Chapter 4
MANAGEMENT ACCOUNTING AND THE PLANNING PROCESS – 1

Key Learning Objectives

By the time you have finished studying this chapter, you should be able to:

- discuss the relevance of an organisation's objectives to its budgeting processes;
- describe the planning process for a number of different organisation types;
- prepare master and subsidiary budgets for a number of different organisations.

Missions, Objectives, Aims, Goals, Targets and Plans

Accounting and business textbooks often use terms such as *missions*, *objectives*, *aims*, *goals*, *targets*, and *plans* interchangeably. It is a good idea to consider the meanings of these terms in order to avoid misunderstanding and/or ambiguity. The definitions given below are not the only possible ones. In the practical accounting/business situation, it is important that users of such terms come to a common understanding of their meanings within the context in which they are used. Many organisations will produce their own glossaries or 'controlled vocabularies' for these purposes.

The definitions given in Table 4.1 have been obtained from a number of dictionaries and are chosen for their everyday meanings, thereby avoiding any organisation-specific slant. A number of features are evident in Table 4.1. Firstly, the different terms may mean different or similar things and so we should avoid using terms with different meanings synonymously and, in the practical situation, be precise about what we mean by a term. Secondly, each term has an everyday meaning and ideally this should be the one allocated to the term to maximise understanding across a broad range of users. Thirdly, some of the terms have a number of possible meanings, depending upon context and upon whether the term is used as a noun, an adjective or a verb. Again, precision should be sought when using such terms within a given context.

So, within our management accounting context, let us select the bits contained within Table 4.1 that are most useful. We will probably end up with a collection of definitions

Table 4.1 Some dictionary definitions of common business terms

Term	Definition
Mission	(Noun) 1. A specific task or duty assigned to a person or group of people: *their mission was to irrigate the desert.* 2. A person's vocation (Collins, 2000). *Mission statement* 1. An official statement of the aims and objectives of a business or other organisation (Collins, 2000). 2. An explicit written statement of an organisation's long-term aims and objectives. Mission statements are designed to give substance to the perceived purposes of the organisation and provide all employees with an indication of what they are attempting to achieve through their collective endeavours (Pass *et al*., 1995).
Objective	(Noun) 1. Something which you try to do: *the company has achieved its objectives; we set the sales forces certain objectives.* Long-term or short-term objective – Aim which you hope to achieve within a few years or a few months (Collin *et al*., 2001). 2. What one intends to do or achieve: aim, ambition, design, end, goal, intent, intention, mark, meaning, point, purpose, target, view (Roget, 1995). (Adjective) 1. Considered from a general point of view, not from that of the person involved: *you must be objective in assessing the performance of the staff; to carry out an objective survey of the market* (Collin *et al*., 2001). 2. Free from bias in judgement: disinterested, dispassionate, equitable, fair (Roget,1995).
Strategy	(Noun) Plan of future action: (e.g.) *business strategy; company strategy; financial strategy* (Collin *et al*., 2001). A plan or method devised to meet a need: (e.g.) strategies for dealing with dissatisfied customers (Penguin, 2000). Long-term planning in the pursuit of objectives, or the art of this (Penguin, 2000). *Business strategy* The formulation of long-term plans and policies by a firm which interlocks its various production and marketing activities in order to achieve its business objectives (Pass *et al.,* 2000).

(Continued)

Table 4.1 (Continued)

Term	Definition
Aim	(Noun) Something which you try to do: *one of our aims is to increase the quality of our products* (Collin *et al*., 2001). (Verb) To try to do something: *we aim to be No. 1 in the market in two years' time* (Collin *et al*., 2001).
Goal	(Noun) 1. Aim, something which you try to do: *our goal is to break even within twelve months* (Collin *et al.,* 2001). 2. The aim or object towards which an endeavour is directed. The terminal point of a journey or race (Collins, 2000).
Target	(Noun) 1. Thing to aim for: *monetary targets, production targets, sales targets* (Collin *et al*., 2001). 2. An object or area aimed at the object of an attack or takeover bid. A fixed goal or objective, etc. (Collins, 2000). (Verb) 1. To aim to sell. To target a market – to plan to sell goods in a certain market (Collin *et al*., 2001). 2. To make a target of. To direct or aim (Collins, 2000).
Tactics	(Plural noun, treated as singular or plural) 1. (a) The science and art of disposing and manoeuvring forces in combat. (b) The art or skill of employing available means to accomplish an end. (c) A system or mode of procedure (Penguin, 2000). 2. The manoeuvres used or plans followed to achieve a particular short-term aim (Collins, 2000).
Plan	(Noun) 1. Organised way of doing something: *contingency plan, government's economic plans* (Collin *et al*., 2001). 2. A detailed scheme, method etc., for attaining an objective. An outline, sketch etc. (Collins, 2000). (Verb) 1. To organise carefully how something should be done: *to plan for an increase in bank interest charges, to plan investments* (Collin *et al*., 2001). 2. To form a plan (for) or make plans (for). To have in mind as a purpose; intend (Collin *et al*., 2001).

Table 4.1 (Continued)

Term	Definition
Budget	(Noun) 1. (Business) Preliminary financial plan for the future needed to effectively and efficiently function. It may be short-term (1 year or less), intermediate-term (2–3 years), or long-term (3 years or more). The shorter the time span, the more accurate the budget because there are fewer uncertainties. Short-term budgets are more detailed and specific so they are more meaningful for everyday operations. Intermediate-term budgets are most concerned with tracking the success of projects undertaken and to be undertaken. Long-term budgets are broad goals and are translated into short-term plans. The budget period varies depending on objectives, use, dependability, risk, instability and manufacturing cycle (Shim and Siegel, 1995). 2. An estimate of income and expenditure for a future period, as opposed to an account, which records financial transactions after the event (Bannock and Manser, 1999). (Verb) To plan probable income and expenditure: *we are budgeting for £10,000 of sales next year* (Collin *et al.*, 2001).

such as those in Table 4.2 (these are only the authors' attempts at definition; many other variations are possible).

So what can we learn from all this? Well, as we can see from Table 4.2, the differences in meaning between the terms can be quite subtle. Sometimes the definitions (e.g. for objectives, aims, targets and goals) are just about identical. Generally though, in practice, the terms tend to be differentiated in terms of their time horizons and specificity. For example:

- *Missions* tend to be long-term and laid out in broad terms, without attempts being made to quantify them specifically.
- *Objectives and aims* tend to be medium-term and more specific in terms of what is intended to be achieved. Again, the positions to be reached may be expressed in mainly non-quantitative terms.
- *Goals and targets* tend to be medium-term or short-term and may be expressed in terms of specific levels of achievements and tend to involve more specific quantification and deadlines.
- *Plans* tend to be quite specific (the shorter-term they are, the more specific they tend to be) and are usually quantified in some detail. They will, in order to ensure that they are complied with, lay out specific deadlines for each key stage. They may also involve the analysis of priorities and constraints.
- *Budgets* tend to be expressed mainly in monetary terms, although they may focus on the amounts of physical resources (materials, labour time) required.

Table 4.2 Some attempts at defining some common terms used in management accounting

Term	Management accounting meaning
Mission	An important task that an organisation believes it is its duty to do.
	Mission statement
	An explicit statement of the aims and objectives of a business or other organisation – providing employees with an indication of what they are attempting to achieve through their collective endeavours.
Objective	Something which an organisation intends to do or achieve; a result that the organisation intends to make happen.
Strategy	A plan of future action, usually long-term, in the pursuit of objectives.
Aim	A result that an organisation's plans or actions are intended to achieve.
Goal	An organisation's aim, objective or purpose.
Target	A level or situation which an organisation intends to achieve or aim at.
Tactics	The plans followed to achieve a particular short-term aim.
Plan	A set of decisions about how an organisation intends to do something, or to ensure that an event or result should happen in the future.
Budget	A financial plan, which may be short-term or longer-term, showing probable (planned) income and expenditure.

As was stated earlier, in the practical situation, an effort should be made to use terms carefully so that confusion is avoided. We cannot, however, avoid the subtle variations of meaning produced by the richness of language.

Let us use the analogy of a football team to illustrate how these terms might be used. The football team has a mission – 'to be the best team in the country' or something similar. You may disagree with the team's idea of what its mission is; indeed, there are a large number of missions that might be suggested. It is therefore important that the team should be explicit in what its mission is, in order to avoid ineffective actions by its members. Notice also that we are considering the *team's* mission rather that the missions of the individual team members.

How can the team achieve its mission? Obviously, it needs to determine how it will know when it has achieved the mission. The team may decide that one indicator of being the country's best team would be to come top of the country's premier football league. Another possible indicator, a more exacting one, would be to come top of the league for several years consecutively.

Assuming the team chooses the indicator of topping the league for the current year, its ambitions are now becoming a little more 'concrete' – the team now is agreed on what it must do to consider itself successful. The team could, of course, achieve its ambition in a number of ways, including 'fixing' matches, but let us assume that it has honourable

intentions. Also, let us assume that the mission agreed by the team is also agreed by its manager, financiers and supporters. The issue of identifying missions, objectives and plans that all affected parties can agree to is a particularly difficult issue in practice.

In this analogy, then, the team has identified its mission (being the best football team in the country) and an indicator of when it will have achieved that mission. This indicator (winning the league for this year) can be considered to be the team's objective. This objective (following our general description of an objective) is specific (you either win the league or you do not) but non-quantitative (there are no numerical values involved in the statement of the objective). Additionally, the objective (winning the league *this year*) has a specific time limit.

How will the team achieve its objective of winning the league this year? Obviously it needs to win matches. It may not have to win them all, however; much will depend upon the scoring/points system in place. A *strategy* for achieving the objective might involve making the most of the way in which the points system operates, to the team's advantage. It would be ideal, of course, to win all matches, but this may be both unrealistic and unnecessary.

Looking at team ambitions at a lower level, the team needs to maximise its success during matches. It needs to win most of its games. It may therefore set itself a shorter-term *target* of winning a particular game, or of scoring a certain number of goals in a match, or of scoring from a certain percentage of penalties. It will *plan* how to do this by considering and forming *tactics* for each game (and these tactics may change as each game develops). An important point here is that each game may require different tactics and the team must to able to respond flexibly to changing conditions.

Finally, we cannot resist observing that, in any particular football match, the *goal* is a very specific *target* at which the ball must be *aimed*!

The Organisational Planning Process – An Overview

All of this applies equally well to the 'games that businesses play'. A business will have a mission that may be expressed in a formally written mission statement (at least in the case of larger, formally managed businesses). Such mission statements might include, for example, 'to provide world-class products to a world market' or 'to be market leader in logistical services provision'. The longer-term strategy of the business should, logically, be closely focused on achieving the ambitions expressed in the mission statement. Management texts suggest that a business may 'lose its way' if the mission, objectives and lower-level targets are not co-ordinated.

In order to put its longer-term broad strategy into place, the business will set more specific strategies for marketing, production, human resources, procurement and the like. Each of these strategies will be put into effect in the short term by means of specific plans, performance targets and budgets. Obviously, all of these are forward-looking. The business also needs to ensure that such plans and targets are adhered to and, if necessary,

Figure 4.1 The strategy and planning process

modified to cope with actual conditions. This is where performance monitoring, feedback and reporting come into the equation. These processes are discussed in Chapters 7 and 10. Figure 4.1 illustrates the processes described above. Other versions of this diagram may be found in most business management texts.

The planning process, then, takes place at many levels – strategic, tactical, operational, etc. and the financial aspects of each type of planning may be known as *budgets*. Budgets may be applied at any level, although at the higher levels of strategic and tactical planning, the term *financial planning* tends to be used in preference to 'budgeting'.

The Users and Uses of Budgets

As we have seen above, budgets and budgeting may be applied at any level of management. The higher levels of financial planning are covered in texts devoted to financial management and investment appraisal such as those by Samuels *et al*. (1999) and Brealey and Myers (2002). Here we will be concentrating on medium- to short-term, lower-level processes, generally with a time horizon of one year or less. In practice, the management accountant's work is likely to encompass both short-term budgeting and the longer-term financial planning activities.

What is a Budget?

As we have seen, a budget is often thought of as a *financial plan*. A budget may, however, be expressed not only in financial terms but also in quantitative terms (e.g. budgets for labour hours, material purchases, or units of sales). Each of these will, however, have obvious implications for financial outcomes and may be seen as a subset of, or 'working paper' towards, the related financial budget.

A budget will describe, as a minimum, estimated *amounts* (financial and/or non-financial) which will be incurred or earned as the result of a planned course of action and consider the *timing* of the incurrence/earning of these amounts.

Who uses Budgets?

Not everyone, of course, is responsible for preparing budgets, but everyone within an organisation will be affected by them, sometimes without realising it consciously. A manager will be required to set budgets for her/his area of responsibility and to manage the processes within her/his remit in order to ensure that the budget is achieved. Thus, the manager's subordinates will each bear an individual responsibility to ensure that a specific area of activity complies with the values and expectations expressed within the overall budget.

Budgets are, of course, *internal* to the organisation and, like most management accounting information, do not form part of the organisation's published financial statements. Nevertheless, such budgetary information can be of great use to competitors if they can obtain it (usually by foul means!).

What are Budgets Used For?

As well as the obvious uses of budgets (to quantify the planning process and to form a basis of performance monitoring) they may have a number of associated, subsidiary uses. These are listed in Table 4.3. Again, a common organisational problem is co-ordinating the range of uses/users of budgets in such a way that processes such as pay negotiations and cash collection do not result in actions that are contrary to the higher-level objectives/mission upon which the budget is based – organisational coherence.

Table 4.3 Uses of budgets

Primary uses	• quantifying planned resource usage (materials, labour, etc.) • quantifying income generation • quantifying resource procurement (materials, outsourced components, subcontractors)
Secondary uses	• quantifying payment for resources (cash budgeting) • quantifying collections of cash (from debtors, etc.)
Tertiary uses	• telling people what they are meant to achieve • basis of negotiation • means of communication • component of reward/payment systems

The Budget Preparation Process – General Principles

As we have seen already, budgeting takes place at many levels, although here we will be considering a one-year time horizon. Let us consider the yearly budget preparation process for a manufacturing organisation. What would be the main questions to be addressed for an annual budget? An attempt is made to put together some reasonable questions in Table 4.4.

Obviously, the budget for even a small manufacturing firm can be quite complex. A separate 'mini-budget' could be prepared for each of the items in Table 4.4, the size and timing of many items being dependent or related to a number of other items. For example, when we pay for materials depends upon the sources from which we purchase them and the characteristics of their credit terms. What materials must be purchased depends

Table 4.4 Some questions to be asked when preparing a manufacturing firm's annual budget

What products are we going to sell?
How much of each product are we going to sell?
When will we sell the products?
Where will the products be sold?
If we buy in the products for selling on:

- When will we buy them?
- Who will we buy them from?
- How much will we pay for them?

If we make the products:

- Materials:
  - How much of each material will we need?
  - Where will we get the materials and when?
  - How much will we pay for the materials and when?
  - How much will we buy and how much will we keep in stock?
- Labour:
  - How much labour will we use?
  - How many people of each type will we need?
  - When will we employ them?
  - When will we pay them?
- For each type of cost (salaries, insurance, rents/rates, administrative expenses, stationery, phone, heating, lighting, etc.)
  - How much will we need?
  - When will we need it?
  - Who will supply it?
  - When will we pay for it?

upon on stock policies and usage requirements, which depend, in turn, on production plans.

Ideally, therefore, budgets at the detailed level should 'cascade down' from the higher-level budgets which are closely dovetailed into the organisational objectives. In real life, of course, there will also be an element of 'bottom-up' planning. Although the organisation might wish to produce X units of a product, constraints on the materials or labour may prevent the required number of sales units being produced. An iterative process therefore ensues in which constraints, objectives and priorities are considered in order to produce the optimal effect.

Let us use a simple example to illustrate the budgeting process. Exhibit 4.1 demonstrates a budgetary process in a simple manufacturing firm.

EXHIBIT 4.1

Illustration of Budgeting Within a Small Manufacturing Firm

Buddy Ltd has the following basic plans for the forthcoming year:

Products	Sales units	Selling price £/unit
A	240	1000
B	360	800
C	120	1500

It is likely that sales of products A and C will be even throughout the year, whereas product B will be sold in four equal consignments taking place at the end of each quarter.

All sales will be made on credit terms of 30 days and the opening trade debtors' position at the start of the budget year is expected to be £50,000.

All of the company's products will be manufactured in-house and they have the following resource requirements:

	Material X		Material Y	
Product	Units of material required per unit of production	Cost per unit of material (£)	Units of material required per unit of production	Cost per unit of material (£)
A	3	50	4	60
B	2		3	
C	4		5	

At the start of the budgeted year, the following material stocks will be available:

Material	Units	Unit cost £	Total cost £
X	200	45	9,000
Y	100	55	5,500

Note that the unit material costs given in the table above are those for the opening stocks, that is, costs relating to the year before the budget period. Thus they will not necessarily be the same as the unit material costs relating to the budget period. It is intended to reduce direct material stocks by 20% by the end of the budgeted year.

Buddy Ltd's products have the following direct labour requirements per unit of production:

Products	DLH
A	20
B	15
C	40

Direct labour employees are paid at £5 per hour for a 40-hour week. After taking into account illness, leave etc., these employees work, on average, for 45 weeks of the year. Ten direct labourers are employed and any hours in excess of those normally available will be paid at an overtime rate of 'time and a half' (i.e. 50% above the normal rate). It is intended to maintain a constant number of direct labour employees throughout the budget year.

In addition to direct costs, the following monthly regular indirect costs are planned: salaries and indirect labour, £10,000; Administration, £8,000. Advertising campaigns are planned for months 4 and 8 at a cost of £15,000 each.

Suppliers of materials are paid 2 months after the materials are delivered. The opening trade creditors' position at the start of the budget year is expected to be £40,000.

Wages and all overheads are paid one month in arrears. Creditors for wages and overheads are expected to be £25,000 at the start of the budget year.

At the start of the budget year, Buddy Ltd will have the following stocks of its finished products:

Product	Budgeted opening stocks of finished goods (units)	Prime cost per unit £	Total cost £
A	50	500	25,000
B	60	350	21,000
C	80	650	52,000

Note that the unit prime costs given in the table above are those for the opening stocks, that is, costs relating to the year before the budget period. Thus they wil not necessarily be the same as the unit prime costs relating to the budget period. Buddy Ltd intends to increase its finished goods stocks to 100 units of each product by the end of the budget year.

Let us follow the process of preparing Buddy Ltd's budgets for the forthcoming year. The basic approach is illustrated in Figure 4.2.

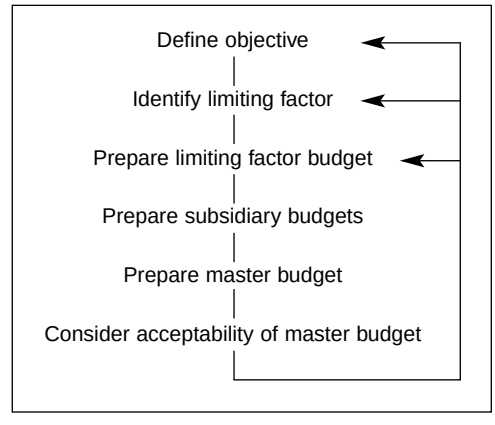

Figure 4.2 Buddy Ltd's budgeting process

Buddy Ltd's budgeting *objective* here is to make and sell the budgeted quantities at the budgeted selling prices. We will assume that demand is sufficient for the budgeted sales quantities at the budgeted selling prices, but we will need to check that the company has sufficient resources at its disposal to make the required units of the products.

Before we calculate the required resources, we need to calculate how many units of its products the company needs to make, given the information we have about its opening and closing budgeted stock levels. The following table may be called a *Production budget*:

	Product		
	A	**B**	**C**
Budgeted sales units	240	360	120
Budgeted closing stocks of finished goods	100	100	100
	340	460	220
less Opening stock available	(50)	(60)	(80)
= Required units of production	290	400	140

Next, now that we know the quantities of each product that Buddy Ltd will have to manufacture, we can turn our attention to the materials that will be required to produce the products. What are Buddy Ltd's materials requirements?

		Product		
		A	B	C
Budgeted units of production		290	400	140
Units of material required per unit of production:	X	3	2	4
	Y	4	3	5
Budgeted total units of each material required:	X	870	800	560
	Y	1160	1200	700

We can see now that Buddy Ltd needs (870 + 800 + 560 =) 2230 units of material X and (1160 + 1200 + 700 =) 3060 units of material Y. We can therefore calculate the amounts of each material that Buddy Ltd needs to purchase, taking into account its budgeted opening and closing stock levels:

		X	Y
	Units of material needed for production (see above calculations)	2230	3060
add	Budgeted closing stock (taking account of the intended 20% decrease)	160	80
		2390	3140
less	Opening stock available	(200)	(100)
	Therefore, material purchases required (in units) =	2190	3040

For the purposes of this illustration, we will assume that Buddy Ltd can find adequate supplies of these materials and hence that materials availability is not a limiting factor. If it were a limiting factor, Buddy Ltd would need to rethink its budget and consider issues such as:

- Should fewer units of both products (or a different mix of products) be made?
- Should it buy in finished products in order to make up for the shortfall of available materials?

- Should it redesign the products in order to utilise different, but readily available materials?
- Would Buddy Ltd be able to obtain more materials if it was prepared to pay a higher price for them, or pay for them more quickly?

We can also now calculate the cost of purchasing the required materials:

	X	Y	Total
Purchase requirements (units):	2190	3040	
Purchase cost per unit	£50	£60	
Purchase cost	£109,500	£182,400	£291,900

The second stage in the budgeting process (Figure 4.2) was identifying the *limiting factor*. We have assumed that demand is sufficient to allow Buddy Ltd to sell its budgeted sales quantities and that sufficient materials supplies are available. What about labour availability? Well, we are informed that if insufficient labour hours are available within normal hours, Buddy Ltd will be able to use overtime hours to make up the shortfall. So, it appears that there are no limiting factors here. Demand, materials availability and labour capacity can all be dealt with.

There are, however, practical limits to such capacity. Should demand for Buddy Ltd's products surge, then sufficient materials may be difficult to obtain. Similarly, there are obvious limits to the extent to which the labour force can work overtime, including social and legal implications. Of course, materials shortages can often be overcome by substituting materials or by outsourcing, as outlined above. Labour shortages might, in the longer term, be overcome by product redesign or by the recruiting of further employees.

In the present example, given that there are no obvious limitations on materials or labour, then the budget is driven by how much is produced, which in turn is driven by the level of demand. Effectively, sales demand is the limiting factor and hence the sales budget is the budget out of which all the other budgets are constructed.

Let us check on the requirements for direct labour:

	Product			
	A	B	C	Total
Budgeted production units	290	400	140	
Labour hours required per unit	20	15	40	
Total labour hours required	5,800	6,000	5,600	17,400

Note that we are assuming that Buddy Ltd has only one type of direct labour working in only one department. If there was a mix of different labour types, operating within a number of different departments, each having its own limitations, then this example would be somewhat more complicated – and a lot more like real life!

Does Buddy Ltd have enough capacity within normal hours to produce the required units? This can be ascertained easily. Buddy Ltd's available direct labour capacity is 10 direct labourers × 38 hours per week × 45 weeks per year = 17,100 direct labour hours. So we can see that Buddy Ltd has a shortfall of (17,400–17,100=) 300 direct labour hours. This shortfall can, however, be made up for by overtime working and these overtime hours will be paid at the overtime rate of 1.5 × the normal hourly rate. Therefore, the budgeted direct labour cost will be 17,400 × £5/hr = £87,000.

A additionally, there will be an overtime premium overhead cost of 300 hours × 50% × £5/hr = £750. Note that the budgeted overtime premium cost is treated as an *overhead*, rather than as a direct labour cost, as it is not a regular feature of the production process. Should there be a continued and increasing need for overtime working, it is likely that the company would review its direct labour requirements.

We have already identified one budgeted overhead cost, an overtime premium cost of £750. What other overheads does Buddy Ltd have? The only other overheads identified within this example are:

	£/month	£/year
Salaries and indirect labour	10,000	120,000
Administration costs	8,000	96,000
Advertising campaigns: 2 at £15,000 each		30,000

Now that we have done most of the 'hard thinking', we can now start to put together the budgets for Buddy Ltd. As production, and most other factors, are even throughout the year, we shall produce a budget for the year as a whole. Although sales of product B take place at the end of each quarter, this will merely have an effect on stock levels within the budget year.

In real life, it is likely that a number of matters would make this simple scenario unlikely and hence require budgeting on a monthly (or other periodic basis):

- Labour capacity will tend to vary throughout the year, for example during traditional holiday periods and because of sickness. Stocks would therefore need to be built up to compensate for lack of production during those periods.
- Demand may be seasonal.

Let us now put together the budgets in the order suggested by Figure 4.2. First, the sales budget:

		Product A £	Product B £	Product C £	Total £
Sales	240 × £1,000	240,000			
	360 × £800		288,000		
	120 × £1,500			180,000	
					708,000

Next, the production budget:

	Product A	Product B	Product C
Budgeted units of production =	290	400	140

Finally, the materials usage budget:

	Product A		Product B		Product C	
Units of production (see production budget)	290		400		140	
	Units Material per unit of prod'n	Units of material required	Units Material per unit of prod'n	Units of material required	Units Material per unit of prod'n	Units of material required
Material X	3	870	2	800	4	560
Material Y	4	1,160	3	1,200	5	700

What about the cost of these materials? We know, from the materials usage budget, what the material quantities required are. Where will these materials be obtained? Some, obviously, will be obtained as new purchases. Buddy Ltd will also have a quantity of opening materials stocks at the beginning of the budget period. Let us assume (as we are not told) that these opening stocks are used equally between products A and C and that (following a first-in, first-out assumption) they are used up before the newly purchased materials. Thus, the cost of the materials consumed in production will be a mixture of the cost of opening stocks (which have a different unit cost) and new purchases:

	Product A	Product B	Product C	Total
Material X:				
Required units of material	870	800	560	
	£	£	£	£
Cost of opening stocks used				
100 units × £45	4,500			
100 units × £45			4,500	

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(Continued)

	Product A	Product B	Product C	Total
Costs of new purchases				
Used (balance)				
770 × £50	38,500			
800 × £50		40,000		
460 × £50			23,000	
Subtotal	43,000	40,000	27,500	110,500
Material Y:				
Required units of material	1,160	1,200	700	
	£	£	£	
Cost of opening stocks used				
50 units × £55	2,750			
50 units × £55			2,750	
Costs of new purchases				
Used (balance)				
1,110 × £60	66,600			
1,200 × £60		72,000		
650 × £60			39,000	
Subtotal	69,350	72,000	41,750	183,100
Total	112,350	112,000	69,250	293,600

Here is the materials purchases budget:

	Material X	Material Y	Total
Purchase requirements (units):	2,190	3,040	
Purchase cost per unit	£50	£60	
Purchase cost	£109,500	£182,400	£291,900

Finally, here is the direct labour budget:

	Product A	Product B	Product C	Total
Direct labour hours required:	5,800	6,000	5,600	
Direct labour cost per hour	£5	£5	£5	
Direct labour cost	£29,000	£30,000	£28,000	£87,000

Note that here we have not included the usual 'add-ons' of employers' national insurance, pension contributions, and so on, that are often treated as part of the labour rate in practice (as we are not supplied with the requisite information here).

We saw, when producing the direct labour budget, that Buddy Ltd had no spare labour capacity. The budgeted total cost of the direct labour force to the company is 52 weeks × 38 hours × £5/hr × 10 employees = £98,800 (assuming that employees are paid every week, even if ill, on holiday, etc.). But we have calculated that the direct labour cost of production is only £87,000. The difference of £11,800 represents the cost of holiday pay, sick pay, and so on, and is usually treated as an *overhead* cost. Another labour-related overhead cost is the overtime premium of £750 that we calculated earlier. So Buddy Ltd's overhead budget looks like this:

		£ per year
Labour-related overheads:	Holiday and sick pay	11,800
	Overtime premium	750
Salaries and indirect labour	£10,000 per month =	120,000
Administration	£8,000 per month =	96,000
Advertising	2 campaigns at £15,000 each =	30,000
Total overhead cost budget		258,550

The *master budget* is simply a summary of all the other budgets and often takes the form of set of budgeted accounts. It has little use for control purposes at the detailed level but does, at least, show the overall budgeted position (to tell us whether we will make a profit) and allows a check on whether the various detailed budgets come together as a coherent whole.

As explained earlier, if the overall outcome indicated by the master budget does not meet with approval, adjustments will be made and a process of iteration will ensue until the budget is 'right'. Of course, there is a limit to how many times this process can be carried out before the budget is finalised, but the power of modern software and hardware facilitates the process well.

Although all of the above calculations might, in practice, be undertaken using spreadsheet software, the larger firm is more likely to apply more systematised software, probably integrated with its other financial and non-financial systems. Such software, used by multinational organisations, is sometimes known as enterprise resource management software and is rapidly becoming more sophisticated.

Buddy Ltd's Budgeted Profit & Loss account

		Product A	Product B	Product C	Total
Sales	Units	240	360	120	
		£	£	£	£
	Revenue	240,000	288,000	180,000	708,000
Cost of sales					
Units of *production*		290	400	140	
		£	£	£	£
Cost of materials used (see materials budget)		112,350	112,000	69,250	293,600
Direct labour cost (see direct labour budget)		29,000	30,000	28,000	87,000
Prime cost of production		141,350	142,000	97,250	380,600
add Opening stocks of finished goods, at prime cost (given)		25,000	21,000	52,000	98,000
less Closing stocks of finished goods, at prime cost*		(49,000)	(35,500)	(70,000)	(154,500)
Cost of sales		117,350	127,500	79,250	324,100
Gross profit					383,900
less Overhead costs					(258,550)
Budgeted net profit					125,350

* Calculation of prime cost per unit of stock produced during the budget period.
Assuming a FIFO basis:

			Product A	Product B	Product C
			£	£	£
Materials:	X	3 × £50	150		
		2 × £50		100	
		4 × £50			200

	Y	4 × £60	240		
		3 × £60		180	
		5 × £60			300
Labour		20 × £5	100		
		15 × £5		75	
		40 × £5	____	____	200
Prime cost per unit			490	355	700

The budgeted closing finished goods stock of each product is 100 units, so value of closing stocks is:

	£
Product A	49,000
Product B	35,500
Product C	70,000
Total	154,400

As we are not given details of Buddy Ltd's opening balance sheet at the start of the budget period, other than for stocks, debtors and creditors, we cannot produce its budgeted balance sheet. We can, however, calculate the *effects* on Buddy Ltd's balance sheet during the budget year. First, though, we need to produce a *cash* budget for the year.

	£	£
Inflows		
Cash from sales: we know that Buddy Ltd intends to make £708,000 of sales during the year. We also know that the opening trade debtors will be £50,000.		
Opening debtors (will be received during the budget year)	50,000	
+ Sales made	708,000	
–Closing debtors (not received until after the end of the budget year) = 1/12 × £708,000 =	(59,000)	
= Cash received from sales during budget year		699,000

Outflows		
Material purchases		
Opening trade creditors =	40,000	
+ Materials purchases (all on 2 months' credit)	291,900	
– Closing trade creditors = 2/12 × £291,900 =	(48,700) [approx]	
= Cash paid for materials during budget year		283,200
Direct labour and overheads		
Direct labour cost	87,000	
Total overhead cost	258,550	
Total labour and overhead cost	345,550	
+ Opening creditor	25,000	
– Closing creditor = 1/12 × 345,550 =	(28,800)	
= Cash paid out during budget year		341,750

Thus the change in cash resources during the budget year is:

Total inflows – Total outflows = 699,000 – (283,200 + 341,750) = £74,050

Let us now look at the effects of the budget year on Buddy Ltd's balance sheet:

				£	£
Assets:					
Increase in cash				74,050	
Increase in trade debtors (59,000 – 50,000)				9,000	
(Decrease) in materials stocks:					
		Closing stocks (calculated)	Opening stocks (given)		
		£	£		
Material X	160 × £50 =	8,000	9,000		
Material Y	80 × £60 =	4,800	5,500		
		12,800	14,500		(1,700)

Increase in finished goods stocks:					
		closing stocks (calculated)	opening stocks (given)		
		£	£		
Product A	100 × £490 =	49,000	25,000		
Product B	100 × £355 =	35,500	21,000		
Product C	100 × £700 =	70,000	52,000		
		154,500	98,000		
				56,500	
					137,850
Liabilities:					
(Increase) in trade creditors (40,000 – 48,700) =				(8,700)	
(Increase) in creditors for wages and overheads:					
	= (25,000 – 28,000) =			(3,800)	
					(12,500)
∴ Total effect on balance sheet (a net increase in assets) =					125,350

Note that, as we would expect, this increase in budgeted balance sheet net assets is equal to the budgeted net profit that we have calculated.

So, we have produced the main budget statements for Buddy Ltd as required, but how realistic has this example really been? A few (!) matters that may go towards complicating things for Buddy in real life are given in Table 4.5.

Toll Processing or Contract Manufacturing

Toll processing is a recent trend in manufacturing industries, particularly multinational groups. Previously, a company might have manufactured products or components, or carried out a production or refining process, using materials that it has purchased from another company within the group. Under a toll processing arrangement, the same operation or processing is undertaken but the materials being worked upon do not change ownership: the processing company undertakes work on materials provided by the customer company, and returns the processed materials to the customer. Thus, instead of the previous situation where the materials are purchased from and the processed output sold back to the customer, under toll processing the processing company simply charges the customer a 'tolling fee' for the services provided.

Table 4.5 Some possible complicating factors in real-life budgeting

Possible complications	Solution approaches
Vast range of products and a need for careful allocation of resources to products	Strategic approaches to product portfolio analysis and application of mathematical approaches such as linear/integer programming
Non-linear relationships between sales price and demand	Some mathematical approaches possible. Multi-scenario modelling using advanced software
Changing goals, targets, tactics, etc., and/or unexpected changes in resource availability.	Need for a more flexible, less detailed approach to budgeting. Extensive use of computer modelling
Multinational buying and selling leading to complex effects upon profits, depending on the geographic mix of resources and customers	Need for a co-ordinated modelling approach involving input from, and negotiation between all relevant parts of the multinational group
Changes and/or differential effects in inflation rates	Need to take a more flexible approach; potential for 'what if' analysis
Potential for reducing labour costs by outsourcing or relocating operations overseas	Budget model to build in various possibilities for location, etc., including potential implications for other non-labour related factors, e.g. communications, logistics, treasury
Potential changes in corporate structure because of take-overs, etc.	Incorporate potential effects (where foreseeable/quantifiable) into higher-level models
Changes in pricing/stocking/profit structures because of move to a contract manufacturing (toll processing) organisational set-up	Ensure that alternative budgeting models produced. Budgeting approaches used will be basically the same but the emphasis may change to focus on the characteristics of the new set-up, including increased focus on overheads, transfer pricing, service fee structures
Wish to calculate profits at a more detailed product level	Application of a form of absorption costing (either traditional or activity-based) to overhead costs, being careful that the extra 'information' produced is reliable/useful

The reasons behind toll processing are varied, ranging from economic effectiveness (in terms of specialisation, decentralisation, or risk management) to tax avoidance/evasion.

Toll processing may take place within any manufacturing or processing industry, and may take place within groups (e.g. to minimise taxation by taking advantage of differential local tax rates/rules) or between 'arm's length' parties. It is found noticeably within oil, chemicals, pharmaceuticals and computer industries.

Organisational Contexts and Budgeting Requirements

We have considered the basic budgeting requirements of the manufacturing sector in the passages above and have examined some of the complications that may arise. Of course, in some countries the services sector has grown rapidly. Similarly, in many 'advanced' countries, the public sector, measured in terms of employment figures, is larger in size than any industrial or other sector. It may therefore appear that the traditional emphasis of management accounting texts upon *manufacturing* businesses may have an inappropriate bias. This is true to an extent, but there are a number of 'extenuating factors':

- Many of the features of manufacturing and service organisations are similar. Both sectors, for example:
  - use materials (manufacturers to a larger extent)
  - may outsource resources or processes
  - use labour, although the 'admin' activities will be a higher proportion within service organisations. The meaning of 'direct labour' will vary, though, between service and manufacturing organisations.
  - make sales. There is also a degree of cross-over in that, increasingly, in certain sectors such as metals, pharmaceuticals and chemicals, manufacturers may process goods for others. Such toll manufacturers or contract manufacturers may therefore manufacture goods in their own right or provide a processing service (or both).
- The processes of setting objectives, aims, goals, etc. and of planning, budgeting, etc. are similar in principle for both manufacturing and service sectors. Any differences lie in the detail and emphasis within the budgets and plans of each sector.
- The public sector is vast and covers a broad range of organisations. Many of these organisations will apply similar approaches to planning/budgeting to those used in the manufacturing and service sectors. Indeed, in the search for 'best practice', UK public sector bodies often turn to the manufacturing/service sectors for inspiration. Recently acquired approaches include activity-based costing and balanced scorecard approaches to performance management.
- The public sector (particularly the various forms of government) contains specialised, publicly owned, forms of service organisation.

There are, of course, also significant differences between the public sector and other sectors. As stated above, the public sector is 'publicly owned' in that it is financed by public contributions. Hence, its objectives and goals should reflect public wishes. It is

thus inappropriate for public sector organisations to follow an overall objective of profit maximisation to the detriment of social objectives and considerations. The budgeting models illustrated above still apply, but the objective is more likely to be framed in terms of such matters as minimising cost, optimising service provision, and optimising quality. Profit (or, more precisely, cost reduction) becomes more of a *limiting factor* than an objective in itself.

One further significant factor of some public sector organisations is that of *incrementalism*. Incrementalism is a name given to the public sector's tendency to take a short-term, year-by-year approach to budgeting (see Coombs and Jenkins, 2002). Basically, because of a government's need to control costs within the framework of long-term social and economic objectives, there may be a tendency to impose top-down 'caps' (i.e. upper limits) on expenditure. This in itself is not necessarily a problem (except that it may result in a rather short-term bias). However, in some public sector organisations, a failure to use (i.e. spend) the allocate budget limit will lead to a reduction in the following year's allocation of funding to that part of the organisation, resulting in a gradual and continuous upward 'creep' in spending. A failure to allow a department to benefit directly from its cost savings or income-generating activities can lead to similar consequences.

In the public sector (but not only in the public sector – similar characteristics may be exhibited in many large companies) over-formalisation of planning systems often occurs. This may lead to a high degree of bureaucracy whereby:

- expenditure may not be committed to a project /service unless it has been planned and approved well in advance;
- over-rigid rules are enforced regarding the reallocation of budgets from one project/service to another;
- it may be easier to obtain authorisation for smaller-scope projects than for more meaningful/strategically important projects.

Such features may lead to ineffectiveness creeping into the organisation, with an increasing emphasis on short-term and less strategic issues. Limiting factors are often imposed from within the organisation rather than from without it. Labour availability, for example, may be more a matter of limits imposed on the maximum size of a department than of how much labour is available in the external labour market.

Having said all of this, things are changing and successive governments have made efforts to become more effective, efficient and economical, though not always successfully. Recent years have seen much criticism of efforts to improve effectiveness of sectors such as public health, public transport and education. Moves are also afoot in the UK public sector to align accounting practice with the 'best practice' of the private sectors, although much of this emphasis (e.g. via the *Resource Accounting Manual*, maintained by the Financial Reporting Advisory Board) is on financial rather than management accounting issues.

Behavioural Consequences of Budgetary Control Systems

Obviously, planning and control systems are linked inextricably to the ways in which people behave. Such systems consider and deal with what people are meant to do (missions, objectives, goals, etc.), how they should do it (plans), what they should allocate resources to (budgets) and how well they do it (budgetary control mechanisms). As this was such an obvious area for research into the social aspects of budgeting, it was one of the first 'growth areas' in management accounting research, leading to a wealth of later research. Some of this research is outlined below and covered more extensively in the recommended further reading section.

Amigoni (1978) attempted to prepare a conceptual framework for the design of management control systems which was tailored to corporate and environmental characteristics. He claimed that there were two main factors for consideration, the degree of complexity and the degree of discontinuity that existed within the business system/environment. He suggested that management control systems research should concentrate on how to deal with complex companies in highly turbulent environments. Effectively, Amigoni argued that, as regards budgeting and control systems, it was not a case of 'one size fits all'. The control system, the plans that it contains, and its degree of flexibility must all be carefully tailored to have optimal relevance to the particular organisation and its current and future environment. This does not mean that every aspect of a budgetary system must be complex, at least not more complex than is necessary to achieve the intended outcomes.

Otley and Berry (1980) argue that many of the theories of accounting control and organisation are outdated and that several issues need to be resolved before the cybernetic (closed-loop feedback) control model can be applied confidently to accounting information systems. They argue that control and organisation are unclear concepts and that objectives may change over time. Otley and Berry draw attention to how the different types/natures of organisation (normative, instrumental, coercive) may impact on the required nature and information of control systems. They draw attention to the role of power relationships within organisations and the impact that these may have on the nature and outcomes of control systems. Otley and Berry argue that most management accounting information systems fail to produce predictive information for problem-solving because of difficulties in obtaining data. They therefore argue for a contingent approach to systems design. They identify the practical problems of identifying the conditions for control (objective, measuring device, predictive model, choice of alternative actions) and the need for compromise or consensus in the real world. They conclude that a holistic approach to control is optimal. In essence, Otley and Berry make a similar case for 'tailored' systems to that of Amigoni.

Briers and Hirst (1990) provide an extensive review of the literature in this area and attempt to assemble an analytical framework using supervisory style as the key independent variable. They point, particularly, to the piecemeal, selective and method-driven nature of previous studies and to these studies' overdependence on statistical analysis and subsequent inference. They argue that, while a contingency theory underpinning (see Chapter 7) is

common in this area, they have some concerns about contingency theory's lack of conceptual clarity and the ambiguity of constructs such as 'environmental uncertainty', 'job performance' and 'budget performance' and their interrelationships. They argue that the effects of the choice of supervisory style are 'neither a simple nor inevitable consequence of a particular supervisory style'. Briers and Hurst then attempt to identify possible factors upon which the optimal control system design would be contingent. They make reasonably clear that the application of a 'tailored', contingency theory approach is neither easy nor obvious.

Conclusions

This chapter has:

- reviewed terms such as strategy, mission, objectives, goals and aims, and emphasised the need for clarity of meaning;
- shown that effective budgeting depends on setting clear objectives, reliable monitoring and feedback systems and effective reporting;
- argued that budgets affect everyone in an organisation, whether they are involved in setting or being assessed by them;
- stated that budgetary practices may vary depending upon the organisation and environmental setting;
- shown that budgets may have unintended consequences if used inappropriately.

Summary

In this chapter we have focused on the budgetary control aspects of management accounting. We have considered the scope for confusion that may arise from the use of words such as strategy, goals, aims, missions and target, and urged the management accountant to specify meanings where possible. Budgeting is an activity that links these terms and permeates all levels of all organisations.

We have seen that budgetary control depends upon clear objectives and the implementation of effective monitoring systems. We looked, in some depth, at the typical activities involves in producing a master budget for a typical organisation. Budgets were seen to have a wide range of uses, from control to communication. Finally, we observed that a variety of views exist upon the nature, requisites and possible outcomes of budgetary practices.

Recommended Further Reading

Amigoni, F. (1978) 'Planning management control systems', *Journal of Business Finance and Accounting*, 5(3): 279–292.

Amigoni attempts to prepare a conceptual framework for the design of management control systems which is tailored to corporate and environmental characteristics. He claims

that there are two main factors for consideration: the degree of complexity and the degree of discontinuity. The former takes into account:

- independent variables, such as the company's structural complexity and degree of environmental turbulence;
- distinctive features, such as detail, relevance, formality and control style;
- control tools, such as financial accounts, ratios, management accounts, and budgets.

The degree of discontinuity is concerned with the adaptability of the system: if the assumptions about the economic scenario are wrong, or change frequently, the system will be unable to adapt.

Amigoni argues that the distinctive features of management control systems are as follows:

- degree of detail in management accounting information, e.g. product/divisional analysis;
- degree of relevance (to individual managers);
- degree of selectivity – the greater the selectivity, the higher the ratio of relevant to irrelevant information, i.e. the better the system is;
- degree of formal responsibility;
- degree of procedural rigidity – 'standard' v. 'contingency' systems;
- style of control – tight v. loose (socially/individually aware managers);
- quickness (between event and management response);
- orientation (to the past or to the future).

He suggests connections between environmental variables and management control system features. A stable environment has

- lots of business units and communications, therefore more detailed systems and output orientation;
- more complex organisational structures, therefore more system relevance, selectivity and degree of detail at lower levels;
- a higher degree of formal responsibility and procedural rigidity, and a tighter control style.

A turbulent environment, on the other hand, is a more discontinuous one, with systems oriented to future and a high degree of quickness.

According to Amigoni:

- cost accounting increases the relevance of information and increases formal responsibility;
- budgeting (with responsibility accounting) increases formal responsibility, increases procedural rigidity (often with 'tight' style) and has limited orientation to the future (although the use of NPV analysis increases future orientation).

He suggests that management control systems research should concentrate on how to deal with complex companies in highly turbulent environments (see also Preston, 1995).

Otley and Berry (1980) 'Control, organisations and accounting', *Accounting, Organisations and Society*, 5(2): 231–244.

Otley and Bory argue that many of the theories of accounting control and organisation are outdated and that several issues need to be resolved before the cybernetic (closed-loop feedback) control model can be applied confidently to accounting information systems. They make some suggestions for research in this respect.

Control is an unclear concept, argue Otley and Berry. They discuss the various possible motivators for control systems, such as domination vs. regulation, monitoring vs. taking action and so on. Additionally, the idea of the 'organisation', they maintain, is unclear. Organisations are 'social constructs' continually evolving and modifying to adapt to their situations and that even organisational objectives may change over time. Otley and Berry explore the concepts of planning and control. They suggest that planning may be seen as 'future control' or that 'control' may, in fact, be seen to contain both the components of planning and control.

Otley and Berry further discuss the types of organisational nature that may exist, referring to the earlier work of Amitai Etzioni, who established that organisations may have several natures – normative, instrumental or coercive. The nature of the organisation has, of course, implications for the required control systems and the information to be produced. Additionally, the role of power within the organisation would need to be accounted for within the control system's design. Otley and Berry refer to the work of Stafford Beer who criticised the naïve ideas of causality accepted by many observers, i.e. to what extent can organisations/control be modelled by mathematical models or replicated in human organisms? They argue that most management accounting information systems fail to produce predictive information for the 'problem-solving' function of management because of obvious difficulties in obtaining the data. They argue for a contingent approach to designing management accounting information systems and that little research has been carried out in this respect.

They refer to Keith Tocher's four conditions for control – an objective, a measuring device, a predictive model, and a choice of alternative actions – but ask how easy is it to define/design these in practice. (They also refer to Vickers' more detailed control process model.) Such models, they comment, pay little attention to notions of compromise or consensus as found in the real world (or domination, power, encouragement or agency aspects) and the accountant's role/position in all of this.

They go on to look, in more depth, at Tocher's four conditions for control, examining the problems involved, for example:

1. *Objectives* – problems of defining, deriving or clarifying,
2. *Measuring devices* – necessarily simplistic/reductionist – but representative surrogates?
3. *Predictive models* – are they ever complete/reliable? Accounting measures are only a small part of the whole, and
4. *Choices of action* – identification and persuasion to change are both prerequisites.

Otley and Berry conclude that a holistic approach to control would be best and that accounting procedures, although presently inadequate, may prove to be the best basis for such development.

Briers, M. and Hirst, M. (1990) 'The role of budgetary information in performance evaluation', *Accounting, Organisations and Society*, 15(4): 373–398.

Briers and Hirst provide an extensive review of the literature in this area and attempt to assemble an analytical framework which, using supervisory style as their key independent variable, categorises other variables involved into those which are:

- *antecedents* – having a causal effect upon supervisory style;
- *moderators* – where supervisory style is thought to depend on their value;
- *intervening* – if they are both affected by supervisory style and also have a causal effect on the dependent variable of interest (e.g. dysfunctional behaviour, job performance, budgetary performance).

They argue that, while their literature review indicates the complexity of their area of study and that, generally, a contingency approach seems to have found favour, previous writing has demonstrated failings conceptually and methodologically. They point, particularly, to the piecemeal, selective and method-driven nature of previous studies and their overdependence on statistical analysis and subsequent inference.

Briers and Hirst also point to the conflicts between earlier analyses and make some suggestions as to possible causes of such conflicts. They draw attention to the difficulties in identifying the nature/interrelationships and significance of the variables identified in earlier studies, which include:

- technical features of systems;
- styles of use;
- implications of participation/pseudoparticipation;
- economic conditions;
- environmental uncertainty;
- degree of multidimensional communication;
- degree of existence of informal information systems;
- the nature of interpersonal relationships;
- the time focus of performance management systems (short or long term)
- the degree of task uncertainty;
- business strategy (defender, prospector, analyser);
- business culture/philosophy;
- the role of technology;
- budget emphasis and budget pressure, etc.

They argue that, while a contingency theory underpinning is common in this area, they have some concerns about it:

- a lack of conceptual clarity (what exactly is contingency theory?);
- a lack of clarity in the understanding of the nature of change;
- the ambiguity of constructs such as 'environmental uncertainty', 'job performance' and budget performance' and their interrelationships.

They conclude that 'the use made of accounting information in performance measurement is neither a simple nor inevitable consequence of its availability' and that the effects of the choice of supervisory style are 'neither a simple or inevitable consequence of a particular supervisory style'. Whilst their study is intellectually demanding, it does provide a useful checklist of the factors which may impact on performance evaluation.

Case Study: Budget Preparation

SIG PLC manufactures two types of crampon: peaks and grips. The current factory manager, E. Whymper, formed the company in 1986. The company uses a standard cost system and fully absorbs factory overheads into the cost of production. Closing stocks of finished goods are valued at the standard cost of production. Production and sales are planned to be at the same monthly level throughout the year 2002.

The estimated balance sheet for the year ended 31 December 2001 is as follows:

SIG PLC
Balance Sheet as at 31 December 2001

Assets employed	£000	£000	£000
Fixed assets	Cost	Depn	Net
Plant and machinery	700	140	560
Current assets			
Stock			
Raw materials	53		
Finished goods	80	133	
Debtors		30	
Cash		109	
		272	
less Current liabilities			
Creditors	12		
Proposed dividend	60		
Provision for taxation	13	85	
Working capital			187
			747

Financed by	
Share capital	646
Retained profit	101
	747

The following information has been obtained for the purpose of preparing the budget for the year ending 31 December 2002:

Sales Forecast	Peaks	Grips
Planned selling price per unit	£110	£130
Forecast sales volume (units)	6,400	4,200

Direct Costs

The following standard costs have been estimated for the year 2002.

Materials	£
Teal (per kilogram)	9
Spake (per litre)	5
Direct labour	£/hour
Machining department	6
Finishing department	5

The standard direct material and standard direct labour content of each unit of the finished product is as follows:

	Peak	**Grip**
Teal	4 kg	4 kg
Spake	3 litres	3.5 litres
Machining direct labour	3 hours	4 hours
Finishing direct labour	2 hours	3 hours

The following numbers of direct employees work in each of the production departments: machining, 22; finishing, 10. All employees work a 38-hour week and receive paid leave for 5 statutory bank holidays and 15 additional days per year. The normal working week is five days. Any overtime is paid at time and a half.

Factory overheads are fully absorbed into production, using direct labour hours. At the planned output levels the following costs are forecast:

	£000
Indirect labour	30
Indirect materials	22

Repairs	11
Rates	22
Canteen	16
Depreciation	70
Heat and light	3
Power	6
Factory management	49

The factory has three cost centres: machining department, finishing department and a general service department. Data relating to these three cost units for 2002 are as follows:

Data	Machining dept.	Finishing dept.	General service dept.
Indirect labour hours	3500	1000	300
Indirect materials	£13,000	£5,000	£4,000
Repairs	£5,000	£4,000	£2,000
Factory managers	£16,000	£19,000	£14,000
Plant and machinery values	£600,000	£100,000	0
Floor area	2000 sq.metres	500 sq. metres	500 sq. metres
Machine hours	5500	1500	0
Canteen employees			2

The following stock forecasts are available:

Raw materials	Teal (kg)	Spake (litres)
Opening stock	5000 (£46,000)	1400 (£7,000)
Closing stock	4900	2300

Finished goods	Peaks	Grips
Opening stock	90 (£5000)	920 (£75,000)
Closing stock	700	520

Forecast selling and administrative expenses (in thousands of pounds) are as follows:

Selling expenses	
Salaries	43
Advertising	20
Administrative expenses	
Office salaries	34
Sundry expenses	10
Professional fees	5

The costs of raw materials purchases, direct labour, factory overheads, selling and administrative expenses will be met in full in cash. At 31 December 2002 it is estimated that outstanding debtors and creditors will stand at £23,000 and £21,000, respectively. Tax owing at 31 December 2001 will be paid by 1 September 2002 and proposed dividends will be paid in the first three months of 2002. Machinery purchases during the year are estimated to cost £45,000 and will be paid for.

Any profits are taxed at the rate of 23%.

You are required to produce the following budgets and working papers for 2002.

Sales Budget (1)

Product	Units	Selling price £	Revenue £
Peaks			
Grips			
Budgeted revenue			

Production Budget (2)

	Peaks (units)	Grips (units)
Forecast sales		
Planned finished goods closing stock		
Total units required		
Less finished goods opening stock		
Budgeted production		

Direct materials used budget (3)

	Peaks			Grips			
Raw material	Content per Peak	Output of Peaks	Usage of raw material	Content per Grip	Output of Grips	Usage of raw material	Total usage
Teal							
Spake							
Total	–	–	–	–	–	–	–

Cost of Direct Materials Purchases and Cost of Usage Budget (4)

	Teal (kg)	Spake (litres)	Totals
Planned closing stock			–
Production requirement (3)			–
Total required			–
Less: opening stock			–
Purchase requirement			–
	£	£	£
Cost per unit			–
Budgeted purchases			
Add o/stock raw mats.			
Less c/stock raw mats.			
Cost raw mats. used			

Direct Labour Budget (5)

Dept./ Product	Labour hrs per unit	Units of output	Total labour hours	Wage rate per hour	Total labour costs
				£	£
Machining					
Peaks					
Grips					
Finishing					
Peaks					
Grips					
Totals	–	–		–	

Overtime/Idle Time Working Papers Hrs.

Dept.	Peak hrs	Grip hrs	Total hrs	Available Hours	Idle time hrs	Overtime hours
Man						
Fin						

£

Dept.	Wages	O/T	Total	T Labour	OT Prem	Idle T
Man						
Fin						

Factory Overhead Costs Budget (6)

	Apportionment basis	Total costs £	Manufacturing department £	Finishing department £	General service department £
Canteen					
Depreciation					
Heat and light					
Indirect labour					
Indirect mats.					
Management					
Power					
Rates					
Repair					
Overtime prem.					
Idle time					
Total cost					
Reapportionments					
Total costs					
Planned activity (hrs.)					
Rate per hour					

Standard Manufacturing Cost (7)

		Peak		Grip	
	Cost per unit (DLH, litre or kg) £	Units in one peak	Cost per peak £	Units in one grip	Cost per grip £
Direct materials					
Teal					
Spake					
Direct labour					
Machining					
Finishing					
Unit prime cost					
Factory overhead:					
Machining:					
Finishing					
Unit production cost					

Closing Stock Budget (8)

	Units	Unit cost £	Total cost £
Raw materials			
Teal			
Spake			
Total cost			
Finished goods			
Peaks			
Grips			
Total cost			

Cost of Goods Sold Budget (9)

	£
Direct materials used (4)	
Direct labour (5)	
Factory overhead (6)	
add Finished goods opening stock	
less Finished goods closing stock	
Budgeted cost of goods sold	

Selling and Administrative Expenses Budget (10)

Selling Expenses	£	£
Salaries		
Advertising		
Administrative Expenses		
Office salaries		
Sundry		
Professional fees		
Totals		

Budgeted Cash Flow (11)

	£	£
Opening cash balance		
Add receipts		
Total cash available		
Payments		
Purchases (4)		
Direct labour (5)		
Factory ohead (excluding dep'n) (6)		
Selling and admin (10)		
Tax		
Machinery purchase		
Total payments		
Budgeted closing cash balance		

Budgeted Trading Profit and Loss Account Year Ended 31 December 2001 (12)

	£
Sales (1)	
less Cost of sales (9)	
Budgeted gross profit	
less Selling and admin. expenses (10)	
Budgeted net profit before tax	
Taxation	
Budgeted net profit after tax	

Budgeted Balance Sheet as at 31 December 2002 (13)

Assets Employed	**£000**	**£000**	**£000**
Fixed assets Plant and machinery	Cost	Depn	Net

(Continued)

Budgeted Balance Sheet as at 31 December 2002 (13) (Continued)

Assets Employed	**£000**	**£000**	**£000**
Current assets			
Stock			
Raw materials			
Finished goods			
Debtors			
Cash			
Less Current liabilities			
Creditors			
Provision for taxation			
Working capital			
Net assets employed			
Financed by			
Share capital			
Retained profit: at 31.12.01			
add Year to 31.12.02			
Capital employed			

Questions

1. The production manager of the company for which you are an assistant accountant has recently sent you the following memorandum:

   To: Assistant Accountant
   From: Production Manager
   Date: 1 September 2004

Subject: Accounting Terms

I have, as you know, been attempting recently to gain a better understanding of the financial side of our business, particularly in the management accounting area. I should therefore be grateful if you would explain to me (in simple language) the following matters:

1. *Budgets, forecasts and plans*: I am unsure as to the differences (if any) between these terms. Would you please explain these differences and the significance these differences would have for me.
2. *Budgets and standards*: Is a budget the same as a standard? I have always worked on the assumption that it was.
3. *Cash budgets*: What is the point of producing cash budgets when we already spend an enormous amount of time on producing profit-based budgets? Producing cash

budgets seems superfluous when we are in a profit-making position. Surely cash budgets are only relevant when a bank overdraft situation is likely?

4. *Production budgets*: I see that you have once again instructed managers to prepare their budgets. Is the production of budgets not your department's responsibility? Line managers have enough of a problem managing without the further burden of having to produce budgets.

Perhaps you could let me have your comments.

Respond to the production manager's points. Your answer should be in the form of a memorandum.

2. The company you work for has asked you to write an introductory section to its budget manual. Some managers have complained that they do not really understand the reasons for spending such significant resources on producing budgets.

Write an introductory section for a budget manual entitled 'The Reasons for Preparing Budgets'.

3. CZD Ltd supply records, tapes and CDs to retail outlets. You are presented with the following financial information and are required to complete the cash budget for the three months ending 31 December 2005.

Opening cash 1/10/05 is £16,000.
Creditors give one month's credit.
Salaries are paid in the same month as they are earned.
Other expenses are paid one month in arrears and include £2000 depreciation each month.
Credit sales are settled 30% in the month of the sale and the remainder one month following the sale.

Month	Cash sales £	Credit sales £	Purchases £	Salaries £	Expenses £
September	25,000	40,000	70,000	6,000	7,000
October	28,000	45,000	68,000	6,000	7,000
November	28,000	40,000	59,000	6,000	7,000
December	30,000	38,000	60,000	6,000	7,000

(a) Prepare a cash budget for the months of October, November and December 2005.
(b) Prepare a schedule of outstanding debtors at the end of each of the months of October, November and December 2005.

4. The Amplifying Manufacturing Co Ltd issued £300,000 of share capital for cash on 1 January 2004, the date of its incorporation. In the following two weeks it raised an additional £50,000 by way of a loan from its local bank and spent £200,000 on machinery. The machinery is expected to last 10 years. The company rents a factory at a cost of £10,000 per month, paid on the last day of each month. Additional fixed costs (excluding depreciation) of £10,000 are paid monthly.

During its first six months of trading the company expects to sell the following numbers of amplifying widgets: January, 1000; February, 3000; March, 5000; April, 7000; May, 9000; and June, 12,000. Of these sales 10% each month will be cash sales; the remainder are on credit, with debtors paying 40% in the month following the sale and 60% in the month following that. The selling price of each amplifying widget is £12.

The company will produce the following number of widgets each month: January, 4000; February, 5000; March, 7000; April, 9000; May, 12,000; June, 15,000. Materials cost £3 per widget and are purchased in the month of production on one month's credit. Labour costs at £3 per widget are paid in the month of production, as are other variable overhead costs of £1 per widget.

(a) Prepare monthly budgets for production, cost of materials and direct labour for the first six months of trading.
(b) Prepare a monthly cash budget for the Amplifying Manufacturing Co Ltd for its first six months of trading. Show clearly the closing cash balance each month and the total cash flows over the period.

5. Belt plc sells men's and boy's belts that are cut to order. Each foot or fraction thereof sells for £2. Small belts average 2 feet and large belts average 3 feet in length. The leather is purchased from a local tannery at 90 pence per foot. The buckles are purchased at 50 pence for the small size and 75 pence for the large size.

Direct labour requirements are 10 minutes for a small belt and 15 minutes for a large belt. Skilled labour costs £5 per hour.

Machine requirements are 5 minutes for a small belt and 6 minutes for a large belt. Machine time costs £6 per hour.

Sales are expected to be 10% more than last year. Last year, the company's sales during October and November were as follows:

	October	November
Small belts	3000	2600
Large belts	1400	1500

The inventories at 30 September 2004 are as follows: leather, 1800 ft; small buckles, 2000; large buckles 1200.

In future the company desires month's end inventories as follows:

Finished goods:	10% of current month's sales
Leather:	40% of current month's production requirement
Small buckles:	30% of current month's production requirement
Large buckles:	30% of current month's production requirement

(a) Prepare a production budget for small and large belts for October and November 2004.
(b) Prepare a purchases budget for October and November 2004.
(c) Prepare a wages budget for October and November 2004.
(d) Comment on the difficulty of obtaining data when production budgets are being prepared.