

Managerial Accounting

Eighth Edition

Weygandt Kimmel Kieso

Chapter 9

Budgetary Planning

Chapter Outline

Learning Objectives

- LO 1** State the essentials of effective budgeting and the components of the master budget.
- LO 2** Prepare budgets for sales, production, and direct materials.
- LO 3** Prepare budgets for direct labor, manufacturing overhead, and selling and administrative expenses, and a budgeted income statement.
- LO 4** Prepare a cash budget and a budgeted balance sheet.
- LO 5** Apply budgeting principles to nonmanufacturing companies.

LEARNING OBJECTIVE 1

State the essentials of effective budgeting and the components of the master budget.

Budget: written statement of management's plans for a specified future time period, expressed in financial terms.

- Primary method of communicating agreed-upon objectives throughout the organization
- Promotes efficiency
- **Control device** - important basis for performance evaluation once adopted

Budgeting and Accounting

- Historical accounting data on revenues, costs, and expenses help in formulating future budgets
- Accountants normally responsible for presenting management's budgeting goals in financial terms
- Budget and its administration are the responsibility of management

Benefits of Budgeting

1. Requires all levels of management to **plan ahead**
2. Provides **definite objectives** for evaluating performance
3. Creates an **early warning system** for potential problems
4. Facilitates **coordination of activities** within the business
5. Results in greater **management awareness** of the entity's overall operations
6. It **motivates personnel** throughout organization to meet planned objectives

Benefits of Budgeting

Question

Which of the following is not a benefit of budgeting?

- a. Management can plan ahead
- b. An early warning system is provided for potential problems
- c. It enables disciplinary action to be taken at every level of responsibility
- d. The coordination of activities is facilitated

Benefits of Budgeting

Answer

Which of the following is not a benefit of budgeting?

- a. Management can plan ahead
- b. An early warning system is provided for potential problems
- c. **Answer:** It enables disciplinary action to be taken at every level of responsibility
- d. The coordination of activities is facilitated

Essentials of Effective Budgeting

- Depends on a **sound organizational structure** with authority and responsibility for all phases of operations clearly defined
- Based on **research and analysis** with realistic goals
- **Accepted** by all levels of management

Essentials of Effective Budgeting

Length of the Budget Period

- May be prepared for any period of time
 - Most common - one year
 - Supplement with monthly and quarterly budgets
 - Different budgets may cover different time periods
- Long enough to provide an attainable goal and minimize seasonal or cyclical fluctuations
- Short enough for reliable estimates

Essentials of Effective Budgeting

The Budgeting Process

- Base budget goals on past performance
 - Collect data from organizational units
 - Begin several months before year end
- Develop budget within framework of a sales forecast
 - Shows potential industry sales
 - Shows company's expected share

The Budgeting Process

Factors considered in sales forecasting:

1. General economic conditions
2. Industry trends
3. Market research studies
4. Anticipated advertising and promotion
5. Previous market share
6. Price changes
7. Technological developments

Essentials of Effective Budgeting

Budgeting and Human Behavior

- **Participative Budgeting:** Each level of management should be invited to participate
- May inspire higher levels of performance or discourage additional effort
- Depends on how budget developed and administered

Budgeting and Human Behavior

Advantages of Participative Budgeting

- **More** accurate budget estimates because lower level managers have more detailed knowledge
- Perceive process as fair due to involvement of lower level management

Overall goal - produce fair and achievable budget while still meeting corporate goals

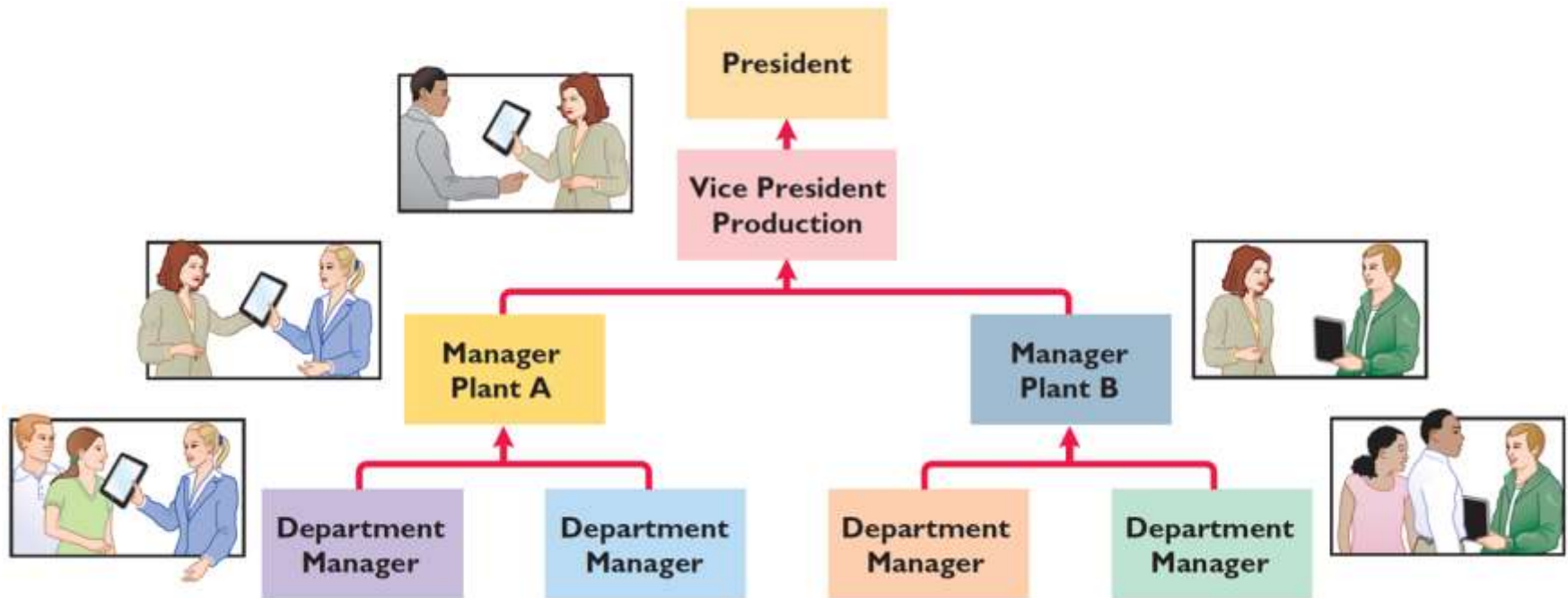
Budgeting and Human Behavior

Disadvantages of Participative Budgeting

- Can be time consuming and costly
- Can foster budgetary “gaming” through budgetary slack

Budgeting and Human Behavior

Flow of budget data under participative budgeting



Essentials of Effective Budgeting

Budgeting and Long-Range Planning

Three basic differences :

1. Time period involved
2. Emphasis
3. Amount of detail presented

Essentials of Effective Budgeting

Question

The essentials of effective budgeting do **not** include:

- a. Top-down budgeting
- b. Management acceptance
- c. Research and analysis
- d. Sound organizational structure

Essentials of Effective Budgeting

Answer

The essentials of effective budgeting do **not** include:

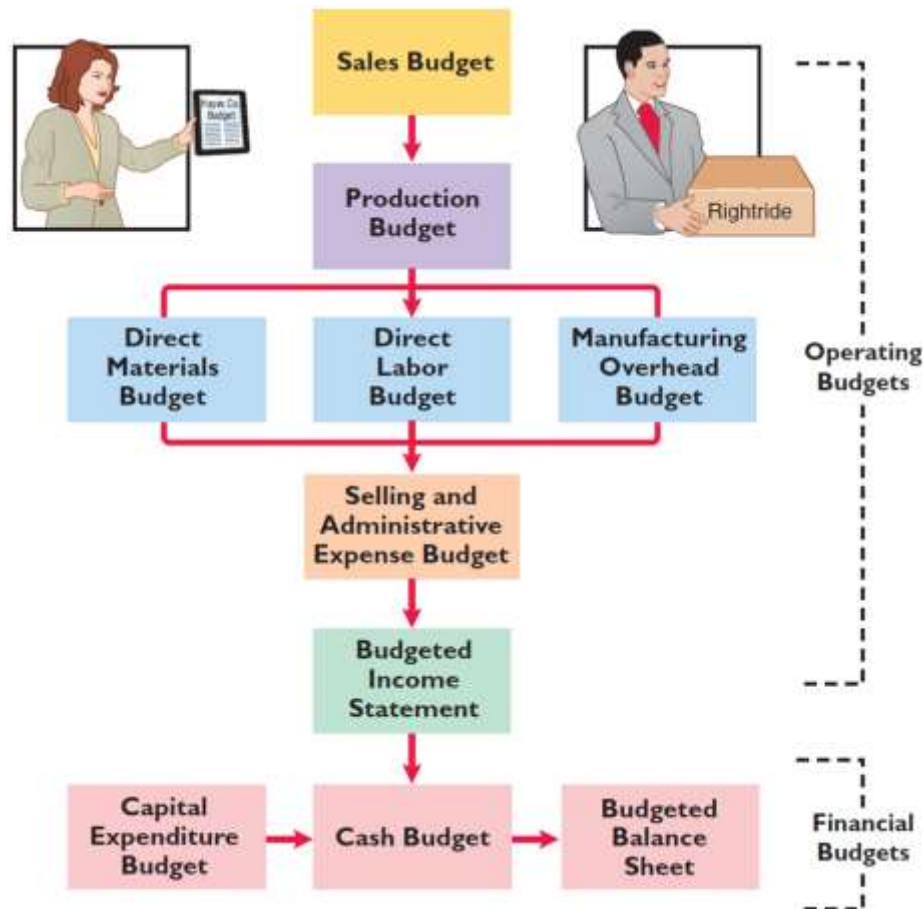
- a. **Answer:** Top-down budgeting
- b. Management acceptance
- c. Research and analysis
- d. Sound organizational structure

The Master Budget

- Set of interrelated budgets that constitutes a plan of action for a specified time period
- Contains two classes of budgets:
 - Operating budgets
 - Result in the preparation of budgeted income statement
 - Financial budgets
 - Capital expenditures budget, cash budget, and budgeted balance sheets

The Master Budget

Components of the master budget



DO IT! 1: Budget Terminology

Questions 1 and 2

Use this list of to complete the sentences that follow.

Long-range planning

Participative budgeting

Sales forecast

Operating budgets

Master budget

Financial budgets

1. A _____ shows potential sales for the industry and a company's expected share of such sales.
2. _____ are used as the basis for the preparation of the budgeted income statement.

DO IT! 1: Budget Terminology

Answers 1 and 2

Use this list of to complete the sentences that follow.

Long-range planning

Participative budgeting

Sales forecast

Operating budgets

Master budget

Financial budgets

1. A sales forecast shows potential sales for the industry and a company's expected share of such sales.
2. Operating budgets are used as the basis for the preparation of the budgeted income statement.

DO IT! 1: Budget Terminology

Questions 3 and 4

Use this list of to complete the sentences that follow.

Long-range planning

Participative budgeting

Sales forecast

Operating budgets

Master budget

Financial budgets

3. The _____ is a set of interrelated budgets that constitutes a plan of action for a specified time period.
4. _____ identifies long-term goals, selects strategies to achieve these goals, and develops policies and plans to implement the strategies.

DO IT! 1: Budget Terminology

Answers 3 and 4

Use this list of to complete the sentences that follow.

Long-range planning

Participative budgeting

Sales forecast

Operating budgets

Master budget

Financial budgets

3. The master budget is a set of interrelated budgets that constitutes a plan of action for a specified time period.
4. Long-range planning identifies long-term goals, selects strategies to achieve these goals, and develops policies and plans to implement the strategies.

DO IT! 1: Budget Terminology

Questions 5 and 6

Use this list of to complete the sentences that follow.

Long-range planning	Participative budgeting
Sales forecast	Operating budgets
Master budget	Financial budgets

5. Lower-level managers are more likely to perceive results as fair and achievable under a _____ approach.
6. _____ focus primarily on the cash resources needed to fund expected operations and planned capital expenditures.

DO IT! 1: Budget Terminology

Answers 5 and 6

Use this list of to complete the sentences that follow.

Long-range planning

Participative budgeting

Sales forecast

Operating budgets

Master budget

Financial budgets

5. Lower-level managers are more likely to perceive results as fair and achievable under a participative budgeting approach.
6. Financial budgets focus primarily on the cash resources needed to fund expected operations and planned capital expenditures.

LEARNING OBJECTIVE 2

Prepare budgets for sales, production, and direct materials.

Sales Budget

- First budget prepared
- Derived from sales forecast
 - Management's best estimate of sales revenue
- Every other budget depends on sales budget
- Prepared by multiplying expected unit sales volume for each product times anticipated unit selling price

Sales Budget

Illustration: Hayes Company

- Expected sales volume: 3,000 units in the first quarter with 500-unit increases in each succeeding quarter.
- Sales price: \$60 per unit.

	Sales Budget				
	For the Year Ending December 31, 2020				
	Quarter				
	1	2	3	4	Year
Expected sales in units	3,000	3,500	4,000	4,500	15,000
Unit selling price	× \$60	× \$60	× \$60	× \$60	× \$60
Total sales	\$180,000	\$210,000	\$240,000	\$270,000	\$900,000

Production Budget

- Shows units that must be produced to meet anticipated sales
- Derived from sales budget plus the desired change in ending finished goods inventory
- Essential to have a realistic estimate of ending inventory

$$\begin{array}{ccccccc} \text{Budgeted} & & \text{Desired Ending} & & \text{Beginning} & & \text{Required} \\ \text{Sales Units} & + & \text{Finished Goods} & - & \text{Finished} & = & \text{Production} \\ & & \text{Units} & & \text{Goods Units} & & \text{Units} \end{array}$$

Production Budget

Illustration

Hayes believes it can meet future sales needs with an ending inventory of 20% of next quarter's budgeted sales volume.

	Production Budget by Quarter				
	For the Year Ending December 31, 2020				
	1	2	3	4	Year
Expected sales in units	3,000	3,500	4,000	4,500	
Add: Desired finished Goods units	700	800	900	1,000	
Total required units	3,700	4,300	4,900	5,500	
Less: Beginning Finished goods units	600	700	800	900	
Required production units	3,100	3,600	4,100	4,600	15,400

Direct Materials Budget

Shows quantity and cost of direct materials to be purchased.

$$\begin{array}{ccccc} \text{Units to Be} & & \text{Direct Materials} & & \text{Direct Materials} \\ \text{Produced} & \times & \text{Units per Unit of} & = & \text{Units Required for} \\ & & \text{Unit Produced} & & \text{Production} \end{array}$$

$$\begin{array}{ccccccc} \text{Direct} & & \text{Desired} & & \text{Beginning} & & \text{Direct Materials} \\ \text{Materials Units} & + & \text{Ending Direct} & - & \text{Direct} & = & \text{Required to Be} \\ \text{Required for} & & \text{Materials} & & \text{Materials} & & \text{Purchased} \\ \text{Production} & & \text{Units} & & \text{Units} & & \end{array}$$

Direct Materials Budget

Continued

$$\begin{array}{rclclcl}
 \text{Direct} & & \text{Desired} & & \text{Beginning} & & \text{Direct Materials} \\
 \text{Materials Units} & + & \text{Ending Direct} & - & \text{Direct} & = & \text{Required to Be} \\
 \text{Required for} & & \text{Materials} & & \text{Materials} & & \text{Purchased} \\
 \text{Production} & & \text{Units} & & \text{Units} & &
 \end{array}$$

$$\begin{array}{rclcl}
 \text{Direct Materials} & & \text{Cost per Direct} & & \text{Cost of Direct} \\
 \text{Units to Be} & \times & \text{Materials Units} & = & \text{Materials} \\
 \text{Purchased} & & & & \text{Purchased}
 \end{array}$$

Direct Materials Budget

Problem data

- Each unit produced requires two pounds of raw materials at a cost of \$4 per pound
- Hayes maintains an ending inventory of raw materials equal to 10% of the next quarter's production requirements
- The desired ending direct materials amount is 1,020 pounds for the fourth quarter of 2020
- Prepare a Direct Materials Budget

Direct Materials Budget

Illustration

Direct Materials Budget by Quarter
For the Year Ending December 31, 2020

	1	2	3	4	Year
Units to be produced	3,100	3,600	4,100	4,600	
Direct materials per unit	× 2	× 2	× 2	× 2	
Total pounds needed	6,200	7,200	8,200	9,200	
Add: Ending Direct Materials ^a	720	820	920	1,020 ^c	
Total materials required	6,920	8,020	9,120	10,220	
Less: Beginning Direct Materials 620 ^b		720	820	920	
Direct Materials purchases	6,300	7,300	8,300	9,300	
Cost per pound	× \$4	× \$4	× \$4	× \$4	
Total cost of direct materials purchases	\$25,200	\$29,200	\$33,200	\$37,200	\$124,800

^a10% of next quarter's production requirements

^b10% of estimated first-quarter pounds needed for production

^cTotal pounds needed for production is assumed to be 10,200 for the first quarter for 2021

DO IT! 2: Sales, Production, and DM Budgets

Sales data

Soriano Company is preparing its master budget for 2020. Relevant data pertaining to its sales, production, and direct materials budgets are as follows.

Sales. Sales for the year are expected to total 1,200,000 units. Quarterly sales, as a percentage of total sales, are 20%, 25%, 30%, and 25%, respectively. The sales price is expected to be \$50 per unit for the first three quarters and \$55 per unit beginning in the fourth quarter. Sales in the first quarter of 2021 are expected to be 10% higher than the budgeted sales for the first quarter of 2020.

DO IT! 2: Sales, Production, and DM Budgets

Production and Direct materials data

Production. Management desires to maintain the ending finished goods inventories at 25% of the next quarter's budgeted sales volume.

Direct materials. Each unit requires 3 pounds of raw materials at a cost of \$5 per pound. Management desires to maintain raw materials inventories at 5% of the next quarter's production requirements. Assume the production requirements for the first quarter of 2021 are 810,000 pounds.

DO IT! 2: Sales, Production, and DM Budgets

Sales Budget

Prepare a **sales**, production, and direct materials budgets by quarters for 2020.

Sales Budget					
For the Year Ending December 31, 2020					
	Quarter				
	1	2	3	4	Year
Expected units sales ^a	240,000	300,000	360,000	300,000	1,200,000
Unit selling price	× \$ 50	× \$ 50	× \$ 50	× \$ 55	
Total sales	\$ 12,000,000	\$ 15,000,000	\$ 18,000,000	\$ 16,500,000	\$ 61,500,000

^aSpecified quarterly percentage times annual units, e.g., first quarter of $.20 \times 1,200,000$

DO IT! 2: Sales, Production and DM Budgets

Production Budget

Prepare **production** budgets by quarters for 2020.

Production Budget For the Year Ending December 31, 2020

	Quarter				Year
	1	2	3	4	
Expected unit sales	240,000	300,000	360,000	300,000	
Add: Desired ending finished goods units ^a	75,000	90,000	75,000	66,000 ^b	
Total required units	315,000	390,000	435,000	366,000	
Less: Beginning finished goods units	60,000 ^c	75,000	90,000	75,000	
Required production units	255,000	315,000	345,000	291,000	1,206,000

^a25% of next quarter's unit sales

^bEstimated first-quarter 2021 sales units: $240,000 + (240,000 \times .10) = 264,000$; $264,000 \times .25$

^c25% of estimated first-quarter 2020 sales units ($240,000 \times .25$)

DO IT! 2: Sales, Production and DM Budgets

Direct Materials Budget

Direct Materials Budget

For the Year Ending December 31, 2020

	Quarter				Year
	1	2	3	4	
Units to be produced	255,000	315,000	345,000	291,000	
Direct materials per unit	3	3	3	3	
Total pounds needed for production	765,000	945,000	1,035,000	873,000	
Add: Desired ending direct materials (pounds)	47,250	51,750	43,650	40,500	
Total materials required	812,250	996,750	1,078,650	913,500	
Less: Beginning direct materials (pounds)	38,250	47,250	51,750	43,650	
Direct materials purchases	774,000	949,500	1,026,900	869,850	
Cost per pound					
Total cost of direct materials purchases	\$ 5	\$ 5	\$ 5	\$ 5	
	\$ 3,870,000	\$ 4,747,500	\$ 5,134,500	\$ 4,349,250	\$ 18,101,250

^aEstimated first-quarter 2021 production requirements: $810,000 \times .05 = 40,500$

^b5% of estimated first-quarter pounds needed for production

LEARNING OBJECTIVE 3

Prepare budgets for direct labor, manufacturing overhead, and selling and administrative expenses, and a budgeted income statement.

Direct Labor Budget

- Shows both quantity of hours and cost of direct labor necessary to meet production requirements
- Critical in maintaining a labor force that can meet expected production
- Total direct labor cost formula:

$$\begin{array}{ccccccc} \text{Units to Be} & & \text{Direct Labor} & & \text{Direct Labor} & & \text{Total Direct} \\ \text{Produced} & \times & \text{Hours per} & \times & \text{Cost per} & = & \text{Labor Cost} \\ & & \text{Unit} & & \text{Hour} & & \end{array}$$

Direct Labor Budget

Illustration: Direct labor hours are determined from the production budget. At Hayes Company, two hours of direct labor are required to produce each unit of finished goods. The anticipated hourly wage rate is \$10.

Direct Labor Budget
For the Year Ending December 31, 2020

	Quarter				
	1	2	3	4	Year
Units to be produced (Illustration 9.5)	3,100	3,600	4,100	4,600	
Direct labor hours per unit	× 2	× 2	× 2	× 2	
Total required direct labor hours	6,200	7,200	8,200	9,200	
Direct labor cost per hour	× \$10	× \$10	× \$10	× \$10	
Total direct labor cost	\$ 62,000	\$ 72,000	\$ 82,000	\$ 92,000	\$ 308,000

Manufacturing Overhead Budget

- Shows expected manufacturing overhead costs for budget period
- Distinguishes between fixed and variable overhead costs

Manufacturing Overhead Budget

Problem data

Hayes Company expects variable costs to fluctuate with production volume on the basis of the following rates per direct labor hour: indirect materials \$1.00, indirect labor \$1.40, utilities \$0.40, and maintenance \$0.20. Thus, for the 6,200 direct labor hours to produce 3,100 units, budgeted indirect materials are \$6,200 ($6,200 \times \1), and budgeted indirect labor is \$8,680 ($6,200 \times \1.40). Hayes also recognizes that some maintenance is fixed. The amounts reported for fixed costs are assumed.

Prepare a Manufacturing Overhead Budget.

Manufacturing Overhead Budget Illustration

Manufacturing Overhead Budget For the Year Ending December 31, 2020

	Quarter				Year
	1	2	3	4	
Direct labor hours (Illus. 9.11)	6,200	7,200	8,200	9,200	30,800
Variable costs					
Indirect materials (\$1.00/hour)	\$ 6,200	\$ 7,200	\$ 8,200	\$ 9,200	\$ 30,800
Indirect labor (\$1.40/hour)	8,680	10,080	11,480	12,880	43,120
Utilities (\$0.40/hour)	2,480	2,880	3,280	3,680	12,320
Maintenance (\$0.20/hour)	1,240	1,440	1,640	1,840	6,160
Total variable costs	18,600	21,600	24,600	27,600	92,400
Fixed costs					-
Supervisory salaries	20,000	20,000	20,000	20,000	80,000
Depreciation	3,800	3,800	3,800	3,800	15,200
Property taxes and insurance	9,000	9,000	9,000	9,000	36,000
Maintenance	5,700	5,700	5,700	5,700	22,800
Total fixed costs	38,500	38,500	38,500	38,500	154,000
Total manufacturing overhead	\$ 57,100	\$ 60,100	\$ 63,100	\$ 66,100	\$ 246,400

Selling and Adm. Expense Budget

- Projection of anticipated operating expenses
- Distinguishes between fixed and variable costs

Illustration: Variable expense rates per unit of sales are sales commissions \$3 and freight-out \$1. Variable expenses per quarter are based on the unit sales from the sales budget (Illustration 9-3). Hayes expects sales in the first quarter to be 3,000 units. Fixed expenses are based on assumed data.

Prepare a selling and administrative expense budget.

Selling and Adm. Expense Budget Illustration

**Selling and Administrative Expense Budget
For the Year Ending December 31, 2020**

	Quarter				Year
	1	2	3	4	
Budgeted sales units (Illus. 9.3)	3,000	3,500	4,000	4,500	15,000
Variable costs					
Sales commissions (\$3/unit)	\$ 9,000	\$ 10,500	\$ 12,000	\$ 13,500	\$ 45,000
Freight-out (\$1/unit)	3,000	3,500	4,000	4,500	15,000
Total variable costs	12,000	14,000	16,000	18,000	60,000
Fixed costs					
Advertising	5,000	5,000	5,000	5,000	20,000
Sales salaries	15,000	15,000	15,000	15,000	60,000
Office salaries	7,500	7,500	7,500	7,500	30,000
Depreciation	1,000	1,000	1,000	1,000	4,000
Property taxes and insurance	1,500	1,500	1,500	1,500	6,000
Total fixed costs	30,000	30,000	30,000	30,000	120,000
Total selling and Administrative expenses	\$ 42,000	\$ 44,000	\$ 46,000	\$ 48,000	\$ 180,000

Budgeted Income Statement

- Important end-product of operating budgets
- Indicates expected profitability of operations
- Provides a basis for evaluating company performance
- Prepared from operating budgets:
 - Sales
 - Direct Materials
 - Direct Labor
 - Manufacturing Overhead
 - Selling and Administrative Expense

Budgeted Income Statement

Computation of total unit cost

Illustration: To find the cost of goods sold, Hayes Company must **first** determine the total unit cost of producing one Rightride bicycle seat, as shown.

Cost Element	<u>Cost of One Rightride</u>		Unit Cost	Total
	Illustration	Quantity		
Direct materials	9.9	2 pounds	\$ 4.00	\$ 8.00
Direct labor	9.11	2 hours	\$ 10.00	20.00
Manufacturing overhead	9.12	2 hours	\$ 8.00	<u>16.00</u>
Total unit cost				<u><u>\$ 44.00</u></u>

Second, determine Cost of Goods Sold by multiplying units sold times unit cost: 15,000 units \times \$44 = **\$660,000**.

Budgeted Income Statement Illustration

All data for the income statement come from the operating budgets except the following: (1) interest expense is expected to be \$100, and (2) income taxes are estimated to be \$12,000.

For the Year Ending December 31, 2020

Sales (Illustration 9.3)	\$900,000
Cost of goods sold ($15,000 \times \$44$)	<u>660,000</u>
Gross profit	240,000
Selling and administrative expenses (Illus. 9.13)	<u>180,000</u>
Income from operations	60,000
Interest expense	<u>100</u>
Income before income taxes	59,900
Income tax expense	<u>12,000</u>
Net income	<u>\$47,900</u>

Budgeted Income Statement Question

Each of the following budgets is used in preparing the budgeted income statement except the:

- a. Sales budget
- b. Selling and administrative budget
- c. Capital expenditure budget
- d. Direct labor budget

Budgeted Income Statement

Answer

Each of the following budgets is used in preparing the budgeted income statement except the:

- a. Sales budget
- b. Selling and administrative budget
- c. **Answer:** Capital expenditure budget
- d. Direct labor budget

DO IT! 3: Budgeted Income Statement

Problem data

Soriano Company is preparing its budgeted income statement for 2020. Relevant data pertaining to its sales, production, and direct materials budgets can be found on the following slide. Soriano budgets 0.5 hours of direct labor per unit, labor costs at \$15 per hour, and manufacturing overhead at \$25 per direct labor hour. Its budgeted selling and administrative expenses for 2020 are \$12,000,000.

- a. Calculate the budgeted total unit cost.
- b. Prepare the budgeted income statement for 2020.

DO IT! 3: Budgeted Income Statement

Calculation of budgeted total unit cost

Cost Element	Quantity	Unit Cost	Total
Direct materials	3.0 pounds	\$ 5	\$ 15.00
Direct labor	.5 hours	15	7.50
Manufacturing overhead	.5 hours	25	12.50
Total unit cost			\$ 35.00

DO IT! 3: Budgeted Income Statement

Budgeted income statement for 2020

Soriano Company **Budgeted Income Statement** **For the Year Ending December 31, 2020**

Sales (1,200,000 units from sales budget)	\$61,500,000
Cost of goods sold (1,200,000 × \$35/unit)	<u>42,000,000</u>
Gross profit	19,500,000
Selling and administrative expenses	<u>12,000,000</u>
Net income	<u>\$ 7,500,000</u>

LEARNING OBJECTIVE 4

Prepare a cash budget and a budgeted balance sheet.

Cash Budget

- Shows anticipated cash flows
- Important output in preparing financial budgets
- Contains three sections:
 - Cash Receipts
 - Cash Disbursements
 - Financing
- Shows beginning and ending cash balances

Cash Budget

ANY COMPANY Cash Budget

Beginning cash balance	\$ X,XXX
Add: Cash receipts (itemized)	<u>X,XXX</u>
Total available cash	X,XXX
Less: Cash disbursements (itemized)	<u>X,XXX</u>
Excess (deficiency) of available cash over cash disbursements	X,XXX
Financing	X,XXX
Net income	<u><u>\$ X,XXX</u></u>

Cash Budget

Cash Receipts Section

- Expected receipts from the principal sources of revenue
- Expected interest and dividends receipts, proceeds from planned sales of investments, plant assets, and the company's capital stock

Cash Budget

Cash Disbursements and Financing Sections

- **Cash Disbursements Section**
 - Expected cash payments for direct materials, direct labor, manufacturing overhead, and selling and administrative expenses
- **Financing Section**
 - Expected borrowings and repayments of borrowed funds plus interest

Cash Budget Concepts

- Must prepare in sequence
- Ending cash balance of one period is beginning cash balance for next
- Data obtained from other budgets and from management
- Often prepared for the year on a monthly basis
- Contributes to more effective cash management
- Shows managers the need for additional financing before actual need arises
- Indicates when excess cash will be available

Cash Budget

Schedule of Expected Collections

To prepare the cash budget, it is useful to prepare a schedule for collections from customers. This schedule is based on the following assumption.

Sales (Illustration 9.3): 60% are collected in the quarter sold and 40% are collected in the following quarter.

Accounts receivable of \$60,000 at December 31, 2019, are expected to be collected in full in the first quarter of 2020.

Cash Budget

Illustration of Schedule of Expected Collections

Prepare a schedule of collections from customers.

Schedule of expected Collections from Customers					
	Sales	Collections by Quarter			
		1	2	3	4
Accounts receivable, 12/31/19		\$ 60,000			
First quarter	\$ 180,000	108,000 ^b	\$ 72,000 ^c		
Second quarter	210,000		126,000	\$ 84,000	
Third quarter	240,000			144,000	\$ 96,000
Fourth quarter	270,000				162,000
Total collections		\$ 168,000	\$ 198,000	\$ 228,000	\$ 258,000

^aPer Illustration 9.3; ^b\$180,000 × .60; ^c\$180,000 × .40

Cash Budget

Schedule of Expected Payments for DM

Next, it is useful to prepare a schedule of expected cash payments for direct materials, based on this second assumption:

Direct materials (Illustration 9.9): 50% are paid in the quarter purchased and 50% are paid in the following quarter. Accounts payable of \$10,600 at December 31, 2019, are expected to be paid in full in the first quarter of 2020.

Cash Budget

Illus. of Schedule of Expected Payments for DM

Prepare a schedule of expected cash payments for direct materials.

Schedule of Expected Payments for Direct Materials				
Purchases	Payments by Quarter			
	1	2	3	4
Accounts payable, 12/31/19	\$ 10,600			
First quarter	\$ 25,200	12,600 ^b	\$ 12,600 ^c	
Second quarter	29,200	14,600	\$ 14,600	
Third quarter	33,200		16,600	\$ 16,600
Fourth quarter	37,200			18,600
Total payments	\$ 23,200	\$ 27,200	\$ 31,200	\$ 35,200

^aPer Illustration 9.9; ^b\$25,200 × .50; ^c\$25,200 × .50

Cash Budget

Additional assumptions

The preparation of Hayes Company's cash budget is based on the following additional assumptions.

3. January 1, 2020, cash balance is expected to be \$38,000. Hayes wishes to maintain a balance of at least \$15,000.
4. Short-term investment securities are expected to be sold for \$2,000 cash in the first quarter.
5. Direct labor (Illustration 9.11): 100% is paid in the quarter incurred.
6. Manufacturing overhead (Illustration 9.12) and selling and administrative expenses (Illustration 9.13): All items except depreciation are paid in the quarter incurred.

Cash Budget

More additional assumptions

The preparation of Hayes Company's cash budget is based on the following additional assumptions.

6. Management plans to purchase a truck in the second quarter for \$10,000 cash.
7. Hayes makes equal quarterly payments of its estimated \$12,000 annual income taxes.
8. Loans are repaid in earliest quarter when there is sufficient cash (\$15,000 minimum required balance).

Complete Cash Budget Illustration

Cash Budget
For the Year Ending December 31, 2020

	Assumption	Quarter			
		1	2	3	4
Beginning cash balance	3	\$38,000	\$25,500	\$15,000	\$19,400
Add: Receipts					
Collections from customers	1	168,000	198,000	228,000	258,000
Sale of investment securities	4	2,000	0	0	0
Total receipts		170,000	198,000	228,000	258,000
Total available cash		208,000	223,500	243,000	277,400
Less: Disbursements					
Direct materials	2	23,200	27,200	31,200	35,200
Direct labor	5	62,000	72,000	82,000	92,000
Manufacturing overhead	6	53,300	56,300	59,300	62,300
Selling and administrative expenses	6	41,000	43,000	45,000	47,000
Purchase of truck	7	0	10,000	0	0
Income tax expense	8	3,000	3,000	3,000	3,000
Total disbursements		182,500	211,500	220,500	239,500
Excess (deficiency) of available cash over cash disbursements		25,500	12,000	22,500	37,900
Financing					
Add: Borrowings		0	3,000	0	0
Less: Repayments including interest	9	0	0	3,100	0
Ending cash balance	3	\$25,500	\$15,000	\$19,400	\$37,900

Budgeted Balance Sheet

- Projection of financial position at end of budget period
- Developed from budgeted balance sheet for preceding year and budgets for current year.

Illustration: Pertinent data from the budgeted balance sheet at December 31, 2020, are as follows.

Buildings and equipment	\$182,000
Common stock	225,000
Accumulated depreciation	28,800
Retained earnings	46,480

Budgeted Balance Sheet

Problem data for assets

Cash: Ending cash balance \$37,900, shown in the cash budget (Illustration 9.19).

Accounts receivable: 40% of fourth-quarter sales \$270,000, shown in the schedule of expected collections from customers (Illustration 9.17).

Finished goods inventory: Desired ending inventory 1,000 units, shown in the production budget (Illustration 9.5) times the total unit cost \$44 (shown in Illustration 9.14).

Budgeted Balance Sheet

More problem data for assets

Raw materials inventory: Desired ending inventory 1,020 pounds, times the cost per pound \$4, shown in the direct materials budget (Illustration 9.9).

Buildings and equipment: December 31, 2019, balance \$182,000, plus purchase of truck for \$10,000 (Illustration 9.19).

Accumulated depreciation: December 31, 2019, balance \$28,800, plus \$15,200 depreciation shown in manufacturing overhead budget (Illustration 9.12) and \$4,000 depreciation shown in selling and administrative expense budget (Illustration 9.13).

Budgeted Balance Sheet

Problem data for liabilities and equity

Accounts payable: 50% of fourth-quarter purchases \$37,200, shown in schedule of expected payments for direct materials (Illustration 9.18).

Common stock: Unchanged from the beginning of the year.

Retained earnings: December 31, 2019, balance \$46,480, plus net income \$47,900, shown in budgeted income statement (Illustration 9.15).

Complete Budgeted Balance Sheet Illus.

Hayes Company
Budgeted Balance Sheet
December 31, 2020

Assets

Current assets

Cash		\$ 37,900
Accounts receivable		108,000
Finished goods inventory		44,000
Raw materials inventory		<u>4,080</u>
Total current assets		193,980

Property, plant, and equipment

Buildings and equipment	\$192,000	
Less: Accumulated depreciation	<u>48,000</u>	<u>144,000</u>
Total assets		<u><u>\$ 337,980</u></u>

Liabilities and Stockholders' Equity

Liabilities

Accounts payable		\$ 18,600
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Stockholders' equity

Common stock	\$225,000	
Retained earnings	<u>94,380</u>	
Total stockholders' equity		<u>319,380</u>

Total liabilities and stockholders' equity		<u><u>\$ 337,980</u></u>
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Budgeted Balance Sheet

Question

Expected direct materials purchases in Read Company are \$70,000 in the first quarter and \$90,000 in the second quarter. Forty percent of the purchases are paid in cash as incurred, and the balance is paid in the following quarter. The budgeted cash payments for purchases in the second quarter are:

- a. \$96,000
- b. \$90,000
- c. \$78,000
- d. \$72,000

Budgeted Balance Sheet

Answer

Expected direct materials purchases in Read Company are \$70,000 in the first quarter and \$90,000 in the second quarter. Forty percent of the purchases are paid in cash as incurred, and the balance is paid in the following quarter. The budgeted cash payments for purchases in the second quarter are:

- a. \$96,000
- b. \$90,000
- c. Answer: \$78,000
- d. \$72,000

DO IT! 4: Cash Budget

Martian Company management wants to maintain a minimum monthly cash balance of \$15,000. At the beginning of March, the cash balance is \$16,500, expected cash receipts for March are \$210,000, and cash disbursements are expected to be \$220,000. How much cash, if any, must be borrowed to maintain the desired minimum monthly balance?

Beginning cash balance	\$ 16,500
Add: Cash receipts for March	210,000
Total available cash	226,500
Less: Cash disbursements for March	220,000
Excess (deficiency) of available cash over cash disbursements	6,500
Financing	8,500
Ending cash balance	\$ 15,000

LEARNING OBJECTIVE 5

Apply budgeting principles to nonmanufacturing companies.

Merchandisers

- **Sales Budget:** starting point and key factor
- Use a purchases budget instead of a production budget
- Does not use manufacturing budgets (direct materials, direct labor, manufacturing overhead)

$$\begin{array}{ccccccc} \text{Budgeted} & & \text{Desired} & & \text{Beginning} & & \text{Required} \\ \text{Cost of} & + & \text{Ending} & - & \text{Merchandise} & = & \text{Merchandise} \\ \text{Goods Sold} & & \text{Merchandise} & & \text{Inventory} & & \text{Purchases} \\ & & \text{Inventory} & & & & \end{array}$$

Merchandisers

Illustration: Lima estimates budgeted sales will be \$300,000 in July and \$320,000 in August. Cost of goods sold is expected to be 70% of sales. Lima's desired ending inventory is 30% of the following month's cost of goods sold. Required merchandise purchases for July are computed as follows.

Budgeted cost of goods sold ($\$300,000 \times .70$)	\$210,000
Add: Desired ending merchandise inventory ($\$224,000 \times .30$)	<u>67,200</u>
Total	277,200
Less: Beginning merchandise inventory ($\$210,000 \times .30$)	<u>63,000</u>
Required merchandise purchases for July	<u>\$214,200</u>

Service Companies

- **Critical factor** in budgeting is coordinating professional staff needs with anticipated services
- **Problems if overstaffed:**
 - Disproportionately high labor costs
 - Lower profits due to additional salaries
 - Staff turnover due to lack of challenging work
- **Problems if understaffed:**
 - Lost revenues because existing and future client needs for services cannot be met
 - Loss of professional staff due to excessive work loads

Service Companies

Direct labor budget for service company

Stephan Lawn and Plowing Service estimates that it will service 300 small lawns, 200 medium lawns, and 100 large lawns during the month of July. It estimates its direct labor needs as 1 hour per small lawn, 1.75 hours for a medium lawn, and 2.75 hours for a large lawn. Its average cost for direct labor is \$15 per hour. Stephan prepares a direct labor budget as shown.

For the Month Ending July 31, 2020

	Small	Medium	Large	Total
Lawns to be serviced	300	200	100	
Direct labor hours per lawn	× 1.00	× 1.75	× 2.75	
Total required direct labor hours	300	350	275	
Direct labor cost per hour	× \$15	× \$15	× \$15	
Total direct labor cost	\$4,500	\$5,250	\$4,125	\$13,875

Not-for-Profit Organizations

- Just as important as for profit-oriented company
- Budget process differs from profit-oriented company
- Budget on basis of cash flows (expenditures and receipts), not on a revenue and expense basis
- Starting point is usually expenditures, not receipts
- Management's task is to find receipts needed to support planned expenditures
- Budget must be followed, overspending often illegal

Merchandisers

Question

The budget for a merchandiser differs from a budget for a manufacturer because:

- a. A merchandise purchases budget replaces the production budget
- b. The manufacturing budgets are not applicable
- c. None of the above
- d. Both (a) and (b) above

Merchandisers

Answer

The budget for a merchandiser differs from a budget for a manufacturer because:

- a. A merchandise purchases budget replaces the production budget
- b. The manufacturing budgets are not applicable
- c. None of the above
- d. **Answer:** Both (a) and (b) above

DO IT! 5: Merch. Purchase Budget

Becker Company estimates that 2020 sales will be \$15,000 in quarter 1, \$20,000 in quarter 2, and \$25,000 in quarter 3. Cost of goods sold is 80% of sales. Management desires to have ending finished goods inventory equal to 15% of the next quarter's expected cost of goods sold. Prepare a merchandise purchases budget by quarter for the first six months of 2020.

	1st Quarter	2nd Quarter	Six Months
Budgeted cost of goods sold (sales \times .80)	\$ 12,000	\$ 16,000	
Add: Desired ending merchandise inventory (15% of next quarter's cost of goods sold)	2,400	3,000	
Total	14,400	19,000	
Less: Beginning merchandise inventory (15% this quarter's cost of goods sold)	1,800	2,400	
Required merchandise purchases	\$ 12,600	\$ 16,600	\$ 29,200

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