

Chapter

EIGHT

Comprehensive Business Budgeting

Goals and Objectives

Profit planning, commonly called master budgeting or comprehensive business budgeting, is one of the more important techniques or tools in the management accountant's tool box. Although budgeting is actually an activity performed by management, the management accountant's assistance is required because the final budget is presented in the form of planned financial statements. The process for budgeting requires from management a set of carefully planned decisions. There are two primary phases in the budgeting process: (1) planning and (2) control. The first phase is the primary subject matter of this chapter. The second phase, control or performance evaluation as it is recognized in accounting, is the primary subject matter of chapter 14

The budgeting process is an all encompassing task that brings in focus all short and long run goals and objectives of the business. The process of preparing a budget compels management to explicitly recognize and assign quantitative values to all marketing, production, and financial decisions. A major reason for preparing a comprehensive budget is to obtain a measure of the impact of interrelated decisions on net income, financial position, and cash flow. However, the benefits of budgeting extend beyond the expression of decisions into numbers. Benefits often cited for budgeting include:

1. Recognition/improvement of organizational structure
2. Increased emphasis on setting of long-term objectives
3. Increased motivation to achieve objectives
4. Explicit recognition of important decision relationships
5. Better coordination of activities by managers
6. Improved profit performance
7. Better performance evaluation

The end result of the budgeting process is a set of balanced and coordinated decisions quantitatively presented as a set of budgeted financial statements. For a manufacturing business, the final product of budgeting is a:

- 1 Budgeted balance sheet
- 2 Budgeted income statement
(Including cost of goods manufactured statement)
- 3 Cash budget
- 4 Capital expenditures budget

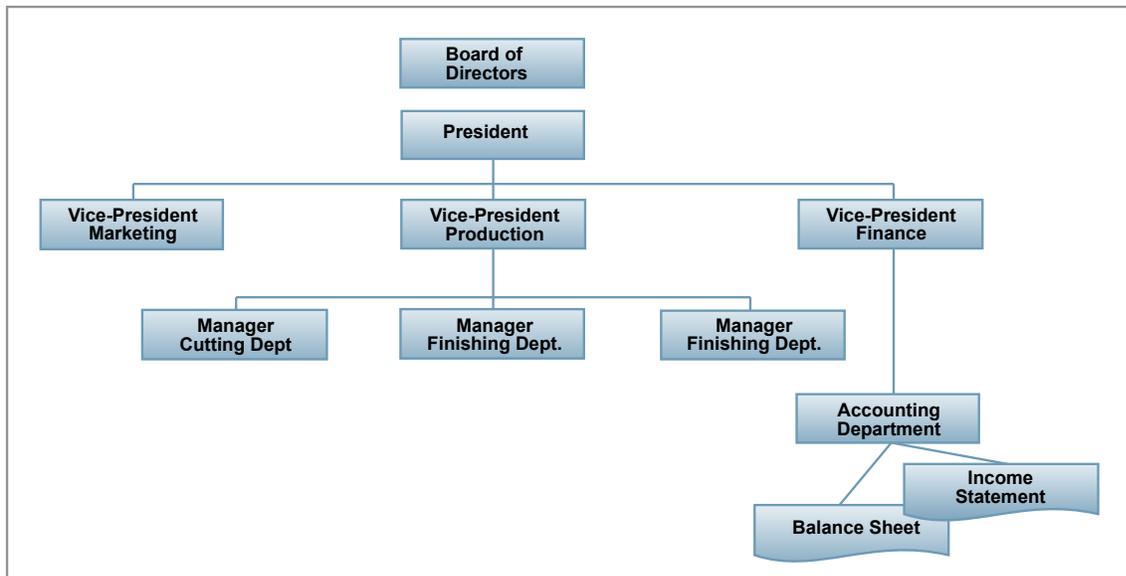
The preparation of a complete budget usually involves the preparation of several sets of tentative budgets. The final product is often the result of trial and error procedures. The first completed budget may not reflect the amount of desired profit. Consequently, management in an attempt to budget better performance may change one or more decisions during the budgeting process. The consequence of a single change can easily require computational changes in all budgets and supporting schedules.

The modern use of computers and special financial software removes the drudgery and tediousness of preparing a revised budget. The value and usefulness of a computerized budget programs is that it allows the user to change any decision so that an immediate updating of all budgeting elements is accomplished.

Comprehensive Business Budgeting and Organizational Structure

Effective budgeting requires participation at all levels of management and most particularly of managers as defined in the formal organizational structure. All businesses of any significant size have a formal organizational structure. Decision makers in all departments will be involved in either making decisions or making recommen-

Figure 8.1 • Simple Organizational Chart



dations for decisions to be approved at a higher level. Because all businesses have three primary functions, marketing, production and finance, top management in each of these areas has primary responsibility for the final stages of the budgeting process. A business that is well organized and has well planned channels of communication is more likely to achieve the standards set forth in a comprehensive budget.

A simple but typical organization charge for a manufacturing business is as shown in Figure 8.1. Each vice president has the major responsibility in his or her own area. The vice presidents, however, will involve his or her managers below them to participate in the budgeting process and provide much of the needed information.

Because medium to large businesses tend to be very complex in organizational structure, the comprehensive business budget can be an excellent means of coordinating various activities and facilitating communication among managers at the same level and also at different levels of management. It is essential after a business budget has been finally approved that management at all levels give full support to the profit plan.

The Comprehensive Business Budgeting Process

The process of preparing a budget is somewhat complex. Actually, there are two major activities that more or less happen at the same time in the budgeting process. The sales forecast which is the first component requires that a set of tentative basic marketing decisions have been made. Other components such as the direct labor budget require specific decisions. In other words, the final budgeting product consists of various components each of which require certain tentative decisions at a minimum to have been made. Otherwise, without these decisions the process can not continue further. The first phase is making decisions and the second major process involves preparing the final budget documents.

In a manufacturing business, the formal components of the comprehensive budget beyond the sales forecast consists of the following:

Operating Budgets

1. Sales budget
2. Ending inventories budget
3. Production budget
4. Materials purchases budget
5. Direct labor budget
6. Manufacturing overhead budget
7. Manufacturing overhead budget
8. Cost of goods manufactured
9. Operating expense budget

Financial Budgets

10. Income statement
11. Cash Budget
12. Capital expenditures budget
13. Budgeted balance sheet

A diagram of the budget components is shown in Figure 8.3. This figure shows the logical order in which the budget process must follow. The budgeting process begins as shown in the diagram with the sales forecast and ends with the budgeted balance sheet. However, the preparation of the final budgeting documents is not the real budgeting. The real budgeting is the process of decision-making; that is, the process of identifying alternative decisions and then choosing the best decision under the given circumstances.

Decision-making and Comprehensive Business Budgeting

The main two parties in the budgeting process are management and the management accountant. As used here, the term management accountant could be the accounting department or the function within the accounting department that has been designated as management accounting. Budgeting in one sense is not an accounting activity but rather a management activity. It is not the management accountant that budgets but rather it is management's responsibility to budget. Because the budgeting process involves considerable accounting and finance and because the management accountant possesses considerable skill in decision-making tools, the accountant is usually required to participate in the process. The most important and also prerequisite activity in the process is the making of an initial set of decisions.

As discussed in chapter 2, decisions can be classified in different ways. The decision classification that is of critical importance in the budgeting process is strategic and tactical. Strategic decisions are broad-based, qualitative type of decisions which include or reflect goals and objectives. Strategic decisions are non-quantitative in nature. Strategic decisions are based on the subjective thinking of management concerning goals and objectives.

Tactical decisions are quantitative executable decisions which result directly from the strategic decisions. The distinction between strategic and tactical is important in management accounting because the techniques of management accounting pertain primarily to tactical decisions. Management accounting tools are designed primarily to be used in making tactical decisions. However, business budgeting can be of value in helping management set strategic decisions.

The strategic decisions while not quantitative in nature can have a tremendous impact on the type of tactical decisions made. Among the more important strategic decisions are the company's profit goals. If the goal is to maximize sales, then one type of decisions would be made while if the goal is to maximize profit or return on investment, then a different set of tactical decisions is likely to emerge.

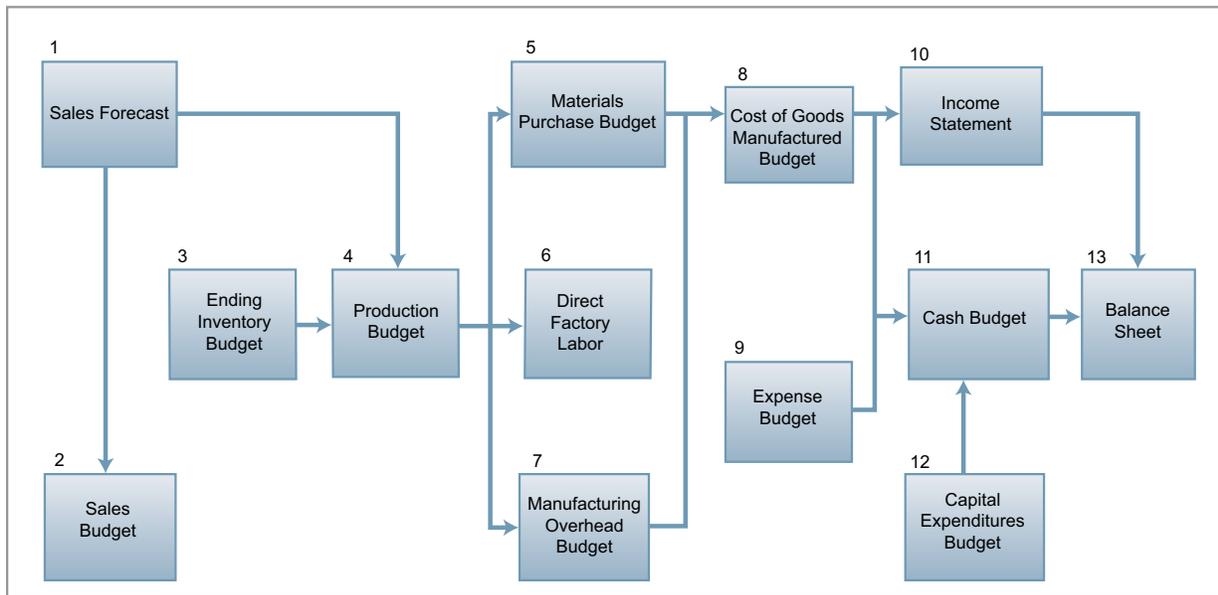
The preparation of the formal budget documents requires that specific decisions be made at certain stages in the process. Without these decisions having been made at the right time some components of the comprehensive budget can not be completed. The basic required decisions of each component is illustrated in Figure 8.2. As seen in this figure, each component has certain decisions identified with it.

A major objective of the budgeting process is to plan the highest attainable level of profit that is consistent with all of the organization's goals and objectives. Although

Figure 8.2 • Required Decisions for each Budget

<p>1. Sales Forecast</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Price 2 Advertising 3 Credit terms 4 Sales people compensation plan 5 Number of products 6 Number of territories 7 Special Offers 	<p>2. Sales Budget</p> <hr/> <p>(No new decisions are required)</p>
<p>3. Ending Inventory Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Safety stock required 2 Materials cost per unit 	<p>4. Production Budget</p> <hr/> <p>(No new decisions are required)</p>
<p>5. Materials Purchases Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Order size 2 Number of orders 3 Spoilage factor 	<p>6. Factory Direct Labor Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Wage rate 2 Labor productivity 3 Overtime/second shift
<p>7. Ending Inventory Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Various overhead cost factors 	<p>8. Cost of Goods Manufactured Budget</p> <hr/> <p>(No new decisions are required)</p>
<p>9. Expense Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Estimates of various expenses at the budgeted level of sales 	<p>10. Income Statement Budget</p> <hr/> <p>(No new decisions are required)</p>
<p>11. Cash Budget</p> <hr/> <p>Required Decisions</p> <ol style="list-style-type: none"> 1 Desired ending cash balance 2 Issue of stock 3 Issue of bonds 4 Bank loans 5 Payment of accounts payable 6 Payment of dividends 7 Investment in stock 	<p>12. Capital Expenditures Budget</p> <hr/> <p>Required Decisions (Examples)</p> <ol style="list-style-type: none"> 1 Purchase of computers 2 Purchase of delivery equipment 3 Purchase of sales vehicles 4 New production equipment
<p style="text-align: center;">13. Budgeted Balance Sheet</p> <hr/> <p style="text-align: center;">(No new decisions required)</p>	

Figure 8.3 • Comprehensive Business Budgeting Components



admirable, profit maximization is not necessarily the goal because of the extreme difficulty of obtaining all the required information. A more realistic and attainable goal is to construct a business budget that will result in a satisfactory profit. Profit can be considered satisfactory when the planned profit stated as a rate of return is equal to or greater than the rate of return desired by management. The basic fundamentals of return investment are discussed in chapter 16.

An important assumption in management accounting is that the value of a budget can be greatly enhanced by the use of all relevant management accounting tools. Management accounting tools such as cost-volume-profit analysis and incremental analysis make possible effective what-if analysis. Also, management accounting tools when used properly compel management and the management accountant to acquire the relevant data needed by the tool. The proper use of management accounting tools make the budget more realistic and attainable.

In order for management to effectively engage in the total budgeting process, it is helpful and perhaps necessary that management have some knowledge of accounting fundamentals. That the accountant has this knowledge is a given. However, on the part of management, some knowledge and understanding of the following would be very helpful:

1. Financial statement relationships
2. Absorption costing and direct costing fundamentals
3. Cost behavior (fixed and variable costs)
4. Fundamentals of accounting for overhead
5. Accrual basis and cash basis accounting

Sales Forecasting

The starting point of preparing a comprehensive business budget is a sales forecast. Sales forecasting can be a challenging but somewhat less than a scientific

process. A sales forecast is an estimate of future sales in units and dollars for a given time period. Budgets are often prepared on an annual basis and then sub divided into quarters. The key to making a successful forecast is to first understand the factors, particularly marketing decision variables, that directly impact sales. These factors can vary widely among different types of businesses and, consequently, one of the first prerequisites to a good sales forecast is an understanding of the business and the market in which the business operates.

To a large extent, sales are controllable by management. Certain marketing decisions, if made correctly, can cause significant changes in sales almost immediately. Some of the more important decisions that affects directly the sales forecast are the following:

1. Price
2. Advertising
3. Number of sales people
4. Sales people effectiveness and motivation
5. Credit Terms
6. Number of territories (opening or closing)
7. New products

In ***The Management/Accounting Simulation***, all of the above are factors which determine sales and, consequently, the sales forecast.

The sales forecast is of critical importance for several reasons. First, the production budget depends on a reasonably accurate sales forecast. Without a sales forecast, the number of units manufactured could easily be far too low with costly stock outs occurring. Furthermore, production could just as easily be too large with unnecessary carrying costs being incurred or losses being recorded because of inventory that can not be sold. The sales forecast is important to other budget elements such as material purchases, number of sales people to hire, production capacity, and number of factory workers to hire and train.

There are two approaches to making the sales forecast: (1) those methods that make use of sophisticated statistical and mathematical forecasting models, and (2) analytical methods or models. The analytical approach attempts to identify the factors that create demand and can cause demand to change and then assign values to the factors considered to be of primary importance. These factors can vary from industry to industry and company to company. For example, in one business advertising might be extremely important but not in another. Additionally, sales people in one company might be heavily intensive but in another company outside sales reps are not used at all. Other factors that might be used in making a sales forecast include estimated market potential, percentage of customers requesting demonstration, sales-calls ratios, and economic index.

In the V. K. Gadget Company, the name of the company in ***The Management/Accounting Simulation***, these factors are important in determining demand and consequently, the sales forecast. The following factors are involved in the sales forecast:

1. Normal market potential
2. Percentage of potential customers requesting a demonstration
3. Growth rate
4. Seasonal indices
5. Sales -calls ratio
6. Credit terms

In the V. K. Gadget Company advertising, also plays an important role. If advertising is inadequate, then some potential customers will not be informed and, therefore, will not request a demonstration. If advertising is too much, then the some part of the advertising budget will be of little or no value.

The analytical method in one company might not work at all in another company. The first prerequisite to a good sales forecast is an in depth understanding of the business and its economic environment. A second prerequisite is the ability to estimate values for the various parameters. To some extent, past experience can be a good guide.

The sales forecast formula in the V. K. Gadget Company is as follows:
(Note: numbers are assumed and may be different from those in *The Management/Accounting Simulation*.)

	Territory 1	Territory 2	Territory 3	Territory 4
a. Normal market potential adjusted for growth	100,000	150,000	75,000	100,000
b. Estimated percentage of market requesting demonstration at current price	.20	.25	.15	.22
c. Estimated potential customers requesting demonstration before seasonal variation $v(a \times b)$	20,000	37,500	11,250	22,000
d. Seasonal index	1.2	1.2	1.2	1.2
e. Estimated customers requesting demonstration $(c \times d)$	24,000	45,000	13,500	26,400
d. Estimated percentage purchasing (sales-calls ratio)	.3	.3	.3	.3
e. Sales forecast $(d \times e)$	7,200	13,500	4,050	7,920

Comprehensive Business Budgeting Components

Sales Budget

The sales budget is primarily based on the sales forecast. The main task is simply to convert units to total sales dollars. In a multiple product business, the sales budget could be a rather thick document. Ideally, it is desirable to budget sales on a segmental basis. Sales may be segmented in many ways so, consequently, how to segment sales is an individual decision of each business. For simplicity purpose here, a single product business is being assumed and no specific segments are being illustrated.

Ending Inventory Budget

The ending inventory budget consists of two parts:

Finished Goods
Materials

The desired finished goods inventory is important in preparing the production budget and the desired ending materials inventory is important in preparing the materials purchases budget. At this stage of budget preparation, the dollar amount of finished goods cannot be determined until the budgeted cost of goods manufactured statement is finished. The ending inventory budget does require that management have made decisions regarding the seller of material and the cost per unit of material. Given the availability of quantity discounts, management must at this time make some tentative decisions regarding order size.

Production Budget

Once the sales forecast has been made, the next major decision to be made is the amount of production. In absence of substantial beginning finished goods, production at a minimum must be equal to the sales forecast. However, there is a second reason to have production. Because actual sales can be greater than the forecast, it is generally believed that carrying some safety stock is desirable. Consequently, in absence of any beginning inventory, the production budget would be:

Sales forecast (units)	10,000
Desired finished goods (EI)	2,000
	<hr style="width: 100%;"/>
	<u>12,000</u>

However, there is no need to manufacture what already exists and, therefore, the number of units in beginning inventory should be deducted from the above total:

Sales forecast (units)	10,000
Desired finished goods (EI)	2,000
	<hr style="width: 100%;"/>
	12,000
Finished goods inventory (BI)	1,000
	<hr style="width: 100%;"/>
	<u>11,000</u>

In the V. K. Gadget Company, the possibility of undelivered sales exists. In this event, the production budget must include these future deliveries. The production budget represents a critical decision important to budgeting the following:

1. Materials purchases budget
2. Direct labor budget
3. Manufacturing overhead budget.

Because the material purchases budget and the direct labor budget represent variable costs and the manufacturing overhead budget includes variable costs, the level of planned production directly affects the totals of various budgets.

Materials Purchases Budget

The materials purchases budget is important because in budgeting net income it is necessary to know materials used. Materials used was discussed in chapter 3. At this stage in the budget process, both materials (BI) and materials (EI) are now known. Only the amount of materials purchases remains to be determined.

In absence of any beginning inventory for materials, the amount of material to be purchased would be equal to the material needed to meet the needs of the production budget. If one unit of finished goods, for example, requires 4 units of raw material and the production budget is 11,000 units, then 44,000 units of material at a minimum should be purchased. Assuming that the cost of one unit of material is \$5.00 and that 500 units of material are in beginning inventory, then the materials purchases budget would be prepared as follows:

Production budget	11,000
Units of material per unit of product	<u>4</u>
	44,000
Desired materials inventory (EI)	<u>4,000</u>
	48,000
Less: Materials inventory (BI)	<u>500</u>
	47,500
Cost per unit of material	<u>\$5.00</u>
Planned purchases	<u><u>\$237,500</u></u>

In the V. K. Gadget Company, for material X there is a spoilage factor. Although each unit of the Gadget requires 4 units of raw material, the required material that must be purchased per unit of finished goods is slightly more than 4. The purchase of material X, therefore, should include an allowance for spoilage or defects.

Direct Labor Budget

The direct labor budget is important because direct labor cost is one of the three major elements of the cost of goods manufactured statement. Direct labor is normally regarded to be a variable cost and, therefore, very sensitive to the planned level of production. In reality, a product may require many kinds of labor, some very skilled and some not so skilled. However, to simplify the fundamentals of the direct labor

budget only one type of labor will be assumed. Assume for the moment that the product being budgeted requires 2 hours of labor and that the wage rate is \$12.00 per hour. The direct labor budget basically involves the following formula:

Production budget	11,000
Direct labor hours required per product	<u>2</u>
Total hours required	22,000
Wage rate	<u>\$ 12.00</u>
	<u><u>\$264,000</u></u>

The wage rate in theory should include an allowance for payroll taxes and fringe benefits. However, in practice these are treated as manufacturing overhead.

Manufacturing Overhead Budget

The manufacturing overhead budget consists of two types of overhead cost: fixed and variable. Manufacturing overhead can consist of a myriad of items. Major examples include expenditures such as utilities like electricity and gas. If the company has elected to measure net income based on direct costing, then fixed manufacturing overhead would be treated as an operating expense. If absorption costing is being used, then fixed manufacturing overhead is a production cost that is properly included in inventory. Even under absorption costing, it is helpful to separate fixed and variable overhead. A very simple overhead budget might be as follows:

Manufacturing Overhead Budget	
Variable overhead	\$200,000
Fixed overhead	<u>400,000</u>
Total	<u><u>\$600,000</u></u>

Cost of Goods Manufactured Budget

The format of the cost of goods manufactured statement was discussed in detail in chapter 3 and there is no need to discuss it again in detail at this time. However, it should be pointed out that the preparation of the budgeted cost of goods manufactured statement involves no new decisions. The preparation of this budget merely involves using data from the previous budgets just discussed. The only new calculation is materials used and the information required is found in the beginning balance sheet and materials purchases budget. Materials used as discussed in chapter 3 is simply:

Materials (BI)	\$ 10,000
Material purchases budget	<u>237,500</u>
	247,500
Materials (EI)	<u>20,000</u>
	<u><u>\$ 227,500</u></u>

In the event of freight-in charges, the cost per unit of one unit of material should include an allowance for freight.

Based on the assume values just used cost of goods manufactured would be:

Materials used	\$ 227,500
Direct labor	264,000
Manufacturing overhead	<u>600,000</u>
	<u>\$1,091,500</u>

Assuming the business is a single product business, only one step remains regarding this budget. It is necessary to divide the total cost of goods manufactured by the units to be manufactured as shown in the production budget. In our example this per unit cost would be (\$1,091,500 /11,000) \$99.22. The dollar amount of desired finished goods can now be computed. It is necessary now to go back to the ending inventory budget and compute the total cost of desired finished goods ending inventory.

Selling and General Administrative Expense Budget

The expense budget obviously can include many items and requires that considerable attention be devoted to many different kinds of expenses. In preparing this budget, theoretically a distinction should be made between those expenses that are variable and those that are fixed. In practice, this distinction is often not made.

Budgeted Income Statement

The budgeted income statement is now simply a matter of obtaining data from the other budgets now The only new calculation is cost of goods sold. The information for cost of goods sold is obtained from the beginning balance sheet and the budgets now completed to this point.

The only expense item that is uncertain at this point would be interest expense. The amount of interest expense is not known until after the cash budget has been prepared. After the income statement has been nearly completed, the only remaining budgets are the following:

1. Capital expenditures budget
2. Cash budget
3. Budgeted balance Sheet

The capital expenditures budget is concerned primarily with expenditures for new projects which may represent a planned expansion of the business. The principles underlying the capital expenditures budget are discussed in detail in chapter 12.

Cash Budget

The information for the cash budget comes from the other budgets discussed above. It does not involve any additional decision-making. However, careful attention must be paid to adjustments for revenue and expense items in these budgets that do not involve cash received or paid in the period for which the budget is being prepared. For example, assume that the sales budget is \$600,000 and that also all sales are

initially made on credit. Furthermore, assume that of this amount only 70% will be collected. The following calculation is then necessary to determine the amount of cash collected from sales.

Accounts receivable (beginning balance)	\$150,000
Collection of budgeted sales (70% x 600,000)	<u>\$430,000</u>
	<u>\$580,000</u>

In addition, regarding the manufacturing overhead budget and the operating expense budget, non cash items such as depreciation must be subtracted.

Budgeted Balance Sheet

The last budget to be prepared is the balance sheet. Obviously the information for this budget is based on the information available in all of the other budgets. To correctly prepare this budget, a high degree of understanding of accounting principles is required. The accountant and ideally management also must understand the following relationships:

1. Depreciation and book value of assets
2. Effect of revenues and expenditures on the cash balance
3. The effect of selling on credit on accounts receivable
4. Net income after tax
4. Net income and retained earnings
5. Dividends paid and retained earnings
6. Difference between cash basis accounting and accrual basis accounting

Concepts in Budgeting

Because business budgeting is based solidly on accounting and the end result of the budgeting process is simply a set of planned (pro forma) financial statements, there are not many new concepts or terms to learn. The following represent concepts that should be understood by management. It should be taken more or less for granted that the accountant has a solid understanding of the following:

- | | |
|-----------------------------------|---------------------------------|
| 1. Assets | 14. Cash budget |
| 2. Liabilities | 15. Budgeted balance sheet |
| 3. Capital | 16. Budgeted income statement |
| 4. Revenue | 17. Cost of goods manufactured |
| 5. Expense | 18. Capital expenditures budget |
| 6. Net income | 18. Direct costing |
| 7. Sales forecast | 19. Absorption costing |
| 8. Production Budget | 20. Inventory costing methods |
| 9. Purchases budget | 21. Decisions |
| 10. Direct labor budget | 22. Accrual basis accounting |
| 11. Manufacturing overhead budget | |
| 12. Depreciation | |
| 13. Accrued expenses | |

Cost Behavior in Comprehensive Business Budgeting

As previously discussed in chapter 5, the use of the cost behavior tool can be very effective in the planning and control of business operations. Since comprehensive business budgeting is for the most part a process of planning and controlling financial statements, the use of cost behavior in the budgeting process is quite logical. The analysis of manufacturing costs and operating expenses into fixed and variable components makes the comprehensive budget an even more effective tool for decision making and performance evaluation. Converting variable costs into variable cost rates makes possible the preparation of flexible budgets. As chapter 14 will explain in some detail, flexible budgets are the foundation of the how accountants implement the concept of control over operations.

Comprehensive Business Budgeting Illustration

Assume that you are the budget director of the K. L. Widget Company. The K. L. Widget Company is a single product company. The following information based on a tentative set of decisions has been provided to you:

Planning Data - Sales

Sales forecast	12,000 units
Price	\$40

Planning Data - Production

Material Inventory:

	<u>Units</u>	<u>Cost</u>
Beginning Inventory:		
Raw materials	7,000	\$35,000
Finished goods	1,000	\$31,500

	<u>Units</u>
Desired Ending Inventory:	
Raw materials	5,000
Finished goods	2,000
Materials Standards:	
Units of material per product	2
Material cost per unit	\$4

Labor:

Labor Standards:	
Labor hours per product	2
Labor rate per hour	\$7

Manufacturing Overhead:

Fixed:		Variable: (per unit)	
Utilities	\$3,000	Utilities	\$.50
Insurance	\$1,000	Repairs & main.	\$ 2.00
Depreciation	\$6,000	Supplies	\$ 1.50

Selling Expenses	General and administrative	
Advertising	\$40,000	Executive salaries \$5,000
Sales people travel	\$14,000	Secretarial salaries \$2,000
Sales people training	\$ 5,000	Depreciation, bldg. \$5,000
Sales people compensation	\$16,000	

Planned Data - Financial

Desired ending cash balance	-	\$200,000
Accounts receivable collection rate	-	60% of sales first quarter Remainder next quarter
Accounts payable payment rate	-	80% first quarter Remainder next quarter
Interest rate of bonds	-	8%
Additional financing, if needed	-	Sale of stock

Beginning balance sheet:

K L Widget Company

Balance Sheet

For the Quarter Ended, Dec. 31, 20xx

Assets

Current

Cash	\$100,000
Accounts receivable	50,000
Materials inventory	35,000
Finished goods inventory	31,500

\$216,500

Fixed

Plant and equipment	\$250,000
Accumulated depreciation	30,000

220,000

\$436,500

Liabilities

Accounts payable	\$ 40,000
Bonds payable	100,000

\$140,000

Stockholders' Equity

Common stock	\$200,000
Retained Earnings	96,500

296,500

Total Liabilities and Equity

\$436,500

Comprehensive Budgeting

2 Sales Budget	3 Ending Inventory Budget																																
<table> <tr> <td>Price</td> <td style="text-align: right;">\$ 40.00</td> </tr> <tr> <td>Units</td> <td style="text-align: right;"><u>12,000</u></td> </tr> <tr> <td>Total</td> <td style="text-align: right;"><u><u>\$480,000</u></u></td> </tr> </table>	Price	\$ 40.00	Units	<u>12,000</u>	Total	<u><u>\$480,000</u></u>	<table> <tr> <td>Finished Goods</td> <td></td> </tr> <tr> <td> Units</td> <td style="text-align: right;">2,000</td> </tr> <tr> <td> Unit cost</td> <td style="text-align: right;"><u>\$27.3076</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$ 54,615</u></u></td> </tr> <tr> <td>Materials Inventory</td> <td></td> </tr> <tr> <td> Units</td> <td style="text-align: right;">5,000</td> </tr> <tr> <td> Unit cost</td> <td style="text-align: right;"><u>\$ 4.00</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$20,000</u></u></td> </tr> </table>	Finished Goods		Units	2,000	Unit cost	<u>\$27.3076</u>		<u><u>\$ 54,615</u></u>	Materials Inventory		Units	5,000	Unit cost	<u>\$ 4.00</u>		<u><u>\$20,000</u></u>										
Price	\$ 40.00																																
Units	<u>12,000</u>																																
Total	<u><u>\$480,000</u></u>																																
Finished Goods																																	
Units	2,000																																
Unit cost	<u>\$27.3076</u>																																
	<u><u>\$ 54,615</u></u>																																
Materials Inventory																																	
Units	5,000																																
Unit cost	<u>\$ 4.00</u>																																
	<u><u>\$20,000</u></u>																																
4 Production Budget	5 Materials Purchases Budget																																
<table> <tr> <td>Sales (units)</td> <td style="text-align: right;">12,000</td> </tr> <tr> <td>Finished goods (EI)</td> <td style="text-align: right;"><u>2,000</u></td> </tr> <tr> <td></td> <td style="text-align: right;">14,000</td> </tr> <tr> <td>Finished goods (BI)</td> <td style="text-align: right;"><u>1,000</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>13,000</u></u></td> </tr> </table>	Sales (units)	12,000	Finished goods (EI)	<u>2,000</u>		14,000	Finished goods (BI)	<u>1,000</u>		<u><u>13,000</u></u>	<table> <tr> <td>Production</td> <td style="text-align: right;">13,000</td> </tr> <tr> <td>Units per product</td> <td style="text-align: right;"><u>2</u></td> </tr> <tr> <td></td> <td style="text-align: right;">26,000</td> </tr> <tr> <td>+ Materials (EI)</td> <td style="text-align: right;"><u>5,000</u></td> </tr> <tr> <td></td> <td style="text-align: right;">31,000</td> </tr> <tr> <td>- Materials (BI)</td> <td style="text-align: right;"><u>7,000</u></td> </tr> <tr> <td></td> <td style="text-align: right;">24,000</td> </tr> <tr> <td>Cost per unit</td> <td style="text-align: right;"><u>\$ 4.00</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$96,000</u></u></td> </tr> </table>	Production	13,000	Units per product	<u>2</u>		26,000	+ Materials (EI)	<u>5,000</u>		31,000	- Materials (BI)	<u>7,000</u>		24,000	Cost per unit	<u>\$ 4.00</u>		<u><u>\$96,000</u></u>				
Sales (units)	12,000																																
Finished goods (EI)	<u>2,000</u>																																
	14,000																																
Finished goods (BI)	<u>1,000</u>																																
	<u><u>13,000</u></u>																																
Production	13,000																																
Units per product	<u>2</u>																																
	26,000																																
+ Materials (EI)	<u>5,000</u>																																
	31,000																																
- Materials (BI)	<u>7,000</u>																																
	24,000																																
Cost per unit	<u>\$ 4.00</u>																																
	<u><u>\$96,000</u></u>																																
6 Direct Labor Budget	7 Manufacturing Overhead Budget																																
<table> <tr> <td>Production (units)</td> <td style="text-align: right;">13,000</td> </tr> <tr> <td>Standard hours</td> <td style="text-align: right;"><u>2</u></td> </tr> <tr> <td></td> <td style="text-align: right;">26,000</td> </tr> <tr> <td>Standard wage rate</td> <td style="text-align: right;"><u>\$ 7.00</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$182,000</u></u></td> </tr> </table>	Production (units)	13,000	Standard hours	<u>2</u>		26,000	Standard wage rate	<u>\$ 7.00</u>		<u><u>\$182,000</u></u>	<table> <tr> <td>Fixed overhead</td> <td></td> </tr> <tr> <td> Utilities</td> <td style="text-align: right;">\$ 3,000</td> </tr> <tr> <td> Insurance</td> <td style="text-align: right;">1,000</td> </tr> <tr> <td> Depreciation</td> <td style="text-align: right;"><u>6,000</u></td> </tr> <tr> <td></td> <td style="text-align: right;">\$10,000</td> </tr> <tr> <td>Variable overhead</td> <td></td> </tr> <tr> <td> Utilities (\$.50)</td> <td style="text-align: right;">\$ 6,500</td> </tr> <tr> <td> Repairs & Main. (\$2.00)</td> <td style="text-align: right;">26,000</td> </tr> <tr> <td> Supplies (\$1.50)</td> <td style="text-align: right;"><u>19,500</u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$52,000</u></u></td> </tr> <tr> <td></td> <td style="text-align: right;"><u><u>\$62,000</u></u></td> </tr> </table>	Fixed overhead		Utilities	\$ 3,000	Insurance	1,000	Depreciation	<u>6,000</u>		\$10,000	Variable overhead		Utilities (\$.50)	\$ 6,500	Repairs & Main. (\$2.00)	26,000	Supplies (\$1.50)	<u>19,500</u>		<u><u>\$52,000</u></u>		<u><u>\$62,000</u></u>
Production (units)	13,000																																
Standard hours	<u>2</u>																																
	26,000																																
Standard wage rate	<u>\$ 7.00</u>																																
	<u><u>\$182,000</u></u>																																
Fixed overhead																																	
Utilities	\$ 3,000																																
Insurance	1,000																																
Depreciation	<u>6,000</u>																																
	\$10,000																																
Variable overhead																																	
Utilities (\$.50)	\$ 6,500																																
Repairs & Main. (\$2.00)	26,000																																
Supplies (\$1.50)	<u>19,500</u>																																
	<u><u>\$52,000</u></u>																																
	<u><u>\$62,000</u></u>																																

13 Budgeted Balance Sheet	
Assets	
Current:	
Cash	\$200,000
Accounts receivable	192,000
Inventories:	
Materials	20,000
Finished goods	54,615
	<u>466,615</u>
Fixed	
Plant and equipment (net)	\$209,000
	<u>209,000</u>
Total assets	<u><u>\$675,615</u></u>
Liabilities	
Current	
Account payables	\$119,200
Long-term	
Bonds payable	100,000
	\$ <u>100,000</u>
	119,200
Stockholders' Equity	
Common stock	\$400,800
Retained earnings	155,615
	<u>556,415</u>
Total stockholders' equity & liabilities	<u><u>\$675,615</u></u>

1 Accounts receivable collections:		
Accounts receivable collection (beginning balance)	\$ 50,000	
Collection of current quarter sales (60% x \$480,000)	\$ 288,000	
	<u>338,000</u>	\$338,000
2 Payments on accounts payable:		
Payment of beginning accounts payable	\$ 40,000	
Payment on current quarter purchases (80% x \$96,000)	\$ 76,800	
	<u>116,800</u>	\$116,800
3 Manufacturing overhead:		
Total budgeted overhead	\$ 62,000	
Less: Depreciation	\$ 6,000	
	<u>56,000</u>	\$ 56,000
4 Administrative expenses budgeted	\$ 12,000	
Less: Depreciation on building	\$ 5,000	
	<u>7,000</u>	\$ 7,000

Summary

Of all the management accountings tools, comprehensive business budgeting is one of the most powerful and useful in making decisions. No other tools is as comprehensive in scope and touches directly and indirectly all the decisions made in a business. Comprehensive business budgeting brings into the planning process a logical and orderly procedure to decision-making. The second phase of the budgeting process is often called the control phase. The use of budgets and budgets standards to evaluate performance as reflected in the actual financial statements is discussed in some depth in the chapter 14.

QUESTIONS

- Q. 8.1 Explain the purposes or objectives of comprehensive business budgeting.
- Q. 8.1 How does comprehensive business budgeting facilitate planning and control?
- Q. 8.3 List the basic management concepts that are explicitly used in the business budgeting process.
- Q. 8.4 What prerequisites must exist within the internal structure of a business in order for business budgeting to work?
- Q. 8.5 “The foundation of a budget must be based on a set of planned decisions.” What does this statement mean?
- Q. 8.6 What accounting fundamentals must be understood in order to prepare a comprehensive business budget?
- Q. 8.7 What is the starting point for preparing a budget?
- Q. 8.8 What importance do flexible budgets play in the over-all budgeting process?
- Q. 8-9 Explain how a comprehensive business budget can be used to compute variances at the end of the budgeting period.
- Q. 8.10 Explain the importance of the production budget.
- Q. 8-11 Give a examples of how the amount of cash received or spent is determined for the following:
 - a. Material purchases
 - b. Sales
- Q. 8-12 When the comprehensive business budget is completed, what four documents make up the final product of the budget?

EXERCISES

Exercise 8.1 • Sales Budget

Based on the following information prepare the sales budget:

Sales forecast (units)	10,000
Sales (last period)	8,000
Budgeted price	\$40
Finished goods inventory (beginning)	500

Exercise 8.2 • Production Budget

Based on the following information prepare the production budget:

Sales forecast (units)	10,000
Finished goods inventory (beginning)	3,000
Desired finished goods inventory (ending)	1,000
Raw materials inventory (beginning)	2,000

Exercise 8.3 • Materials Purchases Budget

Based on the following information prepare the purchases budget:

Sales forecast (units)	10,000
Budgeted production	9,000
Material required per unit of product	2
Raw materials inventory (beginning)	1,000
Desired raw materials inventory (ending)	800
Material cost per unit	\$2.00

Exercise 8.4 • Direct Labor Budget

Based on the following information prepare the direct labor budget:

Sales forecast (units)	10,000
Budgeted production (units)	9,000
Raw materials inventory (beginning)	1,000
Labor hours per product	4.00
Wage rate per hour	\$15.00

Exercise 8.5 • Cost of Goods Manufactured

Based on the following information prepare the cost of goods manufactured statement:

Sales forecast (units)	10,000
Budgeted production (units)	9,000
Direct labor cost	\$108,000
Material cost per unit of product	\$2.00
Budgeted manufacturing overhead:	
Fixed	\$ 20,000
Variable rate	\$8.00

Note: Some of the above data may not be relevant to the budgeted cost of goods manufactured statement.

Exercise 8.6 • Budgeted Income Statement

Based on the following information prepare a budgeted income statement:

Sales budget	\$800,000
Finished goods beginning inventory	\$50,000
Desired finished goods inventory (units)	3,000
Budgeted expenses:	
Selling	\$100,000
General and administrative	\$ 60,000
Budgeted cost of goods manufactured	\$600,000
Production budget (units)	20,000
Tax rate	40%

Exercise 8.7 • Cash Budget

Based on the following information prepare a budgeted cash flow statement:

Sales budget	\$400,000
Beginning accounts receivable	\$ 60,000
Beginning accounts payable	\$ 3,000
Beginning cash balance	\$ 20,000
Materials purchases budget	\$ 19,000
Direct labor budget	\$108,000
Budgeted manufacturing overhead:	
Fixed	\$ 20,000
Variable	\$ 72,000
Budgeted operating expenses:	
Selling	\$ 30,000
General and administrative	\$ 25,000
Capital expenditures budget	\$ 50,000
Dividends to be paid	\$ 10,000
Depreciation included in budgeted expenses:	
Selling	\$ 5,000
General and administrative	\$ 10,000
Percentage of accounts receivable to be collected	80%
Percentage of purchases to be paid	60%

PROBLEMS

Problem 8.1 • Comprehensive Business Budgeting

Assume that you are the budget director of the K L Widget Company. The K. L. Widget Company is a single product company. The following information based on a tentative set of decisions has been provide to you.

Planning Data - Sales

Sales forecast	15,000 units
Price	\$40

Planning Data - Production

Materials Inventories:

	<u>Units</u>	<u>Cost</u>
Beginning:		
Raw materials	8,000	\$40,000
Finished goods	3,000	\$16,000

	<u>Units</u>
Desired Ending Inventory:	
Raw materials	5,000
Finished goods	2,000

Materials Standards:	
Units of material per product	2
Material cost per unit	\$4

Labor:

Labor Standards:	
Labor hours per product	2
Labor rate per hour	\$8

Manufacturing Overhead:

Fixed:		Variable: (per unit)	
Utilities	\$4,000	Utilities	\$.50
Insurance	\$2,000	Repairs & maintenance	\$2.00
Depreciation	\$9,000	Supplies	\$1.50

Selling Expenses

Advertising	\$35,000
Sales people travel	\$12,000
Sales people training.	\$ 4,000
Sales people compen.	\$14,000

General and administrative

Executive salaries	\$6,000
Secretarial salaries	\$3,000
Depreciation, bldg.	\$4,000

Planned Data - Financial

Desired ending cash balance	-	\$300,000
Accounts receivable collection rate	-	60% of sales first quarter Remainder next quarter
Accounts payable payment rate	-	80% first quarter Remainder next quarter
Interest rate of bonds	-	8%
Additional financing, if needed	-	Sale of stock

Beginning balance sheet:

K L Widget Company		
Balance Sheet		
For the Quarter Ended, Dec. 31, 20xx		
Assets		
Current		
Cash	\$110,000	
Accounts receivable	50,000	
Materials inventory	40,000	
Finished goods inventory	16,500	
	\$216,500	
Fixed		
Plant and equipment	\$250,000	
Accumulated depreciation	30,000	
	220,000	
		\$436,500
Liabilities		
Accounts payable	\$ 40,000	
Bonds payable	100,000	
	\$140,000	
Stockholders' Equity		
Common stock	\$200,000	
Retained Earnings	96,500	
	296,500	
Total Liabilities and Equity		\$436,500

Required:

Based on the above information, prepare a comprehensive business budget for the K. L. Widget Company for the first quarter of the year.

Problem 8.2 • Comprehensive Business Budgeting Components and Decisions.

Below are listed the major components of a business budget. Each component requires that certain decisions have been made in order for that budget component to be prepared. In the column to the right is a list of the decisions required in a comprehensive business budget. For each separate component of the comprehensive budget, identify the decision or decisions that must be made. If a decision has been listed in a previous budget, then do not list it again.

Some budget components may not require any new decisions. The number of parentheses does not necessarily indicate the number of decision items to be selected. In addition to decisions, data about certain key parameters and constraints are required. Also, for each budget, indicate what parameters and constraints are necessary.

Comprehensive Business Budgeting	
(1) Sales forecast () () () () () () ()	Decisions Marketing decisions (1) Price (2) Advertising (3) Credit terms (4) Sales people compensation plan (5) Number of products (6) Number of territories (7) Special offer (8) Number of sales people Production Decisions (9) Wage rate (10) Labor productivity (11) Materials inventory (ending) (12) Finished goods inventory (ending) (13) Overtime/second shift (14) Purchased of additional equipment (15) Variable Manufacturing Overhead Rates (16) Fixed Manufacturing Overhead estimates (17) Materials order size (18) Number of materials order (19) Units of material per product (20) Suppliers of material Financial Decisions (21) Desired ending cash balance (22) Direct Costing or Absorption Costing (23) Issue of stock (24) Issue of bonds (25) Bank loans (26) Investment in stock (27) Accounts payable payments (28) Dividends Parameters and Constraints (29) Material spoilage factor (30) Need for Capacity (31) Depreciation rates (32) Tax rates (33) Collection of A/R rate (34) Payment of accounts payable rate (35) Production potential of existing equipment (36) Quantity discount schedules (37) Various expense cost factors (38) Various overhead cost factors (39) Bad debt rates
(2) Sales budget () () () () () () ()	
(3) Ending Inventory Budget () () () () () () ()	
(4) Production Budget () () () () () () ()	
(5) Materials Purchases Budget () () () () () () ()	
(6) Direct Labor Budget () () () () () () ()	
(7) Manufacturing Overhead Budget () () () () () () ()	
(8) Cost of Goods Manufactured () () () () () () ()	
(9) Expense Budget Selling () () () () () () () General and Administrative () () () () () () ()	
(10) Income Statement () () () () () () ()	
(11) Cash Budget () () () () () () ()	
(12) Capital Expenditures Budget () () () () () () ()	
(13) Budgeted Balance Sheet () () () () () () ()	