

# Chapter 7

## Operating Budgets: Bridging Planning and Control

AMARILLO TOYS IS A MEDIUM-SIZED company earning revenues of \$29 million during the most recent year. Since its inception, Amarillo Toys has manufactured and marketed the same two products: BuildIT and BuildIT-PLUS building block sets. The BuildIT set is affordable but somewhat plain. While the BuildIT-PLUS set is more attractive and has more features, it also is more expensive.

During the first few years of operations, Amanda Barsky, Amarillo's founder, personally managed all aspects of the business. However, as the company grew, the volume of work overwhelmed her. Currently, Amarillo has two separate product divisions, one for BuildIT and one for BuildIT-PLUS, each with its own product manager. Within each division, individual managers oversee the marketing, production, and purchasing functions. Amanda allows her managers considerable latitude in decision making because she believes this is the best way to run a company of Amarillo's size.

### APPLYING THE DECISION FRAMEWORK

<b>What Is the Problem?</b>	Over the coming year, what actions should Amarillo take to maximize profit?
<b>What Are the Options?</b>	Amarillo could follow many paths. We can view each path, and the accompanying set of decisions by Amarillo's employees, as a decision option.
<b>What Are the Costs and Benefits?</b>	Each set of possible decisions imposes different requirements on Amarillo's employees and resources. We can evaluate the profit effect of these decisions using budgeting.
<b>Make the Decision!</b>	By providing a detailed financial model, a budget allows us to consider the costs and benefits of various options and choose the best one.

Amanda attributes much of Amarillo's success to careful planning. She emphasizes the budgeting process and involves all of her key employees in drafting budgets. Once the budgets are set, she holds everybody accountable for achieving them.



Laurie and Charles/Getty Images

*Amanda Barsky of Amarillo Toys relies on detailed budgets to guide her operations.*

## LEARNING OBJECTIVES

*After studying this chapter, you will be able to:*

- 1 Understand the roles budgets serve in organizations.
- 2 Link individual budgets together to form an organization-wide plan.
- 3 Construct a cash budget and understand cash management.
- 4 Describe factors that affect the budgeting process.

As you learned in Chapters 5 and 6, organizations make short-term decisions to maximize the value derived from available capacity resources. These decisions affect activities throughout the firm. For example, offering a price discount increases sales and influences operations in the production, scheduling, and purchasing departments. Budgeting is a vehicle that many firms use to consolidate and coordinate such decisions. Budgets allow organizations to examine the collective impact of localized decisions by showing their overall effect on firm resources and profit.

We begin this chapter by discussing the three primary roles of budgets—*planning, coordination, and control*. We next turn our attention to the process of preparing a budget. We describe the components of a typical budget and illustrate them in the context of Amarillo Toys, underscoring the planning and coordination roles. As you will learn, the use of budget targets as benchmarks for performance, or the control role for budgets, also



## CHAPTER CONNECTIONS

*In Chapter 8, we focus on the control role for budgets by performing variance analysis, a technique used to determine the causes for deviations between budgeted and actual results.*

affects the budgeting process. Accordingly, we consider how organization structure, management style, and reliance on past performance influence budgeting.

## What Is a Budget?

### LEARNING OBJECTIVE 1

Understand the roles budgets serve in organizations.

A **budget** is a plan for using limited resources. Budgets specify the goals we hope to achieve in a specific period, and how we plan to achieve these goals. With unlimited resources, we can satisfy all of our wants. However, people and organizations have *limited* time and money. Hence, our plans must trade off among competing priorities when using available resources.

Because a budget reflects decisions on how to use scarce resources, it is the outcome of a decision process. Indeed, many of the benefits from budgeting arise because preparing budgets forces managers to examine various ways in which to get the most from organizational resources.

## WHY DO FIRMS USE BUDGETS?

Organizations use budgets for three primary purposes:

- *Planning*: Budgets promote a culture of organization-wide planning by compelling managers to choose the best course of action from available options.
- *Coordination*: Budgets serve as a means by which different units of the organization communicate with each other and synchronize their actions.
- *Control (performance evaluation and feedback)*: Budgets provide a frame of reference, or a benchmark, for providing feedback and for evaluating actual performance.

Let us examine each of these purposes, paying particular attention to how each role bridges different aspects of an organization's operations.

### Planning

Most companies prepare budgets for different horizons—from daily and weekly budgets to budgets that span several years. Multiyear budgets are strategic plans that specify the direction in which a company desires to head. For example, **Dell** has long-term budgets specified in terms of growth, profit, and market share. Such long-term plans set the stage for **operating budgets**, which bridge short-term decisions and long-term plans. Like a step on a path, operating budgets help companies reach their long-term goals. **Dell's** operating budgets would specify expected revenues, production costs, purchasing patterns, and marketing activities for the coming year. In this way, operating budgets reflect the outcomes of numerous short-term decisions designed to achieve long-term goals. **Financial budgets** quantify the outcomes of operating budgets in summary financial statements.

## Connecting to Practice

### STRATEGIC PLANS

Strategic planning focuses outside the organization, scanning the environment for threats and opportunities. Threats can come from competing technologies—for example, the failure to anticipate the move to digital cameras cost **Kodak** dearly, as the trend substantially reduced the market for film, **Kodak**'s main product. On the other hand, innovation and changing demographics can generate opportunities. For example, **eBay**'s success as an on-line auction house stems from the widespread use of the Internet and consumers becoming more comfortable with using computers to make on-line purchases.

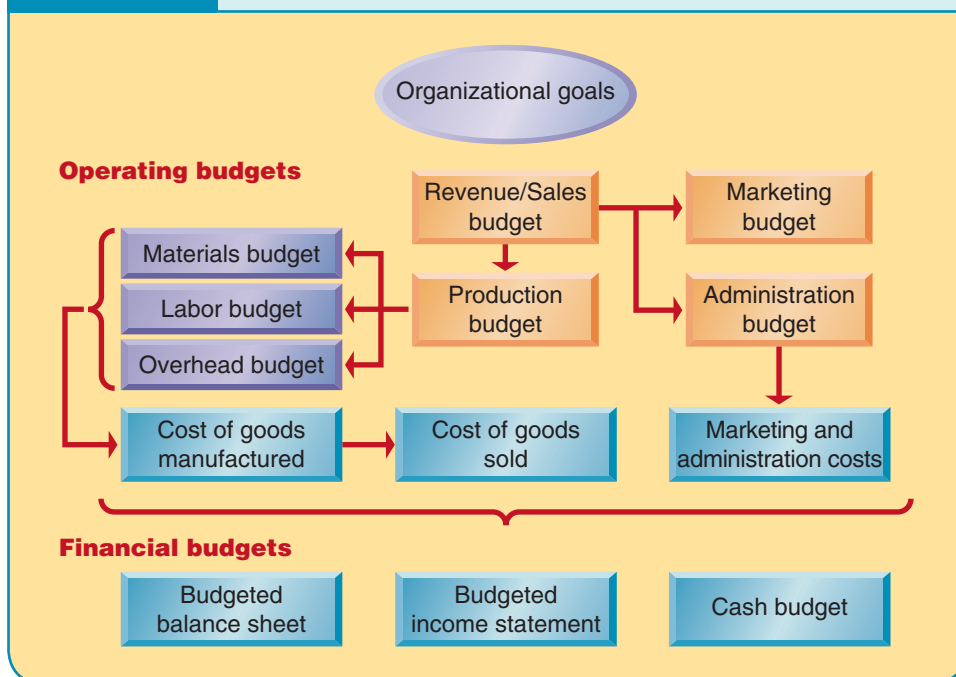
**COMMENTARY:** Operational budgets have an inward focus. Companies develop these budgets within the confines of their strategic plans. For example, once **Amazon** decides to enter foreign markets, it needs to change its operating strategy to fit. Examples include opening warehouses in foreign countries and establishing Web sites in foreign languages.



*Kodak's strategic plans must incorporate the growth of digital photography.* (Paul Sakuma/©AP/Wide World Photos)

A **master budget** for a period is a plan that presents the expected revenues, costs, and profit corresponding to the expected sale volume as of the beginning of that period. As shown in Exhibit 7.1, it consists of a comprehensive set of operating and financial budgets. The master budget involves all facets of operations and links organizational activities. For example, **Dell**'s master budget would specify sales targets for individual products, production cost targets, promotional expenses, and warranty costs.

**Exhibit 7.1** *There Are Many Steps to Follow When Preparing a Budget*



Study Exhibit 7.1 carefully as it provides the overall structure that links the many steps in budgeting. The exhibit uses a separate color for a group of related steps. When we discuss individual steps, we will use these colors again so that you can place those steps within the overall context.

### Coordination

As a company grows, it is difficult for one person to manage all aspects of the business. When Amarillo was still a small company, Amanda could oversee all operations, including purchasing, production, sales, and marketing. To cope with the growing demands, however, she hired a marketing manager, a production manager, and a purchasing supervisor to oversee these functions for each of her two product lines. Thus, Amanda moved from a **centralized decision-making** environment in which she was making all the decisions to a **decentralized decision-making** environment in which she *delegated* decision making to individuals with relevant expertise and knowledge.

In decentralized companies, departments must *communicate* and *coordinate* with each other to ensure that everyone is working toward the same corporate goals. If the Marketing Department can sell only 1,000 units of a product in a given quarter because of weak demand, there is no sense in the Production Department making 2,000 units just because it can. Budgets are a good way of communicating the plan targets to everyone in the organization.

Budgets also enable various departments to coordinate their activities in a way that benefits the company as a whole. They highlight linkages among departments and force each department to consider how its actions influence the actions of other departments. In this way, budgets help department managers make the best decisions from the company's standpoint. As you see in Exhibit 7.1, the master budget links several component budgets. Because of these linkages, preparing a budget is a joint effort that requires participation from all concerned. Many firms use cross-functional teams that include employees from several departments to prepare the budget.

### Control (Performance Evaluation and Feedback)

Budgets provide a basis or a *benchmark* for evaluating actual performance. Many of us spend money without keeping track. When we sit down later to reconcile our accounts, we often wish we knew exactly where the money went. If we have a budget, we can compare actual and budgeted expenditures and obtain valuable feedback for future planning. Similarly, a company cannot evaluate whether its managers made the right decisions if it does not have a benchmark. Nor can a company identify problem areas so that it can take corrective actions. In this way, budgets bridge planning and control decisions.

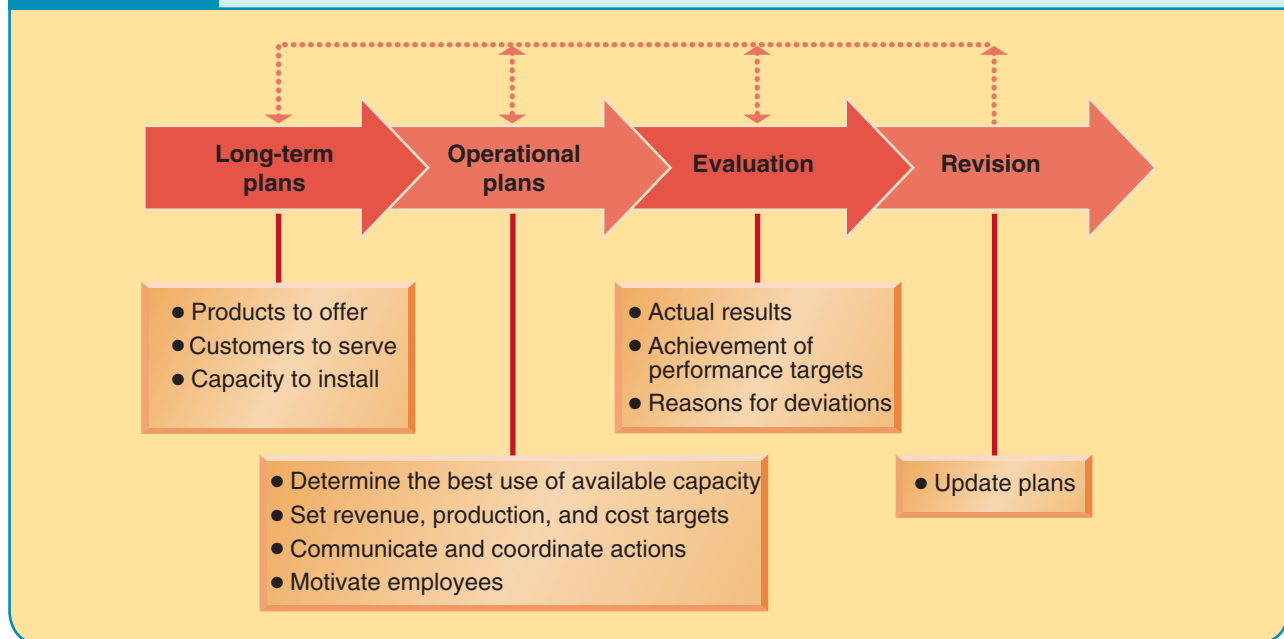
### Complements and Conflicts

Budgets have both a planning and a control role. Budgets force managers to think ahead and find the best way to use scarce resources, linking the organization's long- and short-term plans. Budgets also effectively communicate corporate objectives and link multiple departments, leading to a coherent plan for the entire organization. Finally, the planned targets in budgets become the benchmark for actual results, thereby facilitating control. As shown in Exhibit 7.2, the control role leads to a



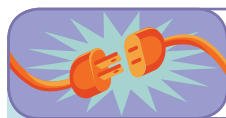
#### CHAPTER CONNECTIONS

*In Chapter 8, we discuss the role of budgets in variance analysis, which is a tool for performance evaluation and control. Profit variance analysis reconciles the income projected in the master budget with actual income and identifies the key reasons for any discrepancies.*

**Exhibit 7.2***Operating Budgets Link Long- and Short-term Plans and Are Part of the PIER Cycles*

reexamination of the assumptions made during the planning process. Notice that this cycle mirrors the planning and control cycle that we discussed in Chapter 1.

The dual planning and control roles for budgets can create conflicts in the budgeting process, however. Firms want to use the best available information when making planning decisions. In decentralized operations, employees at lower levels in the organization often have the most up-to-date and relevant information about local operating conditions. Thus, firms ask employees for this information when making the budget. But these employees may not be forthright in sharing their information.



## Connecting to Practice

### ARE BUDGETS GOOD FOR BUSINESS?

A survey of 212 top executives from a range of manufacturing and service firms shows that 66% of executives believe that their firms derive good to excellent value from it. Moreover, respondents indicate overwhelmingly that they could not manage without budgets. These data confirm the widespread use of budgets as a critical part of a firm's planning and control systems.

**COMMENTARY:** The survey also indicates room for improvement. Budgets take an average of 10.3 weeks to complete. Moreover, nearly 30% of surveyed managers agreed that budgets are “too time consuming,” “slow to detect problems,” and “not reliable for performance measurement.”

*Source:* T. Libby and R. Lindsay, “Beyond Budgeting or Better Budgeting,” *Strategic Finance*, August 2007, 47–51.

For example, a sales manager may *downplay* expected sales, while a production manager might be overly pessimistic about expected costs. Such actions are not good for the firm because they reduce the quality of information used to plan sales or costs. However, they lead to more achievable targets for the managers, which, in turn, help them in securing performance bonuses and promotion opportunities. A well-functioning budgeting process recognizes and manages this behavior.

## Preparing a Master Budget

### LEARNING OBJECTIVE 2

Link individual budgets together to form an organization-wide plan.

Let us now dig into the mechanics of the budgeting process. Our goal is to work our way toward a budgeted income statement in the contribution margin format.

### REVENUE BUDGET

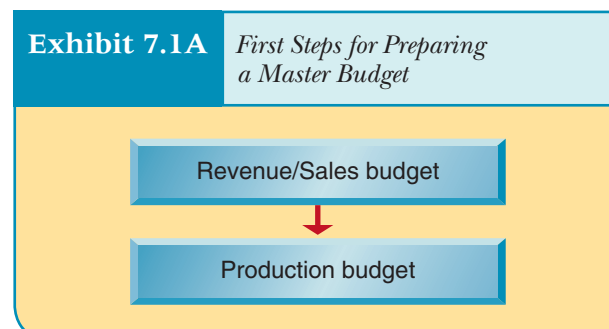
Because it is the first line item on the income statement, revenue budgets are the natural starting point for the master budget. Organizations also begin with the revenue budget because, as you learned in Chapter 6, market conditions dictate what a company can do in terms of the volume of operations. In turn, the volume of operations drives many costs, such as those related to materials and labor. Exhibit 7.1A is the relevant portion of the overall budgeting process illustrated in Exhibit 7.1 emphasizing the importance of preparing the revenue budget before preparing the production budget.

Exhibit 7.3 presents Amarillo's revenue budget by product for each quarter of the coming year. Sales projections are in lots of 100 units, and the expected price for each lot of BuildIT and BuildIT-PLUS is \$2,900 and \$4,800, respectively.

Firms spend considerable time and effort in preparing a revenue budget, as its accuracy is crucial in putting together a good master budget. Marketing departments typically update historical sales trends utilizing their knowledge of the market, customer surveys, the company's products and pricing decisions, and competitors' products and prices. Many firms also use consultants to gather information about product markets and forecasted demand.

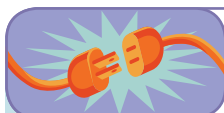
### PRODUCTION BUDGET

After the revenue budget, the logical next step is to prepare the production budget. The production budget combines the demand information provided by the revenue budget and the company's inventory policy regarding finished goods to determine production levels in the coming period. Exhibit 7.4 presents Amarillo's production budget by quarter for the coming year. In this exhibit, we compute each quarter's budgeted production using the inventory equation that we studied in Chapter 3.



**Exhibit 7.3** *Amarillo Toys: Revenue Budget*

	Quarter				Total
	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>	
<b>BuildIT</b>					
Sales in lots	1,500	1,500	2,000	3,000	8,000
Price per lot	\$2,900	\$2,900	\$2,900	\$2,900	\$2,900
Revenue	\$4,350,000	\$4,350,000	\$5,800,000	\$8,700,000	\$23,200,000
<b>BuildIT-PLUS</b>					
Sales in lots	400	400	500	700	2,000
Price per lot	\$4,800	\$4,800	\$4,800	\$4,800	\$4,800
Revenue	\$1,920,000	\$1,920,000	\$2,400,000	\$3,360,000	\$9,600,000
<b>Total revenue</b>	<b>\$6,270,000</b>	<b>\$6,270,000</b>	<b>\$8,200,000</b>	<b>\$12,060,000</b>	<b>\$32,800,000</b>



## Connecting to Practice

### USING INTERNAL MARKETS FOR FORECASTING

**Hewlett-Packard (HP)** is among the firms using a novel technique, internal markets, for developing forecasts. These markets, restricted to HP marketing and sales personnel, allow employees to trade “futures” contracts for sales of a particular product. For example, for a given product, HP might set up contracts for sales less than 10,000 units, from 10,001 to 15,000 units, from 15,001 to 20,000 units, or over 25,000 units. People who believed sales would be 10,001 to 15,000 units could post a price to buy a contract with that characteristic. They could also sell the other contracts (e.g., for the contract stipulating sales would be under 10,000 units) to other employees with different beliefs. Only the persons holding the “right” contract, as defined by actual sales, would receive a reward. Over time, as employees bought and sold their futures contracts, the summary market price varied according to the collective opinions of everyone participating in the market. It turned out that this market’s predictions beat every other prediction!

**COMMENTARY:** Firms use many techniques to gather information about demand and forecast sales. Companies go to great lengths to obtain these estimates because of the importance of getting an accurate revenue budget.

As shown in Exhibit 7.4, Amarillo expects to end the current year with 75 lots of BuildIT and 15 lots of BuildIT-PLUS in inventory. These quantities become the beginning inventory for the forthcoming year. At the end of each quarter, Amarillo targets to have finished goods inventory equal to 10% of the following quarter’s sales volume. Thus, Amarillo desires to have 200 lots of BuildIT in inventory at the end of the second quarter, or 10% of the 2,000 lots it expects to sell in the third quarter. Based on tentative sales projections five quarters out, Amarillo plans to end the year with 90 lots of BuildIT and 20 lots of BuildIT-PLUS in stock.



*It is difficult to forecast sales for products such as toys because buyer tastes often vary unpredictably.*

(©Dylan Ellis/Corbis)



**Exhibit 7.4** *Amarillo Toys: Production Budget*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<b>BuildIT</b>					
Sales in lots	1,500	1,500	2,000	3,000	
+ Desired ending inventory	150	200	300	90	
= Total requirements	1,650	1,700	2,300	3,090	
- Beginning inventory	75	150	200	300	
= Lots to be produced	<b>1,575</b>	<b>1,550</b>	<b>2,100</b>	<b>2,790</b>	<b>8,015</b>
<b>BuildIT-PLUS</b>					
Sales	400	400	500	700	
+ Desired ending inventory	40			20	
= Total requirements	440	<i>See Check It!</i>		720	
- Beginning inventory	15	<i>Exercise #1</i>		70	
= Lots to be produced	<b>425</b>	<b>410</b>	<b>520</b>	<b>650</b>	<b>2,005</b>



## Check It! Exercise #1

Complete the missing cells in Exhibit 7.4 for BuildIT-PLUS for Quarters 2 and 3. Verify that Amarillo expects to produce 410 and 520 lots of BuildIT-PLUS in Quarters 2 and 3, respectively.

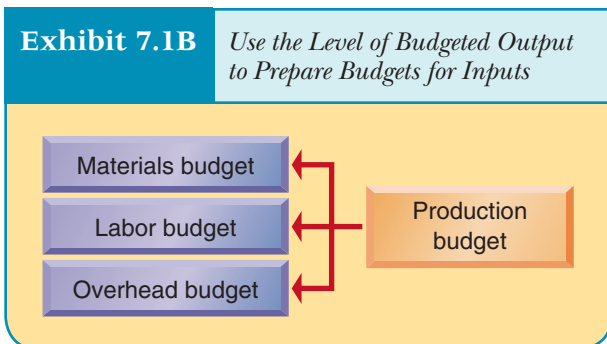
	Quarter 2	Quarter 3	
Sales in lots	400	500	From Exhibit 7.3
+ Desired ending inventory	_____	_____	10% of next quarter's sales
= Total requirements	_____	_____	
- Beginning inventory	_____	_____	Ending inventory of prior quarter
= Lots to be produced	410	520	

**Solution at end of chapter.**

Preparing the production budgets requires Amarillo's marketing managers and production managers to coordinate and address some important questions. For example, is there enough production capacity to meet projected sales? If not, should the company add more capacity, temporarily or permanently? Is it more profitable to reduce the volume of one of the products and sell less? In addition, the managers need to decide on inventory levels for each product, trading off the costs of carrying too much inventory with the costs of having too little inventory. The production managers need to coordinate how best to schedule the two products on shared machinery and equipment, and the resources necessary to ensure efficient production.

## DIRECT MATERIALS USAGE BUDGET

Once we formulate a production budget, we know the output targets. As the relevant portion of Exhibit 7 excerpted in Exhibit 7.1B shows, we use these output targets to derive the budgets for materials, labor, and overhead. In turn, these *usage* budgets enable us to estimate variable and fixed manufacturing costs.



We begin with the direct materials usage budget. Amarillo’s two products consume four types of direct materials—standard-grade plastic for BuildIT, special-grade plastic for BuildIT-PLUS, dyes for color, and boxes for packaging. Amarillo uses the same dyes for BuildIT and BuildIT-PLUS. One lot of direct materials denotes the amount of materials necessary to produce a lot of each product.

Amarillo’s production manager and purchasing supervisor estimate that at the start of the coming year, the company will have the following direct materials in beginning inventory:

- 65 lots of standard-grade plastic at \$600 per lot
- 30 lots of special-grade plastic at \$1,000 per lot
- 125 lots of dyes at \$500 per lot
- 75 lots of BuildIT boxes at \$400 per lot
- 25 lots of BuildIT-PLUS boxes at \$400 per lot

The purchasing supervisor believes that direct materials prices will remain the same for all materials. With this information, Exhibit 7.5 presents Amarillo’s direct materials usage budget.

For simplicity, we prepare Amarillo’s budgets assuming that prices will not change. What happens if we do expect prices to change? Then, the firm will expect to have different layers of inventory of the same material but at different prices. We have to make some assumptions, such as FIFO or LIFO, regarding cost flows to determine the cost of materials used. The appendix to this chapter describes how Amarillo can deal with such situations in its budgets.

The purchasing and production managers coordinate closely to prepare the materials usage budget because it requires both price and quantity estimates. Most companies estimate direct material quantities based on internal standards for the

Check It! Exercise #2

Verify that Amarillo expects the total cost of dyes to be \$1,000,000 in quarter 1 and \$980,000 in quarter 2. (Because the same dyes are used for both products, we can jointly consider the requirements for BuildIT and BuildIT-PLUS).

	<i>Quarter 1</i>	<i>Quarter 2</i>	
Lots to be used in production	_____	_____	From production budget
× Cost per lot	_____	_____	Given in text
= Total materials cost	\$1,000,000	\$980,000	

Solution at end of chapter.

**Exhibit 7.5** Amarillo Toys: Direct Materials Usage Budget

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<b>Plastic: Standard Grade</b>					
Lots to be used in production					
(from Exhibit 7.4)	1,575	1,550	2,100	2,790	
Cost per lot	\$600	\$600	\$600	\$600	
<b>Total Materials cost</b>	<b>\$945,000</b>	<b>\$930,000</b>	<b>\$1,260,000</b>	<b>\$1,674,000</b>	<b>\$4,809,000</b>
<b>Plastic: Special Grade</b>					
Lots to be used in production					
(from Exhibit 7.4)	425	410	520	650	
Cost per lot	\$1,000	\$1,000	\$1,000	\$1,000	
<b>Total Materials cost</b>	<b>\$425,000</b>	<b>\$410,000</b>	<b>\$520,000</b>	<b>\$650,000</b>	<b>\$2,005,000</b>
<b>Dyes</b>					
	<i>See Check It! Exercise #2</i>				
<b>Total Materials Cost</b>	<b>\$1,000,000</b>	<b>\$980,000</b>	<b>\$1,310,000</b>	<b>\$1,720,000</b>	<b>\$5,010,000</b>
<b>Packing Boxes</b>					
<i>BuildIT</i>					
Lots to be used in production	1,575	1,550	2,100	2,790	
Cost per lot	\$400	\$400	\$400	\$400	
<b>Packing cost for BuildIT</b>	<b>\$630,000</b>	<b>\$620,000</b>	<b>\$840,000</b>	<b>\$1,116,000</b>	
<i>BuildIT-PLUS</i>					
Lots to be used in production	425	410	520	650	
Cost per lot	\$400	\$400	\$400	\$400	
<b>Packing cost for BuildIT-PLUS</b>	<b>\$170,000</b>	<b>\$164,000</b>	<b>\$208,000</b>	<b>\$260,000</b>	
<b>Total Packing Cost</b>	<b>\$800,000</b>	<b>\$784,000</b>	<b>\$1,048,000</b>	<b>\$1,376,000</b>	<b>\$4,008,000</b>
<b>Cost of all direct materials to be used</b>					<b>\$15,832,000</b>

materials needed to make one unit of output. Direct material prices are more difficult to estimate. Their accuracy depends on the experience and knowledge that purchasing has about conditions in the marketplace for materials.

### DIRECT LABOR BUDGET

Similar to the direct materials usage budget, the direct labor budget follows from the production budget. Labor standards at Amarillo indicate that BuildIT requires 8 labor hours per lot and BuildIT-PLUS requires 12 labor hours per lot. On average, labor costs \$15 per hour. Exhibit 7.6 presents Amarillo's direct labor budget for the coming year.

Often, the labor budget is more detailed than what we see in Exhibit 7.6. Depending on a company's production technology, different grades of labor may be necessary for jobs requiring different skills and expertise. For example, Amarillo may require special skills for plastic molding and extrusion operations. In such settings, we would separately identify each type of labor.

Like the direct materials usage budget, the labor budget helps Amarillo plan working capital needs. Most organizations maintain a Human Resources Department to manage labor relations. Besides hiring and firing decisions, the human resource

**Exhibit 7.6** *Amarillo Toys: Direct Labor Budget*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<i>BuildIT</i>					
Lots to be produced	1,575	1,550	2,100	2,790	
Labor hours per lot	8	8	8	8	
Labor cost per hour	\$15	\$15	\$15	\$15	
Direct labor cost	\$189,000	\$186,000	\$252,000	\$334,800	\$961,800
<i>BuildIT-PLUS</i>	<i>See Check It! Exercise #3</i>				
Direct labor cost	\$76,500	\$73,800	\$93,600	\$117,000	\$360,900
<b>Total labor cost</b>	<b>\$265,500</b>	<b>\$259,800</b>	<b>\$345,600</b>	<b>\$451,800</b>	<b>\$1,322,700</b>

## Check It! Exercise #3

Verify the BuildIT-PLUS direct labor cost numbers in Exhibit 7.6.

	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>
Lots to be produced	_____	_____	_____	_____
× Labor hours per lot	_____	_____	_____	_____
× Labor cost per hour	_____	_____	_____	_____
= Direct labor cost	_____	_____	_____	_____

Solution at end of chapter.

function is responsible for the cost of labor in much the same way the purchasing function is responsible for getting the best price for raw materials. Thus, preparing the labor budget requires close coordination between the Production Department, which determines labor requirements for production, and the Human Resource Department, which has information about labor costs and helps ensure the availability of labor.

## MANUFACTURING OVERHEAD COST BUDGET

Having identified materials and labor needs, our next task is to prepare the manufacturing overhead cost budget. Manufacturing overhead consists of both variable and fixed costs. Variable items include the supplies used by employees, oils used in the machining process, and the plastic film used to wrap cartons. While it is possible for Amarillo to estimate each item in its variable overhead separately, it usually is more efficient to estimate total expenditures on variable overhead as a proportion of manufacturing activity.

In keeping with industry practice, Amarillo uses direct labor cost as its measure of manufacturing activity. In recent years, the variable manufacturing overhead rate has remained steady at \$0.50 per direct labor dollar. Because Amarillo expects this rate to hold in the coming year, we multiply the budgeted direct labor cost from Exhibit 7.6 by the variable overhead rate of \$0.50. This leads us to the budgeted variable manufacturing overhead in the top half of Exhibit 7.7.

**Exhibit 7.7** *Amarillo Toys: Manufacturing Overhead Cost Budget*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<i>Variable manufacturing overhead</i>					
Budgeted direct labor cost (from Exhibit 7.6)	\$265,500	\$259,800	\$345,600	\$451,800	
Variable overhead rate per DLS	\$0.50	\$0.50	\$0.50	\$0.50	
<b>Total variable overhead</b>	<b>\$132,750</b>	<b>\$129,900</b>	<b>\$172,800</b>	<b>\$225,900</b>	<b>\$661,350</b>
<i>Fixed manufacturing overhead</i>					
Cash expenses	\$950,000	\$950,000	\$950,000	\$950,000	\$3,800,000
Annual equipment depreciation					1,450,000
<b>Total fixed overhead</b>					<b>\$5,250,000</b>
<b>Total Overhead Costs</b>					<b>\$5,911,350</b>

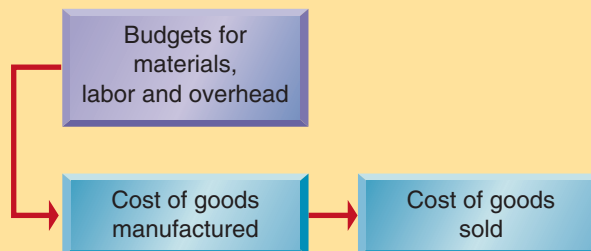
In addition to variable overhead, Amarillo also expects to incur costs related to machines, salaried employees, warehousing, and other capacity resources. These costs make up fixed manufacturing overhead, which is usually a large fraction of total costs. Firms usually carefully estimate the expected costs for each category of fixed overhead. They then add these costs up to estimate the total amount.

Amanda expects fixed overhead to equal \$5,250,000 in the coming year. As shown in the bottom half of Exhibit 7.7, fixed overhead contains cash expenses related to salaries, rent, and property taxes as well as noncash expenses related to equipment depreciation.

**VARIABLE COST OF GOODS MANUFACTURED BUDGET**

Now that we have the budgets for materials, labor and overhead, we are now in a position to calculate the total variable manufacturing cost of the units Amarillo expects to produce during the coming year (Exhibit 7.1C reproduces the relevant portion of Exhibit 7.1). Exhibit 7.8 presents this computation. To keep the exhibit simple, we present only the annual budget and do not present the details on a quarter-by-quarter basis.

**Exhibit 7.1C** *Consolidate Costs of Inputs to Determine Costs of Goods Manufactured and Sold*



**Exhibit 7.8***Amarillo Toys: Variable Cost of Goods Manufactured Budget*

	From Exhibit	BuildIT	BuildIT-PLUS	Total
Plastic: Standard-grade	7.5	\$4,809,000		\$4,809,000
Plastic: Special-grade	7.5		\$2,005,000	2,005,000
Dyes	7.5	4,007,500	1,002,500	5,010,000
Packaging materials	7.5	3,206,000	802,000	4,008,000
Direct manufacturing labor	7.6	961,800	360,900	1,322,700
Variable manufacturing overhead	7.7	480,900	180,450	661,350
<b>Variable cost of goods manufactured</b>		<b>\$13,465,200</b>	<b>\$4,350,850</b>	<b>\$17,816,050</b>

The variable cost of goods manufactured is the sum of several cost items: materials, labor, and variable overhead. We obtain the cost of materials used from the direct materials usage budget in Exhibit 7.5. Notice that Exhibit 7.8 separates the total cost of the dyes and packing boxes from Exhibit 7.5 into portions attributable to the two product lines. We obtain labor costs from the labor budget in Exhibit 7.6. We also break out the variable manufacturing overhead costs by product. For example, the \$480,900 in variable manufacturing overhead for BuildIT is the product of the \$961,800 in BuildIT direct labor costs from Exhibit 7.6 multiplied by the variable overhead rate of \$0.50 per direct labor dollar.

## VARIABLE COST OF GOODS SOLD BUDGET

Our next step is to estimate the variable cost of goods sold, which takes us even closer to Amarillo's budgeted income statement. To calculate cost of goods sold, we apply the inventory equation to finished goods. We calculate:

$$\text{Cost of goods sold} = \text{Cost of beginning finished goods inventory} + \text{cost of goods manufactured} - \text{cost of ending finished goods inventory}$$

We start by obtaining the cost of beginning finished goods inventory.

### Beginning Finished Goods Inventory

As you know from the production budget (Exhibit 7.4), Amarillo expects to have 75 lots of BuildIT and 15 lots of BuildIT-PLUS on hand at the beginning of the year. What is the cost of each lot, and what is the total cost of this inventory that we expect to have at the end of last year? Exhibit 7.9 provides this information. In this exhibit, the cost of each lot includes the cost of materials, labor, and variable overhead. These estimates take into account the costs incurred the prior year as this year's beginning inventory would have been produced last year.

**Exhibit 7.9***Amarillo Toys: Beginning Finished Goods Inventory*

	BuildIT	BuildIT-PLUS
Variable cost per lot	\$1,680	\$2,170
Number of Lots	75	15
<b>Total variable cost</b>	<b>\$126,000</b>	<b>\$32,550</b>

### Ending Finished Goods Inventory

Exhibit 7.4 shows us that Amarillo expects to have 90 lots of BuildIT and 20 lots of BuildIT-PLUS on hand at the end of the year. What is the cost per lot, and what is the total cost of this inventory? Exhibit 7.10 provides the detailed calculations.

Notice that the cost per lot is the same at the start and at the end of the year. This is because Amarillo is not forecasting any change in the prices of materials, labor, or variable overhead. If Amarillo did expect prices to change, as shown in the Appendix, the cost per lot would change over time. Consequently, Amarillo would use a cost flow assumption such as FIFO to calculate the cost of goods sold.

### Variable Cost of Goods Sold

Now that we have the cost of beginning finished goods inventory, the cost of goods manufactured, and the cost of ending finished goods inventory, we can calculate Amarillo's cost of goods sold. Exhibit 7.11 shows our calculations for the year (without the quarterly detail).

### Marketing and Administrative Costs Budget

We next turn our attention to the budget for marketing and administrative expenses. These inputs usually relate to the volume of *sales* activity, meaning that they link to the revenue budget (Exhibit 7.1D). As we see in Exhibit 7.12, some of Amarillo's marketing and administrative expenses, such as sales commissions and shipping, are variable because they change proportionally with sales. As noted in the top half

**Exhibit 7.10** Amarillo Toys: Ending Finished Goods Inventory

	BuildIT	BuildIT-PLUS
<b>Variable cost per lot</b>		
Plastic	\$600	\$1,000
Dyes	500	500
Packing boxes	400	400
Direct labor	120	180
Variable manufacturing overhead	60	90
<b>Total</b>	<b>\$1,680</b>	<b>\$2,170</b>
Number of Lots	90	20
<b>Total variable cost</b>	<b>\$151,200</b>	<b>\$43,400</b>

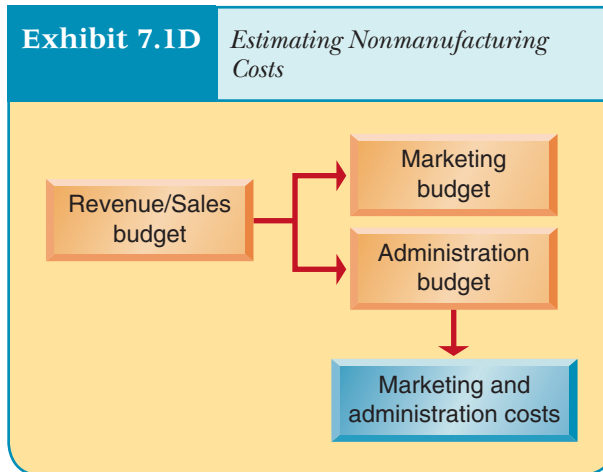
**Exhibit 7.11** Amarillo Toys: Variable Cost of Goods Sold Budget

	Exhibit Reference	BuildIT	BuildIT-PLUS	Total
Beginning finished goods inventory	7.9	\$126,000	\$32,550	\$158,550
+ Cost of goods manufactured	7.8	13,465,200	4,350,850	\$17,816,050
= Cost of goods available for sale		\$13,591,200	\$4,383,400	\$17,974,600
- Ending finished goods inventory	7.10	151,200	43,400	194,600
= Variable Cost of goods sold		\$13,440,000	\$4,340,000	\$17,780,000

of Exhibit 7.12, Amarillo estimates that the variable portion is \$185 for each lot of BuildIT sold and \$225 for each lot of BuildIT-PLUS sold.

As is evident from Exhibit 7.12, other marketing and administrative expenses, such as administrative salaries and office space, are fixed. Similar to fixed manufacturing overhead, these costs contain both cash and noncash items.

Exhibit 7.12 also shows that Amanda plans to invest \$1 million toward research and development (fixed R&D expenses). Such expenses are discretionary and do



**Exhibit 7.12** *Amarillo Toys: Marketing and Administrative Costs Budget*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<u>Variable marketing and administrative costs</u>					
<b>BuildIT</b>					
Sales in lots	1,500	1,500	2,000	3,000	
Variable cost per lot	\$185	\$185	\$185	\$185	
Variable costs	\$277,500	\$277,500	\$370,000	\$555,000	\$1,480,000
<b>BuildIT-PLUS</b>					
Sales in lots	400	400	500	700	
Variable cost per lot	\$225	\$225	\$225	\$225	
Variable costs	\$90,000	\$90,000	\$112,500	\$157,500	\$450,000
<i>Total variable marketing and administrative costs</i>	<i>\$367,500</i>	<i>\$367,500</i>	<i>\$482,500</i>	<i>\$712,500</i>	<i>\$1,930,000</i>
<u>Fixed marketing and administrative costs</u>					
Cash expenses	\$1,120,000	\$1,120,000	\$1,120,000	\$1,120,000	\$4,480,000
Fixed R&D expenses	250,000	250,000	250,000	250,000	1,000,000
Annual depreciation					\$1,020,000
<b>Total fixed costs</b>					<b>\$6,500,000</b>
<b>Total marketing and administrative costs</b>					<b>\$8,430,000</b>



not contribute to current period sales, and they are best viewed as investments in the company's future. Firms have to invest today to have a solid product line tomorrow.

## BUDGETED INCOME STATEMENT

We are finally in a position to project Amarillo's financial statements: the balance sheet, the income statement, and the cash budget (Exhibit 7.1E presents the relevant portion of Exhibit 7.1). We first discuss the income statement and then show how to prepare the cash budget. We do not consider the budgeted (sometimes called the pro-forma) balance sheet in detail, as that topic is beyond the scope of this book.

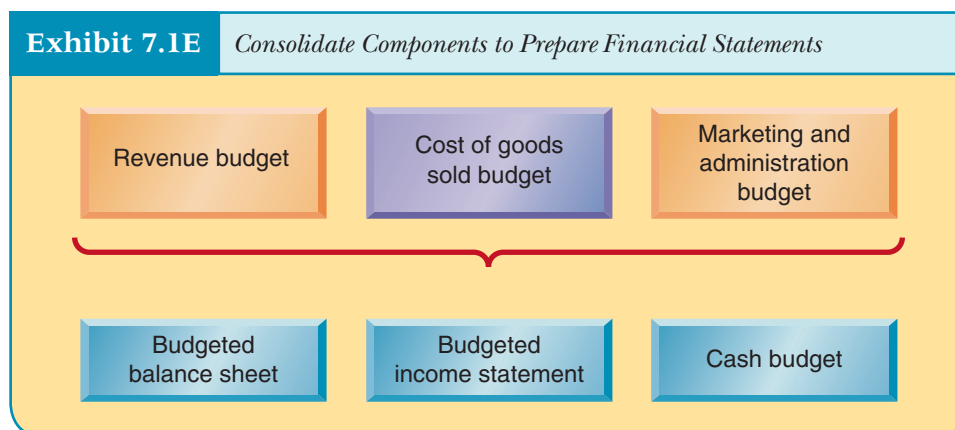
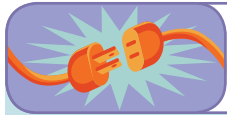


Exhibit 7.13 presents our calculations for the income statement.

**Exhibit 7.13** Amarillo Toys: Budgeted Income Statement

	Exhibit Reference	BuildIT	BuildIT-PLUS	Total
Budgeted sales in lots	7.3	8,000	2,000	
<b>Revenue</b>	7.3	\$23,200,000	\$9,600,000	\$32,800,000
<b>Variable costs</b>				
Manufacturing	7.11	13,440,000	4,340,000	\$17,780,000
Marketing & Administration	7.12	1,480,000	450,000	1,930,000
<b>Contribution Margin</b>		\$8,280,000	\$4,810,000	\$13,090,000
<b>Fixed costs</b>				
Manufacturing	7.7			\$5,250,000
Marketing & Administration	7.12			6,500,000
<b>Profit before Taxes</b>				\$1,340,000
Taxes (at 35% of pre-tax profit)				469,000
<b>Profit after Taxes</b>				\$871,000

Consistent with other contribution margin statements, Exhibit 7.13 begins with revenue. We first subtract all variable costs to arrive at each product's contribution margin. Next, we subtract fixed costs to arrive at profit before taxes. We then subtract estimated income taxes to arrive at profit after taxes. Amanda's focus is on profit after taxes because this is the amount available for paying out dividends or for reinvesting in the business.



## Connecting to Practice

### TAX PLANNING AND BUDGETING

Suppose you are planning to sell some appreciated stock next year. When calculating your cash flow, you budget for the receipt from the sale of stock *and* the taxes that you will pay on the realized gain. To reduce taxes owed, you might consider deferring some deductible donations from this year to the next, or paying two years worth of property taxes next year.

**COMMENTARY:** Prudent tax planning includes taking actions to time expenses to coincide with recognition of income so that the taxpayer can reduce income taxed at higher rates. Multinational firms such as Roche, Baxter, and Caterpillar routinely engage in such tax planning. Because these actions influence the accounting recognition of revenues and expenses, as well as the timing of cash payments, these firms often review their tax plans when preparing their budgets.

Exhibit 7.13 indicates substantial contribution margins for both BuildIT and BuildIT-PLUS. The budgeted contribution margins provide a sound basis for evaluating the performance of Amarillo's two product managers in the coming year. Firms often prepare similar statements for each quarter or month to facilitate timely monitoring of results.

### ITERATIVE NATURE OF THE BUDGETING PROCESS

Exhibits 7.3 to 7.13 present an orderly manner of arriving at Amarillo's budgeted income statement for the coming year. These exhibits help us understand the flow of numbers and the linkages among various functions of an organization.

Actual budgeting processes are quite iterative. Most companies rework their budgets numerous times. The sales staff, the marketing manager, and Amanda would go through several iterations before agreeing to the revenue budget. Even with intense scrutiny of individual steps, firms often end up reworking entire budgets. For instance, the first budget iteration may have produced an estimated profit of \$700,000. Amanda and other senior managers would evaluate this estimate in light of the firm's overall goals and plans. If the estimate falls short of their goals, they would ask the budget team to reexamine all plan assumptions to find areas where Amarillo could reduce costs or enhance revenue.

They might also reexamine the budget to see if they have made the correct assumptions. Perhaps the price of special-grade plastic will increase from \$1,000 to \$1,050 in the second quarter. Measures to improve efficiency may have reduced the variable manufacturing overhead rate from 50 to 45%. The sales analysts may believe that the company's reputation is leading to a shift by some consumers so that sales of the basic kit are expected to fall by 10%, but sales of the plus kit are expected to increase by 20%. (We address the price change assumptions in the Appendix.)

In general, a careful review of operating assumptions and estimates adds value to the budgeting process. A well-prepared budget allows the firm to make the best possible decisions and extract the maximum value from its available resources.

In addition to the overall budgets we prepared for Amarillo, companies prepare numerous other budgets for subunits. Each division, department, or even project may also have its own revenue and/or cost budget. Even individual employees may have detailed budgets for their time, sales quotas, or expenditures related to travel. In the next section, we examine another important budget in organizations, the cash budget.

### APPLYING THE DECISION FRAMEWORK

- What Is the Problem?** Over the coming year, what actions should Amarillo take to maximize profit?
- What Are the Options?** Amarillo could follow many paths. We view each path, and the accompanying set of decisions by Amarillo's employees, as a decision option.
- What Are the Costs and Benefits?** Each set of possible decisions imposes different requirements on Amarillo's employees and resources. We can evaluate the profit effect of these decisions using budgeting.
- Make the Decision!** *Amanda is satisfied that the budgets in Exhibits 7.3 through 7.13 represent the best possible use of Amarillo's resources in the coming year.*

## Cash Budget

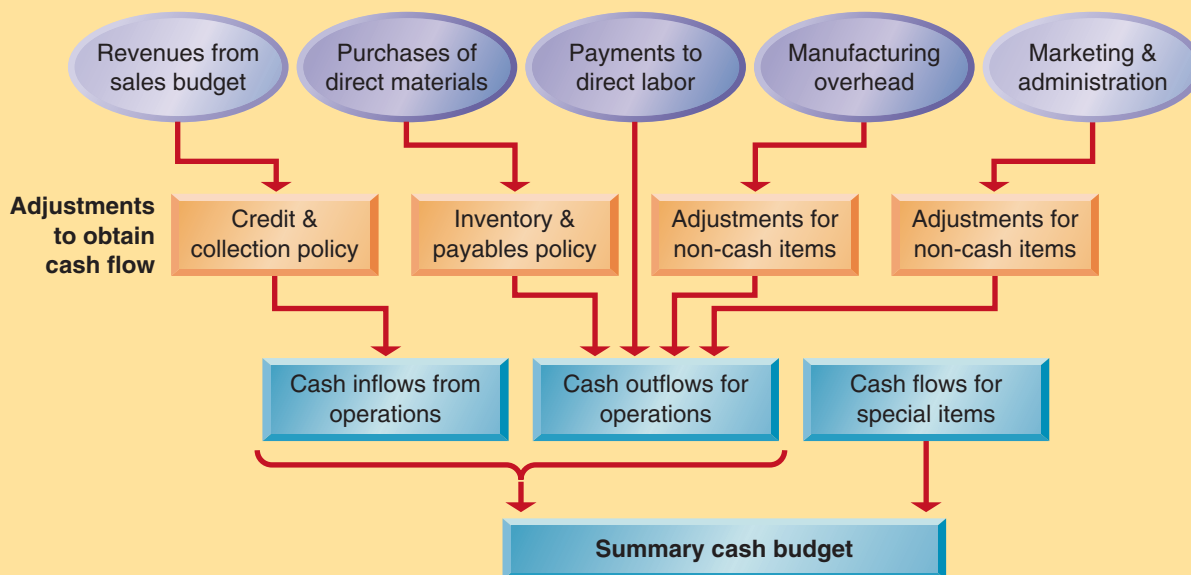
### LEARNING OBJECTIVE 3

Construct a cash budget and understand cash management.

The cash budget is important for managing a firm's working capital. The **cash budget** allows companies to determine whether they will have enough money on hand to sustain projected operations. Companies can manage cash shortfalls by accelerating revenues, deferring payments, altering the timing of special cash inflows, or borrowing. Effective working capital management can save companies money in terms of interest payments on costly short-term loans.

As shown toward the bottom of Exhibit 7.14, the cash budget has three major components: inflows from operations, outflows from operations, and special items. Each of these relate to a specific part of the budgets we prepared to arrive at the income statement. As the exhibit also shows, we have to adjust revenues and costs to determine the cash inflow or outflow.

**Exhibit 7.14** Steps for Preparing a Cash Budget



## CASH INFLOWS FROM OPERATIONS

Proceeds from sales are the primary cash inflows from operations. However, in order to compute the expected inflow of cash, we need to adjust revenue by the firm's credit policy. Most businesses offer credit terms to customers. Therefore, they receive cash only a few days, weeks, or months after the sale occurs. At Amarillo, experience indicates that 60% of revenue is collected in the quarter the sales occurred, 35% is collected in the quarter following the sales, and 5% in the quarter thereafter.

Exhibit 7.15 builds on the revenue budget in Exhibit 7.3 to provide Amarillo's estimated cash inflows from operations for the coming year. During the first quarter, Amarillo collects 60% of first-quarter sales, or  $0.60 \times \$6,270,000 = \$3,762,000$  (see Exhibit 7.3). In addition, Amarillo collects 35% of fourth-quarter sales from the previous year and 5% of third-quarter sales from the previous year. (Collectively, these two amounts total \$2,625,000.)

We compute the cash collections for the other quarters in an identical fashion. In the fourth quarter, Amarillo expects to collect 60% of fourth-quarter sales, or  $0.60 \times \$12,060,000 = \$7,236,000$ . Amarillo also collects \$2,870,000 from third-quarter sales ( $0.35 \times \$8,200,000$ ) and \$313,500 from second-quarter sales ( $0.05 \times \$6,270,000$ ).

Exhibit 7.15 indicates that Amarillo expects to collect all of its revenues. Firms, however, often have to deal with uncollectible credit sales because some customers default on their payments. How would uncollectible sales affect our computations? We would show collections as being less than 100% of revenues, with the reduction being

**Exhibit 7.15** *Amarillo Toys: Budgeted Cash Inflows from Operations*

[EXBTCH]	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
[EXTB]Last year's sales	\$2,625,000	\$350,000			\$2,975,000
Quarter 1 sales	3,762,000	2,194,500	\$313,500		6,270,000
Quarter 2 sales		3,762,000	2,194,500	\$313,500	6,270,000
Quarter 3 sales			4,920,000	2,870,000	7,790,000
Quarter 4 sales				7,236,000	7,236,000
Total cash collected	\$6,387,000	\$6,306,500	\$7,428,000	\$10,419,500	\$30,541,000



### Check It! Exercise #4

Verify Amarillo's budgeted cash inflows from operations for the third quarter. Use Exhibit 7.3 to obtain the revenue data.

Quarter of Sales	Revenues	% Collected in Q3	Amount Collected
1	_____	_____	\$313,500
2	_____	_____	2,194,500
3	_____	_____	4,920,000
Total	_____	_____	\$7,428,000

Solution at end of chapter.

the percent of uncollectible sales. From an accounting recordkeeping perspective, we also need to adjust the balance of accounts receivable and reported income to reflect the uncollectible debt.

## CASH OUTFLOWS FROM OPERATIONS

There are four types of cash outflows from operations: purchases of direct materials, payments for labor, expenditures on manufacturing overhead, and outflows for marketing and administration costs.

### Purchases of Direct Materials

Just as Amarillo extends credit to its customers, the company expects credit from its suppliers. Amarillo pays 40 percent of its accounts payable in the quarter purchases are made and 60 percent in the following quarter. To calculate Amarillo's cash payment for purchases, we first need to calculate the expected direct materials purchases in the coming year.

We prepare the direct materials purchases budgets based on Amarillo's direct material usage and inventory policy. As in the case of finished goods inventory, Amarillo targets 10 percent of the next period's production usage as the desired ending inventory for direct materials in any given period. Based on Amarillo's production budget in Exhibit 7.4 and the amounts of beginning inventory for each material reported in the text, we prepare Exhibit 7.16.

**Exhibit 7.16** *Amarillo Toys: Direct Materials Purchase Budget*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<b>Standard-grade plastic</b>					
Lots used in production (Exhibit 7.4)	1,575	1,550	2,100	2,790	
+ Desired ending inventory	155	210	279	100	
= Total requirements	1,730	1,760	2,379	2,890	
- Beginning inventory	65	155	210	279	
= Lots to be purchased	1,665	1,605	2,169	2,611	8,050
Purchase price per lot	\$600	\$600	\$600	\$600	
<i>Purchases</i>	<i>\$999,000</i>	<i>\$963,000</i>	<i>\$1,301,400</i>	<i>\$1,566,600</i>	<i>\$4,830,000</i>
<b>Special-grade plastic</b>					
Lots used in production (Exhibit 7.4)	425	410	520	650	
+ Desired ending inventory	41	52	65	25	
= Total requirements	466	462	585	675	
- Beginning inventory	30	41	52	65	
= Lots to be purchased	436	421	533	610	2,000
Purchase price per lot	\$1,000	\$1,000	\$1,000	\$1,000	
<i>Purchases</i>	<i>\$436,000</i>	<i>\$421,000</i>	<i>\$533,000</i>	<i>\$610,000</i>	<i>\$2,000,000</i>
<b>Dyes</b>					
	<i>See Check It! Exercise #5 Below</i>				
<i>Purchases</i>	<i>\$1,035,500</i>	<i>\$1,013,000</i>	<i>\$1,351,000</i>	<i>\$1,610,500</i>	<i>\$5,010,000</i>
<b>Packing boxes (Detailed calculations not shown)</b>					
<i>Purchases</i>	<i>\$838,400</i>	<i>\$810,400</i>	<i>\$1,080,800</i>	<i>\$1,288,400</i>	<i>\$4,018,000</i>
<b>Total Purchases</b>	<b>\$3,308,900</b>	<b>\$3,207,400</b>	<b>\$4,266,200</b>	<b>\$5,075,500</b>	<b>\$15,858,000</b>



## Check It! Exercise #5

Using the following table, verify the cost of dyes purchased in Exhibit 7.16.

	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>
Lots used in production	2,000	1,960	2,620	3,440
+ Desired ending inventory	_____	_____	_____	125
= Total requirements	_____	_____	_____	_____
– Beginning inventory	125	_____	_____	_____
= Lots to be purchased	_____	_____	_____	_____
× Purchase price per lot	\$500	\$500	\$500	\$500
= Purchases	\$1,035,500	\$1,013,000	\$1,351,000	\$1,610,500

Solution at end of chapter.

With the information in Exhibit 7.16 and Amarillo's payment policy, we can plan the cash outflow for materials purchases during the coming year. Exhibit 7.17 presents the details.

As an example, Amarillo's cash outflows for purchases in the third quarter total \$3,630,920, which is the sum of payments for second-quarter purchases ( $\$3,207,400 \times 0.60 = \$1,924,440$ ) and payments for third-quarter purchases ( $\$4,266,200 \times 0.40 = \$1,706,480$ ).

### Labor Costs

Panel A of Exhibit 7.18 projects Amarillo's cash outflows for direct labor costs. We obtain this information directly from Exhibit 7.6, Amarillo's direct labor budget. Notice that the cash outflow for labor depends on production volume and not on sales volume. Production employees expect payment when they render service, which occurs when they make the product.

### Manufacturing Overhead

Panel B of Exhibit 7.18 projects cash outflows for manufacturing overhead costs. Referring to Exhibit 7.7 (the manufacturing overhead cost budget), we see that the expense from depreciating equipment, \$1,450,000, is a substantial part of the fixed manufacturing overhead cost of \$5,250,000. We exclude this noncash item when estimating the cash outflows associated with manufacturing overhead.

**Exhibit 7.17** *Amarillo Toys: Cash Outflow for Purchases*

	<b>Quarter</b>				<i>Total</i>
	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>	
Last year's purchases	\$2,130,000				\$2,130,000
Quarter 1 purchases	1,323,560	\$1,985,340			3,308,900
Quarter 2 purchases		1,282,960	\$1,924,440		3,207,400
Quarter 3 purchases			1,706,480	\$2,559,720	4,266,200
Quarter 4 purchases				2,030,200	2,030,200
<b>Total cash outflow</b>	<b>\$3,453,560</b>	<b>\$3,268,300</b>	<b>\$3,630,920</b>	<b>\$4,589,920</b>	<b>\$14,942,700</b>

**Exhibit 7.18** *Amarillo Toys: Cash Outflows for Labor, Manufacturing Overhead, & Marketing and Administrative Expenses*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
<b>Panel A: Labor Costs</b>					
Total	\$265,500	\$259,800	\$345,600	\$451,800	\$1,322,700
<b>Panel B: Manufacturing overhead</b>					
Variable costs	\$132,750	\$129,900	\$172,800	\$225,900	\$661,350
Fixed costs (cash only)	950,000	950,000	950,000	950,000	3,800,000
Total	\$1,082,750	\$1,079,900	\$1,122,800	\$1,175,000	\$4,461,350
<b>Panel C: Marketing and Administrative</b>					
Variable costs	\$367,500	\$367,500	\$482,500	\$712,500	\$1,930,000
Fixed costs (cash only)	1,120,000	1,120,000	1,120,000	1,120,000	4,480,000
Fixed research	250,000	250,000	250,000	250,000	1,000,000
Total	\$1,737,500	\$1,737,500	\$1,852,500	\$2,082,500	\$7,410,000



### CHAPTER CONNECTIONS

Cash outflows for depreciable items such as machinery take place in lump sums, when the firm purchases the equipment. Firms capitalize this cost and depreciate it over the asset's useful life. The cash inflows associated with purchasing equipment (e.g., increases in revenue or reductions in operating costs) accrue over several years, meaning that we need to consider the time value of money in our decision process. In Chapter 12, we discuss how to make these longer-term capital budgeting decisions.

### Nonmanufacturing Costs

Panel C of Exhibit 7.18 projects the cash outflow for Amarillo's marketing and administrative costs. Again, we adjust this expense for noncash-related items to forecast the cash outflows. Subtracting the \$1,020,000 of depreciation from the fixed cost of \$6,500,000 estimated in Exhibit 7.12 means that the associated annual cash outflow for fixed costs is \$5,480,000.

### NET CASH FLOW FROM OPERATIONS

We are now in a position to estimate Amarillo's net cash flow from operations, as shown in Exhibit 7.19. This exhibit combines the summary information from Exhibit 7.15, Exhibit 7.17, and the three panels in Exhibit 7.18.

Exhibit 7.19 indicates some potential problems. Amarillo has a negative net cash flow from operations in the first and second quarters. Barring a reserve of cash at the beginning of the year or inflows from special items, Amarillo will need to find ways to make up for this expected shortfall.

### PULLING IT ALL TOGETHER

We next consider the cash flow for special items and then consolidate all of the information into one overall cash budget.

**Exhibit 7.19** *Amarillo Toys: Net Cash Flow from Operations*

	Quarter			
	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>
Collections from revenue	\$6,387,000	\$6,306,500	\$7,428,000	10,419,500
- Purchases	3,453,560	3,268,300	3,630,920	4,589,920
- Labor expenses	265,500	259,800	345,600	451,800
- Manufacturing overhead	1,082,750	1,079,900	1,122,800	1,175,900
- Marketing & administrative	1,737,500	1,737,500	1,852,500	2,082,500
Net operating cash flow	<b>(\$152,310)</b>	<b>(\$39,000)</b>	\$476,180	\$2,119,380

**Special Items**

Thus far, our analysis of Amarillo's cash budget has considered inflows and outflows from operations. This analysis is consistent with the focus of preparing an income statement for the budget period. Firms, however, experience cash inflows and outflows for other reasons.

Purchasing a machine that will last for several years leads to a cash outflow. However, such an outflow would not be included in cash flows from operations. Neither would the payment of dividends or making a scheduled payment on a loan. Special items also can result in cash inflows, as would occur from the sale of a machine, the sale of stock in the capital market, or a loan.

Amarillo does not anticipate any unusual cash inflows in the coming year. However, Amanda informs you that Amarillo expects to pay a dividend of \$225,000 during the first quarter. She also notes that replacement of machines and other capacity resources will result in cash expenditures of \$50,000, \$175,000, \$150,000, and \$195,000 in quarters 1 through 4, respectively.

Recall that Amarillo's total estimated tax is \$469,000. The IRS requires that firms make estimated tax payments each quarter. Accordingly, Amanda wants to budget for estimated income tax payments of \$118,000 each quarter.

**Financing Needs**

Exhibit 7.20 presents Amarillo's cash budget for the coming year.

**Exhibit 7.20** *Amarillo Toys: Summary Cash Budget*

	Quarter			
	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>
Beginning balance	\$750,000	\$204,690	<b>(\$127,310)</b>	\$80,870
± Net operating cash flow	<b>(152,310)</b>	<b>(39,000)</b>	476,180	2,119,380
± Special items	<b>(275,000)</b>	<b>(175,000)</b>	<b>(150,000)</b>	<b>(195,000)</b>
- Estimated taxes	<b>(118,000)</b>	<b>(118,000)</b>	<b>(118,000)</b>	<b>(118,000)</b>
Ending balance before financing	\$204,690	<b>(\$127,310)</b>	\$80,870	\$1,887,250

Amanda projects that she will open the coming year with cash of \$750,000 because of receipts from fourth-quarter holiday sales for the current year. However, the cash needed in quarter 1 of the coming year will severely deplete this balance. Amarillo has a negative cash flow from operations, as operating outflows exceed collections by \$152,310. The payment of dividends of \$225,000, the capital expenditures of \$50,000 and estimated taxes further increase the outflow by \$393,000 to yield a total outflow of \$545,310. The ending cash balance is only \$204,690.



The cash picture worsens in quarter 2. The beginning cash balance of \$204,690 is not enough to overcome the small deficit in operating flows, \$39,000, and the other outflows of \$293,000. She projects a negative balance of \$127,310 at the end of quarter 2. Therefore, Amanda will need to arrange short-term financing. However, the picture for the entire year is positive. Cash inflows exceed cash outflows in quarters 3 and 4, allowing Amarillo to build a comfortable cash balance by the end of the year.

A summary cash budget such as the one in Exhibit 7.20 is invaluable in helping firms anticipate financing needs. Amarillo might wish to arrange now for a line of credit of perhaps \$200,000 so that it can tide over its cash shortfall in quarter 2. Alternatively, the firm can explore whether it can accelerate collections or defer purchases. In particular, it seems wise to defer the dividend payment to the fourth quarter, when ample cash is available. As shown in *Check It! Exercise #6*, this change would be enough to remove the need for any loans.



## Check It! Exercise #6

Verify that Amarillo will not need to take out a loan if it could defer the dividend payment to the fourth quarter. With this change, the cash outflow because of special items will be \$50,000 in the first quarter.

	<u>Quarter 1</u>	<u>Quarter 2</u>	
Beginning balance	\$750,000	_____	Ending balance from Q1
± Net operating cash flow	(\$152,310)	(\$39,000)	Given
± Special items & taxes	_____	(\$293,000)	Given
= Ending balance	_____	_____	

Solution at end of chapter.

Like most firms, Amarillo would have a target level for its “inventory” of cash. Suppose Amanda’s target level for Amarillo is \$100,000. The cash budget in Exhibit 7.20 alerts Amanda that she will have considerable excess cash at the end of the next year. She might, therefore, begin to make plans for investing the excess (over that required to sustain operations) into expanding the business, investing it elsewhere, or returning the capital to shareholders as dividends.

Thus far, we have focused on the somewhat mechanical linkages among individual budgets. However, budgeting is more than an accounting exercise. As we discuss next, managing the process of preparing and administering budgets is a challenging task.

## Factors Influencing the Budgeting Process

### LEARNING OBJECTIVE 4

Describe factors that affect the budgeting process.

The quality of the information obtained for budgeting, as well as the way in which budgets are developed and used in organizations, depends on several factors, including organizational structure and management style. We discuss these factors next.

### ORGANIZATIONAL STRUCTURE

Firms delegate decisions to individuals likely to have the best information pertinent to that decision. For example, firms typically entrust their marketing personnel with

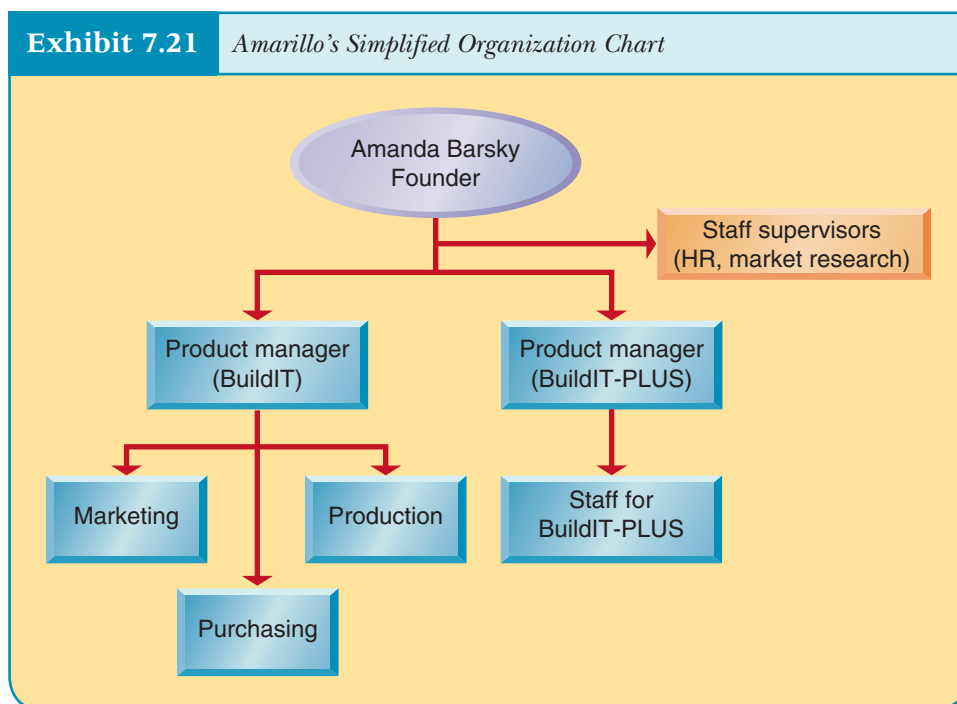
decisions related to developing and maintaining the customer base, advertising, and improving market share. Such delegation of decision rights is sensible because marketing personnel have the best knowledge about market trends and demand conditions. In this way, delegation can help the organization make better and faster decisions.

We use the term **responsibility accounting** when referring to concepts surrounding decentralization—each organizational subunit is a **responsibility center**. Over the years, three common forms of responsibility centers have evolved, each based on the type of decision rights delegated.

1. **Cost centers:** Organizational units that have control over the costs incurred in offering products or services. A production plant is a classic example.
2. **Profit centers:** Organizational units that have control over both revenue and costs. A region or a product line is an example.
3. **Investment centers:** Organizational units that have control over revenues, costs, and long-term investment decisions. Stand-alone divisions are usually evaluated as investment centers.

Exhibit 7.21 presents the organization chart for Amarillo Toys. Referring to this chart, Amanda treats each product division as a profit center and holds each product manager accountable for the profit generated by his or her division. She treats the Production departments within the product divisions as cost centers, responsible for the cost side of the equation. The several sections within each product department are cost centers as well. Amanda uses the organizational structure effectively to co-locate knowledge and decision making.

Decentralization of decision-making authority comes at a cost, however. As you learned earlier, differences between the firm's goals and employees' goals mean that employees may not always take actions that are in the firm's best interests. For example, marketing personnel may use company resources for expensive dinners and fancy hotel accommodations. This conflict leads to the need for performance evaluation and incentives schemes to help align interests.





## CHAPTER CONNECTIONS

*In Chapter 1, we discussed the lack of congruence between organizational and individual goals. This incongruence means that individuals have to be motivated, through incentive schemes and performance evaluation systems, not to use company resources in order to advance their own goals at the expense of organizational goals.*

What does all of this mean for budgeting? It means that Amanda will use Amarillo's budgets to motivate, evaluate, and reward her employees. Under responsibility accounting, Amanda will hold managers accountable for the revenue and cost items that they control—the production manager of BuildIT would be held accountable for differences between the actual and budgeted costs of producing BuildIT, but not BuildIT-PLUS. Similarly, product managers would be held accountable for differences between the actual and budgeted profit for their specific products. An organization's structure also dictates who is responsible for preparing certain budgets and the extent of communication and coordination necessary to consolidate the budgets. For example, to obtain the overall revenue budget, Amanda would need to consolidate the individual revenue budgets prepared by the marketing managers of BuildIT and BuildIT-plus.

## MANAGEMENT STYLES

In addition to organizational structure, management styles also vary across organizations. Some managers are authoritarian while others, like Amanda, prefer to build consensus. The quality of the information obtained, the cost of budgeting, and the commitment to budgets frequently depend on management style. Two widely used characterizations are **top-down budgeting** and **bottom-up budgeting**.

### Top-down Budgeting

A top-down approach to budgeting reflects an authoritarian style of management. Senior managers finalize the budget with limited input from lower organizational levels. One advantage of this approach is that it is not time consuming. A top-down approach also allows senior managers to set difficult budget targets and push the company in new directions. However, the top-down approach does not use organization-wide input. Therefore, it does not take advantage of the superior information that individuals at lower levels in the organization possess, meaning that budgets may not reflect the best available information. Employees also may lack the commitment and motivation to achieve budget goals that they had no input in setting.

Top-down budgeting is most suitable in smaller organizations with a narrow and manageable range of products and services, and centralized decision making. In these settings, top managers are likely to possess detailed enough information for budgeting purposes.

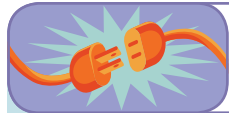
### Bottom-up Budgeting

Bottom-up, or participative, budgeting encourages organization-wide input into the budget process. The usefulness of budgeting relies on having good forecasts. Proponents of participative budgeting argue that it makes sense to take advantage of employees' intimate knowledge of operations when formulating plans. Bottom-up budgeting also can increase employees' commitment to achieving budget goals because employees helped set the budgets—goals have not been imposed from above.

A drawback of participative budgeting arises because employees have *better* information about operating conditions than their managers do. For example, we expect a salesperson who interacts frequently with a customer to know more about the customer's expected purchases than the vice president for sales. However, employees

have incentives to be strategic when revealing the information that only they know. Why would employees do this when they know that not revealing their information would lead to inaccurate data for planning? Employees do so because a lower performance benchmark is easier to beat. For example, cost-center managers have incentives to overstate costs, or pad the budget, making it easier to beat the budget and creating the appearance of a better than expected performance.

Recognizing these incentives, organizations using participative budgets go through several iterations to obtain as good a forecast as possible. This means that participative budgeting can become a very time-consuming and effort-intensive process, especially in large decentralized organizations.



## Connecting to Practice

### PARTICIPATIVE BUDGETING IN PORTO ALEGRE

The city of Porto Alegre dramatically changed its budgeting practices in 1998. Instead of bureaucrats developing budgets behind closed doors and obtaining approval in a city council meeting, the city chose to involve the population in the budgeting process. Every March, the public receives preliminary budget documents. Extensive public discussions ensue for 10 months before the city approves the final budget in December.

**COMMENTARY:** For many municipalities, the budgeting process focuses on “saving money” rather than on what expenditures best serve the community. In contrast, the budgeting process in Porto Alegre begins by asking what services the community wants, with a focus on identifying overall city priorities. While the participative budgeting process is time consuming and expensive, benefits can accrue when everyone has a say in the process.

Source: Based on “The Participative Budget in Porto Alegre: Insights from a Study Visit of a Canadian Councillor,” *The Innovation Journal*, updated April 15, 2004.

Our descriptions of top-down and participative budgeting represent two ends of the spectrum. Most firms implement a combination of the two methods where some aspects of the budget are top-down and other aspects are bottom-up. Reconciling the different plan assumptions and targets among the different parts often requires many meetings, reexamination of assumptions, and prioritizing needs. However, these time-consuming steps often pave the way for getting the maximum benefit from the budgeting process.

### Budget Goals

The top-down or bottom-up nature of the budgeting process also affects the nature of the plan targets. Top-down budgets often lead to goals that are difficult to achieve. While hard goals may motivate employees to deliver their best, employees may simply give up if they perceive the targets to be unattainable. Bottom-up processes, on the other hand, can generate loose or easy targets because employees have a natural incentive to ensure that the targets used to evaluate their performance are easily achievable. Such loose targets are not likely to motivate employees to do their best.

Popular wisdom characterizes the best targets as “tight but attainable,” or targets that employees can achieve if they put their best foot forward. While we cannot provide a precise definition of “tight but attainable,” surveys and experimental data suggest that roughly 80% of all employees will meet a tight but attainable target if they deliver their best efforts.

## PAST PERFORMANCE AND THE BUDGETING PROCESS

Past performance and past trends can be useful in budgeting because they help future projections. Indeed, many organizations use the budget for the previous year or period as the starting point in the budgeting process. These organizations evaluate the previous year's actual performance relative to the budget and desired changes in performance targets. They then use this information to update budgetary items.

This incremental approach to budgeting is pragmatic. It focuses peoples' attention on making *changes* to the previous year's budget based on actual performance and new information. Incremental changes are easier to justify and communicate; it is human nature to compare performance across people and periods.

While it often makes sense to use prior performance as the starting point for developing budgets, there are at least two concerns with this approach. First, the incremental approach can foster a business-as-usual mentality, and lead organizations to miss the "forest for the trees." It may blind decision makers to the need for drastic changes in business by making them focus narrowly on small changes from the status quo. Second, an incremental approach can lead to *ratcheting*. Organizations have a natural tendency to ratchet up performance expectations, but are less likely to ratchet down. Managers are more likely to approve cost reductions than cost increases and to set higher sales targets than lower sales targets. Anticipating this behavior, a subordinate might deliberately tailor effort levels to meet or just beat the current year's budget. This incentive arises because exceeding today's target substantially might lead to a much higher target for the next year.

### SUMMARY

In this chapter, we discussed budgeting, a means for showing the collective impact of decisions on organizational resources and profit. We first articulated the three primary roles—planning, coordination, and control—that budgets serve in organizations. Next, we illustrated the detailed mechanics associated with preparing the master budget and the cash budget. Finally, we discussed how organizational structure, management style, and past performance influence the budgeting process.

Having focused primarily on the planning and coordination roles of budgets in this chapter, we turn our attention to the control role of budgets in the next chapter. Our focus in **Chapter 8** is profit variance analysis, a technique used to determine the causes for deviations between budgeted and actual results.

### RAPID REVIEW

#### LEARNING OBJECTIVE 1

##### Understand the roles budgets serve in organizations.

- A budget is a plan for using limited resources. Budgets serve three major roles: (1) planning, (2) coordination, and (3) control (performance evaluation and feedback).
- Operating budgets reflect the outcomes of numerous short-term decisions designed to achieve long-term goals. Financial budgets quantify the outcomes of operating budgets in summary financial statements.
- As a company grows, it usually transitions from centralized to decentralized decision making. Under decentralization, departments need to communicate and coordinate among themselves to ensure that all are working toward the same corporate goals. Budgets are a good way of communicating organization-wide plan targets and highlighting the linkages among organizational subunits.
- Budgets provide a benchmark for evaluating actual performance. Without such a benchmark, it is difficult to assess whether employees made the right decisions or to identify problem areas so that the firm can take corrective actions.
- The three roles for budgets complement each other, but also can lead to conflicts during the budgeting process. The central tension in the budgeting process stems from the interplay between the planning and control roles.

## LEARNING OBJECTIVE 2

**Link individual budgets together to form an organization-wide plan.**

- The master budget comprises several components. The revenue budget is the starting point and anchors the rest of the budgets. The firm's policy on finished goods helps translate the sales forecast in the revenue budget into the production budget. In turn, organizations use the production budget to estimate materials, labor, and overhead budgets. Firms then consolidate these budgets to obtain the costs of goods manufactured and sold.
- Sales and marketing personnel develop budgets for selling, distribution, and administrative expenses.
- Budgeted financial statements, such as the income statement, consolidate all of the component budgets in the master budget.
- The usual budgeting process is iterative, with planners reworking estimates numerous times throughout the budgeting process. Such intense examination of operating assumptions and estimates adds value to the budgeting process. By scrutinizing all estimates, a well-prepared budget allows the firm to make the best possible decisions and extract the maximum value from its resources.

## LEARNING OBJECTIVE 3

**Construct a cash budget and understand cash management.**

- The cash budget helps firms manage their working capital. The cash budget allows companies to assess whether they will have enough money on hand to sustain projected operations. Constructing a cash budget is important because credit sales, on-account purchases, and other accrual accounting practices mean that the flow of cash will not correspond exactly to the flow of revenues and expenses.
- The cash budget comprises three major components: inflows from operations, outflows from operations, and special items.
- Proceeds from sales are the primary cash inflows from operations. Just about every business offers credit terms

to its customers—with credit sales, cash comes in *after* the sale occurs. Accordingly, firms need to adjust revenue by their credit policies to compute the expected inflow of cash.

- There are four general types of cash outflows from operations: purchase of materials, payments for labor, payments for manufacturing overhead, and payments for nonmanufacturing costs. Firms forecast cash outflows for materials by examining the purchase budget and adjusting for their payment policy, for labor from the production budget, and for overhead expenses from the individual overhead budgets.
- Cash inflows and outflows due to special items arise from capital budgeting and financing decisions.

## LEARNING OBJECTIVE 4

**Describe factors that affect the budgeting process.**

- The budgeting process depends on numerous factors such as organizational structure, management style, and the perceived role budgets play in organizations.
- We use the term *responsibility accounting* when referring to concepts surrounding decentralization and the attendant performance evaluation. Over the years, three common types of responsibility centers have evolved: (1) cost centers, (2) profit centers, and (3) investment centers.
- Most firms use a combination of top-down and bottom-up (or participative) approaches to budgeting. The top-down approach is suitable for small firms with managers intimately involved in day-to-day operations. The participative approach seeks input from all participants, thereby encouraging information transfer and buy-in to budget targets. However, the control role for budgets means that the participative process also encourages employees to set easy targets by understating revenue estimates or padding costs. Regardless of the process, the objective is to set tight but attainable targets to best motivate employees.
- Incremental budgets generate forecasts by adjusting past performance but could lock in current practices.

# Appendix

## BUDGETING AND COST FLOW ASSUMPTIONS

For simplicity, the chapter illustrates Amarillo’s budget under the assumption that prices of input materials do not change during the budgeting period or relative to last year. If this assumption is not true, as is often the case, Amarillo needs to employ a cost flow assumption such as FIFO or LIFO to value the cost of materials used. This change will ripple through to the cost of goods manufactured and cost of goods sold budgets. It also will affect the cash budget.

In the text, we assumed the cost of special-grade plastic to be \$1,000 per lot for the entire period. Suppose instead that Amarillo forecasts prices to be \$1,050 for quarters 2 and 3 and \$1,100 for quarter 4.

Exhibit 7.22 shows how this change would affect the direct materials usage budget (see Exhibit 7.5 for a benchmark comparison). As you see, we now have to distinguish between lots of special-grade plastic because we have inventory layers with differing prices. Notice that the total cost of materials used has increased from \$2,005,000 (in Exhibit 7.5) to \$2,111,200.

This change in the cost of special-grade plastic in turns affects the variable cost of goods manufactured, as shown in Exhibit 7.23. Notice how the increase affects the cost per lot of BuildIT-PLUS produced. Rather than staying at \$2,170 per lot for the entire period, the cost per lot changes gradually from \$2,170 to \$2,265. In turn, this cost affects the value of inventory of BuildIT-PLUS.

Exhibit 7.24 then shows how the change affects the cost of goods sold for BuildIT-PLUS. For ease of reference, the top of this exhibit shows the physical flow of lots

**Exhibit 7.22** *Amarillo Toys: Direct Materials Usage Budget (special-grade plastic only)*

	Quarter				<i>Total</i>
	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>	
Lots to be used in production (from Exhibit 7.4)	425	410	520	650	
Lots from beginning inventory	30	41	52	65	
Lots to be used from purchases	395	369	468	585	
Cost per lot of beginning inventory	\$1,000	\$1,000	\$1,050	\$1,050	
Cost of materials from inventory	<u>\$30,000</u>	<u>\$41,000</u>	<u>\$54,600</u>	<u>\$68,250</u>	
Cost per lot of purchases	\$1,000	\$1,050	\$1,050	\$1,100	
Cost of materials purchased	<u>\$395,000</u>	<u>\$387,450</u>	<u>\$491,400</u>	<u>\$643,500</u>	
<b>Total Cost</b>	<b><u>\$425,000</u></b>	<b><u>\$428,450</u></b>	<b><u>\$546,000</u></b>	<b><u>\$711,750</u></b>	<b><u>\$2,111,200</u></b>

**Exhibit 7.23** *Amarillo Toys: Variable Costs of Goods Manufactured (BuildIT-PLUS only)*

	Quarter				Total
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Lots produced	425	410	520	650	
Plastic: Special-grade	\$425,000	\$428,450	\$546,000	\$711,750	\$2,111,200
Dyes	212,500	205,000	260,000	325,000	1,002,500
Packaging materials	170,000	164,000	208,000	260,000	802,000
Direct manufacturing labor	76,500	73,800	93,600	117,000	360,900
Variable manufacturing overhead	38,250	36,900	46,800	58,500	180,450
<b>Variable cost of goods manufactured</b>	<b>\$922,250</b>	<b>\$908,150</b>	<b>\$1,154,400</b>	<b>\$1,472,250</b>	<b>\$4,457,050</b>
Cost per lot of BuildIT-PLUS in ending inventory (= total variable cost of goods manufactured / lots produced)	\$2,170	\$2,215	\$2,220	\$2,265	

**Exhibit 7.24** *Amarillo Toys: Variable Costs of Goods Sold (BuildIT-PLUS only)*

	Quarter				Year
	Quarter 1	Quarter 2	Quarter 3	Quarter 4	
Lots in beginning inventory	15	40	50	70	15
+ Lots manufactured	425	410	520	650	2005
- lots in ending inventory	40	50	70	20	20
= Lots sold	400	400	500	700	2000
Value of beginning inventory	\$32,550	\$86,800	\$110,750	\$155,400	\$32,550
+ Variable cost of goods manufactured	922,250	908,150	1,154,400	1,472,250	4,457,050
- Value of ending inventory	86,800	110,750	155,400	45,300	45,300
= Variable Cost of goods sold	\$868,000	\$884,200	\$1,109,750	\$1,582,350	\$4,444,300

for BuildIT-PLUS. The value of the beginning inventory is, of course, the value of the ending inventory from the prior quarter (recall that the amount was \$2,170 per lot at the end of the prior year). We can then use the data in Exhibit 7.22 to calculate the variable cost of goods sold. Again, notice that the variable cost of goods sold for the year has increased from \$4,340,000 in Exhibit 7.11 to \$4,444,300.

The above exhibits show how changing prices affect the amounts in the accounting records. Of course, changing prices would also affect the cash budget. Rising prices for inputs such as materials, labor, and overhead mean that we will owe more to our suppliers and employees, increasing the outflow of cash. On the other hand, holding volumes constant, higher prices for Amarillo's products would increase the inflow of cash.

As you can see, a seemingly small change in a budget assumption affects calculations in many subsequent steps. Firms deal with such issues by using linked spreadsheets to prepare their budgets. This approach allows them to change one value and have the effect ripple through the rest of the budget. The approach also helps firms analyze more "what if" scenarios for alternate assumptions about demand, efficiencies, and prices.





### CHAPTER CONNECTIONS

*Suppose prices were constant for the entire period. Then, we can express the budgeted income statement in the form of a multiproduct CVP equation that we studied in Chapter 5. In particular, the unit contribution margins for BuildIT and BuildIT-PLUS are \$1,035 and \$2,405, respectively, and total fixed costs are \$11,750,000. Thus, we can express the income statement in Exhibit 7.13 as*

$$\begin{aligned} \text{Profit before taxes} = & \$1,035 \times \text{BuildIT} + \$2,405 \\ & \times \text{BuildIT-PLUS} - \$11,750,000 \end{aligned}$$

*This representation is not possible with changing prices because different layers of inventory of the same product would have different contribution margins. While CVP is an aggregate and easy-to-use model, budgeting is a detailed exercise that can account for the complexities of business operations.*

## ANSWERS TO CHECK IT! EXERCISES

**Exercise #1:** For quarter 2, desired ending inventory =  $500 \times 0.10 = 50$ , and beginning inventory = 40 (the ending inventory from quarter 1); thus,  $400 + 50 - 40 = 410$ . For quarter 3, desired ending inventory =  $700 \times 0.10 = 70$ , and beginning inventory = 50 (the ending inventory from quarter 2); thus,  $500 + 70 - 50 = 520$ .

**Exercise #2:** For quarter 1, the lots to be used in production =  $1,575 \text{ BuildIT} + 425 \text{ BuildIT-PLUS} = 2,000$ , and the cost per lot = \$500; thus,  $2,000 \text{ lots} \times \$500 \text{ per lot} = \$1,000,000$ . For quarter 2, the lots to be used in production =  $1,550 \text{ BuildIT} + 410 \text{ BuildIT-PLUS} = 1,960$ , and the cost per lot = \$500; thus,  $1,960 \text{ lots} \times \$500 \text{ per lot} = \$980,000$ .

**Exercise #3:** For quarter 1,  $425 \text{ lots to be produced (see Exhibit 7.4)} \times 12 \text{ labor hours per lot} \times \$15 \text{ per labor hour} = \$76,500$ . For quarter 2,  $410 \text{ lots} \times 12 \text{ labor hours per lot} \times \$15 \text{ per labor hour} = \$73,800$ . For quarter 3,  $520 \text{ lots} \times 12 \text{ labor hours per lot} \times \$15 \text{ per labor hour} = \$93,600$ ; for quarter 4,  $650 \text{ lots} \times 12 \text{ labor hours per lot} \times \$15 \text{ per labor hour} = \$117,000$ .

**Exercise #4:**  $\$6,270,000 \times 0.05 = \$313,500$ ;  $\$6,270,000 \times 0.35 = \$2,194,500$ ;  $\$8,200,000 \times 0.60 = \$4,920,000$ .

**Exercise #5:** For quarter 1, desired ending inventory =  $1,960 \times 0.10 = 196$ , and beginning inventory = 125 (from text); thus,  $[(2,000 + 196 - 125) \times \$500] = \$1,035,500$ . For quarter 2,  $[(1,960 + 262 - 196) \times \$500] = \$1,013,000$ . For quarter 3,  $[(2,620 + 344 - 262) \times \$500] = \$1,351,000$ . For quarter 4,  $[(3,440 + 125 - 344) \times \$500] = \$1,610,500$ .

**Exercise #6:** For quarter 1, ending balance =  $\$750,000 - \$152,310 - (\$50,000 + \$118,000) = \$429,690$ . For quarter 2, ending balance =  $\$429,690 - \$39,000 - (175,000 + \$118,000) = \$97,690$ .

## SELF-STUDY PROBLEM

Jack's, a popular discount store, is formulating its budget for the second quarter of the coming year. Revenue estimates are \$1,495,000 for April, \$1,430,000 for May, and \$1,560,000 for June. While markups on individual items vary, Jack's management estimates that the average selling price exceeds the average purchase cost by 25%. In terms of inventory, Jack's targets to have merchandise on hand equal to 30% of the following month's cost of goods sold.

In addition to the cost of goods purchased, Jack's budgets 80 hours of labor, at a cost of \$10 per hour, for every \$10,000 of revenue. Like many stores, Jack's tends to adjust the number of checkout clerks, stocking personnel, and other labor based on actual sales, which influences the volume of work needed. Jack's supervisory staff costs \$24,500 per month, and rent and utilities amount to \$38,000 per month. All other expenses, including \$12,000 for depreciation on storage racks, equal \$74,000 per month.

**a. Construct Jack's purchases budget for May.**

\$100 in purchases generates \$125 in sales ( $\$100 \times 1.25 = \$125$ ). Thus, \$100 of revenue requires purchases of  $\$100/1.25 = \$80$ .

Per Jack's inventory policy, the ending inventory for May equals 30% of the cost of goods sold in June. Further, the beginning inventory for May equals 30% of the cost of goods sold in May. (Jack's will use May revenue to generate the ending inventory for April, which, in turn, becomes the beginning inventory for May.) With this information, we use the inventory equation to compute Jack's budgeted purchases for May.

Cost of goods sold in May $\$1,430,000/1.25$	\$1,144,000
+ Desired ending inventory $(\$1,560,000/1.25) \times 0.30$	374,400
- Beginning inventory $(\$1,430,000/1.25) \times 0.30$	343,200
<b>= Goods to be purchased</b>	<u>\$1,175,200</u>

**b. Construct Jack's direct labor budget for May.**

Jack's direct labor budget follows directly from its revenue budget. Jack's budgets 80 hours of labor per \$10,000 of revenue and plans to pay \$10 per labor hour. Given the revenue information for May, we have:

Labor hours required $(\$1,430,000/10,000) \times 80$	11,440
Labor cost per hour	<u>\$10</u>
<b>Direct labor cost (11,440 × \$10)</b>	<u>\$114,400</u>

**c. Construct Jack's budgeted income statement for May.**

Exhibit 7.25 provides the required statement.

**Exhibit 7.25** Jack's: Budgeted Income Statement for May

	Detail	Amount
<b>Revenue</b>	Given	\$1,430,000
<b>Variable costs</b>		
Cost of goods sold	Revenue/1.25	1,144,000
Hourly labor	See part [b]	<u>114,400</u>
<b>Contribution Margin</b>		\$171,600
<b>Fixed costs</b>		
Supervisory salaries	Given	\$24,500
Rent and utilities	Given	38,000
Other expenses	Given	<u>74,000</u>
<b>Profit before Taxes</b>		<b>\$35,100</b>

Jack's appears to be in good financial condition. Its profit before taxes is \$35,100, or 2.45% of revenue. The markup on purchases appears to be in line with industry averages.

Not surprisingly, employees are the single largest operating expense other than cost of goods sold. “Other expenses” amount to \$74,000, and no detail is provided. Jack’s might benefit from a thorough examination of the costs in this classification and determine if they yield commensurate benefits.

- d. Construct Jack’s cash budget for May. Assume that Jack’s collects 90% of its revenue in the month of sale and the remainder in the following month. Jack’s pays for 70% of its purchases in the month of purchase and the remainder in the following month. Jack’s also expects to buy and pay for some new display units, costing \$24,000, in May. Finally, Jack’s expects to begin May with a cash balance of \$25,000.

Exhibit 7.26 provides Jack’s cash budget for May.

**Exhibit 7.26** Jack’s: Cash Budget for May

	Amount	Amount	Detail
<b>Beginning balance</b>		\$25,000	
<b>+ Cash inflows from operations</b>			
Collections – April Sales	149,500		10% of April sales
Collections – May sales	1,287,000	1,436,500	90% of May sales
<b>– Cash outflows from operations</b>			
Purchases – April	-354,120		30% of April purchases*
Purchases – May	-822,640		70% of May purchases
Hourly labor	-114,400		See part [b]
Supervisory salaries	-24,500		Given
Rent and utilities	-38,000		Given
Other expenses	-62,000	-1,415,660	\$74,000 – \$12,000 in
<b>+/- Special items</b>			
Display units		-24,000	For display units
<b>Ending balance</b>		<b>\$21,840</b>	

\* April purchases = \$1,196,000 cost of goods sold in April + \$343,200 desired ending inventory – \$358,800 beginning inventory = \$1,180,400.

We compute cash inflow from operations by adjusting the revenue estimates for the pattern of collections. Likewise, we calculate the cash flow from purchasing by applying the payment policies to the monthly purchases. We estimate all other expenses directly, with the only adjustment for depreciation, which is a noncash expense.

Our calculations reveal that Jack’s expects to end May with a cash balance of \$21,840. If management of Jack’s believes that this is a sufficient beginning balance for June, then the company does not need to undertake any borrowing activities. If, however, the company has a policy of maintaining a minimum balance of, say, \$25,000, then Jack’s will have to find some short-term financing.

## GLOSSARY

**Bottom-up budgeting** A process by which lower-level employees actively participate in setting budgets.

**Budget** A plan for using limited resources.

**Cash budget** A budget that focuses on the inflow and outflow of cash.

**Centralized decision making** An organizational setting where a few top managers make all the decisions.

**Cost center** Organizational unit that has control over and is accountable for costs incurred in offering products or services.

**Decentralized decision making** An organizational setting where decision-making authority is dispersed throughout the firm.

**Financial budgets** Budgets quantifying the outcomes of operating budgets in summary financial statements.

**Investment center** Organizational unit that has control over and is accountable for revenues, costs, and long-term investment decisions.

**Master budget** Comprehensive set of operating and financial budgets.

**Operating budgets** Budgets reflecting the collective expression of numerous short-term decisions that conform to the direction set by long-term plans.

**Profit center** Organizational unit that has control over and is accountable for both revenues and costs.

**Responsibility accounting** Set of concepts pertaining to decision rights and performance evaluation in decentralized organizations.

**Responsibility center** An organizational subunit.

**Top-down budgeting** A process by which top management sets the budgets.

## REVIEW QUESTIONS

- 7.1 LO1.** What is a budget?
- 7.2 LO1.** What are the three reasons firms use budgets?
- 7.3 LO1.** What are: (a) an operating budget, (b) a financial budget?
- 7.4 LO2.** What is the natural starting point for the budgeting process? Why?
- 7.5 LO2.** What budget typically is prepared immediately after the revenue budget?
- 7.6 LO2.** What budgets follow from the production budget?
- 7.7 LO2.** What equation do firms use to calculate the cost of goods sold budget?
- 7.8 LO3.** Why is the cash budget important?
- 7.9 LO3.** What are the three main components of the cash budget?
- 7.10 LO3.** Why is a firm's credit policy important for translating the revenue budget into the budgeted inflows of cash?
- 7.11 LO3.** What are the four types of cash outflows from operations?
- 7.12 LO3.** What are some special items that might affect a firm's cash budget?
- 7.13 LO4.** What is a responsibility center? What are the three types of responsibility centers?
- 7.14 LO4.** What is the difference between top-down budgeting and bottom-up budgeting?
- 7.15 LO4.** What are the advantages of using last year's data as the starting point for this year's budget?

## DISCUSSION QUESTIONS

- 7.16 LO1.** The owner of a small clothing store says, "I run a small operation. I know my employees well. They are very loyal to me. I also know my business well. I know what to do to generate revenues and how to control costs. I don't need formal budgets." Do you agree with this statement? Why or why not?
- 7.17 LO1.** "In large organizations, formal budgets are perhaps the only effective means for organization-wide communication." Comment on this statement.
- 7.18 LO1.** Actual events rarely unfold exactly as expected, particularly in complex scenarios. Thus, budget assumptions are likely to be proven wrong as actual events unfold. What then is the value of a budget?
- 7.19 LO1.** Firms use budgets as a benchmark for performance evaluation, especially in large organizations. Since close supervision may not be possible in such organizations, is this role of budgets simply a substitute for close supervision? Comment.
- 7.20 LO2.** "Budgets are only as good as the forecasts upon which they are based." In some industries, it is very difficult to forecast demand accurately, while in other industries demand conditions are relatively stable. Discuss the role of budgeting in these two settings.
- 7.21 LO2.** Sales forecasts and overhead estimates are the two activities that consume the most time during the budgeting process. Discuss why this is the case.
- 7.22 LO2.** "Sales and production budgets are the same in firms that follow a just-in-time inventory policy." Is this assertion correct? Comment on whether the materials usage budget would be the same as the materials purchase budget for JIT firms.
- 7.23 LO2.** The text portrays the budgeting process as a linear progression from one budget to another. In practice, budgets are rarely linear and are much more recursive. What are the costs and benefits of going through several iterations before finalizing a budget?
- 7.24 LO3.** What are the similarities and differences between the cash budget as described in the text and the cash flow statement that we find in firms' financial reports?
- 7.25 LO1, LO2, LO3.** Do you believe that budgets lead organizations to place too much emphasis on financial performance and not enough emphasis on the qualitative and nonfinancial aspects of performance? Why or why not?

**7.26 LO4.** Some experts argue that budgets have to be “loose” and “flexible” for companies that are in their growth phase. Other experts believe that good planning and control through well-formulated budgets can never hurt. Which line of reasoning do you agree with? Are these two arguments necessarily inconsistent?

**7.27 LO4.** Participative, or bottom-up, budgeting is a time-consuming process in large organizations. Yet, it is perhaps most beneficial to these companies. Discuss the advantages and disadvantages of participative budgeting in large organizations.

**7.28 LO4.** When would a top-down budgeting be preferable to bottom-up or participative budgeting?

**7.29 LO4 (Advanced).** Investigate line-item budgeting. Why is line-item budgeting more prevalent in government and nonprofit organizations than it is in commercial companies? Explain.

**7.30 LO4.** (Advanced) A criticism of budget lapsing is that it forces decision makers to find ways to spend the money allocated to them in the budget, even when there is no real need. Do you agree with this criticism? Can you think of situations where budget lapsing would actually be beneficial to an organization?

## EXERCISES

**7.31 Revenue budget (LO2).** Premium Windows makes one type of standard windows for residential buildings. Premium desires to end March with 2,500 windows in stock. Premium’s inventory on March 1 is 1,750 windows, and its budgeted production for the month is 8,000 windows. Each window sells for \$60.

*Required:*

Prepare Premium’s revenue budget for March.

**7.32 Revenue budget, price-sales trade-off (LO2).** Premium Windows makes one type of standard windows for residential buildings. Premium believes that if it prices each window at \$60, then it will sell 2,500 windows in January and that sales will increase by 100 units a month through August. Sales would then decrease at the rate of 150 units per month through December. However, if Premium prices each window at \$57, then sales for January would be 2,600 units. Sales would increase at the rate of 125 per units per month through August and then decrease at the rate of 150 units per month through December.

*Required:*

**a.** Which price should Premium choose, \$57 or \$60, to maximize its revenues for the year?

**b.** What other factors should Premium consider before making its pricing decision?

**7.33 Revenue and production budgets (LO2).** The following table presents select information for three of Premium Windows’ monthly budgets for the coming year.

<i>Number of Windows</i>	<i>April</i>	<i>September</i>	<i>December</i>
Desired ending inventory	1,800	2,000	?
Beginning inventory	1,200	?	2,200
Budgeted sales	10,000	15,000	20,000
Budgeted production	?	14,000	21,000

*Required:*

Fill in the missing information, computing the value of each “?”.

**7.34 Revenue and production budgets, inventory policy (LO2).** The following table presents select information for three of Premium Windows’ monthly budgets for the coming year. Premium’s inventory policy is to have ending inventory equal to 15% of next month’s sales.

<i>Number of Windows</i>	<i>February</i>	<i>March</i>	<i>April</i>
Desired ending inventory	?		3,000
Beginning inventory	1,500	?	?
Budgeted sales	10,000	15,000	20,000
Budgeted production	?	?	?

*Required:*

Fill in the missing information, computing the value of each “?”.

- 7.35 Revenue budget, income statement, Hercules (LO2).** Tom and Lynda own Hercules Health Club. They provide the following information regarding expected membership. You also know that the monthly fee for an individual membership is \$100 and the fee for a family membership is \$160. Variable costs are \$35 and \$60, respectively, for the individual and family membership. Fixed costs amount to \$40,000 per month.



<i>Month</i>	<i>Individual Memberships</i>	<i>Family Memberships</i>
August	700	300
September	690	300
October	680	295
November	675	290

*Required:*

- Prepare a revenue budget and an income statement for August–November.
  - Tom and Lynda are concerned about the downward trend in memberships. They propose to run an advertising campaign that costs \$10,000. If they run the ads in September, they expect to obtain 10 more individual members and 5 additional family memberships every month. Revise the budget in part (a) for this action.
  - Should Tom and Lynda run the ad campaign? Be specific about what assumptions, if any, you may need before you can make such a recommendation.
- 7.36 Purchases and overhead, Hercules (LO2).** Tom and Lynda own Hercules Health Club. They provide the following information regarding their expected inventories of supplies and other materials.



<i>Month</i>	<i>Individual Memberships (number)</i>	<i>Family Memberships (number)</i>	<i>Beginning Inventory \$</i>
August	700	300	\$5,000
September	690	300	\$5,000
October	680	295	\$4,500
November	675	290	\$4,500

Tom and Lynda also inform you that each individual member consumes \$10 worth of supplies (\$22 per family) each month.

*Required:*

Calculate the amount of supplies purchased each month for August through October.

- 7.37 Cash budget, Hercules (LO3).** Tom and Lynda own Hercules Health Club. They provide the following information regarding their expected inventories of supplies and other materials.



<i>Month</i>	<i>Individual Memberships (number)</i>	<i>Family Memberships (number)</i>	<i>Purchases (\$)</i>
August	700	300	\$13,600
September	690	300	\$13,000
October	680	295	\$13,500

Tom and Lynda also inform you that the monthly individual membership fee is \$100 and the family fee is \$160. Hercules offers a 10% discount if a member pays the entire year's fee in a lump sum. About 180 individuals and 60 families take this offer. The number up for renewal is spread evenly through the year.

Hercules pays for 60% of its purchases during the month of the purchase, and the remainder the next month. Other variable costs (paid in cash) amount to \$25 per month for individuals and \$45 per month for families. Hercules also incurs \$41,000 (including \$12,500 in depreciation) toward fixed costs each month. Finally, Tom and Lynda inform you that they have to pay \$20,000 toward the purchase of new equipment in September, and take out \$15,000 each month as their profit. (They do not draw a salary.)

Hercules began August with a cash balance of \$6,000.

*Required:*

Prepare a cash budget for September.

- 7.38 Production budget, budget revision (LO2).** At the beginning of the year, Gantz Company budgeted to have an inventory of 22,000 units at the end of April. Budgeted production for April was 120,000 units, and budgeted inventory at the beginning of April was

15,000 units. A few days before the end of March, the company's marketing executive cut the sales forecast for both April and May by 10 percent. In addition to affecting April and May sales, this revision means that the targeted ending inventory for April needs to be revised down by 10 percent. Naturally, April's production budget will also be affected. However, Gantz still expects to begin April with 15,000 units because it's too late in the month to alter March production.

*Required:*

Calculate Gantz's revised production budget for April.



**7.39 Revenue and production budgets, multiple products (LO2).** Bosworth Boxes makes cardboard boxes in three sizes—small, medium, and large. Betty Bosworth currently is working on the monthly budgets for March and April and provides you with the following information:

	Box Type		
	<i>Small</i>	<i>Medium</i>	<i>Large</i>
Budgeted sales for March	10,000	25,000	15,000
Budgeted sales for April	15,000	30,000	20,000
Budgeted sales for May	20,000	40,000	25,000
Budgeted price per unit	\$2.75	\$3.75	\$5.00

Desired ending inventory for each type of box = 20% of the following month's sales.

*Required:*

Prepare Bosworth Boxes' revenue and production budgets for March and April.



**7.40 Direct materials usage and purchase budgets (LO2, LO3, Appendix).** Bosworth Boxes makes cardboard boxes. For March and April, Bosworth expects to produce 12,000 and 15,800 boxes, respectively.

The main material input for Bosworth's boxes is cardboard. To make one box, Bosworth budgets to use 12 linear feet of 2-foot-wide cardboard at a cost of \$0.75 per linear foot. Further, while Bosworth expects to begin March with 50,000 linear feet of 2-foot-wide cardboard, its direct materials inventory policy is to have 40 percent of the next month's total material needs in ending inventory.

*Required:*

- a. Prepare Bosworth's cardboard purchases budget for March.
- b. Prepare Bosworth's cardboard usage budget for March. Assume that Bosworth's beginning inventory of cardboard is also valued at \$0.75 per linear foot and that Bosworth uses the First-In-First-Out (FIFO) inventory method.
- c. (Appendix) Suppose Bosworth values its beginning inventory of cardboard at \$0.70 per linear foot, but still expects to pay \$0.75 per linear foot for March purchases. Assuming Bosworth uses a FIFO cost flow assumption, what is Bosworth's cardboard usage budget for March?

**7.41 Cash inflows from operations, sales (LO3).** Bruce Jaffee is a wholesaler of spices, importing them from countries such as Thailand, India, and Sri Lanka. Bruce repackages the spices and sells them to organic food stores and gourmet groceries. Bruce sells most of his products on credit; he estimates that he collects 30% of his revenues in the month of sale, 40% in the following month, 25% two months after the sale, and the remaining 5% the month thereafter.

Bruce provides you with the following budgeted revenue information for the coming five months:

	Month				
	<i>August</i>	<i>September</i>	<i>October</i>	<i>November</i>	<i>December</i>
<b>Revenues</b>	\$120,000	\$135,000	\$140,000	\$135,000	\$150,000

*Required:*

Compute Bruce's budgeted cash inflows for November and December.

**7.42 Cash outflows from operations, purchases (LO3).** Bruce Jaffee, the wholesaler of spices from the previous exercise, purchases most of his products on credit; he estimates that he pays 60% of his accounts payable in the month of purchase, 30% in the month following purchase, and 10% in the month thereafter.

Bruce provides you with the following information about his expected purchases for the next five months:

	Month				
	<i>August</i>	<i>September</i>	<i>October</i>	<i>November</i>	<i>December</i>
<b>Purchases</b>	\$90,000	\$95,000	\$120,000	\$110,000	\$120,000

*Required:*

Compute Bruce's budgeted cash outflows for October, November, and December.

- 7.43 Summary cash Budget, borrowing/lending (LO3).** The following cash budget for the fourth quarter of the current year has some missing information. The company has a policy of starting each month with a minimum cash balance of \$9,500. Any necessary short-term borrowing is done using the firm's line of credit, which is \$40,000. The firm prefers to pay off its loans as quickly as possible, without violating its minimum cash policy.

Cash Budget—Fourth Quarter			
	<i>October</i>	<i>November</i>	<i>December</i>
Beginning cash balance	\$9,500	\$9,500	\$9,500
Cash receipts	14,100	?	?
Total cash available	?	27,400	27,900
Cash disbursements			
Payments for materials	4,400	?	4,100
Payments for direct labor	8,450	7,250	?
Payments for overhead	?	5,920	5,720
Total payments	18,300	16,800	17,030
Balance prior to financing	?	?	?
Minimum cash balance	9,500	9,500	9,500
Financing			
Borrowing/repayment	?	?	?
Ending cash balance with loans & repayments	?	?	?

*Required:*

Fill in the missing information, computing the value of each "?." Assume the firm began October with no loans.

- 7.44 Cash budget (LO3).** Gilbert Ortega operates a small boutique in Scottsdale, Arizona that sells Kachina dolls. Gilbert expects to generate revenues of \$40,000, \$50,000, and \$60,000 during October, November, and December, respectively. Gilbert's cost of goods sold average 60 percent of revenues, and his budgeted marketing and administrative costs are \$4,000, \$6,000, and \$5,000 for October, November, and December, respectively.

Gilbert expects to receive 70% of his revenues in cash during the month of sale and 30% in the following month. Gilbert receives his dolls on consignment, with the purchase price being due at the time of sale. Thus, Gilbert's cash outflow for goods sold equals his cost of goods sold. Finally, Gilbert pays for all marketing and administrative expenses in cash as they are incurred.

*Required:*

Prepare Gilbert's cash budget for November and December. Assume that Gilbert expects to have \$16,000 in cash on November 1.

- 7.45 Cash receipts and disbursements, integration with the balance sheet (LO4, Advanced).** Kris VanKemp is a wholesaler of flowers, shipping them throughout the Pacific Northwest. Kris expects her April 1 balances in accounts receivable and accounts payable to be \$25,000 and \$6,000, respectively.

Kris also informs you that she expects sales of \$50,000, \$40,000, and \$46,000 during the months of March, April, and May, respectively. Kris collects 50% of her sales in cash during the month of sale and the remaining 50% in the following month.

Kris purchases all of her flowers from local growers. She pays for 80% of her purchases in the same month and the remaining 20% in the following month. Kris expects her purchases to be \$30,000, \$32,000, and \$40,000 for March, April, and May, respectively.



*Required:*

- a. Compute Kris's expected balance for accounts receivable as of May 31.
- b. Compute Kris's expected balance for accounts payable as of May 31.

**7.46 Budget discretion, ethics (LO4).** Wilma Turner, the budget manager at Norton Company, is working on the budget for the forthcoming year. In discussions with Scott Ford, the marketing manager, Wilma discovers that Scott's projections are 15 to 20% below what he truly believes is feasible. "We always give ourselves some breathing room," Scott says, "As you know, Roy (the company's founder) is fanatical about making budget and is not shy about showing his feelings in the bonus check. Plus, everyone around here builds a little cushion; you should too, in your department's budget."

Wilma finds Scott's assessment accurate. When she pushes, Jake Lewis, the production manager, admits to inflating costs by 5% or more. He sees his actions as a valid hedge against unpredictable price swings and efficiency losses. Moreover, he uses the extra allowance for needed repairs and other ancillary costs. "Roy would never spend a dime on something that does not go into the product," Jake says, "but I need to keep the plant going and this is a way of getting some discretionary funds."

*Required:*

What should Wilma do?

**7.47 Budget rigidity (LO4).** "Our biggest customer had a fire in their plant, torpedoing all of our sales projections. We will be lucky if we can come in at 80% of budget. Yet, Carrie refuses to adjust the budget, destroying my bonus and the sales morale. I pleaded with Carrie to give a little but she flat out refused and even threatened to replace me!" This outburst, from Jim Benjamin, neatly summarizes the current dispute at Simon and Company. Carrie Simon, the founder's granddaughter, has been managing the business for over 15 years. Her hard-nosed approaches to budget targets and aggressive tactics have earned her the nickname "Cutthroat Carrie."

When you approach Carrie, she readily admits that the current targets are now unrealistic. Yet she says that making one revision will start the firm down a slippery slope where there is no accountability for estimates.

*Required:*

Evaluate the costs and benefits of revising budget targets.

## PROBLEMS

**7.48 Production budget and capacity (LO2).** BlueSteel makes premium quality filing cabinets. The firm has one factory with a production capacity of 10,000 cabinets per month.

BlueSteel provides you with the following budgeted sales information in units by quarter. Furthermore, the firm expects to realize the same level of sales for each of the three months within each quarter.

	<i>Quarter 1</i>	<i>Quarter 2</i>	<i>Quarter 3</i>	<i>Quarter 4</i>
Sales for quarter	24,000	28,500	33,000	27,000
Sales per month	8,000	9,500	11,000	9,000

*Required:*

- a. On an annual basis, does BlueSteel have enough production capacity to meet its sales forecast?
- b. Assume that BlueSteel begins the first quarter with zero inventory. Formulate a production budget consistent with its sales forecast.
- c. The firm's CEO is contemplating going to a "no inventory" policy because she is convinced that inventory just ties up valuable capital. Comment on the effect of this strategy on BlueSteel's ability to meet next year's anticipated sales.
- d. What conclusions do you draw about the relation between capacity and inventory?

**7.49 Cash budget, bad debts, credit sales (LO3).** Mina Pizzini owns Mina's Miniatures, a store that deals in "life's little things." Items sold range from Bonsai trees to miniature paintings to doll furniture. Mina believes that 30% of any month's sales are for cash, with the remaining

70% being on credit. Of the credit sales, Mini collects 40% during the month after the sale, and 50% in two months. After much effort, Mini recovers a further 8% of credit sales three months after the sale occurs. She writes off 2% of credit sales as uncollectible.

Mina provides you with the following information regarding budgeted sales for the next six months:

	Month					
	<i>July</i>	<i>August</i>	<i>September</i>	<i>October</i>	<i>November</i>	<i>December</i>
Sales	\$85,000	\$95,000	\$125,000	\$164,000	\$175,000	\$190,000

*Required:*

Determine Mina’s expected cash collections, by month, for October through December.

**7.50 Cash budget, prepaid purchases (LO3).** Ashwini Gupta owns a retail store that sells hand-made leather goods from around the world. Unfortunately, overseas suppliers are less than trusting when dealing with small clients, as it is common for people not to pay their bills. Thus, most suppliers require a letter of credit before they ship any items. Ashwini deals with a local bank for such letters of credit. The bank will put a hold on Ashwini’s account for the amount guaranteed. The actual payment, however, will take place only after the supplier produces evidence of having shipped the items.

Ashwini expects to receive \$150,000 worth of items in May, \$185,000 worth of items in June, and \$210,000 worth of items in July. Ashwini usually commits to a letter of credit a month before she receives the items.

*Required:*

What should Ashwini budget as “cash outflow for purchases” for April, May, and June?

**7.51 Cash budget and income statement (LO2, LO3).** Gary Siegel recently opened a steel warehouse. Gary buys his steel only after he receives a firm order from a customer; thus, Gary only buys what he sells in a particular month. Nevertheless, Gary projects that he will experience some cash flow problems toward the end of the year. While Gary is confident about the fundamentals of his business, he is wondering if he is perhaps too generous with his credit terms to customers.

Gary informs you that he currently collects 30% of revenues in the month after sale and the remaining 70% two months following the sale. Gary pays for 50% of his purchases in the month of purchase and 50% in the following month. His monthly fixed costs amount to \$95,000, including \$10,000 in noncash expenses. Finally, Gary marks up his products by 25% over the purchase price.

Gary provides the following information regarding projected sales for the next five months.

<i>August</i>	<i>September</i>	<i>October</i>	<i>November</i>	<i>December</i>
\$468,750	\$468,750	\$475,000	\$525,000	\$562,500

*Required:*

- a. Construct Gary’s budgeted contribution margin income statement for October, November, and December.
- b. Construct Gary’s cash budget for October, November, and December. Assume that, because of a special payment to be made at the end of the third quarter, Gary plans to begin October with \$5,000 in cash on hand.
- c. Explain why Gary is facing a cash flow problem even though his business is profitable. Identify two things that Gary could do to alleviate the anticipated cash crunch.

**7.52 Cost of goods manufactured and cost of goods sold budgets (LO2).** Kincaid Casting Works provides you with the following information from the company’s monthly budgets for May and June:

	May	June
Beginning work-in-process inventory	\$180,000	?
Ending work-in-process inventory	?	?
Direct materials usage	\$250,000	\$280,000
Direct labor	\$265,500	\$345,000
Variable overhead	\$125,000	\$145,000
Variable cost of goods manufactured	\$545,000	\$574,000
Beginning finished good inventory	\$220,000	?
Ending finished goods inventory	?	\$225,000
Variable cost of goods sold	\$615,000	?

*Required:*

Fill in the missing information, computing the value of each “?”.

**7.53 Budgeted income statement (LO2).** Naomi Soderstrom sells over-boots for use in wintry conditions. Naomi’s products, worn over shoes, provide traction on ice and packed snow, helping prevent falls. Naomi’s income for her most recent year of operations is as follows:

<i>Revenues</i> (120,000 units × \$20)		\$2,400,000
<i>Variable costs</i>		
Direct materials	\$480,000	
Direct labor	720,000	
Selling and administration	120,000	\$1,320,000
<i>Contribution margin</i>		<u>\$1,080,000</u>
<i>Fixed costs</i>		
Manufacturing	\$540,000	
Marketing and sales	120,000	
General administration	228,000	888,000
<b>Profit before taxes</b>		<u>\$192,000</u>

Naomi believes that while the cost of direct materials and direct labor varies with the number of units, the cost of variable selling and administration expenses are proportional to revenues.

Not satisfied with her current profit and 8 percent return on sales (\$192,000/\$2,400,000), Naomi wants to improve profits in the coming year. She is considering changing her selling price. If Naomi increases her selling price to \$22 per unit, then she expects sales to stay at 120,000 units in the coming year. However, if she reduces her selling price to \$19 per unit, then she expects sales to increase to 175,000 units.

Regardless of her pricing strategy, Naomi expects next year’s costs to be as follows:

- Direct material costs to increase by 10 percent.
- Direct labor costs to increase by 5 percent.
- Variable selling and administration costs to stay the same as a fraction of each sales dollar.
- Total fixed costs to stay the same at \$888,000.

*Required:*

Prepare a budgeted income statement for each of Naomi’s two pricing choices. What price should Naomi choose?

**7.54 Top-down versus bottom-up budgeting (LO4).** “Nobody in my firm is held to targets they don’t accept. But, once they sign off, I expect them to deliver.” These statements summarize Tim West’s budgeting philosophy. Tim, who owns and operates a medium-sized firm that makes road sealant, is a no-nonsense person with little formal education beyond high school. He attributes his financial success to hard work, risk-taking, and his ability to get the best from his employees.

“Sure, we have a participative budget!” says Melanie Leichty, Tim’s plant manager. In a wry tone, she adds, “Including Tim, we have 10 in our management team. In this team, we all get one vote. However, as owner, Tim gets 11 votes! And, of course, we rely on a majority vote when making decisions!”

Digging deeper into the budgeting process for sales, you discover the following steps:

- Each of the five salespersons prepares a customer-by-customer listing of sales for the past three years. Based on this information and their knowledge about customer needs, they project an overall sales goal for each customer, by month.
- The sales manager aggregates all of this information and modifies it a bit. In particular, the sales manager looks at differences in sales growth and corrects low projections to be in line with the average. He, of course, discusses this correction with the concerned salesperson. The usual tactic is to hold up the other forecasts and attribute lack of sales growth to lower talent.
- The sales manager then meets with Tim. By this time, Tim has backed out of his sales expectations for next year based on his desired profit. He discusses the overall target with the sales manager. The usual result is a 3 to 7% increase in projected sales, which the sales manager evenly allocates among the five salespersons.

- Of course, Tim insists that the sales manager discuss and negotiate any change with the sales force. Drawing on his experience as a successful salesperson who has never missed a target, Tim believes that the adjustment is to correct for padding by the sales manager. He just believes that with suitable logic and persuasion, he could set high but achievable targets for his sales team.

*Required:*

Comment on the participative nature of the sales budgeting process at Tim's firm. What kinds of positive and negative behaviors do such processes encourage?

**7.55 Flexible budgeting, subjective nature of the budgeting Process (LO2, LO4, Advanced).**

Essex Fuel Pumps sells its product directly to auto manufacturers as well as in the replacement market. The owner and CEO of the company, Claire Balderson, believes in keeping tight control over operations through careful planning. Over time, Claire and her accountants have followed a practice of starting the annual budgeting process around December 15 of every year for the following calendar year. They first come up with an initial draft of the budget based on marketing forecasts and actual results from the prior three years. Formulating this initial draft is a four-step process.

- The marketing manager projects the demand in units. The projected selling price per unit is the average price over the last three years.
- The accountant classifies all expenses into fixed and variable categories. The accountant makes this classification by examining the cost per unit for manufacturing expenses and the cost per sales dollar for selling, general, and administrative expenses. If the cost per unit or sales dollar remains relatively stable as activity volume changes, then the expense is classified as variable. However, if the cost per unit or sales dollar decreases substantially as activity volume increases, then the expense is classified as fixed.
- For each expense classified as fixed, the accountant uses the average expense over the last three years as the estimate for the initial budget.
- For expenses classified as variable, the accountant calculates the average amount per unit (for manufacturing expenses) or the average amount per sales dollar (for selling, general, and administrative expenses) for each year and then averages these amounts over the three years. The accountant then uses these estimates to project variable costs for the coming year.

It is now time to initiate the 2009 budget. Essex's operating results for the last three years were as follows (even though the 2008 year has not ended yet, only two weeks remain and therefore the operating results for the year are available):

	2006	2007	2008
Sales in units	80,000	110,000	95,000
Revenues	\$4,480,000	\$6,160,000	\$5,320,000
Direct materials	\$816,000	\$1,111,000	\$950,000
Direct labor	1,140,000	1,595,000	1,401,250
Plant maintenance	720,000	742,500	736,500
Plant depreciation	420,000	440,000	427,500
Indirect labor	163,200	227,700	193,800
Engineering design	220,000	230,000	240,000
Utilities	81,600	113,300	95,950
Plant administration	325,000	312,500	310,000
Marketing administration	180,000	185,000	190,000
Sales force commissions	134,400	184,800	159,600
Plant supervision	275,000	280,000	300,000

The marketing manager is very optimistic about 2009, and projects the demand for 2009 to be 150,000 fuel pumps. Obviously pleased, Claire sets about the task of preparing the annual budget for the coming year.

*Required:*

- Classify each of Essex's expenses as being a (1) variable manufacturing cost; (2) variable selling cost; (3) fixed manufacturing cost; or (4) fixed selling cost.
- Prepare estimates for revenues and each cost category for 2009. Using these estimates, prepare Essex's budgeted income statement for 2009.

	2006	2007	2008
Units	80,000	110,000	95,000
Revenues	\$4,480,000	\$6,160,000	\$5,320,000
<i>Unit price</i>	<i>\$56.00</i>	<i>\$56.00</i>	<i>\$56.00</i>
Direct materials	\$816,000	\$1,111,000	\$950,000
Direct labor	1,140,000	1,595,000	1,401,250
Indirect labor	163,200	227,700	193,800
Utilities	81,600	113,300	95,950
Total	\$1,956,245	\$3,047,000	\$2,641,000
<i>Cost per unit</i>	<i>\$27.51</i>	<i>\$27.70</i>	<i>\$27.80</i>
Sales force commissions	\$134,400	\$184,800	\$159,600
<i>Cost per sales \$</i>	<i>\$0.03</i>	<i>\$0.03</i>	<i>\$0.03</i>
Plant maintenance	\$720,000	\$742,500	\$736,500
Plant depreciation	420,000	440,000	427,500
Engineering design	220,000	230,000	240,000
Plant administration	325,000	312,500	310,000
Marketing administration	180,000	185,000	190,000
Plant supervision	275,000	280,000	300,000
Total fixed costs	\$2,140,000	\$2,190,000	\$2,204,000

- c. Evaluate the assumptions underlying the budget in light of the unusually optimistic demand projection by the marketing manager.

**7.56 Budget coordination, continuation of the previous problem (LO2, LO4).** Refer to the information in the previous problem for Essex Fuel Pumps. Pleased with the initial budget, the CEO of Essex Fuel Pumps, Claire Balderson, distributes the document to the production, planning, and purchasing managers to seek their inputs and to help them gear up for the coming year. Both the production and planning managers were concerned. “Look, Claire, our maximum capacity is 120,000 pumps, and we can perhaps stretch it to make 125,000 pumps. There is no way we can make 150,000 pumps without additional investment. We need to increase our capacity by at least 25,000 pumps to be able to make the budget. This means that we have to buy some equipment and invest in human resources. For your convenience, I am giving you an estimate of what it would cost to increase capacity. But, before you decide to expand capacity, we need to make sure that we are not responding to a temporary surge in demand. What would we do with this additional capacity if the demand were to recede to normal levels the following year?” Pierre Grosjean, the planning manager, wanted to know. The following table summarizes the additional capacity costs that would need to be incurred to increase Essex’s capacity to 150,000 fuel pumps.

Increase in plant maintenance	\$225,000
Increase in plant depreciation	\$125,000
Increase in plant administration	\$100,000
Increase in marketing administration	\$40,000
Increase in plant supervision	\$75,000

*Required:*

- Assume that demand is likely to continue at the level of 150,000 pumps over the next several years and that unit variable costs stay the same as estimated in the previous problem. Prepare a revised budgeted income statement for 2009 after incorporating the additional fixed cost estimates.
- What would budgeted income be if Claire decides not to incur the additional capacity costs but, rather, decides to produce the maximum number of fuel pumps (i.e., 125,000 fuel pumps) with existing capacity?
- Is it more profitable for Essex to increase capacity to 150,000 units or decrease production to 125,000 units?

**7.57 Merchandise company—budgeted income statement (LO2).** Matt Domby is the owner of Domby’s Boot Store. Matt currently is formulating his budget for the coming year and provides you with the following information about expected quarterly sales.

	Quarter			
	1	2	3	4
<b>Sales</b>	\$406,000	\$529,250	\$420,500	\$594,500

Matt believes revenues will be highest in Quarters 2 and 4 because of his semiannual “20% off everything” sale held during May and November. Indeed, Matt estimates that half of Quarter 2 and Quarter 4 sales will be at the sale prices. However, Matt informs you that the sales estimates in the table above are gross amounts; that is, they represent expected revenues *before any discounts*.

Matt notes that 80% of his sales are paid with credit cards and that he pays a 2% transaction fee to the credit card company. (*Note:* Credit card fees are based on net sales—that is, on what the customers actually pay.) Matt’s normal prices include a 45% markup on his cost, and he spends \$35,000 on fixed costs per month.

*Required:*

Prepare a quarter-by-quarter income statement for Dombly’s Boot Store. (Round all numbers to the nearest dollar.)

**7.58 Service industry, budgeted income statement (LO2).** Media Mogul owns the cable TV franchise for Spudcity, Idaho. Dan Trevino, the manager in charge of the Spudcity franchise, is responsible for all operational decisions, including preparing the monthly budget.

Dan provides you with the following information regarding the activities of the Spudcity franchise.

<i>Subscription Fees</i>	\$20 per month for basic service, \$50 per month for “extended basic,” and \$10 per month for each premium channel. Customers receive a 20% discount on each premium channel if ordering more than one.	50,000 total subscribers—5% receive basic service and the remainder have extended basic. 15,000 premium channel subscriptions—4,000 are at discount.
<i>Internet Fees</i>	\$45 per month. \$3 per month for modem rental.	26,000 subscribers—20,000 have a rented modem. Bundling cable and Internet generates a \$5 discount to the customer. 500 of the 26,000 subscribers have Internet only.
<i>Content and Franchise Fees</i>	Fees paid by Media Mogul to content providers.  Spudcity also taxes Media Mogul for using the public right of way. (This amount is in excess of the public, educational, and government channels provided for free to all subscribers.)	\$1,400,000 per month. Each premium channel hooked up is an additional \$6 per month.  Spudcity also levies taxes at 10% of net revenues (i.e., revenues after all discounts are given).
<i>Internet Connection Fees</i>	Variable costs include the costs for leasing high-speed lines and anticipated repairs. Fixed costs include those related to equipment and depreciation.	\$35 per line per month. Fixed costs amount to \$85,000 per month.

<i>Operating Costs</i>	Fixed costs include the rent, trucks, and salaries to office personnel.	\$450,000 per month.
	Variable costs comprise installations, repairs, and maintenance. Dan estimates 250 installations and 600 repair calls per month. He also estimates that he will perform 35 line maintenance actions.	Variable cost is \$60 per installation, \$35 per repair, and \$75 per line maintenance.

*Required:*

- a. Prepare Dan's budgeted monthly income statement.
- b. Comment on the similarities and differences, if any, between Media Mogul's budget and the budget for a manufacturing firm.

**7.59 Not-for-profit, program budgets, qualitative (LO4, Challenging).** Lori Koenig is the executive director of the Mid-Atlantic Region of I-Care, a not-for-profit group that facilitates corneal transplants and healthy vision. The group is best known for collecting corneas from the recently deceased, storing them safely, and moving them to the hospitals with patients who need corneas.

I-Care operates three separate, but related, programs. The first harvests eyes from cadavers and transports them for transplantation. The second is an educational outreach program aimed at young children. This program conducts free eye tests and stresses the importance of proper eye care. The third program targets senior citizens, testing for age-related degenerative eye diseases.

Each program is funded by grants from individuals, charities, and the government. Indeed, fund raising is one of I-Care's more important activities. There are little, if any, direct revenues from any of its three programs.

*Required:*

Discuss the budgeting and reporting requirements for I-Care and how they might differ from those in a for-profit organization.



**7.60 Budgeted income statement, comprehensive (LO2).** Peterson Pipes prepares detailed budgets for all four quarters of the year. The following information pertains to Peterson's budget for 2009:

	<i>Revenues</i>	<i>Direct Labor</i>	<i>Materials Purchases</i>	<i>Beginning Materials Inventory</i>	<i>Beginning Finished Goods Inventory</i>
First quarter	\$795,200	\$240,000	\$235,000	\$400,000	\$380,000
Second quarter	834,200	244,500	211,200	420,000	390,400
Third quarter	864,450	238,500	222,300	415,000	385,600
Fourth quarter	856,250	248,600	207,500	425,000	391,250
First quarter, 2010				410,000	396,500

Peterson expects fixed manufacturing overhead to be \$150,000, \$172,250, \$169,250, and \$174,300 for quarters 1 through 4 of 2009, respectively. Also, Peterson expects fixed selling and administrative costs to be \$80,000, \$95,000, \$106,000, and \$100,000 for quarters 1 through 4, respectively. Peterson does not incur any expenditure related to variable overhead or any variable selling and administrative costs. Finally, Peterson plans to begin and end each quarter with zero work in process inventory.

*Required:*

Prepare a budgeted contribution margin income statement for Peterson Pipes for each quarter of 2009.



**7.61 Cash budgeting, comprehensive (LO3).** Refer to the data in the previous problem for Peterson Pipes. Peterson expects its first-quarter opening balances in cash, accounts

receivable, and accounts payable to be \$75,000, \$125,000, and \$126,500, respectively. The following additional information also is relevant for preparing Peterson's cash budgets:

- Peterson expects to earn the same amount of revenues for each of the three months within a quarter. Experience indicates that Peterson collects 60 percent of its sales in the month of sale and 40 percent in the following month.
- Peterson expects to make the same amount of materials purchases for each of the three months within a quarter. Peterson pays for 50 percent of its materials purchases in the month of purchase and the remaining 50 percent in the month following purchase.
- Each quarter's fixed manufacturing overhead includes \$15,000 of noncash expenses. The remaining overhead expenses occur uniformly throughout the three months of each quarter and are disbursed immediately in cash.
- Fixed selling and administrative expenses occur uniformly throughout the three months of each quarter, and are disbursed immediately in cash.

*Required:*

Prepare Peterson's cash budget for each quarter of the coming year.

## MINI-CASES

**7.62 Budgeting, comprehensive (LO3).** Manasee Atre is an award-winning innovator who makes educational toys for preschool children. Manasee's company, which she whimsically named Pumpkin Patch, makes plastic pieces that can be assembled to create imaginative animal and human models. The standard set consists of several types of "head gear," "noses," "eyes," "ears," "arms and legs," as well as "foot wear." The deluxe set adds to the number of options under each category.



For the second half of 2008, estimated sales in units for each set are as follows:

<i>Month</i>	<i>Standard</i>	<i>Deluxe</i>
July	10,000	3,500
August	11,400	4,000
September	12,000	4,500
October	15,600	5,000
November	18,000	5,500
December	22,000	6,000
January 2009	18,000	4,200

Manasee provides you with the following additional information:

**Sales price:** The actual sales for May and the forecasted sales for June were \$150,000 and \$155,000, respectively, for the standard set. The relevant numbers for the deluxe set are \$70,000 (May sales) and \$65,000 (June sales).

Manasee prices the standard set at \$17 per unit and the deluxe set at \$26 per unit.

**Inventory policy for finished goods:** Manasee's policy for finished goods inventory is to stock 25% of the forecasted demand for the next month. As of June 30, Manasee expects to have 2,500 units of the standard set and 875 units of deluxe set in stock. These inventories were valued at \$12.00 and \$17.00 per unit, respectively. Pumpkin Patch uses the FIFO (First-In-First-Out) method to value its inventories.

The company's long-term plans call for it to have 4,000 units of the standard set and 1,000 units of the deluxe set on January 31, 2009.

**Production requirements:** The standard set consumes 1 pound of plastic per unit, whereas the deluxe set consumes 1.50 pounds of plastic per unit. Plastic costs \$3.00 per pound. The cost of all other materials is \$1.00 per unit for the standard set and \$1.25 per unit for the deluxe set.



The standard set requires 0.50 direct labor hours per unit, and the deluxe set requires 0.75 labor hours per unit. Labor costs \$16 per hour.

Fixed manufacturing overhead is expected to be \$48,000 per month. Of this amount, \$22,000 represents depreciation and other noncash expenses. Pumpkin Patch does not have any variable manufacturing overhead.

**Inventory policy—raw materials:** With regard to the plastic used to produce each set, Manasee likes to have an ending materials inventory to meet all of the material needs for the next month's anticipated production.

Pumpkin Patch expects to have 13,000 pounds of plastic in inventory as of June 30, 2008. (*Note:* The beginning inventory does not follow the stated stocking policy exactly.)

Manasee's long-term plans call for her to have 10,000 pounds of plastic in inventory as of January 31, 2009.

**Payables policy:** Pumpkin Patch pays for half of its material purchases in the month of purchase and the remainder the following month.

Accounts payable for materials and other items were expected to be \$19,500 on June 30, 2008.

All other materials are purchased on a cash basis during the month when they are used.

**Collection policy:** For both the standard and deluxe set, 40 percent of any month's sales are for cash. Ten percent of the credit sales are collected in the month of sale, 70% are collected the following month, and 18% are collected in the second month after the sale. The remaining 2% of receivables are deemed uncollectible. Pumpkin Patch writes off bad debts to the income statement during the month the debt is deemed uncollectible (i.e., two months after the sale occurs). The firm makes no accruals for estimated bad debts in the month of sale.

**Sales and administration costs:** Monthly nonmanufacturing expenses consist of the following:

Salaries and wages	\$3,000
Commissions	6% of sales revenue
Rent	\$7,000
Other expenses	4% of sales revenue
Depreciation	\$1,500 (for office equipment)

Except depreciation, all nonmanufacturing expenses are paid in cash when incurred.

**Cash and financing:** Pumpkin Patch maintains a minimum cash balance of \$15,000. Borrowing can make up any anticipated shortfalls. Ignore interest on the loan in your calculations. For simplicity, assume that the bank will only lend (and accept repayments) in \$1,000 increments. (Minimize the amount borrowed, however.)

Cash on hand on June 30 is expected to be \$16,000.

**Special items for cash budget:** Pumpkin Patch needs to make a payment of \$15,000 during July for equipment previously purchased on credit. The firm also has scheduled a dividend payment of \$20,000 in September.

*Required:*

- Prepare Pumpkin Patch's contribution margin income statement for each of the last six months of 2008.
- Prepare Pumpkin Patch's cash budget for each of the last six months of 2008.
- Write a brief report summarizing Pumpkin Patch's budget for the second half of 2008.

**7.63 Budgeting, sales force compensation (LO4).** Bartlett Drugs makes generic prescription drugs. It relies on its sales personnel to market and sell its products widely to pharmacies, doctors, and hospitals. While Bartlett has always been profitable, revenues have been stagnant over the last five years. In contrast, other generic drug companies recorded significant revenue growth over the same period.

After careful investigation, Bartlett's CEO, Mary Stone, concludes that an important reason for the lack of revenue growth is the way the incentive system is set up for the company's sales personnel, coupled with the role sales personnel play in the annual budgeting process. Currently, an average salesperson receives a fixed annual salary of

\$40,000, and a bonus of \$20,000 for meeting or exceeding an annual sales target of \$400,000. A look at the records was enough for Mary to realize that hardly any member of the sales team exceeded the target of \$400,000 by much (the maximum recorded sales was only \$426,000), and many of them were just about meeting this target. The sales target itself was set every year in consultation with the sales team, and the target had not moved up in the last five years to reflect any growth.

It was clear to Mary that the sales team was “low-balling” the target to be able to comfortably meet it and qualify for the bonus. They also seemed to stop once they met the target. Yet, Mary realized that the sales personnel were in the best position to assess market trends and to help set realistic targets for the company’s planning process. After consulting with experts on sales force compensation, Mary has come up with four options:

- Remove the bonus for meeting the target and increase the annual salary to \$60,000.
- Set the target at a level that is 10 percent higher than what the sales team recommends. Implement a sales commission system whereby a salesperson earns 5 percent of the amount by which actual sales exceed 90% of the target.
- Set the target based on industry growth and keep the existing bonus system.
- Implement a tournament scheme wherein sales personnel are ranked into five performance-based groups, and vary the bonus across groups.

*Required:*

Discuss the relative merits and drawbacks of each scheme from the company’s point of view. Which scheme is likely to put the company on a path of sales growth?

**7.64 Forecast Revisions, Not-for-profit, ethics (LO4).** Eshe works for a not-for-profit group that recycles computers and other equipment to communities in rural Africa. The group collects two- to three-year-old PCs and peripheral equipment from businesses, refurbishes the PCs, ships them to Africa, and distributes them for a nominal fee (which is often waived). Even though businesses donate the computers and equipment, Eshe’s group needs cash for operating expenses. It therefore seeks grants from foundations such as the Gates Foundation and the Rockefeller Foundation that support charitable endeavors. Eshe’s dilemma concerns one such grant that could fund a substantial portion of next year’s operations.

Eshe’s problem is that the volume of computers distributed has stabilized and has even begun a slight downturn. Businesses began to keep their machines for longer periods, and the rapid change in technology has made obsolescence a major issue. Eshe had prepared the grant application with the best available data and her best estimate of the volume next year (down 5% from current volumes). The application also shows a similar downtrend for the near future.

Eshe’s supervisor, the charity’s CEO, is convinced that the grant application would be denied if the group projects a declining activity level. Without adequate funds, he will have to scale back dramatically. He further notes that restarting the initiative two to three years later is like starting over because the government and other contacts in Africa would have atrophied. He thinks that the downturn is temporary and that volume would pick up over the next two to three years. He accordingly asks Eshe to revise her estimates and show a 5% *increase* in volume for next year. He argues that even the best estimate is “gazing into a crystal ball” and that a 5% increase *might* occur, even though it is not a high probability event.

*Required:*

What should Eshe do?

**7.65 Budgeting and performance evaluation (LO4).** Florida Cruises operates a fleet of glass bottom boats that give tours of the coral reefs off Key West, Florida. Since its inception, the firm has fetched its owner a healthy return on investment. One reason the company does so well is that the owner believes in keeping tight control over operations. Every December, the owner and the manager evaluate the prior year’s operations and carefully plan next year’s operations. At the end of these discussions, they project income for the coming year. The manager and other operating staff receive a large bonus if actual income exceeds budgeted income.

This incentive scheme appeared to work well in the past. The manager and the staff worked hard to reap bonuses at the end of each year. However, the performance for the most recent year did not quite measure up to expectations, as the following data indicate:

<b>Florida Cruises</b>		
<b>Income Statement for Year Ending December 31</b>		
	<i>Budgeted</i>	<i>Actual</i>
<u>Revenues</u>	\$2,800,000	\$2,050,000
<i>Less</i>		
<u>Variable costs</u>		
Direct materials (fuel, supplies)	480,000	520,000
Direct labor	1,100,000	950,000
Variable overhead	175,000	148,000
<u>Fixed costs</u>		
Operating overhead (boats, pier, salaries)	320,000	420,000
Marketing and administration	380,000	325,000
<b>Profit before taxes</b>	<b>\$345,000</b>	<b>(\$313,000)</b>

Naturally, the manager and staff did not receive a bonus. However, the manager was upset with this turn of events. “We all worked extra hard this year. It was a tough year. The fuel prices more than doubled. We lost three months’ worth of revenues because of hurricanes—people were fleeing the Florida Keys. How can we expect tourists to come in and see coral reefs at a time like that? We should not be punished for what is not under our control,” he complained.

To make his point, the manager provided the following additional information to the owner:

- The loss in revenues is mostly attributable to two devastating hurricanes. While hurricanes are common in Key West, the past year set a record in terms of the number and severity of hurricanes that passed over the Keys.
- The increase in direct material costs is attributable to a sharp increase in fuel prices (the price run-up was not anticipated at the time of budgeting).
- About \$140,000 of fixed operations overhead was attributable to the expenses that were incurred to protect the boats from the hurricanes and to fix some unavoidable damage to the pier and sheds.

The manager claimed that if the budget were revised to account for these factors, the actual performance would appear much more reasonable given the circumstances.

*Required:*

Should a bonus be awarded to the manager and operating staff?