

# Module 22

## Operational Budgeting and Profit Planning

### Learning Objectives

- LO1** Discuss the importance of budgets. (p. 22-3)
- LO2** Describe basic approaches to budgeting. (p. 22-4)
- LO3** Explain the relations among elements of a master budget and develop a basic budget. (p. 22-7)
- LO4** Explain and develop a basic manufacturing cost budget. (p. 22-16)
- LO5** Analyze the relationship between budget development and manager behavior. (p. 22-21)



Every experienced executive knows that budgeting is the lifeblood of a business enterprise. It is the mechanism by which we plan the entity's operations for the upcoming year, or even decade. It's the way we quantitatively communicate those plans and coordinate the employees' efforts throughout the organization. The budget is unambiguous and unassailable; you either make your numbers or you don't, which makes the budget a valuable feedback loop by which to evaluate past operations. More importantly, preparing a budget alerts management ahead of time to the risks faced by the entity in the coming periods, whether those risks are a shortage of cash, too few or too many employees, or idle versus excess capacity.

Each period, businesses prepare what is called a "master budget." The master budget covers every aspect of the financial (and often non-financial) operations. The first step in the master budget is to budget or forecast sales revenue. But how do you prepare a budget for a company that, until recently, generated zero revenue while experiencing explosive growth? Pinterest has, at last count, 150 million users worldwide each month and has been valued at \$11 billion. Pinterest was founded in 2010 but didn't even have a revenue model until 2014. The company works with businesses to understand how Pinterest traffic can generate sales revenue for those businesses by advertising on Pinterest. The advertising fees paid by those companies reached an estimated \$100 million in 2015.

The way Pinterest generates traffic on its site is by allowing members to use the site as a virtual scrapbook, "pinning" places that they'd eventually like to travel to, recipes that they'd eventually like to prepare, and items that they'd eventually like to buy. Pinterest introduced corporate memberships that allow companies to use their corporate name on their pinboards, which offer its Pinterest followers a sneak peak of the company's upcoming product lineup before the items hit the store shelves. More recently, Pinterest launched Promoted Videos for showing Pinners how their ideas will work for others. The benefit to potential advertisers is clear cut.

From a budgeting perspective, the company may need to prepare its sales budget using several what-if scenarios to help it determine the proper pricing for its advertisements. In the meantime, Pinterest will need to develop expense budgets for everything from labor to selling to general and administrative expenses. At the time of this writing, the company had grown to over 500 employees, including new hires from Facebook, Google, and Amazon. It has a sprawling 58,000 square-foot office space in San Francisco, and it has invested in major information technology systems to extend its applications.

Clearly, Pinterest is an evolving, dynamic company, but it will have to pay close attention to its budgeting to manage its cash flow and capital investments. More importantly, if it wants to continue to raise funds from external sources, those investors and creditors will want to analyze the company's forecasted financial statements to estimate the expected rate of return on their investment in Pinterest. The budgeting techniques discussed in this module will aid the manager in planning and managing the organization's revenues, costs, and other quantitative variables in the face of constantly changing business conditions.



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## Road Map

LO	Learning Objective   Topics	Page	eLecture	Guided Example	Assignments
22-1	<b>Discuss the importance of budgets.</b> Compel Planning :: Promote Communication and Coordination :: Guide to Action and Evaluation :: Risk Management	22-3	e22-1	Review 22-1	23
22-2	<b>Describe basic approaches to budgeting.</b> Output/Input :: Activity Based :: Incremental :: Minimum Level	22-4	e22-2	Review 22-2	17, 18, 23, 24, 25
22-3	<b>Explain the relations among elements of a master budget and develop a basic budget.</b> Master Budget :: Sales Budget :: Purchases Budget :: Selling Expense Budget :: General and Administrative Expenses Budget :: Cash Budget :: Budgeted Financial Statements	22-7	e22-3 © Getty Images	Review 22-3	19, 20, 26, 27, 28, 29, 30, 31, 32, 33, 36, 37, 38, 39
22-4	<b>Explain and develop a basic manufacturing cost budget.</b> Production Budget :: Manufacturing Cost Budget	22-16	e22-4	Review 22-4	21, 22, 34, 35, 40, 41, 42
22-5	<b>Analyze the relationship between budget development and manager behavior.</b> Imposed Budget :: Participative Budget :: Budget Periods :: Forecasts :: Ethics :: Open Book Management	22-21	e22-5	Review 22-5	43, 44, 45, 46

## Operational Budgeting and Profit Planning

Reasons for Budgeting	General Approaches to Budgeting	Master Budget	Budget Development in Manufacturing Organizations	Budget Development and Manager Behavior
<ul style="list-style-type: none"> <li>■ Compel Planning</li> <li>■ Promote Communication and Coordination</li> <li>■ Provide a Guide to Action and Basis of Evaluation</li> <li>■ Aid in Risk Management</li> </ul>	<ul style="list-style-type: none"> <li>■ Output/Input Approach</li> <li>■ Activity-Based Approach</li> <li>■ Incremental Approach</li> <li>■ Minimum Level Approach</li> </ul>	<ul style="list-style-type: none"> <li>■ Sales Budget</li> <li>■ Purchases Budget</li> <li>■ Selling Expense Budget</li> <li>■ General and Administrative Expense Budget</li> <li>■ Cash Budget</li> <li>■ Budgeted Financial Statements</li> <li>■ Finalizing the Budget</li> </ul>	<ul style="list-style-type: none"> <li>■ Production Budget</li> <li>■ Manufacturing Cost Budget</li> </ul>	<ul style="list-style-type: none"> <li>■ Employee Participation</li> <li>■ Budgeting Periods</li> <li>■ Forecasts</li> <li>■ Ethics</li> <li>■ Open Book Management</li> </ul>

A **budget** is a formal plan of action expressed in monetary terms. The purpose of this module is to examine the concepts, relationships, and procedures used in budgeting. Our emphasis is on **operating budgets**, which concern the development of detailed plans to guide operations throughout the budget period. We consider the reasons that organizations budget and alternative approaches to budget development. We also examine budget assembly and consider issues related to manager behavior and the budgeting process.

## Reasons for Budgeting

**LO1**

Discuss the importance of budgets.

Operating managers frequently regard budgeting as a time-consuming task that diverts attention from current problems. Indeed, the development of an effective budget is a difficult job. It is also a necessary one. Organizations that do not plan are likely to wander aimlessly and ultimately succumb to the swirl of current events. The formal development of a budget helps to ensure both success and survival. As discussed below, budgeting compels planning; it improves communications and coordination among organizational elements; it provides a guide to action; and it provides a basis of performance evaluation. Budget models are also used to analyze and prepare for various business risks.

### Compel Planning

Formal budgeting procedures require people to think about the future. Without the discipline of formal planning procedures, busy operating managers would not find time to plan. Immediate needs would consume all available time. Formal budgeting procedures, with specified deadlines, force managers to plan for the future by making the completion of the budget another immediate need. Budgeting moves an organization from an informal “reactive” style to a formal “proactive” style of management. As a result, management and other employees spend less time solving unanticipated problems and more time on positive measures and preventative actions.

### Promote Communication and Coordination

When operating responsibilities are divided, it is difficult to synchronize activities. Production must know what marketing intends to sell. Purchasing and personnel must know the factory’s material and labor requirements. The treasurer must plan to ensure the availability of the cash to support receivables, inventories, and capital expenditures. Budgeting forces the managers of these diverse functions to communicate their plans and coordinate their activities. It helps ensure that plans are feasible (Can purchasing obtain adequate inventories to support projected sales?) and that they are synchronized

(Will inventory be available in advance of an advertising campaign?). The final version of the budget emerges after an extensive (often lengthy) process of communication and coordination.

## Provide a Guide to Action and Basis of Evaluation

Once the budget has been finalized, the various operating managers know what is expected of them, and they can set about doing it. If employees do not have a guide to action, their efforts could be wasted on unproductive or even counterproductive activities.

After employees accept the budget as a guide to action, they can be held responsible for their portion of the budget. When results do not agree with plans, managers attempt to determine the cause of the divergence. This information is then used to adjust operations or to modify plans. More generally, budgeting is an important part of **management by exception**, whereby management directs attention only to those activities not proceeding according to plan. Without the budget, management might spend an inordinate amount of time seeking explanation of past activities and not enough time planning future activities.

## Aid in Risk Management

The models used for budgeting are also used in managing risk. **Risk** is the danger that things will not go according to plan. Although some risk results from anticipated events having a positive impact, such as an increase in sales volume or selling prices, risk is more typically associated with events that have a negative impact, like a work stoppage at a key supplier, a fire, or hackers shutting down a retail website for an extended period of time.

**Risk management** (also called enterprise risk management) is the process of identifying, evaluating, and planning possible responses to risks that could impede an organization from achieving its plans. It also involves monitoring the sources of risk. An organization's budget model can be used to evaluate the financial impact of a risk and to determine, from a financial perspective, the best response to a risk. The Research Insight on the following page summarizes a proposed approach to risk management. The performance evaluation procedures considered in Module 23, if completed on a timely basis, assist in monitoring risk.

LO1

Review 22-1

Mark Fisher was recently hired as an intern at Mobile Innovations, a small manufacturer and seller of conveyor systems, which are used by other businesses in their manufacturing processes. After recently finishing a course in management accounting, Mark asks his manager if he can see a copy of the current year's operating budget. His manager replies that as a small business, they are too busy focusing on day-to-day operations to take the time to create a budget.



### Required

Discuss some ways that an operating budget might benefit Mobile Innovations.

Solution on p. 22-38.

## General Approaches to Budgeting

Before an organization can develop operating budgets, management must decide which approaches to budget planning will be used for the various revenue and expenditure activities and organizational units. Widely used planning approaches to budgeting include the output/input, activity-based, incremental, and minimum level approaches.

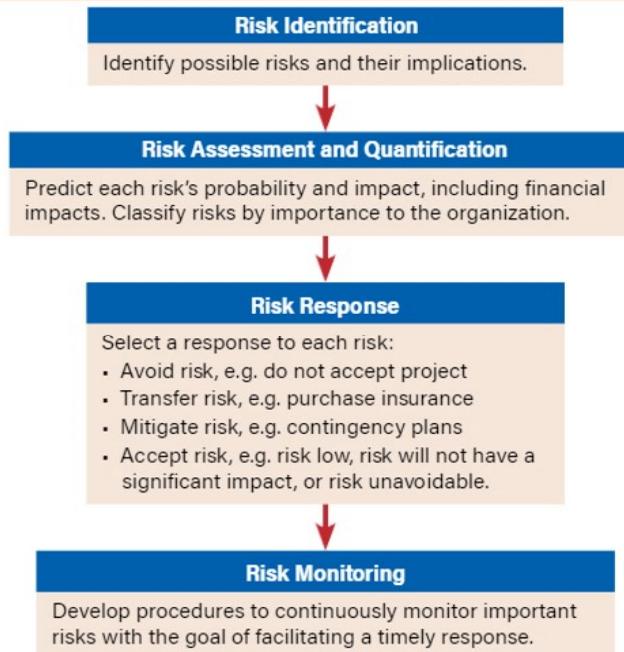


### Output/Input Approach

The **output/input approach** budgets physical inputs and costs as a function of planned unit-level activities. This approach is often used for service, merchandising, manufacturing, and distribution activities that have defined relationships between effort and accomplishment. If each unit produced requires 2 pounds of direct materials that cost \$5 each, and the planned production volume is 25 units, the budgeted inputs and costs for direct materials are 50 pounds ( $25 \text{ units} \times 2 \text{ pounds per unit}$ ) and \$250 ( $50 \text{ pounds} \times \$5 \text{ per pound}$ ).

The budgeted inputs are a function of the planned outputs. The output/input approach starts with the planned outputs and works backward to budget the inputs. It is difficult to use this approach for costs that do not respond to changes in unit-level cost drivers.

### Research Insight ■ A Systematic Approach to Risk Management



Source: Alan J. Chilcott, "Risk Management—A Developing Field of Study and Application," *Cost Engineering*, September 9, 2010, pp. 21–26; Neville Turbit, "Basics of Managing Risk," The Project Perfect White Paper Collection, [www.projectperfect.com.au](http://www.projectperfect.com.au).

## Activity-Based Approach

The **activity-based approach** is a type of output/input method, but it reduces the distortions in the transformation through emphasis on the expected cost of the planned activities that will be consumed for a process, department, service, product, or other budget objective. Overhead costs are budgeted on the basis of the cost objective's anticipated consumption of activities, not based only on some broad-based cost driver such as direct labor hours or machine hours.

The amount of each activity cost driver used by each budget objective (for example, product or service) is determined and multiplied by the cost per unit of the activity cost driver. The result is an estimate of the costs of each product or service based on cost drivers such as assembly-line setup or inspections, as well as the traditional volume-based drivers such as direct labor hours or units of direct materials consumed. Activity-based budgeting predicts costs of budget objectives by adding all costs of the activity cost drivers that each product or service is budgeted to consume. In evaluating the proposed budget, management would focus their attention on identifying the optimal set of activities rather than just the output/input relationships.

## Incremental Approach

The **incremental approach** budgets costs for a coming period as a dollar or percentage change from the amount budgeted for (or spent during) some previous period. This approach is often used when the relationships between inputs and outputs are weak or nonexistent. For example, it is difficult to establish a clear relationship between sales volume and advertising expenditures. Consequently, the budgeted amount of advertising for a future period is often based on the budgeted or actual advertising expenditures in a previous period. If budgeted advertising expenditures for 2017 were \$200,000, the budgeted expenditures for

2018 would be some increment, say 5 percent, above \$200,000. In evaluating the proposed 2018 budget, management would accept the \$200,000 base and focus attention on justifying the increment.

The incremental approach is widely used in government and not-for-profit organizations. In seeking a budget appropriation, a manager using the incremental approach need only justify proposed expenditures in excess of the previous budget. The primary advantage of the incremental approach is that it simplifies the budget process by considering only the increments in the various budget items. A major disadvantage is that existing waste and inefficiencies could escalate year after year.

## Minimum Level Approach

Using the **minimum level approach**, an organization establishes a base amount for budget items and requires explanation or justification for any budgeted amount above the minimum (base). This base is usually significantly less than the base used in the incremental approach. It likely is the minimum amount necessary to keep a program or organizational unit viable. For example, the corporate director of product development would need some basic amount to avoid canceling ongoing projects. Additional increments might also be included, first to support the current level of product development and second to undertake desirable new projects.

Some organizations, especially units of government, employ a variation of the minimum level approach, identified as zero-based budgeting. Under **zero-based budgeting** every dollar of expenditure must be justified. The essence of zero-based budgeting is breaking an organizational unit's total budget into program packages with related costs. Management then ranks all program packages on the basis of the perceived benefits in relationship to their costs. Program packages are then funded for the budget period using this ranking. High-ranking packages are most likely to be funded and low-ranking packages are least likely to be funded.

### Business Insight ■ Budgeting for Uncertainty

As a firm builds its master budget, budgeting for uncertainty is essential. The financial struggles of **Kodak** can be seen as a cautionary tale for mature firms dealing with technological uncertainty. Kodak was decidedly ahead of the digital camera trend, creating its first prototype in the 1970s. Kodak's technology was foiled by its approach to uncertainty. Traditional approaches to long-term strategy and budgeting focus on forecasting trends and committing to the best single strategy. Kodak knew that the future of photography was digital but chose to bet on its core business rather than making risky investments in new products that would undermine its core.

Analysts at **Bain and Company** argue that firms should budget for a "range of futures," by:

1. Deciding what uncertainties could affect the company. (The potential of digital photography is just such an uncertainty.)
2. Develop probable scenarios for the future. Consider the upsides and downsides of each scenario. (Kodak clearly knew that digital photography was a potential scenario.)
3. Match strategic plans to scenarios, balancing investment with flexibility to adjust to various states of the world.
4. Establish signals that trigger adoption of scenarios.

Though Kodak had the technology to adapt to the new market the company was unable, or unwilling, to restructure its business accordingly. If the management team had agreed that they would shift toward digital cameras when digital had 15% market share, it would have been positioned to switch. By preparing for multiple uncertain futures and setting triggers, managers pre-commit to difficult decisions, and are prepared to be flexible.

**General Electric's** \$200 million "multimodal" factory in Pune, India, is an example of this flexible scenario-based approach. Leadership was confident that four different businesses would need capacity in India, but the mix was uncertain. Rather than commit to a mix, GE built flexibility into the factory. The advanced facility they built has 1,500 employees and a 67-acre footprint that is designed to switch between production of jet engines, locomotives, wind turbines, and water treatment equipment depending on future demand. Rather than committing to one business model, GE has prepared for several possible scenarios.

Source: Martin Toner, Nikhil Ojha, Piet de Paepe, and Miguel Simoes de Melo, "A Strategy for Thriving in Uncertainty," *Bain Brief*, Bain & Company, August 12, 2015.

*Budgeting for objectives* is a variation on the minimum level approach that combines elements of activity-based and zero-based budgeting with a need to live within fixed financial constraints. The minimum level approach improves on the incremental approach by questioning the necessity for costs

included in the base of the incremental approach, but it is very time consuming. All three approaches are often used within the same organization. A pharmaceutical company might use the output/input or the activity-based approach to budget distribution expenditures, the incremental approach to budget administrative salaries, and the minimum level approach to budget research and development.

### Review 22-2 LO2



To illustrate the various approaches to budgeting discussed above, assume that **McNeil**, a division of **Johnson & Johnson**, manufactures two products in institutional quantities, Regular Strength Tylenol and Tylenol Extra Strength. Suppose last period, McNeil produced 18,000 units of Regular and 45,000 units of Extra Strength at a total unit cost of \$38 for Regular and \$32 for Extra Strength. Also suppose the current period, overall costs are expected to rise about 3.5 percent over the last period. Assume estimated overhead costs of \$408,500 for the next period include the cost of assembly-line setups, engineering and maintenance, and inspections. Total estimated assembly hours is 50,000 hours; therefore, the estimated overhead cost per assembly hour is \$8.17. Other predicted data for the next period follow:

	Regular	Extra Strength
Direct materials (per unit) .....	\$20.00	\$14.50
Direct labor hours of assembly time (per unit) .....	0.5	0.8
Assembly labor cost (per hour) .....	\$18	\$18
Total estimated production (in units) .....	20,000	50,000
Total setup hours.....	1,000	1,500
Total engineering and maintenance hours .....	500	600
Total inspections .....	650	580
Setup cost (per setup hour).....	\$25	\$25
Engineering and maintenance (per hour).....	\$35	\$35
Inspection cost (per inspection).....	\$250	\$250

#### Required

- Calculate McNeil's budgeted cost per unit to produce Regular and Extra Strength Tylenol during the next period, assuming it uses an output/input approach and budgets overhead cost based only on assembly hours.
- Repeat a., assuming McNeil uses an activity-based approach and budgets overhead cost based on budgeted activity costs.
- Repeat a., assuming McNeil uses an incremental approach for budgeting overhead cost.

**Solution on p. 22-39.** d. Explain how the minimum level approach differs from the above methods.

## Master Budget

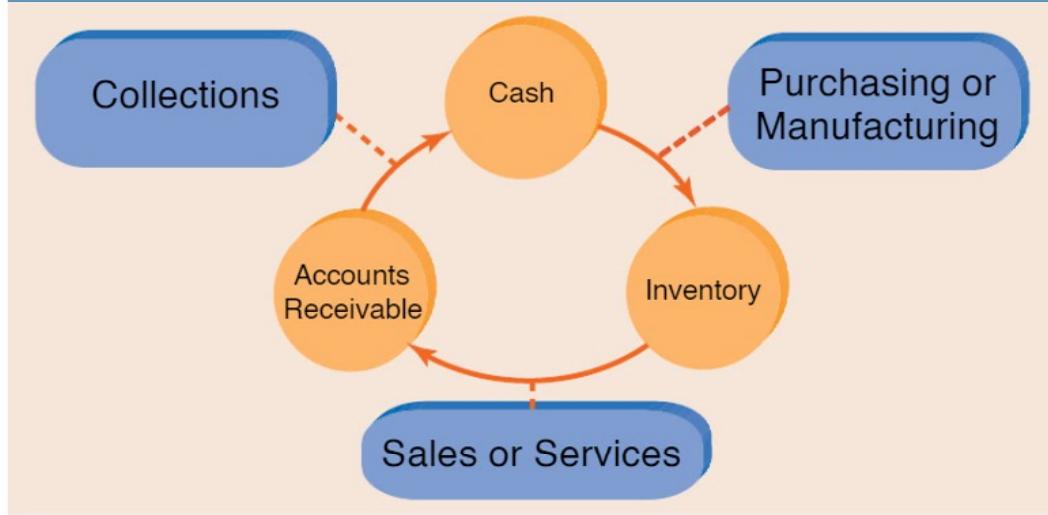


The culmination of the budgeting process is the preparation of a **master budget** for the entire organization that considers all interrelationships among organization units. The master budget groups together all budgets and supporting schedules and coordinates all financial and operational activities, placing them into an organization-wide set of budgets for a given time period.

Because it explicitly considers organizational interrelationships, the master budget is more complex than budgets developed for products, services, organization units, or specific processes. The elements of the master budget depend on the nature of the business, its products or services, processes and organization, and management needs.

A major goal of developing a master budget is to ensure the smooth functioning of a business throughout the budget period and the organization's operating cycle. As shown in Exhibit 22.1, the operating cycle involves the conversion of cash into other assets, which are intended to produce revenues in excess of their costs. The cycle generally follows a path from cash, to inventories, to receivables (via sales or services), and back to cash. There are, of course, intermediate processes such as the purchase or manufacture of inventories, payments of accounts payable, and the collection of receivables. The master budget is merely a detailed model of the firm's operating cycle that includes all internal processes.

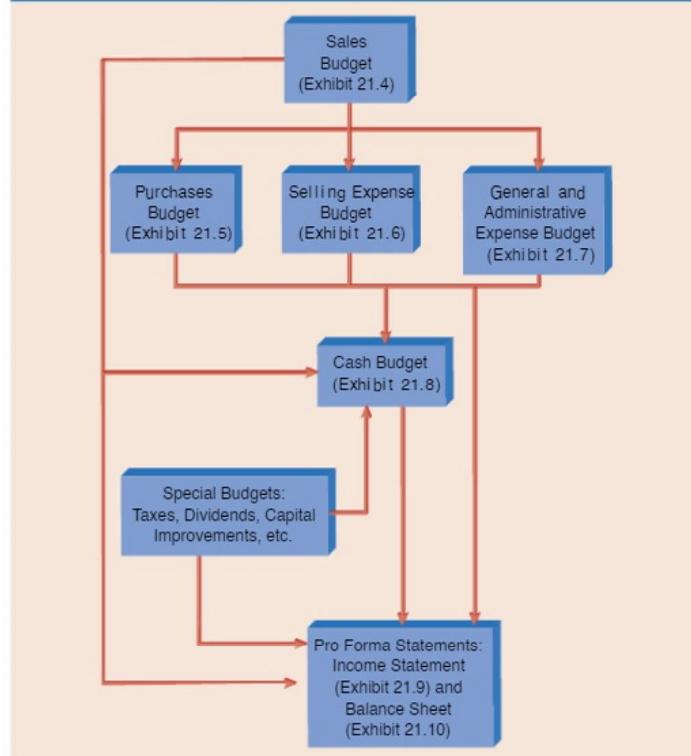
**Exhibit 22.1 ■ Operating Cycle of a Manufacturer or Merchandiser**



Most for-profit organizations begin the budgeting process with the development of the sales budget and conclude with the development of budgeted financial statements. Exhibit 22.2 depicts the annual budget assembly process in a retail merchandising organization. Most of the budget data flow from sales toward cash and then toward the budgeted financial statements.

To illustrate the procedures involved in budget assembly, a hypothetical monthly budget for the second quarter of 2017 is developed for REI, a retail organization specializing in gear and apparel for outdoor and fitness activities. The assembly sequence follows the overview illustrated in Exhibit 22.2. Each element of the budget process in Exhibit 22.2 is illustrated in a separate exhibit. Because of the numerous elements in the budget process illustrated for REI, you will find it useful to refer to Exhibit 22.2 often.

**Exhibit 22.2 ■ Budget Assembly for a Merchandiser**



The activities of a business can be summarized under three broad categories: operating activities, financing activities, and investing activities. To simplify the illustration, assume that REI engaged in no investing activities during the budget period and that the only anticipated financing activity is short-term borrowing. Normal profit-related activities performed in conducting the daily affairs of an organization are called **operating activities**. Assume the operating activities of REI include the following:

1. Purchasing inventory intended for sale.
2. Selling goods or services.
3. Purchasing and using goods and services classified as selling expenses.
4. Purchasing and using goods and services classified as general and administrative expenses.

In addition to preparing the budget for each operating activity, companies prepare a cash budget for cash receipts and disbursements related to their operating activities as well as for financing and investing activities. The importance of cash planning makes this budget a vital part of the total budget process. Management must, for example, be aware in advance of the need to borrow and have some idea when borrowed funds can be repaid.

The hypothetical balance sheet for April 1, 2017, the start of the second quarter, is presented in Exhibit 22.3. It contains information used as a starting point in preparing the various budgets. To reduce complexity, we use the output/input approach to budget variable costs and assume that the budgets for other costs were previously developed using the incremental approach. Budgets to be prepared include those for sales, purchases, selling expense, general and administrative expense, and cash.

**Beginning of the period balance sheet.**  
The balance sheet at the beginning of the budgeted period contains information used as a starting point in preparing the various budgets.

**Exhibit 22.3 ■ Initial Balance Sheet**

REI Balance Sheet April 1, 2017			
<b>Assets</b>			
Current assets			
Cash . . . . .	\$ 15,000		
Accounts receivable, net . . . . .	59,200		
Merchandise Inventory . . . . .	157,000		\$231,200
Fixed assets			
Buildings and equipment . . . . .	\$460,000		
Less accumulated depreciation . . . . .	(124,800)	335,200	
Land . . . . .	60,000		395,200
Total assets . . . . .			\$626,400
<b>Liabilities and Stockholders' Equity</b>			
Current liabilities			
Accounts payable . . . . .	\$ 84,000		
Taxes payable* . . . . .	35,000		\$119,000
Stockholders' equity			
Capital stock . . . . .	350,000		
Retained earnings . . . . .	157,400		507,400
Total liabilities and stockholders' equity . . . . .			\$626,400

\*Quarterly income taxes are paid within 30 days of the end of each quarter.

## Sales Budget

The **sales budget** includes a forecast of sales revenue, and it can also contain a forecast of unit sales and sales collections. Because sales drive almost all other activities in a for-profit organization, developing a sales budget is the starting point in the budgeting process. Managers use the best available information to accurately forecast future market conditions. These forecasts, when considered along with merchandise available, marketing and promotion plans, and expected pricing policies, should lead to the most dependable sales budget. Assume the sales budget of REI is in Exhibit 22.4.

**Exhibit 22.4 ■ Sales Budget**

REI Sales Budget For the Second Quarter Ending June 30, 2017					
	April	May	June	Quarter Total	July
Sales.....	\$190,000	\$228,000	\$250,000	\$668,000	\$309,000

**Sales budget.**

Developing a sales budget is the starting point in the budgeting process.

The information in the sales budget along with predictions of the expected portion of cash sales and the timing of collections from credit sales are used to calculate cash receipts. In the event of a projected cash shortfall, management could consider ways to increase cash sales or to accelerate the collection of receipts from credit sales.

## Purchases Budget

The **purchases budget** indicates the merchandise that must be acquired to meet sales needs and ending inventory requirements. It can be referred to as a merchandise budget if it contains only purchases of merchandise for sale. However, for a manufacturer it would include purchase of raw materials. The purchases budget, shown in Exhibit 22.5, includes only purchases of merchandise.

**Exhibit 22.5 ■ Purchases Budget**

REI Purchases Budget For the Second Quarter Ending June 30, 2017					
	April	May	June	Quarter Total	July
Budgeted sales (Exhibit 22.4)....	\$190,000	\$228,000	\$250,000	\$668,000	\$309,000
Current cost of goods sold*.....	\$114,000	\$136,800	\$150,000	\$400,800	
Desired ending inventory** .....	168,400	175,000	192,700	192,700	
Total needs .....	282,400	311,800	342,700	593,500	
Less beginning inventory*** .....	(157,000)	(168,400)	(175,000)	(157,000)	
Purchases.....	\$125,400	\$143,400	\$167,700	\$436,500	

**Purchases budget.**

The purchases budget indicates the merchandise that must be acquired to meet sales needs and ending inventory requirements.

\*Cost of goods sold is 60 percent of selling price

\*\*Fifty percent of inventory required for next month's budgeted sales plus base inventory of \$100,000.

April: (\$228,000 May sales × 0.60 cost × 0.50 desired ending inventory) + \$100,000

May: (\$250,000 June sales × 0.60 cost × 0.50 desired ending inventory) + \$100,000

June: (\$309,000 July sales × 0.60 cost × 0.50 desired ending inventory) + \$100,000

\*\*\*Fifty percent of current month sales × 0.60 cost plus base inventory of \$100,000. Note monthly beginning inventory.

Same as previous month's ending inventory.

In reviewing REI's purchases budget, note the following:

- Because REI sells a wide variety of items, the purchases budget is expressed in terms of sales dollars, with the assumed cost of merchandise averaging 60 percent of the selling price. Management also keeps detailed records for budgeting the number of units of items carried. An organization that only sold a small number of items might present the sales budget in units as well as dollars.
- Assume management desires to have 50 percent of the inventory needed to fill the following month's sales in stock at the end of the previous month.
- To provide for a possible delay in the receipt of inventory and to meet variations in customer demand, assume REI maintains an additional base inventory of \$100,000.
- The total inventory needs equal current sales plus desired ending inventory, including the base inventory.
- Budgeted purchases are computed as total inventory needs less the beginning inventory.

The information in the purchases budget and the information on expected timing of payments for purchases are used to budget cash disbursements for purchases. In the event of a projected cash shortfall, management can consider ways to delay the purchase of inventory or the payment for inventory purchases.

## Selling Expense Budget

The **selling expense budget** presents the expenses the organization plans to incur in connection with sales and distribution. In the selling expense budget, Exhibit 22.6, the budgeted variable selling expenses are determined as a percentage of budgeted sales dollars. The budgeted fixed selling expenses are based on amounts obtained from the manager of the sales department. To simplify the presentation of the cash budget, assume REI pays its selling expenses in the month they are incurred.

Selling expense budget.
The selling expense budget presents the expenses the organization plans to incur in connection with sales and distribution.

**Exhibit 22.6 ■ Selling Expense Budget**

REI Selling Expense Budget For the Second Quarter Ending June 30, 2017				
	April	May	June	Quarter Total
Budgeted sales (Exhibit 22.4).....	\$190,000	\$228,000	\$250,000	\$668,000
Variable selling expenses				
Setup/Display (1% sales).....	\$ 1,900	\$ 2,280	\$ 2,500	\$ 6,680
Commissions (2% sales) .....	3,800	4,560	5,000	13,360
Miscellaneous (1% sales).....	1,900	2,280	2,500	6,680
Total .....	7,600	9,120	10,000	26,720
Fixed selling expenses				
Advertising.....	2,250	2,250	2,250	6,750
Office .....	1,250	1,250	1,250	3,750
Miscellaneous .....	1,000	1,000	1,000	3,000
Total .....	4,500	4,500	4,500	13,500
Total selling expenses.....	\$ 12,100	\$ 13,620	\$ 14,500	\$ 40,220

## General and Administrative Expense Budget

The **general and administrative expense budget** presents the expenses the organization plans to incur in connection with the general administration of the organization. Included are expenses for the accounting department, the computer center, and the president's office, for example. REI's assumed general and administrative expense budget is presented in Exhibit 22.7.

General and administrative expense budget.
The general and administrative expense budget presents the expenses the organization plans to incur in connection with the general administration of the organization.

**Exhibit 22.7 ■ General and Administrative Expense Budget**

REI General and Administrative Expense Budget For the Second Quarter Ending June 30, 2017				
	April	May	June	Quarter Total
General and administrative expenses				
Compensation.....	\$25,000	\$25,000	\$25,000	\$75,000
Insurance .....	2,000	2,000	2,000	6,000
Depreciation.....	2,000	2,000	2,000	6,000
Utilities.....	3,000	3,000	3,000	9,000
Miscellaneous .....	1,000	1,000	1,000	3,000
Total general and administrative expenses.....	\$33,000	\$33,000	\$33,000	\$99,000

The depreciation of \$2,000 per month is a noncash item and is not carried forward to the cash budget. No variable general and administrative costs are included because most expenditures categorized as general and administrative are related to top-management operations that do not vary with unit-level cost drivers. To simplify the presentation of the cash budget, assume that general and administrative expenses, except depreciation, are paid in the month they are incurred.

## Cash Budget

The **cash budget** summarizes all cash receipts and disbursements expected to occur during the budget period. Cash is critical to survival. Income is like food and cash is like water. Food is necessary to survive and prosper over time, but you can get along without food for a short period of time. You cannot survive very long without water. Hence, cash budgeting is very important, especially in a small business where cash receipts from sales lag purchases of inventory. As pointed out in the following Business Insight, cash budgets are also critical for managing the impact of changing customer preferences.

### Business Insight ■ Budgeting within a Consumer Products Giant

Budgeting within a large diversified multinational corporation is challenging when the business spans many markets and countries. **Unilever** operates segments across the globe with product lines from dairy to skin care, so the company must make sure they have the ability to invest in new products in these areas while insulating its performance from exchange rate fluctuations. In the first quarter of 2016, Unilever PCL posted an increase in both volume and price of sales but a 2% decrease in revenue. To limit its exposure to exchange rates, Unilever has adopted strict cost controls and is restructuring its portfolio of brands to keep up with shifting demand.

Unilever's food business has been lagging behind other areas, especially personal care. Originally a Dutch margarine producer, Unilever is considering dropping the butter substitute altogether. Unilever is shifting resources to focus on men's skin and hair care as men are spending more time and money on their appearance and customers are returning to real butter. Rob Candelino, VP of hair care marketing at Unilever, says that "This generation of man—on all aspects of how they are taking care of themselves—is caring much more than previous generations." Therefore, the company is developing new products and has recently acquired the Dollar Shave Club, a low-cost direct provider of shaving supplies for men.

Careful cash budgeting is essential for Unilever in managing the impact of changing customer preferences and global economic fluctuations while still investing in continued growth.

Sources: Saabira Chaudhuri, "Unilever Sales Fall on Currencies, Offsetting Better Volume, Prices," *Wall Street Journal*, April 14, 2016.

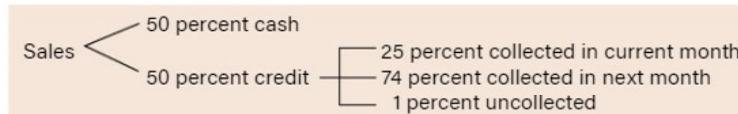
Sharon Terlep, "Dollar Shave Club's \$1 Billion Deal: A Victory for Simplicity over Technology," *Wall Street Journal*, July 20, 2016.

Elizabeth Holmes, "Young Men Are Obsessed with Their Hair" *Wall Street Journal*, March 1, 2016.

Saabira Chaudhuri, "Will Margarine Become Toast at Unilever?" *Wall Street Journal*, January 19, 2016.

After it makes sales predictions, an organization uses information regarding credit terms, collections policy, and prior collection experience to develop a cash collections budget. Collections on sales normally include receipts from the current period's sales and collections from sales of prior periods. An allowance for bad debts, which reduces each period's collections, is also predicted. Other items often included are cash sales, sales discounts, allowances for volume discounts, and seasonal changes of sales prices and collections. REI's assumed cash budget is in Exhibit 22.8. Note the following important points:

- Management estimates that one-half of all sales are for cash and the other half are on the company's credit card. (When sales are on bank credit cards, the collection is immediate, less any bank user fee; however, assume charges using REI's credit card are collected by the company from the customer.) Twenty-five percent of the credit card sales are collected in the month of sale, and 74 percent are collected in the following month. Bad debts are budgeted at 1 percent of credit sales. This resource flow is graphically illustrated as follows:



- Assume payments for purchases are made 20 percent in the month purchased and 80 percent in the next month.

Cash budget.
The cash budget summarizes all cash receipts and disbursements expected to occur during the budget period.

### Exhibit 22.8 ■ Cash Budget

REI Cash Budget For the Second Quarter Ending June 30, 2017				
	April	May	June	Quarter Total
Budgeted sales (Exhibit 22.4).....	\$190,000	\$228,000	\$250,000	\$668,000
Cash balance, beginning .....	\$ 15,000	\$ 15,770	\$ 44,850	\$ 15,000
Collections on sales				
Cash sales (50% sales).....	95,000	114,000	125,000	
Credit sales				
Current month (25% credit sales).....	23,750	28,500	31,250	
Prior month (74% credit sales).....	59,200*	70,300	84,360	
Total.....	177,950	212,800	240,610	631,360
Cash available for operations .....	<u>192,950</u>	<u>228,570</u>	<u>285,460</u>	<u>646,360</u>
Disbursements				
Purchases (Exhibit 22.5)				
Current month (20% purchases).....	25,080	28,680	33,540	
Prior month (80% purchases) .....	84,000**	100,320	114,720	
Total.....	109,080	129,000	148,260	386,340
Selling expenses (Exhibit 22.6).....	12,100	13,620	14,500	40,220
General & Administrative Expenses				
(Exhibit 22.7, excluding depreciation).....	31,000	31,000	31,000	93,000
Taxes (Exhibit 22.3).....	<u>35,000</u>			<u>35,000</u>
Total .....	<u>(187,180)</u>	<u>(173,620)</u>	<u>(193,760)</u>	<u>(554,560)</u>
Excess (deficiency) cash available over disbursements.....	5,770	54,950	91,700	91,800
Short-term financing***				
New loans.....	10,000			10,000
Repayments.....		(10,000)		(10,000)
Interest.....	—	(100)	—	(100)
Net cash from financing .....	<u>10,000</u>	<u>(10,100)</u>	<u>—</u>	<u>(100)</u>
Cash balance, ending .....	<u>\$ 15,770</u>	<u>\$ 44,850</u>	<u>\$ 91,700</u>	<u>\$ 91,700</u>

\*April 1 accounts receivable.

\*\*April 1 accounts payable.

\*\*\*Loans are obtained in \$1,000 increments at the start of the month to maintain a minimum balance of \$15,000 at all times. Repayments are made at the end of the month, as soon as adequate cash is available. Assume interest of 12 percent per year (1 percent per month) is paid when the loan is repaid.

- Information on cash expenditures for selling expenses and for general and administrative expenses is based on budgets for these items. The monthly cash expenditures for general and administrative expenses are \$31,000 rather than \$33,000. The \$2,000 difference relates to depreciation, which does not require use of cash.
- Assume REI's income taxes are determined on the basis of predicted taxable income following IRS rules. Estimated tax payments are made during the month following the end of each quarter. Hence, the taxes payable on April 1 are paid during April.
- The cash budget shows cash operating deficiencies and surpluses expected to occur at the end of each month; this is used to plan for borrowing and loan payment.
- Suppose the cash maintenance policy for REI specifies that a minimum balance of \$15,000 is to be maintained.

- Assume REI has a line of credit with a bank, with any interest on borrowed funds computed at the simple interest rate of 12.0 percent per year, or 1.0 percent per month. All necessary borrowing is assumed to occur at the start of each month in increments of \$1,000. Repayments are assumed to occur at the end of the month. Interest is paid when loans are repaid.
- The cash budget indicates REI needs to borrow \$10,000 in April. The \$10,000 plus interest is repaid in May.

If REI had any cash disbursements for dividends or capital expenditures they would be included in the cash budget. These items, along with information on income taxes, would be shown in special budgets.

## Budgeted Financial Statements

The preparation of the master budget culminates in the preparation of budgeted financial statements. **Budgeted financial statements** are pro forma statements that reflect the “as-if” effects of the budgeted activities on the actual financial position of the organization. That is, the statements reflect the results of operations assuming all budget predictions are correct. Spreadsheets that permit the user to immediately determine the impact of any assumed changes facilitate developing budgeted financial statements. The budgeted income statement can follow the functional format traditionally used for financial accounting or the contribution format introduced in Module 16. In either case, the balance sheet amounts reflect the corresponding budgeted entries.

Exhibit 22.9 presents the budgeted income statement for the quarter ending June 30, 2017. If all predictions made in the operating budget are correct, REI will produce a net income of \$51,540 for the quarter. Almost every item on the budgeted income statement comes from one of the budget schedules.

**Exhibit 22.9 ■ Budgeted Income Statement**

REI Budgeted Income Statement For the Second Quarter Ending June 30, 2017			
Sales (Exhibit 22.4).....			\$668,000
Cost of goods sold: <sup>*</sup>			
Beginning inventory (Exhibit 22.3) .....	\$157,000		
Purchases (Exhibit 22.5) .....	436,500		
Cost of merchandise available .....	593,500		
Ending inventory (Exhibit 22.5) .....	(192,700)	(400,800)	
Gross profit.....			267,200
Other expenses: .....			
Bad debt (1% of credit sales)**.....	3,340		
Selling (Exhibit 22.6) .....	40,220		
General and administrative (Exhibit 22.7).....	99,000	(142,560)	
Income from operations .....			124,640
Interest expense (Exhibit 22.8).....			(100)
Net income from operations .....			124,540
Allowance for income taxes*** .....			(73,000)
Net income .....			\$ 51,540

\*Also computed at sales  $\times$  0.6

\*\*\$668,000  $\times$  0.5 credit sales  $\times$  0.01 bad debts

\*\*\*Provided by accounting

The budgeted balance sheet, presented in Exhibit 22.10 shows REI's financial position as of June 30, 2017, assuming that all budget predictions are correct. Sources of the budgeted balance sheet data are included as part of the exhibit.

**Exhibit 22.10 ■ Budgeted Balance Sheet**

REI Balance Sheet June 30, 2017			
<b>Assets:</b>			
<b>Current assets</b>			
Cash (Exhibit 22.8).....	\$ 91,700		
Accounts receivable, net*.....	92,500		
Merchandise inventory (Exhibits 22.5 and 22.9).....	192,700	\$376,900	
<b>Fixed assets</b>			
Buildings and equipment (Exhibit 22.3).....	\$460,000		
Less accumulated depreciation (Exhibit 22.3 plus depreciation Exhibit 22.7) .....	(130,800)	329,200	
Land (Exhibit 22.3).....	60,000	389,200	
<b>Total assets</b> .....			<b>\$766,100</b>
<b>Liabilities and Stockholders' Equity</b>			
<b>Current liabilities</b>			
Accounts payable**.....	\$134,160		
Taxes payable (Exhibit 22.9).....	73,000	\$207,160	
<b>Stockholders' equity</b>			
Capital stock (Exhibit 22.3).....	350,000		
Retained earnings (Exhibit 22.3 plus net income Exhibit 22.9)...	208,940	558,940	
<b>Total liabilities and stockholders' equity</b> .....			<b>\$766,100</b>

\*June credit sales collected in July,  $\$250,000 \times 0.50 \times 0.74$ .

\*\*June purchases paid in July,  $\$167,700 \times 0.80$ .

## Finalizing the Budget

After studying the REI example, you might conclude that developing the master budget is a mechanical process. That is not the case. Understanding the basics of budget assembly is not the end; it is a tool to assist in efficient and effective budgeting. Before finalizing the budget, the following two questions must be addressed:

- Is the proposed budget feasible?
- Is the proposed budget acceptable?

To be feasible, the organization must be able to actually implement the proposed budget. Without the assumed line of credit, REI's budget is not feasible because the company would run out of cash sometime in April. Knowing this, management can take timely corrective action. Possible actions include obtaining equity financing, issuing long-term debt, reducing the amount of inventory on hand at the end of each quarter, or obtaining a line of credit. Other constraints that would make the budget infeasible include the availability of merchandise and, in the case of a manufacturing organization, production capacity.

Once management determines that the budget is feasible, they still need to determine if it is acceptable. To evaluate acceptability, management might consider various financial ratios, such as return on assets. They might compare the return provided by the proposed budget with past returns, industry averages, or some organizational goal.



### Budget for a Merchandising Organization

**Bleu Mont Dairy** is a wholesale distributor of artisan cheese and ice cream. Suppose the following information is available for April 2017.

Estimated sales	
Cheese.....	160,000 hoops at \$10 each
Ice cream .....	240,000 gallons at \$5 each

Estimated costs	
Cheese.....	\$8 per hoop
Ice cream .....	\$2 per gallon

	Beginning	Ending
Desired inventories		
Cheese.....	10,000	12,000
Ice cream .....	4,000	5,000

Assumed financial information follows:

- Beginning cash balance is \$400,000.
- Purchases of merchandise are paid 60 percent in the current month and 40 percent in the following month. Purchases totaled \$1,800,000 in March and are estimated to be \$2,000,000 in May.
- Employee wages and salaries are paid for in the current month. Employee expenses for April totaled \$156,000.
- Overhead expenses are paid in the next month. The accounts payable amount for these expenses from March is \$80,000 and for May will be \$90,000. April's overhead expenses total \$80,000.
- Sales are on credit and are collected 70 percent in the current period and the remainder in the next period. March's sales were \$3,000,000, and May's sales are estimated to be \$3,200,000. Bad debts average 1 percent of sales.
- Selling and administrative expenses are paid monthly and total \$450,000, including \$40,000 of depreciation.
- All unit costs for April are the same as they were in March.

#### Required

Prepare the following for April:

- Sales budget in dollars.
- Purchases budget.
- Cash budget.
- Budgeted income statement.

**Solution on p. 22-39.**

## Budget Development in Manufacturing Organizations

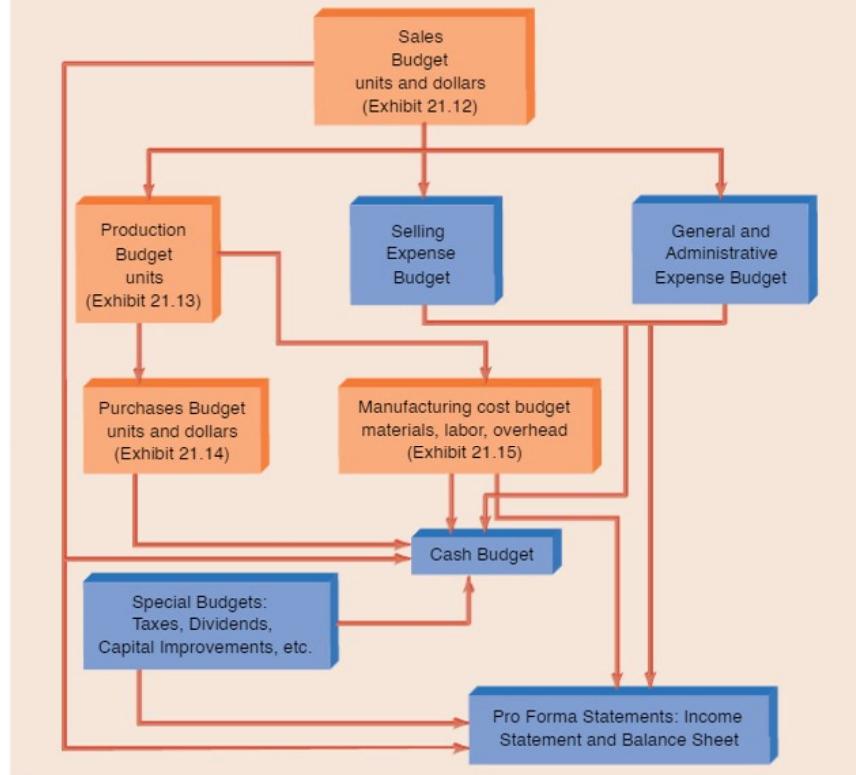
The importance of inventory in various organizations was introduced in Module 18 where Exhibit 18.1 (page 18-4) summarized inventory and related expense accounts for service, merchandising, and manufacturing organizations. Recall that service organizations usually have a low percentage of their assets invested in inventory, usually consisting of the supplies needed to facilitate operations. In contrast, merchandising organizations usually have a high percentage of their total assets invested in inventory, with the largest inventory investment in merchandise purchased for resale. The preceding illustration of the development of a master budget was for a merchandising organization. In this section, we will illustrate the development of a master budget for a manufacturing organization. We will contrast the assembly of a budget for a merchandiser in Exhibit 22.2 with the assembly of a budget for a manufacturer in Exhibit 22.11.



**LO4**

**MBC** Explain and develop a basic manufacturing cost budget.

**Exhibit 22.11 ■ Budget Assembly for a Manufacturer**



## Production Budget

Because manufacturing organizations convert raw materials into finished goods that are sold to customers, there are additional steps in developing their master budget. The management of a manufacturing organization must determine the production volume required to support sales and finished goods ending inventory requirements (production budget). Then, based on available inventories or raw materials and the raw materials required for production, management develops a purchases budget.

### Manufacturing sales budget.

Because unit information is necessary to determine production requirements, the sales budget is expressed in units as well as dollars.

**Exhibit 22.12 ■ Sales Budget**

REI Sales Budget (Trekpacks) For the Second Quarter Ending June 30, 2017					
	April	May	June	Quarter Total	July
Sales—Units.....	0	400	500	900	600
Sales—Dollars (\$100 each).....	0	\$40,000	\$50,000	\$90,000	\$60,000

**Exhibit 22.13 ■ Production Budget**

	<b>REI</b> <b>Production Budget (Trekpacks)</b> <b>For the Second Quarter Ending June 30, 2017</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>Quarter Total</b>
Budgeted Sales.....	0	400	500	900	
Desired ending inventory 40% following month sales.....	160	200	240	240	
Total requirements .....	160	600	740	1,140	
Less beginning inventory.....	0	(160)	(200)	0	
Budgeted production.....	<u>160</u>	<u>440</u>	<u>540</u>	<u>1,140</u>	

**Production budget.**

The sales budget and ending inventory plans, along with information on beginning inventories, are used to develop the production budget.

## Manufacturing Cost Budget

In addition to a selling expense budget and a general and administrative expense budget, management needs also to develop a manufacturing cost budget, which is similar in design to a statement of cost of goods manufactured (see Exhibit 18.6, page 18-17) except that it is prepared in advance of production rather than after production. Reflecting these additional steps, the cash budget includes payments for direct labor and manufacturing overhead, based on information in the manufacturing cost budget, and payments for purchases of raw materials based on the purchases budget. Note cash disbursements are for materials purchased rather than materials used in production.



Continuing our REI example, assume that management is considering the option of manufacturing a high-quality backpack, tentatively named the “Trekpack” as an alternative to purchasing a similar item from an outside vendor. Unit variable and monthly fixed cost estimates associated with the manufacture of Trekpacks follow:

**Unit costs:**
**Direct materials:**

Fabric: 2 square yards at \$10 per yard.....	\$20	
Hardware kits (buckles, straps, etc.) .....	<u>5</u>	\$ 25
Direct labor 0.5 hours at \$30 per hour.....		15
Variable overhead, per unit .....		8
Total variable costs per unit.....		<u>\$ 48</u>
Fixed costs per month (rent, utilities, supervision).....		<u>\$6,000</u>

Because management anticipates an average monthly production volume of 500 Trekpacks, the average fixed cost per unit, a predetermined overhead rate, is \$12 (\$6,000/500).

For budgeting purposes, management uses a standard cost, a budget per unit of product, for valuing inventories and forecasting the cost of goods sold. The standard cost of a Trekpack is \$60:

Direct materials.....	\$25	
Direct labor.....	15	
Variable overhead.....	8	
Fixed overhead .....	12	
Standard cost.....		<u>\$60</u>

Management, planning to introduce this new product in May, developed the sales budget shown in Exhibit 22.12. In this case, because unit information is necessary to determine production requirements, the sales budget is expressed in units as well as dollars.

Introducing Trekkpacks in May requires some April production. To meet the initial sales requirement for the start of each month, management desires end-of-month inventories equal to 40 percent of the following month's budgeted sales. The sales budget and ending inventory plans, along with information on beginning inventories, is used to develop the production budget in Exhibit 22.13.

The production budget, along with information on beginning inventories of raw materials and planned ending inventory levels (500 square yards of fabric and 200 kits) is then used to budget the purchases in Exhibit 22.14 for raw materials in units and dollars. The production budget, along with standard variable and predicted fixed cost information is also used to develop the manufacturing cost budget in Exhibit 22.15.

#### Purchases budget.

The production budget, along with information on beginning inventories of raw materials and planned ending inventory levels is then used to budget the purchases for raw materials in units and dollars.

#### Exhibit 22.14 ■ Purchase Budget

	REI	Purchases Budget For the Second Quarter Ending June 30, 2017		
	April	May	June	Quarter Total
<b>Fabric:</b>				
Current needs (2 yards per unit) .....	320	880	1,080	2,280
Desired ending inventory (500 yards) .....	500	500	500	500
Total requirements.....	820	1,380	1,580	2,780
Less beginning inventory.....	(0)	(500)	(500)	(0)
Fabric purchases in yards .....	<u>820</u>	<u>880</u>	<u>1,080</u>	<u>2,780</u>
<b>Assembly kits:</b>				
Current needs (1 per unit) .....	160	440	540	1,140
Desired ending inventory (200 kits) .....	200	200	200	200
Total requirements.....	360	640	740	1,340
Less beginning inventory.....	(0)	(200)	(200)	(0)
Kit purchases in units .....	<u>360</u>	<u>440</u>	<u>540</u>	<u>1,340</u>
<b>Purchases (Dollars)</b>				
Fabric at \$10 per yard .....	\$ 8,200	\$ 8,800	\$10,800	\$27,800
Kits at \$5 each.....	1,800	2,200	2,700	6,700
Total purchases in dollars.....	<u>\$10,000</u>	<u>\$11,000</u>	<u>\$13,500</u>	<u>\$34,500</u>

#### Manufacturing cost budget.

The production budget, along with standard variable and predicted fixed cost information is also used to develop the manufacturing cost budget.

#### Exhibit 22.15 ■ Manufacturing Cost Budget

	REI	Manufacturing Cost Budget For the Second Quarter Ending June 30, 2017		
	April	May	June	Quarter Total
<b>Direct materials</b>				
Fabric used in production (production $\times$ 2 yards $\times$ \$10)....	\$ 3,200	\$ 8,800	\$10,800	\$22,800
Kits used in production (production $\times$ 1 kit $\times$ \$5).....	800	2,200	2,700	5,700
Total .....	4,000	11,000	13,500	28,500
<b>Direct labor (production <math>\times</math> 1/2 hour <math>\times</math> \$30)</b>				
2,400	6,600	8,100		17,100
<b>Manufacturing overhead</b>				
Variable (\$8 per unit).....	1,280	3,520	4,320	9,120
Fixed.....	6,000	6,000	6,000	18,000
Total .....	<u>7,280</u>	<u>9,520</u>	<u>10,320</u>	<u>27,120</u>
Total manufacturing costs .....	<u>\$13,680</u>	<u>\$27,120</u>	<u>\$31,920</u>	<u>\$72,720</u>

Because it does not require the introduction of new concepts, the cash budget and the pro-forma financial statements for REI with the manufacturing of Trekpacks are not presented. Keep in mind that the cash budget will include disbursements for purchases shown in Exhibit 22.14 and for direct labor, variable overhead, and fixed overhead shown in Exhibit 22.15. A pro-forma functional income statement using absorption costing will include the predicted cost of goods sold for Trekpacks at a \$60 standard cost per unit. A contribution income statement using variable costing would include the cost of goods sold for Trekpacks at a \$48 standard cost per unit with all fixed manufacturing costs expensed in the period incurred. Finally, the pro-forma balance sheet will include standard costs of any June raw materials (500 square yards at \$10 per yard and 200 kits at \$5 each), work in process (none), and finished goods. Any unpaid liabilities for purchases of raw materials, direct labor, and manufacturing overhead would also be shown under current liabilities. Note that completing the cash budget and the pro-forma statements requires information on the timing of payments for the purchases of raw materials, direct labor, and manufacturing overhead.

LO4

## Review 22-4



### Budget for a Manufacturer

Assume **DeWalt**, a subsidiary of **Stanley Black and Decker**, manufactures and sells two industrial products in a single plant. Suppose a new manager wants to have quarterly budgets and has prepared the following information for the first quarter of 2017:

<b>Budgeted sales</b>			
Drills.....		60,000 at \$100 each	
Saws.....		40,000 at \$125 each	
<b>Budgeted inventories</b>			
		<b>Beginning</b>	<b>Ending</b>
Drills, finished.....	20,000 units	25,000 units	
Saws, finished.....	8,000 units	10,000 units	
Metal, direct materials.....	32,000 pounds	36,000 pounds	
Plastic, direct materials.....	29,000 pounds	32,000 pounds	
Handles, direct materials.....	6,000 each	7,000 each	
<b>Standard variable costs per unit</b>			
		<b>Drills</b>	<b>Saws</b>
Direct materials			
Metal .....	5 pounds × \$8.00	\$40.00	4 pounds × \$8.00
Plastic.....	3 pounds × \$5.00	15.00	3 pounds × \$5.00
Handles.....	1 handle × \$3.00	3.00	
Total .....		<u>58.00</u>	<u>47.00</u>
Direct labor.....	2 labor hours × \$12.00	24.00	3 labor hours × \$16.00
Variable manufacturing			
Overhead .....	2 hours × \$1.50	3.00	3 hours × \$1.50
Total .....		<u>\$85.00</u>	<u>\$99.50</u>

Assume fixed manufacturing overhead is \$214,000 per quarter (including noncash expenditures of \$156,000) and is allocated on total units produced. Financial information follows:

- Beginning cash balance is \$1,800,000.
- Sales are on credit and are collected 50 percent in the current period and the remainder in the next period. Last quarter's sales were \$8,400,000. There are no bad debts.
- Purchases of direct materials and labor costs are paid for in the quarter acquired.
- Manufacturing overhead expenses are paid in the quarter incurred.
- Selling and administrative expenses are all fixed and are paid in the quarter incurred. They are budgeted at \$340,000 per quarter, including \$90,000 of depreciation.

*continued*

**Required**

For the first quarter of 2017, prepare the following:

- a. Sales budget in dollars.
- b. Production budget in units.
- c. Purchases budget.
- d. Manufacturing cost budget.
- e. Cash budget.

**Solution on p. 22-41.** f. Budgeted contribution income statement. (*Hint:* See Module 16.)

## Budget Development and Manager Behavior



**LO5**

MBC Analyze the relationship between budget development and manager behavior.

Organizations are composed of individuals who perform a wide variety of activities in pursuit of the organization's goals. To accomplish these goals, management must recognize the effects that budgeting and performance evaluation methods have on the behavior of the organization's employees.

### Employee Participation

Budgeting should be used to promote productive employee behavior directed toward meeting the organization's goals. While no two organizations use exactly the same budgeting procedures, two approaches to employee involvement in budgeting represent possible end points on a continuum. These approaches are sometimes referred to as top-down and bottom-up methods.

With a **top-down** or **imposed budget**, top management identifies the primary goals and objectives for the organization and communicates them to lower management levels. Because relatively few people are involved in top-down budgeting, an imposed budget saves time. It also minimizes the slack that managers at lower organizational levels are sometimes prone to build into their budgets. However, this nonparticipative approach to budgeting can have undesirable motivational consequences. Personnel who do not participate in budget preparation might lack a commitment to achieve their part of the budget.

With a **bottom-up** or **participative budget**, managers at all levels—and in some cases, even nonmanagers—are involved in budget preparation. Budget proposals originate at the lowest level of management possible and are then integrated into the proposals for the next level, and so on, until the proposals reach the top level of management, which completes the budget.

Participation helps ensure that important issues are considered and that employees understand the importance of their roles in meeting the organization's goals. It also provides opportunities for problem solving and fosters employee commitment to agreed-upon goals. Hence, budget predictions are likely to be more accurate, and the people responsible for the budget are more likely to strive to accomplish its objectives. These self-imposed budgets reinforce the concept of participative management and should strengthen the overall budgeting process.

Participative approaches to budgeting have a few disadvantages. Because they require the involvement of many people, the preparation period is longer than that for an imposed budget. Another disadvantage is the tendency of some managers to intentionally understate revenues or overstate expenses to provide **budgetary slack**. A manager might do this to reduce his or her concern regarding unfavorable performance reviews or to make it easier to obtain favorable performance reviews. If a department consistently produces favorable variances (actual results versus budget) with little apparent effort, this might be a symptom of budgetary slack.

As the CFO of a relatively new and fast-growing entrepreneurial enterprise, you and the other top managers have previously emphasized technical and marketing innovation and creativity over planning and budgeting. But now with growing competition and the maturing of the company's products, you recognized that a culture of better financial planning must be established if the company is to succeed in the long run. You feel that the financial staff has the best expertise and understanding of the business to prepare effective budgets, but you are concerned about the motivational effects of excluding the lower-level managers from the process and are seeking advice. [Answer, p. 22-24.]

## Budgeting Periods

Although most organizations use a one-year budget period, some organizations budget for shorter or longer periods. In addition to fixed-length budget periods, two other types of budget periods commonly used are life cycle budgeting and continuous budgeting.

When a fixed time period is not particularly relevant to planning, an organization can use **life cycle budgeting**, which involves developing a budget for a project's entire life. An ice cream vendor at the beach might develop a budget for the season. A general contractor might budget costs for the entire (multiple-year) time required to construct a building.

Under **continuous budgeting**, the budget (sometimes called a **rolling budget**) is based on a moving time frame. For example, an organization on a continuous four-quarter budget system adds a quarter to the budget at the end of each quarter of operations, thereby always maintaining a budget for four quarters into the future. Under this system, plans for a full year into the future are always available, whereas under a fixed annual budget, operating plans for a full year ahead are available only at the beginning of the budget year. Because managers are constantly involved in this type of budgeting, the budget process becomes an active and integral part of the management process. Managers are forced to be future oriented throughout the year rather than just once each year.

## Forecasts

Budget preparation requires the development of a variety of forecasts. The sales forecast is based on a variety of interrelated factors such as historical trends, product innovation, general economic conditions, industry conditions, and the organization's strategic position for competing on the basis of price, product differentiation, or market niche. Many organizations first determine the industry forecast for a given product or service and then extract from it their sales estimations.

Although the sales forecast is primary to most organizations, there are many other forecasts of varying importance that must be made, including (a) the collection period for sales on account, (b) percent of uncollectable sales on account, (c) cost of materials, supplies, utilities, and so forth, (d) employee turnover, (e) time required to perform activities, (f) interest rates, and (g) development time for new products or services.

### Business Insight ■ Developing Honesty in Budgeting

Often the budgeting process involves soliciting information from mid-level managers, and honesty in this participative process is essential. Lower-level managers often have much better information about their sphere of the company's operations, but often these managers have financial incentives to misreport.

Experiments by researchers at the University of Indiana and the University of Kentucky suggest that publishing rankings of division performance can eliminate these incentives. When mid-level managers are ranked by their department's contribution to firm performance, their budget reports become quite accurate. This result is independent of the manager's compensation structure. Firms who rely heavily on information from mid-level managers should be careful to construct incentive and recognition structures that encourage honest reporting.

Source: Jason L. Brown, Joseph G. Fisher, Matthew Sooy, and Geoffrey B. Sprinkle, "The Effect of Rankings on Honesty in Budget Reporting," *Accounting, Organizations and Society*, 39, no. 4 (May 2014): 237-46. <http://dx.doi.org/10.1016/j.aos.2014.03.001>.

## Ethics

Because most wrongful activities related to budgeting are unethical, rather than illegal, organizations often have difficulty dealing with them. However, when managers' actions cross the gray area between ethical and fraudulent behavior, organizations are not reluctant to dismiss employees or even pursue legal actions against them.

Although most managers have a natural inclination to be conservative in developing their budgets, at some level the blatant padding or building slack into the budget becomes unethical. In an extreme case, it might even be considered theft if an inordinate level of budgetary slack creates favorable performance variances that lead to significant bonuses or other financial gain for the manager. Another form of falsifying budgets occurs when managers include expense categories in their budgets that are not needed in their operations and subsequently use the funds to pad other budget categories. The deliberate falsification of budgets is unethical behavior and is grounds for dismissal in most organizations.

Ethical issues might also arise in the reporting of performance results, which usually compares actual data with budgeted data. Examples of unethical reporting of actual performance data include misclassification of expenses, overstating revenues or understating expenses, postponing or accelerating the recording of activities at the end of the accounting period, or creating fictitious activities.

## Open Book Management

If an organization is to obtain the full benefit of budgeting, support for the budget must be obtained from employees at all levels. Many organizations, especially smaller ones, have used open book management to obtain employee support for the budget. **Open book management** involves sharing financial and related information with employees, teaching employees to understand financial numbers, encouraging employees to use the information in their work, and sharing financial results with employees, perhaps through a bonus program. The following Research Insight examines the success of open book management in small companies.

Properly used, an operating budget is an effective mechanism for motivating employees to higher levels of performance and productivity. Improperly developed and administered, budgets can foster feelings of animosity toward management and the budget process. Behavioral research has generally concluded that when employees participate in the preparation of budgets and believe that the budgets represent fair standards for evaluating their performance, they receive personal satisfaction from accomplishing the goals set in the budgets.

### Research Insight ■ Open Book Management Opens the Door to Profits

Open book management has its roots at **Springfield Remanufacturing Corp.** (SRC). In the late 1970s, SRC was a subsidiary of **International Harvester** and was losing money. International Harvester sent a new plant manager, Jack Stack, to turn SRC around. Stack made SRC profitable by sharing information and using gamification techniques to improve firm performance. Stack's performance game is based on three principles:

1. Transparency: Make the business's goals and planning transparent, then continually educate employees about the plan.
2. Involvement: Involve employees in both planning and ownership.
3. Measurement: Create a "Critical Number," a measure of performance that the whole organization is invested in working toward.

The key to this approach is that all employees understand how their work fits into the larger success of the organization, and share the proceeds from success. In this context, sharing financial information with employees empowers them to find solutions to problems and inefficiencies throughout the organization.

This approach was so successful that in 1983 Stack and 12 employees bought SRC from International Harvester and have since grown the business to 1,400 employee-owners and 31 businesses, including a corporate training and education practice. The success of these practices extends far beyond SRC. Research by the McGill University Institute for Health and Social Policy finds that firms large and small are able to improve efficiency and profitability by following SRC's model.

Sources: Neil Amato, "Opening the Books, Growing the Business," *The CGMA Magazine*, June 1, 2016.  
Jody Heymann, with Magda Berrerra, "Profit at the Bottom of the Ladder," *Harvard Business School Press*, 2010.



Items 1. through 4. represent manager behaviors related to operational budgeting.

1. Budgetary Slack
2. Participative Budget
3. Open Book Management
4. Life-Cycle Budgeting

#### Required

Identify the above term that most appropriately describes the scenarios below:

- a. The marketing department is asked to provide an estimate as to how much it will spend on print ads during the next fiscal year.
- b. The marketing department provides a budget amount for print ads for the next fiscal year that includes the expected expenditures plus 10% to account for uncertainty.
- c. Tristan Renken owns and operates a food truck that sells Mexican food along the beaches in Chicago. Tristan only operates the food truck during the summer and developed a budget to estimate how much he will make during the upcoming summer season.
- d. Top management hosts semi-annual meetings to discuss the budget and current performance vs. the budget. Management provides employees with tools to help gauge their own performance against the budgeted expectations.

Solution on p. 22-44.

## Guidance Answers

### You are the Chief Financial Officer

**Pg. 22-22** You seem to be leaning toward using a top-down approach to budgeting. While this method may produce an effective set of benchmarks for planning and evaluation, it does not maximize the benefits of budgeting. A key element in any effective budgeting system is that it must be embraced by the managers whose performance will be evaluated by it. If the budget is imposed from the top down, it is far less likely to be embraced by managers than if they have participated from the beginning of the budget development process. The most effective budgeting systems are those that are strongly embraced by managers at all levels, which is most readily achieved through a participative (bottom-up) approach.

## Questions

- Q22-1.** What are the primary phases in the planning and control cycle?
- Q22-2.** Does budgeting require formal or informal planning? What are some advantages of this style of management?
- Q22-3.** Identify the advantages and disadvantages of the incremental approach to budgeting.
- Q22-4.** Explain the minimum level approach to budgeting.
- Q22-5.** How does activity-based budgeting predict a cost objective's budget?
- Q22-6.** Explain the continuous improvement concept of budgeting.
- Q22-7.** Which budget brings together all other budgets? How is this accomplished?
- Q22-8.** What budgets are normally used to support the cash budget? What is the net result of cash budget preparations?
- Q22-9.** Define *budgeted financial statements*.
- Q22-10.** Identify the two budgets that are part of the master budget of a manufacturing organization but not part of the master budget of a merchandising organization.
- Q22-11.** Contrast the top-down and bottom-up approaches to budget preparation.
- Q22-12.** Is budgetary slack a desirable feature? Can it be prevented? Why or why not?
- Q22-13.** Why are annual budgets not always desirable? What are some alternative budget periods?
- Q22-14.** Explain how continuous budgeting works.

- Q22-15.** In addition to the sales forecast, what forecasts are used in budgeting?
- Q22-16.** Why should motivational considerations be a part of budget planning and utilization? List several ways to motivate employees with budgets.

Assignments with the  logo in the margin are available in **My Business Course**.  
See the Preface of the book for details.

## Mini Exercises

**LO2 M22-17. Output/Input Budget**

Vinyard Clinic has the following resource input information available for a routine physical examination.

- Each exam normally requires 1.25 hours of examining room time, including:
  - 45 minutes of nursing services,
  - 30 minutes of physician services
- Each exam also utilizes one package of examination supplies costing \$30 each.
- Including benefits, physicians earn \$75/hour and nurses earn \$32/hour.
- Variable overhead is budgeted at \$35 per examining room hour and fixed overhead is budgeted at \$6,000 per month.



**Required**

Prepare an output/input budget for October when 500 routine examinations are planned. Discuss some of the likely benefits to Vinyard Clinic of dedicating time to go through the budgeting process.

**LO2 M22-18. Incremental Budget**

Wood County uses an incremental approach to budgeting. The 2016 cash budget for the Wood County Department of Motor Vehicles is presented as follows:



Supplies.....	\$15,000
Temporary and seasonal wages.....	23,000
Wages of full-time employees.....	185,000
Supervisor salaries.....	47,000
Rent.....	39,000
Insurance.....	21,000
Utilities.....	23,000
Miscellaneous .....	11,000
Contingencies and equipment .....	35,000
<b>Total .....</b>	<b>\$399,000</b>

**Required**

Prepare an incremental cash budget for 2017, assuming the planned total budget increase is 2.5 percent. Budget details include a budget increment for salaries and wages of 4 percent, no change in rent, and 2 percent increases in the budget for supplies and miscellaneous. Utility companies have received approvals for rate increases amounting to 4 percent and insurance companies have announced an increase in premiums of 6 percent. (*Hint:* The Contingencies and equipment 2017 budget is a plug.)

**LO3 M22-19. Purchases Budget in Units and Dollars**

Budgeted sales of Wirtz Music Shop for the first six months of 2017 are as follows:



Month	Unit Sales	Month	Unit Sales
January.....	155,000	April.....	240,000
February .....	185,000	May .....	205,000
March.....	225,000	June.....	265,000

Beginning inventory for 2017 is 35,000 units. The budgeted inventory at the end of a month is 40 percent of units to be sold the following month. Purchase price per unit is \$5.

**Required**

Prepare a purchases budget in units and dollars for each month, January through May.

**M22-20. Cash Budget**

Patrick's Retail Company is planning a cash budget for the next three months. Estimated sales revenue is as follows:

Month	Sales Revenue	Month	Sales Revenue
January.....	\$350,000	March.....	\$250,000
February .....	300,000	April.....	200,000

**LO3**



All sales are on credit; 60 percent is collected during the month of sale, and 40 percent is collected during the next month. Cost of goods sold is 80 percent of sales. Payments for merchandise sold are made in the month following the month of sale. Operating expenses total \$52,000 per month and are paid during the month incurred. The cash balance on February 1 is estimated to be \$35,000.

**Required**

Prepare monthly cash budgets for February, March, and April.

**M22-21. Production and Purchases Budgets in Units**

At the end of business on June 30, 2017, the PE Rug Company had 150,000 square yards of rugs and 650,000 pounds of raw materials on hand. Budgeted sales for the third quarter of 2017 are:

Month	Sales
July.....	260,000 sq. yards
August .....	230,000 sq. yards
September .....	190,000 sq. yards
October .....	210,000 sq. yards

**LO4**



The PE Rug Company wants to have sufficient square yards of finished product on hand at the end of each month to meet 40 percent of the following month's budgeted sales and sufficient pounds of raw materials to meet 30 percent of the following month's production requirements. Five pounds of raw materials are required to produce one square yard of carpeting.

**Required**

Prepare a production budget for the months of July, August, and September and a purchases budget in units for the months of July and August.

**M22-22. Manufacturing Cost Budget**

Hubert Products produces a product with the following standard costs:

**LO4**

Unit costs:	
Direct materials:	
Wood: 11 square feet at \$25.....	\$275
Hardware kits (screws, etc).....	15
	\$ 290
Direct labor 0.5 hours at \$36 per hour.....	18
Variable overhead, per unit .....	10
Total variable costs per unit.....	\$ 318
Fixed costs per month (rent, utilities, supervision).....	\$75,000



Management plans to produce 9,000 units in April 2017.

**Required**

Prepare a manufacturing cost budget for April 2017.

## Exercises

### LO1, 2 E22-23. Activity-Based Budget

Highlands Industries has the following budget information available for February:

Units manufactured .....	30,000
Factory administration .....	\$65,000
Assembly.....	½ hour per unit × \$12
Direct materials.....	2 pounds per unit × \$4
Inspection .....	\$250 per batch of 1,000 units
Manufacturing overhead.....	\$5 per unit
Product development .....	\$20,000
Setup cost.....	\$15 per batch of 1,000 units



#### Required

- Use activity based costing to prepare a manufacturing cost budget for February. Clearly distinguish between unit, batch, and facility-level costs.
- The operating managers at Highland Industries are concerned that the budgeting process is too time-consuming and diverts attention from their current day-to-day responsibilities. Discuss the reasons that Highland should continue budgeting.

### LO2 E22-24. Product and Department Budgets Using Activity-Based Approach

The following data are from the general records of the Loading Department of Jonah Freight Company for November.



- Cleaning incoming trucks, 20 minutes.
- Obtaining and reviewing shipping documents for loading truck and instructing loaders, 30 minutes.
- Loading truck, 1 hour and 30 minutes.
- Cleaning shipping dock and storage area after each loading, 10 minutes.
- Employees perform both cleaning and loading tasks and are currently averaging \$22 per hour in wages and benefits.
- The supervisor spends 10 percent of her time overseeing the cleaning activities; 60 percent overseeing various loading activities; and the remainder of her time making general plans and managing the department. Her current salary is \$5,400 per month.
- Other overhead of the department amounts to \$10,800 per month, 20 percent for cleaning and 80 percent for loading.

#### Required

Prepare an activities budget for cleaning and loading in the Loading Department for November, assuming 20 working days and the loading of an average of 15 trucks per day.

### LO2 E22-25. Activity-Based Budgeting

St. Sophia's Hospital is preparing its budget for the coming year. It uses an activity-based approach for all costs except physician care. Its emergency room has three activity areas with cost drivers as follows:



- Reception—paperwork of incoming patients. Cost driver is the number of forms completed.
- Treatment—initial diagnosis and treatment of patients. Cost driver is the number of diagnoses treated.
- Cleaning—general cleaning plus preparing treatment facilities for next patient. Cost driver is the number of people visiting emergency room (patients plus person(s) accompanying them).

Activity Area	Cost Driver Rates	Budgeted Amount of Cost Driver	
		Outpatients	Admitted Patients
Reception .....	\$ 60	8,400 forms	6,500 forms
Treatment .....	120	8,000 diagnoses	5,400 diagnoses
Cleaning.....	21	7,400 people	3,400 people

#### Required

**Required**

- Prepare the total budgeted cost for each activity.
- How might you adjust the budget approach if you found that outpatients were kept in the emergency room for one hour on average while admitted patients remained for two hours?
- What advantage does an activity-based approach have over the hospital's former budgeting method of basing the next year's budget on the last year's actual amount plus a percentage increase?

**E22-26. Sales Budget**

Awesome T-Shirt Shop has very seasonal sales. For 2017, management is trying to decide whether to establish a sales budget based on average sales or on sales estimated by quarter. The unit sales for 2017 are expected to be 8 percent higher than 2016 sales. Unit shirt sales by quarter for 2016 were as follows:

	<b>Children's</b>	<b>Women's</b>	<b>Men's</b>	<b>Total</b>
Winter quarter .....	200	200	100	500
Spring quarter .....	200	250	200	650
Summer quarter .....	400	300	200	900
Fall quarter .....	200	250	100	550
<b>Total .....</b>	<b>1,000</b>	<b>1,000</b>	<b>600</b>	<b>2,600</b>

**LO3**

Children's T-shirts sell for \$8 each, women's sell for \$12, and men's sell for \$13.

**Required**

Assuming an 8 percent increase in sales, prepare a sales budget for each quarter of 2017 using the following:

- Average quarterly sales. (*Hint:* Winter quarter children's shirts are 270 [ $1,000 \times 1.08 \div 4$ ].)
- Actual quarterly sales. (*Hint:* Winter quarter children's shirts are 216 [ $200 \times 1.08$ ].)
- Suggest advantages of each method.

**E22-27. Cash Budget & Short-Term Financing**

Presented are partial October, November, and December cash budgets for Holiday Events:

**LO3**

<b>HOLIDAY EVENTS</b> <b>Partial Cash Budgets</b> <b>For the Months of October, November, and December</b>					
	<b>October</b>	<b>November</b>	<b>December</b>	<b>Total</b>	
Cash balance, beginning .....	\$23,000	\$ ?	\$ ?	\$ ?	\$ ?
Collections on sales.....	35,000	40,000	80,000		?
Cash available for operations .....	?	?	?	?	?
Disbursements for operations.....	(50,000)	(60,000)	(40,000)		?
Ending cash before borrowings or replacements.....	?	?	?	?	?
Short-term finance: .....	?	?	?	?	?
New loans.....	?	?	?	?	?
Repayments.....	?	?	?	?	?
Interest .....	?	?	?	?	?
Cash balance, ending .....	\$ ?	\$ ?	\$ ?	\$ ?	\$ ?

Loans are obtained in increments of \$1,000 at the start of each month to maintain a minimum end-of-month balance of \$12,000. Interest is one percent simple interest (no compounding) per month, payable when the loan is repaid. Repayments are made as soon as possible, subject to the minimum end-of-month balance.

**Required**

Complete the short-term financing section of the cash budget.

**E22-28. Purchases and Cash Budgets**

On July 1, MTC Wholesalers had a cash balance of \$175,000 and accounts payable of \$99,000. Actual sales for May and June, and budgeted sales for July, August, September, and October are:

**LO3**

Month	Actual Sales	Month	Budgeted Sales
May.....	\$150,000	July.....	\$ 90,000
June.....	160,000	August .....	80,000
		September .....	100,000
		October .....	120,000

All sales are on credit with 75 percent collected during the month of sale, 20 percent collected during the next month, and 5 percent collected during the second month following the month of sale. Cost of goods sold averages 70 percent of sales revenue. Ending inventory is one-half of the next month's predicted cost of sales. The other half of the merchandise is acquired during the month of sale. All purchases are paid for in the month after purchase. Operating costs are estimated at \$28,000 each month and are paid during the month incurred.

**Required**

Prepare purchases and cash budgets for July, August, and September.

**LO3 E22-29. Cash Receipts**

The sales budget for Andrew Inc. is forecasted as follows:

Month	Sales Revenue
May.....	\$170,000
June.....	210,000
July.....	230,000
August .....	170,000

To prepare a cash budget, the company must determine the budgeted cash collections from sales. Historically, the following trend has been established regarding cash collection of sales:

- 50 percent in the month of sale.
- 25 percent in the month following sale.
- 20 percent in the second month following sale.
- 5 percent uncollectible.

The company gives a 2 percent cash discount for payments made by customers during the month of sale. The accounts receivable balance on April 30 is \$34,000, of which \$10,000 represents uncollected March sales and \$24,000 represents uncollected April sales.

**Required**

Prepare a schedule of budgeted cash collections from sales for May, June, and July. Include a three-month summary of estimated cash collections.

**LO3 E22-30. Cash Disbursements**

Timber Company is in the process of preparing its budget for next year. Cost of goods sold has been estimated at 70 percent of sales. Lumber purchases and payments are to be made during the month preceding the month of sale. Wages are estimated at 15 percent of sales and are paid during the month of sale. Other operating costs amounting to 10 percent of sales are to be paid in the month following the month of sale. Additionally, a monthly lease payment of \$14,000 is paid for computer services. Sales revenue is forecast as follows:

Month	Sales Revenue
February .....	\$170,000
March.....	210,000
April.....	220,000
May.....	260,000
June.....	240,000
July.....	280,000

**Required**

Prepare a schedule of cash disbursements for April, May, and June.



**E22-31. Cash Disbursements****LO3**

Assume that Ringwood Manufacturing manages its cash flow from its home office. Ringwood controls cash disbursements by category and month. In setting its budget for the next six months, beginning in July, it used the following managerial guidelines:



Category	Guidelines
Purchases.....	Pay half in current and half in following month.
Payroll.....	Pay 70 percent in current month and 30 percent in following month.
Loan payments .....	Pay total amount due each month.

Predicted activity for selected months follow:

Category	May	June	July	August
Purchases.....	\$ 60,000	\$ 74,000	\$ 79,000	\$ 85,000
Payroll.....	130,000	140,000	150,000	130,000
Loan payments .....	40,000	40,000	45,000	45,000

**Required**

Prepare a schedule showing cash disbursements by account for July and August.

**E22-32. Budgeted Income Statement****LO3**

Quality Wool Company, a merchandising company, is developing its master budget for 2018. The income statement for 2017 is as follows:

QUALITY WOOL COMPANY Income Statement For Year Ending December 31, 2017	
Gross sales .....	\$1,000,000
Less estimated uncollectible accounts .....	(10,500)
Net sales .....	989,500
Cost of goods sold .....	(580,000)
Gross profit.....	409,500
Operating expenses (including \$35,000 depreciation) .....	(250,500)
Net income .....	<u><u>\$ 159,000</u></u>

The following are management's goals and forecasts for 2018:

1. Selling prices will increase by 6 percent, and sales volume will increase by 4 percent.
2. The cost of merchandise will increase by 3 percent.
3. All operating expenses are fixed and are paid in the month incurred. Price increases for operating expenses will be 10 percent. The company uses straight-line depreciation.
4. The estimated uncollectibles are 2 percent of budgeted sales.

**Required**

Prepare a budgeted functional income statement for 2018.

**E22-33. Budgeted Income Statement with CVP****LO3**

Madison Booksellers is planning a budget for 2018. The estimate of sales revenue is \$1,600,000 and of cost of goods sold is 70 percent of sales revenue. Depreciation on the office building and fixtures is budgeted at \$60,000. Salaries and wages are budgeted at \$100,000. Advertising has been budgeted at \$90,000, and utilities should amount to \$70,000. Income tax is estimated at 40 percent of operating income.

**Required**

- a. Prepare a budgeted income statement for 2018.
- b. Assuming management desired an after-tax income of \$105,000, determine the necessary sales volume.

**LO4 E22-34. Production and Purchases Budgets**

At the beginning of October, Comfy Cushions had 1,600 cushions and 10,500 pounds of raw materials on hand. Budgeted sales for the next three months are:



Month	Sales
October .....	8,000 cushions
November .....	10,000 cushions
December .....	13,000 cushions

Comfy Cushions wants to have sufficient raw materials on hand at the end of each month to meet 25 percent of the following month's production requirements and sufficient cushions on hand at the end of each month to meet 20 percent of the following month's budgeted sales. Five pounds of raw materials, at a standard cost of \$0.90 per pound, are required to produce each cushion.

**Required**

- Prepare a production budget for October and November.
- Prepare a purchases budget in units and dollars for October.

**LO4 E22-35. Production and Purchases Budgets**

Drainage Solutions Culverts produces small culverts for water drainage under two-lane dirt roads. Budgeted unit sales for the next several months are:



Month	Sales
September .....	2,300
October .....	1,800
November .....	1,100
December .....	800

At the beginning of September, 575 units of finished goods were in inventory. During the final third of the year, as road construction declines, plans are to have an inventory of finished goods equal to 25 percent of the following month's sales. Each unit of finished goods requires 600 pounds of raw materials at a cost of \$5 per pound. Management wishes to maintain month-end inventories of raw materials equal to 50 percent of the following month's needs. Five hundred thousand pounds of raw materials were on hand at the start of September.

**Required**

- Prepare a production budget for September, October, and November.
- Prepare a purchases budget in units and dollars for September and October.

## Problems

**LO3 P22-36. Cash Budget**

Cash budgeting for Nichole Mango, a merchandising firm, is performed on a quarterly basis. The company is planning its cash needs for the third quarter of 2017, and the following information is available to assist in preparing a cash budget. Budgeted income statements for July through October 2017 are as follows:

	July	August	September	October
Sales.....	\$22,000	\$28,000	\$32,000	\$40,000
Cost of goods sold .....	(11,000)	(15,000)	(17,000)	(21,000)
Gross profit.....	11,000	13,000	15,000	19,000
Less other expenses				
Selling .....	3,300	4,000	4,400	5,200
Administrative .....	3,600	5,000	4,200	4,600
Total .....	(6,900)	(9,000)	(8,600)	(9,800)
Net income.....	\$ 4,100	\$ 4,000	\$ 6,400	\$ 9,200

Additional information follows:

1. Other expenses, which are paid monthly, include \$2,000 of depreciation per month.
2. Sales are 40 percent for cash and 60 percent on credit.
3. Credit sales are collected 25 percent in the month of sale, 65 percent one month after sale, and 10 percent two months after sale. May sales were \$16,000, and June sales were \$17,000.
4. Merchandise is paid for 50 percent in the month of purchase; the remaining 50 percent is paid in the following month. Accounts payable for merchandise at June 30 totaled \$7,000.
5. The company maintains its ending inventory levels at 20 percent of the cost of goods to be sold in the following month. The inventory at June 30 is \$2,200.
6. An equipment note of \$6,000 per month is being paid through August.
7. The company must maintain a cash balance of at least \$6,000 at the end of each month. The cash balance on June 30 is \$6,100.
8. The company can borrow from its bank as needed. Borrowings and repayments must be in multiples of \$100. All borrowings take place at the beginning of a month, and all repayments are made at the end of a month. When the principal is repaid, interest on the repayment is also paid. The interest rate is 12 percent per year.

**Required**

- a. Prepare a monthly schedule of budgeted operating cash receipts for July, August, and September.
- b. Prepare a monthly purchases budget and a schedule of budgeted cash payments for purchases for July, August, and September.
- c. Prepare a monthly cash budget for July, August, and September. Show borrowings from the company's bank and repayments to the bank as needed to maintain the minimum cash balance.

**P22-37. Cash Budget**

**LO3**

The Williams Supply Company sells for \$40 one product that it purchases for \$25. Budgeted sales in total dollars for the year are \$1,400,000. The sales information needed for preparing the July budget follows:

Month	Sales Revenue
May .....	\$34,000
June .....	48,000
July .....	56,000
August .....	64,000



Account balances at July 1 include these:

Cash .....	\$24,000
Merchandise inventory .....	17,500
Accounts receivable (sales).....	25,760
Accounts payable (purchases).....	16,250

The company pays for one-half of its purchases in the month of purchase and the remainder in the following month. End-of-month inventory must be 50 percent of the budgeted sales in units for the next month. A 2 percent cash discount on sales is allowed if payment is made during the month of sale. Experience indicates that 50 percent of the billings will be collected during the month of sale, 40 percent in the following month, 8 percent in the second following month, and 2 percent will be uncollectible. Total budgeted selling and administrative expenses (excluding bad debts) for the fiscal year are estimated at \$210,000, of which one-half is fixed expense (inclusive of a \$21,000 annual depreciation charge). Fixed expenses are incurred evenly during the year. The other selling and administrative expenses vary with sales. Expenses are paid during the month incurred.

**Required**

- a. Prepare a schedule of estimated cash collections for July.
- b. Prepare a schedule of estimated July cash payments for purchases.
- c. Prepare schedules of July selling and administrative expenses, separately identifying those requiring cash disbursements.
- d. Prepare a cash budget in summary form for July.

**LO3 P22-38. Budgeting Purchases, Revenues, Expenses, and Cash in a Service Organization**

Wauconda Medical Center is located in a summer resort community. During the summer months the center operates an outpatient clinic for the treatment of minor injuries and illnesses. The clinic is administered as a separate department within the hospital. It has its own staff and maintains its own financial records. All patients requiring extensive or intensive care are referred to other hospital departments.

An analysis of past operating data for the out-patient clinic reveals the following:

- Staff: Seven full-time employees with total monthly salaries of \$56,000. On a monthly basis, one additional staff member is hired for every 500 budgeted patient visits in excess of 3,000, at a cost of \$5,000 per month.
- Facilities: Monthly facility costs, including depreciation of \$3,000, total \$10,000.
- Supplies: The supplies expense averages \$12 per patient visit. The center maintains an end-of-month supplies inventory equal to ten percent of the predicted needs of the following month, with a minimum ending inventory of \$3,000, which is also the desired inventory at the end of August.
- Additional variable patient costs, such as medications, are charged directly to the patient by the hospital pharmacy.
- Payments: All staff and maintenance expenses are paid in the month the cost is incurred. Supplies are purchased at cost directly from the hospital with an immediate transfer of cash from the clinic cash account to the hospital cash account.
- Collections: The average bill for services rendered is \$80. Of the total bills, 40 percent are paid in cash at the time the service is rendered, 10 percent are never paid, and the remaining 50 percent are covered by insurance. In the past, insurance companies have disallowed 20 percent of the claims filed and paid the balance two months after services are rendered.
- May 30 status: At the end of May, the clinic had \$14,000 in cash and supplies costing \$4,000.

Budgeted patient visits for next summer are as follows:

Month	Patient visits
June.....	2,500
July.....	3,500
August .....	4,000

**Required**

For the Wauconda Outpatient Clinic:

- a. Prepare a supplies purchases budget for June, July, and August, with a total column.
- b. Prepare a revenue and expense budget for June, July, and August with a total column.
- c. Prepare a cash budget for June, July and August with a total column. (*Hint:* See requirement d.)
- d. Explain why you were unable to develop a feasible cash budget and make any appropriate recommendations for management's consideration.

**LO3 P22-39. Developing a Master Budget for a Merchandising Organization**

Dils Brothers Department Store prepares budgets quarterly. The following information is available for use in planning the second quarter budgets for 2017.

DILS BROTHERS DEPARTMENT STORE			
Balance Sheet			
March 31, 2017			
Assets		Liabilities and Stockholders' Equity	
Cash .....	\$ 4,000	Accounts payable .....	\$31,000
Accounts receivable.....	31,000	Dividends payable .....	15,000
Inventory .....	36,000	Rent payable.....	3,000
Prepaid insurance.....	3,000	Stockholders' equity .....	<u>50,000</u>
Fixtures .....	<u>25,000</u>		
Total assets.....	<u>\$99,000</u>	Total liabilities and equity.....	<u>\$99,000</u>

Actual and forecasted sales for selected months in 2017 are as follows:

Month	Sales Revenue
January.....	\$70,000
February .....	60,000
March.....	50,000
April.....	60,000
May.....	70,000
June.....	80,000
July.....	100,000
August .....	90,000

Monthly operating expenses are as follows:

Wages and salaries .....	\$27,000
Depreciation.....	100
Utilities.....	1,500
Rent.....	3,000

Cash dividends of \$15,000 are declared during the third month of each quarter and are paid during the first month of the following quarter. Operating expenses, except insurance, rent, and depreciation are paid as incurred. Rent is paid during the following month. The prepaid insurance is for five more months. Cost of goods sold is equal to 50 percent of sales. Ending inventories are sufficient for 120 percent of the next month's cost of sales. Purchases during any given month are paid in full during the following month. All sales are on account, with 50 percent collected during the month of sale, 40 percent during the next month, and 10 percent during the month thereafter. Money can be borrowed and repaid in multiples of \$1,000 at an interest rate of 12 percent per year. The company desires a minimum cash balance of \$4,000 on the first of each month. At the time the principal is repaid, interest is paid on the portion of principal that is repaid. All borrowing is at the beginning of the month, and all repayment is at the end of the month. Money is never repaid at the end of the month it is borrowed.

**Required**

- Prepare a purchases budget for each month of the second quarter ending June 30, 2017.
- Prepare a cash receipts schedule for each month of the second quarter ending June 30, 2017. Do not include borrowings.
- Prepare a cash disbursements schedule for each month of the second quarter ending June 30, 2017. Do not include repayments of borrowings.
- Prepare a cash budget for each month of the second quarter ending June 30, 2017. Include budgeted borrowings and repayments.
- Prepare an income statement for each month of the second quarter ending June 30, 2017.
- Prepare a budgeted balance sheet as of June 30, 2017.

**P22-40. Developing a Master Budget for a Manufacturing Organization**

**LO4**

Cubs Incorporated manufactures a product with a selling price of \$60 per unit. Units and monthly cost data follow:

<b>Variable:</b>	
Selling and administrative.....	\$ 5 per unit sold
Direct materials.....	12 per unit manufactured
Direct labor.....	12 per unit manufactured
Variable manufacturing overhead.....	6 per unit manufactured
<b>Fixed:</b>	
Selling and administrative.....	\$17,000 per month
Manufacturing (including depreciation of \$11,000).....	34,000 per month



Cubs Inc. pays all bills in the month incurred. All sales are on account with 50 percent collected the month of sale and the balance collected the following month. There are no sales discounts or bad debts.

Cubs Inc. desires to maintain an ending finished goods inventory equal to 20 percent of the following month's sales and a raw materials inventory equal to 10 percent of the following month's production. January 1, 2017, inventories are in line with these policies.

Actual unit sales for December and budgeted unit sales for January, February, and March of 2017 are as follows:

CUBS INCORPORATED Sales Budget For the Months of January, February, and March 2017				
Month	December	January	February	March
Sales—Units.....	11,250	10,000	15,000	13,000
Sales—Dollars.....	\$675,000	\$600,000	\$900,000	\$780,000

Additional information:

- The January 1 beginning cash is projected as \$6,000.
- For the purpose of operational budgeting, units in the January 1 inventory of finished goods are valued at variable manufacturing cost.
- Each unit of finished product requires one unit of raw materials.
- Cubs Inc. intends to pay a cash dividend of \$12,000 in January

**Required**

- a. A production budget for January and February.
- b. A purchases budget in units for January.
- c. A manufacturing cost budget for January.
- d. A cash budget for January.
- e. A budgeted contribution income statement for January.

**LO4 P22-41. Risk Management in a Manufacturing Organization**

**Required**

Continuing problem P22-40, management is concerned that their supplier of raw materials will have a strike. Determine the budget implications if management plans to increase the January-end raw materials inventory to 130 percent of February's production needs. Offer any recommendations you believe appropriate.

**LO4 P22-42. Developing a Master Budget for a Manufacturing Organization: Challenge Problem**

Electric Monkey Computer Accessories assembles a computer networking device from kits of imported components. You have been asked to develop a quarterly and annual operating budget and pro-forma income statements for 2017. You have obtained the following information:

Beginning-of-year balances			
Cash.....		\$50,000.00	
Accounts receivable (previous quarter's sales).....		\$61,200	
Raw materials .....		653 kits	
Finished goods .....		510 units	
Accounts payable.....		\$33,255.00	
Borrowed funds.....		\$20,000.00	
Desired end-of-year inventory balances			
Raw materials .....		500 kits	
Finished goods .....		270 units	
Desired end-of-quarter balances			
Cash.....		\$20,000.00	
Raw materials as a portion of the following quarter's production .....		0.2	
Finished goods as a portion of the following quarter's sales.....		0.15	
Manufacturing costs			
Standard cost per unit	Units	Unit price	Total
Raw materials .....	1 kit	\$50.00	\$50.00
Direct labor hours at rate.....	0.8 hour	\$25.00	20.00
Variable overhead/labor hour.....	0.8 hour	\$10.00	8.00
Total standard variable cost .....			\$78.00

*continued*

Fixed cost per quarter				
Cash.....	\$50,000.00			
Depreciation .....	10,000.00			
Total .....	<u>\$60,000.00</u>			
Selling and administrative costs				
Variable cost per unit.....	\$6.00			
Fixed costs per quarter				
Cash.....	\$25,000.00			
Depreciation .....	5,000.00			
Total .....	<u>\$30,000.00</u>			
Interest rate per quarter .....	0.04			
Portion of sales collected				
Quarter of sale.....	0.75			
Subsequent quarter.....	0.24			
Bad debts .....	0.01			
Portion of purchases paid				
Quarter of purchase.....	0.70			
Subsequent quarter.....	0.30			
Unit selling price.....	<u>\$150.00</u>			
Sales forecast				
Quarter .....	First	Second	Third	Fourth
Unit sales .....	3,400	2,500	3,000	4,100

#### Additional information

- All cash payments except purchases are made quarterly as incurred.
- All borrowings occur at the start of a quarter.
- All repayments on borrowings occur at the end of a quarter.
- At the time the principal is repaid, interest is paid on the portion of principal that is repaid.
- Borrowings and repayments may be made in any amount.

#### Required

- a. A sales budget for each quarter and the year. (*Hint:* Use of spreadsheet software strongly recommended for this problem.)
- b. A production budget for each quarter and the year.
- c. A purchases budget for each quarter and the year.
- d. A manufacturing cost budget for each quarter and the year.
- e. A selling and administrative expense budget for each quarter and the year.
- f. A cash budget for each quarter and the year.
- g. A pro-forma contribution income statement for each quarter and the year.

## Management Applications

### MA22-43. Behavioral Implications of Budgeting

LO5

Cindy Jones, controller of Systematic Designs, believes that effective budgeting greatly assists in meeting the organization's goals and objectives. She argues that the budget serves as a blueprint for the operating activities during each reporting period, making it an important control device. She believes that sound management evaluations can be based on the comparisons of performance and budgetary schedules and that employees respond more favorably when they participate in the budgetary process. Kevin Dobbs, treasurer of Systematic Designs, agrees that budgeting is essential for overall organization success, but he argues that human resources are too valuable to spend much time planning and preparing the budgetary process. He thinks that the roles people play in budgetary preparation are not important in the final analysis of a budget's effectiveness.

#### Required

Contrast the participative versus imposed budgeting concepts and indicate how the ideas of Jones and Dobbs fit the two categories.

**LO5 MA22-44. Behavioral Considerations and Budgeting**

Anthony Wagner, the controller in the Division of Transportation for the state, recognizes the importance of the budgetary process for planning, control, and motivation purposes. He believes that a properly implemented participative budgeting process for planning purposes and a management by exception reporting procedure based on that budget will motivate his subordinates to improve productivity within their particular departments. Based on this philosophy, Wagner has implemented the following budget procedures.

- An appropriation target figure is given to each department manager. This amount is the maximum funding that each department can expect to receive in the next fiscal year.
- Department managers develop their individual budgets within the following spending constraints as directed by the controller's staff.
  1. Expenditure requests cannot exceed the appropriation target.
  2. All fixed expenditures should be included in the budget; these should include items such as contracts and salaries at current levels.
  3. All government projects directed by higher authority should be included in the budget in their entirety.
- The controller consolidates the departmental budget requests from the various departments into one budget that is to be submitted for the entire division.
- Upon final budget approval by the legislature, the controller's staff allocates the appropriation to the various departments on instructions from the division manager. However, a specified percentage of each department's appropriation is held back in anticipation of potential budget cuts and special funding needs. The amount and use of this contingency fund are left to the discretion of the division manager.
- Each department is allowed to adjust its budget when necessary to operate within the reduced appropriation level. However, as stated in the original directive, specific projects authorized by higher authority must remain intact.
- The final budget is used as the basis of control for a management by exception form of reporting. Excessive expenditures by account for each department are highlighted on a monthly basis. Department managers are expected to account for all expenditures over budget. Fiscal responsibility is an important factor in the overall performance evaluation of department managers.

Wagner believes that his policy of allowing the department managers to participate in the budget process and then holding them accountable for their performance is essential, especially during these times of limited resources. He also believes that department managers will be positively motivated to increase the efficiency and effectiveness of their departments because they have provided input into the initial budgetary process and are required to justify any unfavorable performances.

**Required**

- a. Explain the operational and behavioral benefits that generally are attributed to a participative budgeting process.
- b. Identify deficiencies in Wagner's participative budgetary policy for planning and performance evaluation purposes. For each deficiency identified, recommend how the deficiency can be corrected.

(CMA Adapted)

**LO5 MA22-45. Budgetary Slack with Ethical Considerations**

Karen Bailey was promoted to department manager of a production unit in Parkway Industries three years ago. She enjoys her job except for the evaluation measures that are based on the department's budget. After three years of consistently poor annual evaluations based on a set annual budget, she has decided to improve the evaluation situation. At a recent budget meeting of junior-level managers, the topic of budgetary slack was discussed as a means to maintain some consistency in budgeting matters. As a result of this meeting, Bailey decided to take the following steps in preparing the upcoming year's budget:

1. Use the top quartile for all wage and salary categories.
2. Select the optimistic values for the estimated production ranges for the coming year. These are provided by the marketing department.
3. Use the average of the three months in the current year with poorest production efficiency as benchmarks of success for the coming year.

4. Base equipment charges (primarily depreciation) on replacement values furnished by the purchasing department.
5. Base other fixed costs on current cost plus an inflation rate estimated for the coming year.
6. Use the average of the ten newly hired employees' performance as a basis of labor efficiency for the coming year.

**Required**

- a. For each item on Bailey's list, explain whether it will create budgetary slack. Use numerical examples as necessary to illustrate.
- b. Given the company's use of static budgets as one of the performance evaluation measures of its managers, can the managers justify the use of built-in budgetary slack?
- c. What would you recommend as a means for Bailey to improve the budgeting situation in the company? Provide some specific examples of how the budgeting process might be improved.

**MA22-46. Budgetary Slack with Ethical Considerations**

**LO5**

Norton Company, a manufacturer of infant furniture and carriages, is in the initial stages of preparing the annual budget for next year. Scott Ford recently joined Norton's accounting staff and is interested to learn as much as possible about the company's budgeting process. During a recent lunch with Marge Atkins, sales manager, and Pete Granger, production manager, Ford initiated the following conversation:

Ford: Since I'm new around here and am going to be involved with the preparation of the annual budget, I'd be interested to learn how the two of you estimate sales and production numbers.

Atkins: We start out very methodically by looking at recent history, discussing what we know about current accounts, potential customers, and the general state of consumer spending. Then we add that usual dose of intuition to come up with the best forecast we can.

Granger: I usually take the sales projections as the basis for my projections. Of course, we have to make an estimate of what this year's closing inventories will be, which is sometimes difficult.

Ford: Why does that present a problem? There must have been an estimate of closing inventories in the budget for the current year.

Granger: Those numbers aren't always reliable since Marge makes some adjustments to the sales numbers before passing them on to me.

Ford: What kind of adjustments?

Atkins: Well, we don't want to fall short of the sales projections, so we generally give ourselves a little breathing room by lowering the initial sales projection anywhere from 5 to 10 percent.

Granger: So, you can see why this year's budget is not a very reliable starting point. We always have to adjust the projected production rates as the year progresses; of course, this changes the ending inventory estimates. By the way, we make similar adjustments to expenses by adding at least 10 percent to the estimates; I think everyone around here does the same thing.

**Required**

- a. Marge Atkins and Pete Granger have described the use of budgetary slack.
  1. Explain why Atkins and Granger behave in this manner, and describe the benefits they expect to realize from the use of budgetary slack.
  2. Explain how the use of budgetary slack can adversely affect Atkins and Granger.
- b. As a management accountant, Scott Ford believes that the behavior described by Marge Atkins and Pete Granger could be unethical and that he might have an obligation not to support this behavior. Explain why the use of budgetary slack could be unethical.

(CMA Adapted)

## Solutions to Review Problems

**Review 22-1—Solution**

Operating managers frequently regard budgeting as a time-consuming task that diverts attention from current problems. The development of a budget can be difficult and time-consuming, although it is a necessary process. Organizations that plan will have a focus and their work and tasks will better support the organization's goals and objectives. Without a plan, although managers and employees might be busy, they may not be working on tasks that move their companies forward in a thoughtful way. The plan will allow them to more efficiently focus efforts on tasks that are productive toward the organization's goals. Generally, the budgeting process will: compel planning; promote communication and coordination; provide a guide to action and a basis of evaluation; and act as an aid in risk management.

### Review 22-2—Solution

- a. Under the output/input approach, the output of units dictates the expected cost inputs. Here budgeted overhead costs are based on the number of budgeted assembly hours.

	Regular	Extra Strength
Direct materials ( $20,000 \times \$20$ ).....	\$400,000	
( $50,000 \times \$14.50$ ).....		\$ 725,000
Direct assembly labor ( $20,000 \times 0.5 \times \$18$ ).....	180,000	
( $50,000 \times 0.8 \times \$18$ ).....		720,000
Overhead ( $20,000 \times 0.5 \times \$8.17$ ).....	81,700	
( $50,000 \times 0.8 \times \$8.17$ ).....		326,800
Total budgeted cost .....	<u><u>\$661,700</u></u>	<u><u>\$1,771,800</u></u>
Unit Cost .....	<u><u>\$33.085</u></u>	<u><u>\$35.436</u></u>

- b. Under the activity-based approach, budgeted overhead costs are based on expected activities to produce the products, not only on assembly hours.

Direct materials ( $20,000 \times \$20$ ).....	\$400,000	
( $50,000 \times \$14.50$ ).....		\$ 725,000
Direct assembly labor ( $20,000 \times 0.5 \times \$18$ ).....	180,000	
( $50,000 \times 0.8 \times \$18$ ).....		720,000
Setup (1,000 hours $\times \$25$ ).....	25,000	
( $1,500 \times \$25$ ).....		37,500
Engineering and Maintenance (500 hours $\times \$35$ ).....	17,500	
( $600 \times \$35$ ).....		21,000
Inspections (650 inspections $\times \$250$ ).....	162,500	
( $580 \times \$250$ ).....		145,000
Total budgeted cost .....	<u><u>\$785,000</u></u>	<u><u>\$1,648,500</u></u>
Unit cost .....	<u><u>\$39.25</u></u>	<u><u>\$32.97</u></u>

- c. Under the incremental approach to budgeting, the cost per unit would be budgeted at last period's cost, plus an increment for expected additional costs in the current period. Based on last period's actual cost of \$38 for Regular and \$32 for Extra Strength, and using the 3.5 percent overall expected increase in costs, the current period's budgeted cost would be \$39.33 for Regular and \$33.12 for Extra Strength.
- d. Under the minimum level approach, the company begins with either a zero or very low cost estimate, and then requires all additional costs beyond this minimum to be justified by the production managers. This approach forces managers to evaluate thoroughly all elements of cost each period.

### Review 22-3—Solution

a.

<b>BLEU MONT DAIRY</b> <b>Sales Budget</b> <b>For Month of April 2017</b>			
	Units	Price	Sales
Cheese.....	160,000	\$10	\$1,600,000
Ice cream.....	240,000	5	1,200,000
Total .....			<u><u>\$2,800,000</u></u>

b.

	Cheese	Ice Cream	Total
<b>Units</b>			
Sales needs .....	160,000	240,000	
Desired ending inventory.....	12,000	5,000	
<b>Total</b> .....	<b>172,000</b>	<b>245,000</b>	
Less beginning inventory.....	(10,000)	(4,000)	
<b>Purchases</b> .....	<b>162,000</b>	<b>241,000</b>	
<b>Dollars</b>			
Sales needs .....	\$1,280,000	\$480,000	
Desired ending inventory.....	96,000	10,000	
<b>Total</b> .....	<b>1,376,000</b>	<b>490,000</b>	
Less beginning inventory.....	(80,000)	(8,000)	
<b>Purchases needed</b> .....	<b>\$1,296,000</b>	<b>\$482,000</b>	<b>\$1,778,000</b>

c.

Cash balance, beginning .....			\$ 400,000
Collections on sales			
Current month's sales (\$2,800,000 × 0.70) .....	\$1,960,000		
Previous month's sales (\$3,000,000 × 0.29) .....	870,000		2,830,000
Cash available from operations .....			3,230,000
Less budgeted disbursements			
March purchases (\$1,800,000 × 0.40) .....	720,000		
April purchases (\$1,778,000 × 0.60) .....	1,066,800		
Wages and salaries .....	156,000		
Overhead (March) .....	80,000		
Selling and administrative (\$450,000 – \$40,000 depreciation) ....	410,000		(2,432,800)
Cash balance, ending .....			\$ 797,200

d.

Sales (sales budget) .....			\$2,800,000
Allowance for bad debts.....			(28,000)
<b>Net sales</b> .....			<b>2,772,000</b>
Costs of merchandise sold			
Cheese (160,000 × \$8).....	\$1,280,000		
Ice cream (240,000 × \$2).....	480,000		\$1,760,000
Wages and salaries .....	156,000		
Overhead.....	80,000		
Selling and administrative .....	450,000		686,000
<b>Net income</b> .....			<b>\$ 326,000</b>

**Review 22-4—Solution**

a.

<b>DEWALT Sales Budget For First Quarter of 2017</b>			
	<b>Units</b>	<b>Price</b>	<b>Sales</b>
Drills .....	60,000	\$100	\$ 6,000,000
Saws.....	40,000	125	5,000,000
Total .....			<u><u>\$11,000,000</u></u>

b.

<b>DEWALT Production Budget For First Quarter of 2017</b>			
	<b>Drills</b>	<b>Saws</b>	
Budget sales.....	60,000	40,000	
Plus desired ending inventory.....	25,000	10,000	
Total inventory requirements.....	85,000	50,000	
Less beginning inventory.....	(20,000)	(8,000)	
Budgeted production.....	<u><u>65,000</u></u>	<u><u>42,000</u></u>	

c.

<b>DEWALT Purchases Budget For First Quarter of 2017</b>			
	<b>Drills</b>	<b>Saws</b>	<b>Total</b>
Metal purchases			
Production units (production budget) .....	65,000	42,000	
Metal (pounds).....	<u>× 5</u>	<u>× 4</u>	
Production needs (pounds).....	<u>325,000</u>	<u>168,000</u>	493,000
Desired ending inventory (pounds) .....			36,000
Total metal needs (pounds).....			529,000
Less beginning inventory (pounds) .....			(32,000)
Purchases needed (pounds).....			497,000
Cost per pound .....			<u>× \$8</u>
Total metal purchases.....			<u><u>\$3,976,000</u></u>
Plastic purchases			
Production units (production budget) .....	65,000	42,000	107,000
Plastic (pounds) .....			<u>× 3</u>
Production needs (pounds).....			321,000
Desired ending inventory (pounds) .....			32,000
Total plastic needs (pounds).....			353,000
Less beginning inventory (pounds) .....			(29,000)
Purchases needed (pounds).....			324,000
Cost per pound .....			<u>× \$5</u>
Total plastic purchases.....			<u><u>\$1,620,000</u></u>
Handle purchases			
Production units (production budget) .....	65,000		65,000

*continued*

**DEWALT**  
**Purchases Budget**  
**For First Quarter of 2017**

	Drills	Saws	Total
Handles.....			X 1
Production needs.....			65,000
Desired ending inventory.....			7,000
Total handle needs.....			72,000
Less beginning inventory.....			(6,000)
Purchases needed.....			66,000
Cost per handle.....			X \$3
Total handle purchases.....			<u><u>\$198,000</u></u>
 Total purchases			
Metal .....			\$3,976,000
Plastic.....			1,620,000
Handles.....			198,000
Total purchases.....			<u><u>\$5,794,000</u></u>

d.

**DEWALT**  
**Manufacturing Cost Budget**  
**For First Quarter of 2017**

	Drills	Saws	Total
<b>Direct materials</b>			
Metal			
Production units (production budget).....	65,000	42,000	
Metal per unit of product (pounds).....	X 5	X 4	
Production needs for metal (pounds) .....	325,000	168,000	
Unit cost.....	X \$8	X \$8	
Cost of metal issued to production.....	<u><u>\$2,600,000</u></u>	<u><u>\$1,344,000</u></u>	\$3,944,000
Plastic			
Production units (production budget).....	65,000	42,000	
Plastic (pounds) .....	X 3	X 3	
Production needs for plastic (pounds).....	195,000	126,000	
Unit cost.....	X \$5	X \$5	
Cost of plastic issued to production .....	<u><u>\$ 975,000</u></u>	<u><u>\$ 630,000</u></u>	1,605,000
Handles			
Production units (production budget).....	65,000		
Handles.....	X 1		
Production needs for handles.....	65,000		
Unit cost .....	X \$3		
Cost of handles issued to production.....	<u><u>\$ 195,000</u></u>		195,000
Total .....			5,744,000
<b>Direct labor</b>			
Budgeted production .....	65,000	42,000	
Direct labor hours per unit.....	X 2	X 3	

*continued*

	Drills	Saws	Total
Total direct labor hours.....	130,000	126,000	
Labor rate.....	× \$12	× \$16	
Labor expenditures .....	<u><u>\$1,560,000</u></u>	<u><u>\$2,016,000</u></u>	3,576,000
Variable manufacturing overhead			
Direct labor hours.....	130,000	126,000	
Variable manufacturing overhead rate.....	× \$1.50	× \$1.50	
Total variable overhead.....	<u><u>\$ 195,000</u></u>	<u><u>\$ 189,000</u></u>	384,000
Fixed manufacturing overhead.....			214,000
Total .....			<u><u>\$9,918,000</u></u>

e.

	DEWALT Cash Budget For First Quarter of 2017
Cash balance, beginning .....	\$ 1,800,000
Collections on sales	
Current quarter's sales ( $\$11,000,000 \times 0.50$ ) .....	\$5,500,000
Previous quarter's sales ( $\$8,400,000 \times 0.50$ ).....	4,200,000
	9,700,000
Cash available from operations .....	11,500,000
Less budgeted disbursements	
Materials (purchases budget).....	5,794,000
Labor (manufacturing cost budget).....	3,576,000
Manufacturing overhead (manufacturing cost budget) ([ $\$384,000 + 214,000$ ] – 156,000 noncash).....	442,000
Selling and administrative ( $\$340,000 - \$90,000$ depreciation) .....	250,000
	(10,062,000)
Cash balance, ending .....	<u><u>\$ 1,438,000</u></u>

f.

	DEWALT Contribution Income Statement For First Quarter of 2017
Sales (sales budget) .....	\$11,000,000
Less variable costs of goods sold	
Drills ( $60,000 \times \$85.00$ ) .....	\$5,100,000
Saws ( $40,000 \times \$99.50$ ).....	3,980,000
	(9,080,000)
Gross profit.....	1,920,000
Less fixed costs	
Manufacturing overhead .....	214,000
Selling and administrative expenses .....	340,000
	(554,000)
Net income.....	<u><u>\$ 1,366,000</u></u>

**Review 22-5—Solution**

- 2 a. The marketing department is asked to provide an estimate as to how much it will spend on print ads during the next fiscal year.
- 1 b. The marketing department provides a budget amount for print ads for the next fiscal year that includes the expected expenditures plus 10% to account for uncertainty.
- 4 c. Tristan Renken owns and operates a food truck that sells Mexican food along the beaches in Chicago. Tristan only operates the food truck during the summer and developed a budget to estimate how much he will make during the upcoming summer season.
- 3 d. Top management hosts semi-annual meetings to discuss the budget and current performance vs. the budget. Management provides employees with tools to help gauge their own performance against the budgeted expectations.