forward controls, likely errors can be anticipated and steps taken to avoid them, whereas with feedback controls, actual errors are identified after the event and corrective action is taken to implement future actions to achieve the desired outputs.

A major limitation of feedback control is that errors are allowed to occur. However, this is not usually a significant problem when there is a short time lag between the occurrence of an error and the identification and implementation of corrective action. Feed-forward control is therefore preferable when a significant time lag occurs. The budgeting process is a feed-forward control system. To the extent that outcomes fall short of what is desired, alternatives are considered until a budget is produced that is expected to achieve what is desired. The comparison of actual results with budget, in identifying variances and taking remedial action to ensure that future outcomes will conform with budgeted outcomes, is an illustration of a feedback control system. Thus, accounting control systems consist of both feedback and feed-forward controls.

REAL WORLD VIEWS 16.1

Defining success on what is spent rather than what is achieved

The British government has pledged to spend 0.7 per cent of national aid resulting in £12 billion being allocated to the Department for International Development's (DfID's) aid budget despite the fact that the Independent Commission on Aid Impact published a scathing report on DfID's efforts to help developing countries. It concluded that the programmes had unrealistic targets and their performances were not properly assessed.

'There is almost nothing better designed to perpetuate wastefulness than the knowledge that the overall budget is guaranteed come what may', writes Dominic Lawson in *The Sunday Times* (2015). He cites that in 2012 the House of Lords' economic affairs committee warned that this target 'wrongly prioritizes the amount spent rather than the result

achieved; it makes the achievement of the spending target more important than the overall effectiveness of the programme'. In the same article Lawson points out that the Department for International Development spent a quarter of its £12 billion aid budget in the final month of last year as it rushed to meet its spending budget target with the result that multilateral aid organizations were 'being stuffed with British taxpayers' cash more quickly than they knew what to do with it'.

Questions

- 1 What are the advantages and disadvantages of using a fixed budget as outlined above?
- 2 What approaches can be taken to overcome the problems relating to fixed budgets?

Reference

Lawson, D. (2015) 'This is one target our armed forces can afford to miss', *Sunday Times*, 8 March.

HARMFUL SIDE-EFFECTS OF CONTROLS

Harmful side-effects occur when the controls motivate employees to engage in behaviour that is not organizationally desirable. In this situation, the control system leads to a lack of **goal congruence**. Alternatively, when controls motivate behaviour that is organizationally desirable they are described as encouraging goal congruence.

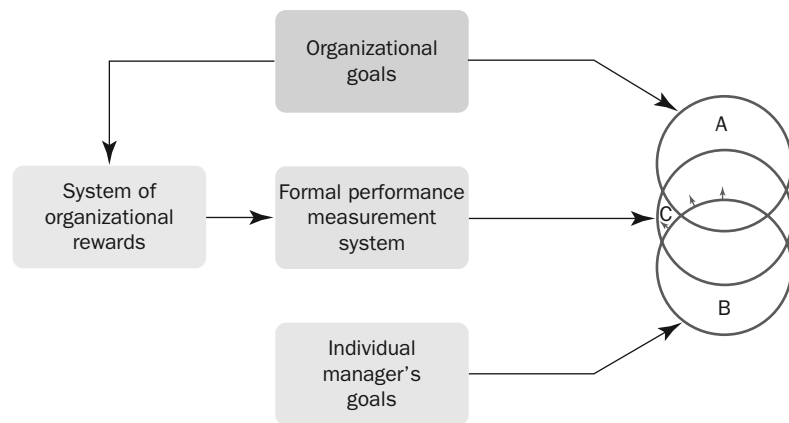
Results controls can lead to a lack of goal congruence if the results that are required can only be partially specified. Here there is a danger that employees will concentrate only on what is monitored by the control system, regardless of whether or not it is organizationally desirable. In other words, they will seek to maximize their individual performance according to the rules of the control system, irrespective of whether their actions contribute to the organization's objectives. In addition, they may ignore other important areas if they are not monitored by the control system. The expression 'What you measure is what you get' applies in these circumstances.

Figure 16.1, derived from Emmanuel, Otley and Merchant (1990), illustrates the problems that can arise when the required results can only be partially specified. You will see that those aspects of behaviour on which subordinates are likely to concentrate to achieve their personal goals (circle B) do not necessarily correspond with those necessary for achieving the wider organizational goals (circle A). In an ideal system, the measured behaviour (represented by circle C) should completely cover the area of desired behaviour (represented by circle A). Therefore if a manager maximizes the performance measure, he or she will also maximize his or her contribution to the goals of the organization. In other words, the performance measures encourage goal congruence. In practice, it is unlikely that perfect performance measures can be constructed that measure all desirable organizational behaviour, and so it is unlikely that all of circle C will cover circle A. Assuming that managers desire the rewards offered by circle C, their actual behaviour (represented by circle B) will be altered to include more of circle C and, to the extent that C coincides with A, more of circle A.

However, organizational performance will be improved only to the extent that the performance measure is a good indicator of what is desirable to achieve the firm's goals. Unfortunately, performance

FIGURE 16.1

The measurement and reward process with imperfect measures



A Behaviour necessary to achieve organizational goals
 B Behaviour actually engaged in by an individual manager
 C Behaviour formally measured by control systems

measures are not perfect and, as an ideal measure of overall performance, are unlikely to exist. Some measures may encourage goal congruence or organizationally desirable behaviour (the part of circle C that coincides with A), but other measures will not encourage goal congruence (the part of circle C that does not coincide with A). Consequently, there is a danger that subordinates will concentrate only on what is measured, regardless of whether or not it is organizationally desirable. Furthermore, actual behaviour may be modified so that desired results appear to be obtained, although they may have been achieved in an undesirable manner that is detrimental to the firm.

It is clear that flaws in the performance measurement systems used by banks contributed to the financial crisis in the banking sector in 2008. Bonuses and performance measures were based on short-term, rather than long-term performance, that did not take risk into account. These performance measures encouraged managers to take actions to increase sales or profits when such actions resulted in providing high risk loans. The performance measures motivated managers to increase the reported sales revenues and profits, and thus their bonus, without considering the adverse long-term implications of their actions. They were not engaging in organizationally desirable behaviour because the performance measurement and reward system strongly encouraged them not to do so. Many would argue that the managers were acting in an unethical manner but clearly the performance measurement and the reward system was also at fault. We shall discuss how such dysfunctional behaviour may be reduced in Chapters 19 and 21.

MANAGEMENT ACCOUNTING CONTROL SYSTEMS

Up to this point in the chapter, we have been looking at the broad context of management control systems. We shall now concentrate on management accounting control systems that represent the predominant controls in most organizations.

Why are management accounting controls the predominant controls? There are several reasons. First, all organizations need to express and aggregate the results of a wide range of dissimilar activities using a common measure. The monetary measure meets this requirement. Second, profitability and liquidity are essential to the success of all organizations and financial measures relating to these and other areas are closely monitored by stakeholders. It is therefore natural that managers will wish to monitor performance in monetary terms. Third, financial measures also enable a common decision rule to be applied by all managers when considering alternative courses of action. That is, a course of action will normally benefit a firm only if it results in an improvement in its

REAL WORLD VIEWS 16.2

Crime-fighting targets lead to 'dysfunctional' policing says police chief

Government crime-fighting targets are a shambles and should be scrapped, claims Chief Superintendent, Ian Johnston. Mr Johnston was speaking ahead of the Police Superintendents' Association's annual conference, when he asked the police minister to scrap the current targets regime.

'I believe we should abolish the performance framework in its entirety,' Mr Johnston said. 'It sounds radical, but it would be very warmly welcomed by the police service and would allow us, the professionals, to make judgements. We want to reclaim policing for the police.' He added: 'Centrally imposed targets are preventing senior police officers from delivering the policing that the public wants and deserves. We need to restore discretion to senior police officers enabling them to make decisions that relate to local policing issues, ensuring that we deliver a high standard of quality policing.'

The leaders of rank-and-file police officers have made a similar demand to reverse the target-driven culture that has forced them to make 'ludicrous' decisions such as a case where a child was arrested for throwing cream buns at a bus. The Police Federation said judging officers purely on how many arrests, cautions or on-the-spot fines they can deliver was making a mockery of the criminal justice system. The drive to meet Whitehall performance targets was compelling officers to criminalize middle England, they added.

The organization published a dossier of ridiculous cases they claimed resulted from Home

Office targets placed on beat bobbies. The cases included a Cheshire man who was cautioned by police for being found in possession of an egg with intent to throw and a West Midlands woman arrested on her wedding day for criminal damage to a car park barrier when her foot slipped on her accelerator.

Today, Mr Johnston said, 'current Home Office targets have made some senior officers seriously ill from the stress of managing a wide range of competing demands. More than 70 per cent of basic command unit commanders believe national targets have had a negative impact on service delivery. We are obliged to count everything and in order to account for our performance we are not addressing a lot of the issues that the public see as far more important.' He added: 'The time has come for someone to say that the performance framework and the red tape and the bureaucracy have got to go. The government's focus on volume crime targets is skewing all police activity in a way that our members see as increasingly dysfunctional.'

Question

- 1 How might the dysfunctional effects of the performance system in the police force be minimized?



Reference

www.dailymail.co.uk/news, 7 September 2007.

financial performance. Finally, measuring results in financial terms enables managers to be given more autonomy. Focusing on the outcomes of managerial actions, summarized in financial terms, gives managers the freedom to take whatever actions they consider to be appropriate to achieve the desired results.

RESPONSIBILITY CENTRES

The complex environment in which most businesses operate today makes it virtually impossible for most firms to be controlled centrally. It is simply not possible for central management to have all the relevant information and time to determine the detailed plans for the entire organization. Some degree of decentralization is essential for all but the smallest firms. Organizations decentralize by creating responsibility centres. A **responsibility centre** may be defined as a unit of a firm such as a department

or division where an individual manager is held responsible for the unit's performance. There are four types of responsibility centre:

- 1 cost or expense centres;
- 2 revenue centres;
- 3 profit centres;
- 4 investment centres.

The creation of responsibility centres is a fundamental part of management accounting control systems. It is therefore important that you can distinguish between the various forms of responsibility centre.

Cost or expense centres

Cost or expense centres are responsibility centres whose managers are normally accountable for only those costs that are under their control. We can distinguish between two types of cost centre – standard cost centres and discretionary cost centres. The main features of **standard cost centres** are that output can be measured and the input required to produce each unit of output can be specified. Control is exercised by comparing the standard cost (that is, the cost of the inputs that *should* have been consumed in producing the output) with the cost that was *actually* incurred. The difference between the actual cost and the standard cost is described as the **variance**. Standard cost centres and variance analysis will be discussed extensively in the next chapter.

Standard cost centres are best suited to units within manufacturing firms but they can also be established in service industries such as units within banks, where output can be measured in terms of the number of cheques or the number of loan applications processed and there are also well-defined input–output relationships. Although cost centre managers are not accountable for sales revenues, they can affect the amount of sales revenue generated if quality standards are not met and outputs are not produced according to schedule. Therefore quality and timeliness non-financial performance measures are also required besides financial measures.

Discretionary expense centres are those responsibility cost centres where output cannot be measured in financial terms and there are no clearly observable relationships between inputs (the resources consumed) and the outputs (the results achieved). Control normally takes the form of ensuring that actual expenditure adheres to budgeted expenditure for each expense category and also ensuring that the tasks assigned to each centre have been successfully accomplished. Examples of discretionary centres include advertising and publicity and research and development departments. One of the major problems arising in discretionary expense centres is measuring the effectiveness of expenditures. For example, the marketing support department may not have exceeded an advertising budget but this does not mean that the advertising expenditure has been effective. The advertising may have been incorrectly timed, it may have been directed to the wrong audience, or it may have contained the wrong message. Determining the effectiveness and efficiency of discretionary expense centres is one of the most difficult areas of management control.

Revenue centres

Revenue centres are responsibility centres where managers are mainly accountable for financial outputs in the form of generating sales revenues. Typical examples of revenue centres are where regional sales managers are accountable for sales within their regions. Revenue centre managers may also be held accountable for selling expenses, such as sales person salaries, commissions and order getting costs. They are not, however, made accountable for the cost of the goods and services that they sell.

Profit centres

Both cost and revenue centre managers have limited decision-making authority. Cost centre managers are accountable only for managing inputs (costs) of their centres. Revenue centres are accountable for selling the products or services but they have no control over their manufacture. A significant increase in managerial autonomy occurs when unit managers are given responsibility for both production and sales. In this situation, managers are normally free to set selling prices, choose which markets to sell in, make product mix and output decisions and select suppliers. Units within an organization whose managers are accountable for both revenues and costs are called **profit centres** or business units. As the name implies, profit centres tend to be larger independent units within an organization.

Investment centres

Investment centres are responsibility centres whose managers are responsible for both sales revenues and costs and, in addition, have responsibility and authority to make capital investment decisions. Typical investment centre performance measures include return on investment and economic value added. These measures are influenced by revenues, costs and assets employed and thus reflect the responsibility that managers have for both generating profits and managing the investment base.

Investment centres represent the highest level of managerial autonomy. They include the company as a whole, operating subsidiaries, business units and divisions. You will find that many firms are not precise in their terminology and call their investment centres profit centres. Profit and investment centres will be discussed extensively in Chapter 19.

THE NATURE OF MANAGEMENT ACCOUNTING CONTROL SYSTEMS

Management accounting control systems have two core elements. The first is the formal planning processes such as budgeting and long-term planning that were described in the previous chapter. These processes are used for establishing performance expectations for evaluating performance. The second is responsibility accounting, which involves the creation of responsibility centres. Responsibility centres enable accountability for financial results and outcomes to be allocated to heads of responsibility centres throughout the organization. The objective of **responsibility accounting** is to accumulate costs and revenues for each individual responsibility centre so that the deviations from a performance target (typically the budget) can be attributed to the individual who is accountable for the responsibility centre. For each responsibility centre, the process involves setting a performance target, measuring performance, comparing performance against the target, analysing the variances and taking action where significant variances exist between actual and target performance. In the remainder of the chapter we shall focus on responsibility accounting within cost centres at lower management levels rather than at the business unit level. We shall consider control and performance measurement at higher organization levels relating to business units (profit centres and investment centres) in chapters 19 and 21 where our focus will be on strategic performance measurement and management.

Responsibility accounting relating to cost and revenue centres at lower management levels is implemented by issuing **performance reports** at frequent intervals (normally monthly) that inform responsibility centre managers of the deviations from budgets for which they are accountable and are required to take action. An example of a performance report issued to a cost centre manager is presented in the lower section of Exhibit 16.1. You should note that at successively higher levels of management, less detailed information is reported. You can see from the upper sections of Exhibit 16.1 that the information is condensed and summarized as the results relating to the responsibility centre are reported at

EXHIBIT 16.1 Responsibility accounting monthly performance reports

<i>Performance report to managing director</i>					
		<i>Budget</i>		<i>Variance^a F (A)</i>	
		<i>Current month (£)</i>	<i>Year to date (£)</i>	<i>This month (£)</i>	<i>Year to date (£)</i>
Managing director	→ Factory A	453 900	6 386 640	80 000(A)	98 000(A)
	Factory B	X	X	X	X
	Factory C	X	X	X	X
	Administration costs	X	X	X	X
	Selling costs	X	X	X	X
	Distribution costs	X	X	X	X
		<u>2 500 000</u>	<u>30 000 000</u>	<u>400 000(A)</u>	<u>600 000(A)</u>
<i>Performance report to production manager of factory A</i>					
Production manager	→ Works manager's office	X	X	X	X
	Machining department 1	165 600	717 600	32 760(A)	89 180(A)
	Machining department 2	X	X	X	X
	Assembly department	X	X	X	X
	Finishing department	X	X	X	X
	<u>453 900</u>	<u>6 386 640</u>	<u>80 000(A)</u>	<u>98 000(A)</u>	
<i>Performance report to head of responsibility centre</i>					
Head of responsibility centre	Direct materials	X	X	X	X
	Direct labour	X	X	X	X
	Indirect labour	X	X	X	X
	Indirect materials	X	X	X	X
	Power	X	X	X	X
	Maintenance	X	X	X	X
	Idle time	X	X	X	X
	Other	X	X	X	X
	<u>165 600</u>	<u>717 600</u>	<u>32 760(A)</u>	<u>89 180(A)</u>	

^aF indicates a favourable variance (actual cost less than budgeted cost) and (A) indicates an adverse budget (actual cost greater than budget cost). Note that, at the lowest level of reporting, the responsibility centre head's performance report contains detailed information on operating costs. At successively higher levels of management, less detail is reported. For example, the managing director's information on the control of activities consists of examining those variances that represent significant departures from the budget for each factory and functional area of the business and requesting explanations from the appropriate managers.

higher levels. Exhibit 16.1 includes only financial information. In addition, important non-financial measures such as those relating to quality and timeliness may be reported.

Responsibility accounting involves:

- distinguishing between those items that managers can control and for which they should be held accountable and those items over which they have no control and for which they are not held accountable (i.e. applying the controllability principle);
- setting performance targets and determining how challenging the targets should be;
- determining how much influence managers should have in the setting of targets.

We shall now examine each of these items in detail.

THE CONTROLLABILITY PRINCIPLE

Responsibility accounting is based on the application of the **controllability principle**, which means that it is appropriate to assign only those costs to responsibility centres that can be significantly influenced by the manager of that responsibility centre. The controllability principle can be implemented by either eliminating the uncontrollable items from the areas for which managers are held accountable or calculating their effects so that the reports distinguish between controllable and uncontrollable items.

Applying the controllability principle is difficult in practice because many areas do not fit neatly into either controllable and uncontrollable categories. Instead, they are partially controllable. Even when outcomes are affected by occurrences outside a manager's control, such as competitors' actions, price changes and supply shortages, a competent manager can take action to reduce their adverse effects. He or she can substitute alternative materials where the prices of raw materials change or monitor and respond to competitors' actions. If these factors are categorized as uncontrollable, managers will not be motivated to try and influence them.

Dealing with the distorting effects of uncontrollable factors before the measurement period

Management can attempt to deal with the distorting effects of uncontrollables by making adjustments either before or after the measurement period. Uncontrollable and controllable factors can be determined prior to the measurement period by specifying which budget line items are to be regarded as controllable and uncontrollable. Uncontrollable items can either be excluded from performance reports or shown in a separate section within the performance report so that they are clearly identifiable. The latter approach has the advantage of drawing managerial attention to those costs that a company incurs to support its activities. Managers may be able to indirectly influence these costs if they are made aware of the sums involved.

Dealing with the distorting effects of uncontrollable factors after the measurement period

Merchant and Van der Stede (2017) identify four methods of removing the effects of uncontrollable factors from the results measures after the measurement period and before the rewards are assigned. They are:

- 1 variance analysis;
- 2 flexible performance standards;
- 3 relative performance evaluations;
- 4 subjective performance evaluations.

Variance analysis seeks to analyse the factors that cause the actual results to differ from predetermined budgeted targets. In particular, it helps to distinguish between controllable and uncontrollable items and identify those individuals who are accountable for the variances. For example, variances analysed by each type of cost, and by their price and quantity effects, enables variances to be traced to accountable individuals and also to isolate those variances that are due to uncontrollable factors. Variance analysis will be discussed extensively in Chapters 17 and 18.

Flexible performance standards apply when targets are adjusted to reflect variations in uncontrollable factors arising from the circumstances not envisaged when the targets were set. The most widely used flexible performance standard is to use **flexible budgets**, whereby the uncontrollable volume effects on cost behaviour are removed from the manager's performance reports. Because some costs vary with changes in the level of activity, it is essential when applying the controllability principle to take into account the variability of costs. For example, if the actual level of activity is greater than the

EXAMPLE 16.1

An item of expense that is included in the budget for a responsibility centre varies directly in relation to activity at an estimated cost of £5 per unit of output. The budgeted monthly level of activity was 20 000 units and the actual level of activity was 24 000 units at a cost of £105 000.

budgeted level of activity, then those costs that vary with activity will be greater than the budgeted costs purely because of changes in activity. Let us consider the simplified situation presented in Example 16.1.

Assuming that the increase in activity was due to an increase in sales volume being greater than that anticipated when the budget was set, then the increases in costs arising from the volume change are beyond the control of the responsibility centre manager. It is clearly inappropriate to compare actual *variable* costs of £105 000 from an activity level of 24 000 units with budgeted *variable* costs of £100 000 from an activity level of 20 000 units. This would incorrectly suggest an overspending of £5000. If managers are to be made responsible for their costs, it is essential that they are responsible for performance under the conditions in which they worked and not for a performance based on conditions when the budget was drawn up. In other words, it is misleading to compare actual costs at one level of activity with budgeted costs at another level of activity. At the end of the period, the original budget must be adjusted to the actual level of activity to take into account the impact of the uncontrollable volume change on costs. This procedure is called flexible budgeting. In Example 16.1, the performance report should be as follows:

<i>Budgeted expenditure</i>	<i>Actual expenditure</i>
(flexed to 24 000 units)	(24 000 units)
£120 000	£105 000

The budget is adjusted to reflect what the costs should have been for an actual activity of 24 000 units. This indicates that the manager has incurred £15 000 less expenditure than would have been expected for the actual level of activity and a favourable variance of £15 000 should be recorded on the performance report, not an adverse variance of £5000, which would have been recorded had the original budget not been adjusted.

In Example 16.1, it was assumed that there was only one variable item of expense, but, in practice, the budget will include many different expenses including fixed, semi-variable and variable expenses. You should note that fixed expenses do not vary in the short term with activity and therefore the budget should remain unchanged for these expenses. The budget should be flexed only for variable and semi-variable expenses.

Budgets may also be adjusted to reflect other uncontrollable factors besides volume changes. Budgets are normally set based on the environment that is anticipated during the budget setting process. If the budget targets are then used throughout the duration of the annual budget period for performance evaluation, the managers will be held accountable for uncontrollable factors arising from forecasting errors. To remove the managerial exposure to uncontrollable risks arising from forecasting errors, **ex post budget adjustments** can be made whereby the budget is adjusted to the environmental and economic conditions that the manager's actually faced during the period.

Relative performance evaluation relates to the situations where the performance of a responsibility centre is evaluated relative to the performance of similar centres within the same company or to similar units outside the organization. To be effective, responsibility centres must perform similar tasks and face similar environmental and business conditions with the units that they are being benchmarked against. Such relative comparisons with units facing similar environmental conditions neutralizes the uncontrollable factors because they are in effect held constant when making the relative comparisons.

The major difficulty relating to relative performance evaluations is finding benchmark units that face similar conditions and uncertainties.

Instead of making the formal and quantitative adjustments that are a feature of the methods that have been described so far, **subjective judgements** can be made in the evaluation process based on the knowledge of the outcome measures and the circumstances faced by the responsibility centre heads. The disadvantages of subjective evaluations are that they are not objective, they tend not to provide the person being evaluated with a clear indication of how performance has been evaluated, they can create conflict with superiors resulting in a loss of morale and a decline in motivation, and they are expensive in terms of management time.

Guidelines for applying the controllability principle

Dealing with uncontrollables represents one of the most difficult areas for the design and operation of management accounting control systems. The following guidelines published by the Report of the Committee of Cost Concepts and Standards by the American Accounting Association in the United States in 1957 still continues to provide useful guidance:

- 1** If a manager *can control the quantity and price paid* for a service then the manager is responsible for all the expenditure incurred for the service.
- 2** If the manager *can control the quantity of the service but not the price paid* for the service then only that amount of difference between actual and budgeted expenditure that is due to usage should be identified with the manager.
- 3** If the manager *cannot control either the quantity or the price paid* for the service then the expenditure is uncontrollable and should not be identified with the manager.

REAL WORLD VIEWS 16.3

Responsibility cost control systems in China

Because of the previous lack of effective control of expenditure by the Han Dan Company, a system of responsibility accounting and standard costing was introduced. The basic principles underlying the responsibility cost control system included: (1) setting cost and profit targets (responsibility standards) that take into account market pressures; (2) assigning target costs to various levels of responsibility centre; (3) evaluating performance based on fulfilment of the responsibility targets; and (4) implementing a reward scheme with built-in incentive mechanisms. In order to facilitate performance measurement and evaluation, non-controllable common costs were excluded from the responsibility costs decomposed within primary production factories. Responsibility contracts between factory managers and managers at lower levels must also be signed. Breakdown of the aggregated responsibility targets to all profit centres and their

subordinates are conducted by the Department of Finance and Accounting. In addition, the department is responsible for monthly and yearly reporting of the execution results of the responsibility cost control system. It also reports and analyses the variances between actual outcomes and responsibility targets and determines the necessary bonus rewards (or penalty) for each responsibility centre in terms of the fulfilment of the cost and profit targets signed by managers. If a responsibility centre or individual worker fails to meet the cost targets specified in the responsibility contracts, all bonus and other benefits relating to the responsibility unit or worker will be forfeited.

Question

- 1** What are the limitations of linking bonuses to meeting cost targets?

Reference

Jun Lin, Z. and Yu, Z. (2002) Responsibility, cost control system in China: A case of management accounting application, *Management Accounting*, 13(4), 447–467.

An example of the last situation is when the costs of an industrial relations department are apportioned to a department on some arbitrary basis; such arbitrary apportionments are likely to result in an allocation of expenses that the managers of responsibility centres may not be able to influence. In addition to the above guidelines, Merchant and Van der Stede's general rule should also be used as a guide – 'Hold employees accountable for the performance areas you want them to pay attention to'.

SETTING PERFORMANCE TARGETS AND DETERMINING HOW CHALLENGING THEY SHOULD BE

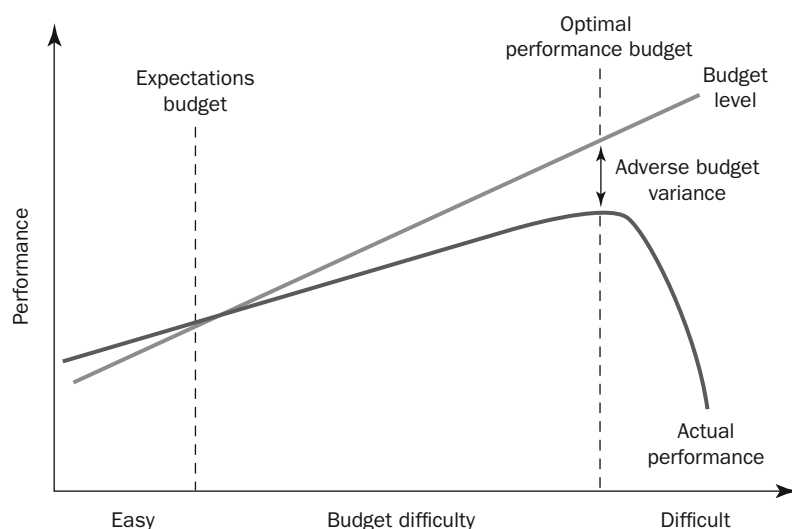
There is substantial evidence from a large number of studies that the existence of a defined, quantitative goal or target is more likely to motivate higher levels of performance than when no such target is stated. People perform better when they have a clearly defined goal to aim for and are aware of the standards that will be used to interpret their performance. The fact that a financial target represents a specific quantitative goal gives it a strong motivational potential, but the targets set must be accepted if managers are to be motivated to achieve higher levels of performance. Unfortunately, it is not possible to specify exactly the optimal degree of difficulty for financial targets, since task uncertainty and cultural, organizational and personality factors all affect an individual manager's reaction to a financial target.

Figure 16.2, derived from Emmanuel, Otley and Merchant (1990), shows the theoretical relationship between budget difficulty, aspiration levels and performance. In Figure 16.2, it is *assumed that performance and aspiration levels are identical*. Note that the **aspiration level** relates to the personal goal of the budgetee (that is, the person who is responsible for the budget). In other words, it is the level of performance that they hope to attain. You will see from Figure 16.2 that, as the level of budget difficulty is increased, both the budgettees' aspiration level and performance increases. However, there becomes a point where the budget is perceived as impossible to achieve and the aspiration level and performance decline dramatically. It can be seen from Figure 16.2 that the budget level that motivates the best level of performance may not be achievable. In contrast, a budget that is set based on what is expected to be achieved (that is, the expectations budget in Figure 16.2) motivates a lower level of performance.

To motivate the highest level of actual performance, demanding budgets should be set and small adverse variances should be regarded as a healthy sign and not as something to be avoided. If budgets are always achieved with no adverse variances, this indicates that the standards are too loose to motivate the best possible results.

It appears from our previous discussion that tight budgets should be established to motivate maximum performance, although this may mean that the budget has a high probability of not being achieved.

FIGURE 16.2
The effect of budget difficulty on performance



REAL WORLD VIEWS 16.4

Community participation in local budget spend

In a BBC documentary called *Power to the People*, Michael Portillo visited a 'You Decide' session organized by the local council in Tower Hamlets, London. At this session, local people decide what is to be done with £250 000 of council money. They are given fully costed options under headings like healthcare, the elderly and local policing. The options in each category can be debated for a time, then all present 'vote' for their preferred option using an electronic voting system. This continues until all funds are used up. This, it could be argued, saves the council a bit of time and allocates resources to where residents deem most appropriate. Of course £250 000 is a long way off a council's full budget, but at least there

is participation in how the money is spent. There is also now a 'You Choose' budget simulator website that encourages the public to consider where council budget cuts might fall, where efficiencies might be made, and where income might be generated. The You Choose software is available to all councils in England and Wales and can be tailored by each council to suit their needs. The results of any input from council area residents are instantly available to the council.

Questions

- 1 Can you think of any advantages of schemes or tools like those mentioned above?
- 2 Can you think of any disadvantages?

Reference

You Choose: Budget consultation tool. Available at www.idea.gov.uk/idk/core/page.do?pageld=22436695

However, budgets are not used purely as a motivational device to maximize performance. They are also used for planning purposes and it is most unlikely that tight budgets will be suitable for planning purposes. Why? Tight budgets that have a high probability of not being achieved are most unsuitable for cash budgeting and for harmonizing the company plans in the form of a master budget. Most companies use the same budgets for planning and motivational purposes. If only one set of budgets is used it is most unlikely that one set can, at the same time, perfectly meet both planning and motivational requirements.

Budgets with a high probability of being achieved are widely used in practice. They provide managers with a sense of achievement and self-esteem that can be beneficial to the organization in terms of increased levels of commitment and aspirations. Rewards such as bonuses, promotions and job security are normally linked to budget achievement so that the costs of failing to meet budget targets can be high. The greater the probability of the failure to meet budget targets the greater is the probability that managers will be motivated to distort their performance by engaging in behaviour that will result in the harmful side-effects described earlier in this chapter.

DETERMINING HOW MUCH INFLUENCE MANAGERS SHOULD HAVE IN SETTING TARGETS

Participation relates to the extent that budgetees are able to influence the figures that are incorporated in their budgets or targets. Participation is sometimes referred to as **bottom-up budget setting** whereas a non-participatory approach whereby subordinates have little influence on the target setting process is sometimes called **top-down budget setting**.

Allowing individuals to participate in the setting of performance targets has several advantages. First, individuals are more likely to accept the targets and be committed to achieving them if they have been involved in the target setting process. Second, participation can reduce the information asymmetry gap

that applies when standards are imposed from above. Budgetees have more information than their superiors on the relationships between outputs and inputs and the constraints that exist at the operating level whereas the superiors have a broader view of the organization as a whole and the resource constraints that apply. This information sharing process enables more effective targets to be set that attempt to deal with both operational and organizational constraints. Finally, imposed standards can encourage negative attitudes and result in demotivation and alienation. This in turn can lead to a rejection of the targets and poor performance.

Participation has been advocated by many writers as a means of making tasks more challenging and giving individuals a greater sense of responsibility. For many years participation in decision-making was thought to be a panacea for effective organizational effort but this school of thought was later challenged. The debate has never been resolved. The believers have never been able to demonstrate that participation really does have a positive effect on productivity and the sceptics have never been able to prove the opposite.

Because of the conflicting findings relating to the effectiveness of participation, research has tended to concentrate on studying how various factors influence the effectiveness of participation. If participation is used selectively in the right circumstances, it has an enormous potential for encouraging the commitment to organizational goals, improving attitudes towards the budgeting system and increasing subsequent performance. Note, however, at this stage that there are some limitations on the positive effects of participation in standard setting and circumstances where top-down budget setting is preferable. They are:

- 1 Performance is measured by precisely the same standard that the budgetee has been involved in setting. This gives the budgetee the opportunity to negotiate lower targets that increase the probability of target achievement and the accompanying rewards. Therefore an improvement in performance – in terms of comparison with the budget – may result merely from a lowering of the standard.
- 2 Participation by itself is not adequate in ensuring commitment to standards. The manager must also believe that he or she can significantly influence the results and be given the necessary feedback about them.
- 3 A top-down approach to budget setting is likely to be preferable where a process is highly programmable and there are clear and stable input-output relationships. Here there is no need to negotiate targets using a bottom-up process.

DIFFERENT APPROACHES THAT MANAGERS USE TO EVALUATE BUDGETEES' PERFORMANCE

Earlier in this chapter we discussed some of the harmful side-effects that can arise from the use of results controls. Some of these effects can be due to the ways in which the output measures are used. A number of studies have been undertaken that examine the side-effects arising from the ways that accounting information is used in performance evaluation. A pioneering study undertaken many years ago by Hopwood (1976) in a manufacturing division of a large UK company is still recognized as providing a suitable description of the different ways managers use budgets to evaluate performance. Three distinct styles of using budget and actual cost information in performance evaluation were observed:

- 1 **Budget-constrained style:** Despite the many problems in using accounting data as comprehensive measures of managerial performance, the evaluation is based primarily on the cost centre head's ability continually to meet the budget on a short-term basis. This criterion of performance is stressed at the expense of other valued and important criteria and a cost centre head will tend to receive an unfavourable evaluation if his or her actual costs exceed the budgeted costs, regardless of other considerations. Budget data are therefore used in a rigid manner in performance evaluation.
- 2 **Profit-conscious style:** The performance of the cost centre head is evaluated on the basis of his or her ability to increase the general effectiveness of his or her unit's operations in relation to

EXHIBIT 16.2 Hopwood's findings on the effect of different styles of evaluating budget performance

	Style of evaluation		
	<i>Budget constrained</i>	<i>Profit conscious</i>	<i>Non accounting</i>
Involvement with costs	High	High	Low
Job-related tension	High	Medium	Medium
Manipulation of accounting information	Extensive	Little	Little
Relations with superior	Poor	Good	Good
Relations with colleagues	Poor	Good	Good

the long-term goals of the organization. One important aspect of this at the cost centre level is the head's concern with the minimization of long-run costs. The accounting data must be used with some care and in a rather flexible manner, with the emphasis for performance evaluation in contributing to long-term profitability.

3 Non-accounting style: Accounting data play a relatively unimportant part in the supervisor's evaluation of the cost centre head's performance.

The evidence from Hopwood's study indicated that both the budget-constrained and the profit-conscious styles of evaluation led to a higher degree of involvement with costs than the non-accounting style. Only the profit-conscious style, however, succeeded in attaining this involvement without incurring either emotional costs for the managers in charge of the cost centres or defensive behaviour that was undesirable from the company's point of view.

The budget-constrained style gave rise to a belief that the evaluation was unjust, and caused widespread worry and tension, resulting in manipulation of information and undesirable behaviour as methods of relieving tension. In contrast, the profit-conscious style of evaluation avoided these problems, while at the same time it ensured that there was an active involvement with the financial aspects of the operations. A summary of the effect of the three styles of evaluation is given in Exhibit 16.2.

Hopwood's study was based on cost centres having a high degree of interdependence. Rigid measures of performance become less appropriate as the degree of interdependence increases and therefore the managers used the accounting information in a more flexible manner to ensure that the information remained effective. Otley (1978) replicated Hopwood's study in a British firm that consisted of profit centres with a high degree of independence and where accounting information represented a more adequate basis of performance evaluation. He found no significant differences in the levels of job tension and performance reported by managers evaluated on styles initially used by Hopwood. Possible explanations for the differences included the fact that in Otley's study, managers operated more independently of other units within the same organization and the managers in Hopwood's study operated in a less predictable environment than those in Otley's study.

Using a budget-constrained style when managers face high levels of interdependence or uncertainty is likely to be inappropriate because the rigid use of budget data assumes that most of the factors that have an effect on outcomes are within the control of the managers being evaluated. In contrast, the rigid use of budget data may be more acceptable where managers perceive that they are able to exercise control over their performance outcomes. This applies where there is low uncertainty or interdependency.

CONTINGENCY THEORY

To design effective management accounting control systems, it is necessary to consider the circumstances in which they will be used. It should be apparent from this chapter that there is no universally best management accounting control system which can be applied to all organizations.

The applicability of a management accounting control system is contingent on the situational factors faced by organizations. This approach is known as the **contingency theory** approach to management accounting. The situational factors represent the contingent factors (also known as contingent variables or contextual factors). Examples of the contingent factors that have been examined in the literature include the external environment faced by organizations, the type of competitive strategy they adopt, organizational structure and the nature of the production process. The aspects of the management accounting control systems that contingency theory research has focused on include dimensions of budgeting (participation, importance of meeting budgets), reliance on accounting information for performance evaluation and dimensions of information (e.g. timeliness and level of aggregation). For example, in this chapter it has been pointed out that the appropriateness of participation is dependent on the nature of the production process. In the previous section, it was also suggested that the appropriate style of performance evaluation was influenced by organizational structure and environmental uncertainty.

A considerable amount of literature has emerged focusing on the contingency theory of management accounting. For a detailed summary of this literature you should refer to Learning Note 16.1 in the digital support resources accompanying this book (see Preface for details).

ALTERNATIVE USES OF MANAGEMENT ACCOUNTING INFORMATION

Throughout this book, it is generally assumed that one of the major purposes of management accounting is to aid rational economic decision-making. However, at this stage, it is important that you are aware that accounting information can also be used for other purposes that are not necessarily consistent with rational economic behaviour. Managers can find value in accounting information for symbolic purposes even when the information has little or no relation to decision-making. For example, instead of the information actually being used for decision-making or control purposes, it may be used as a means of signalling to others inside and outside the organization that decisions are being taken rationally and that managers in an organization are accountable. Accounting information is also used for political purposes. Interested parties use the information to promote their own vested interests to achieve political power or a bargaining position. Finally, accounting information may be used for legitimizing purposes in order to justify and legitimize actions that have already been decided on, rather than the information being used as a decision input. For a more detailed discussion of the different purposes for which accounting information is used, you should refer to Learning Note 16.2 in the digital support resources accompanying this book.

SUMMARY

The following items relate to the learning objectives listed at the beginning of the chapter.

- **Describe the three different types of control used in organizations.**

Three different categories of controls are used – action/behavioural controls, personnel and cultural controls and results/output controls. With action controls, the actions themselves are the focus of controls. Personnel controls help employees do a good job by building on employees' natural tendencies to control themselves. They include selection and placement, training and job design. Cultural controls represent a set of values, social norms and beliefs that are shared by members of the organization and that influence their actions. Output or results controls involve collecting and reporting information about the outcomes of work effort.

- **Distinguish between feedback and feed-forward controls.**

Feedback control involves monitoring outputs achieved against desired outputs and taking whatever corrective action is necessary if a deviation exists. In feed-forward control, instead of actual outputs being compared against desired outputs, predictions are made of what outputs are expected to be at some future time. If these expectations differ from what is desired, control actions are taken that will minimize these differences.

- **Explain the potential harmful side-effects of results controls.**

Results controls can promote a number of harmful side-effects. They can lead to a lack of goal congruence when employees seek to achieve the performance targets in a way that is not organizationally desirable. They can also lead to data manipulation and negative attitudes, which can result in a decline in morale and a lack of motivation.

- **Define the four different types of responsibility centre.**

A responsibility centre may be defined as a unit of a firm where an individual manager is held accountable for the unit's performance. There are four types of responsibility centre – cost or expense centres, revenue centres, profit centres and investment centres. Cost or expense centres are responsibility centres where managers are normally accountable for only those costs that are under their control. Revenue centres are responsibility centres where managers are accountable only for financial outputs in the form of generating sales revenues. Units within an organization whose managers are accountable for both revenues and costs are called profit centres. Investment centres are responsibility centres whose managers are responsible for both sales revenues and costs and, in addition, have responsibility and authority to make capital investment decisions.

- **Explain the different elements of management accounting control systems.**

Management accounting control systems have two core elements. The first is the formal planning processes such as budgeting and long-term planning. These processes are used for establishing performance expectations for evaluating performance. The second is responsibility accounting, which involves the creation of responsibility centres. Responsibility centres enable accountability for financial results/outcomes to be allocated to individuals throughout the organization.

- **Describe the controllability principle and the methods of implementing it.**

The controllability principle states that it is appropriate to charge to an area of responsibility only those costs that are significantly influenced by the manager of that responsibility centre. The controllability principle can be implemented by either eliminating the uncontrollable items from the areas that managers are held accountable for or calculating their effects so that the reports distinguish between controllable and uncontrollable items.

- **Discuss how the level of difficulty of targets impacts on motivation and performance.**

Different types of performance target can be set ranging from easily achievable to difficult to achieve. Targets that are considered moderately difficult to achieve (called highly achievable targets) are recommended because they can be used for planning purposes and they also have a motivational impact.

- **Describe the influence of participation in the budgeting process.**

Participation relates to the extent to which budgetees are able to influence the figures that are incorporated in their budgets or targets. Allowing individuals to participate in the setting of performance targets results in individuals being more likely to accept the targets and be committed to achieving them. Participation, however, is subject to the limitation that performance is measured by precisely the same standard that the budgetee has been involved in setting. Participation must be used selectively; but if it is used in the right circumstances, it has an enormous potential for encouraging the commitment to organizational goals.