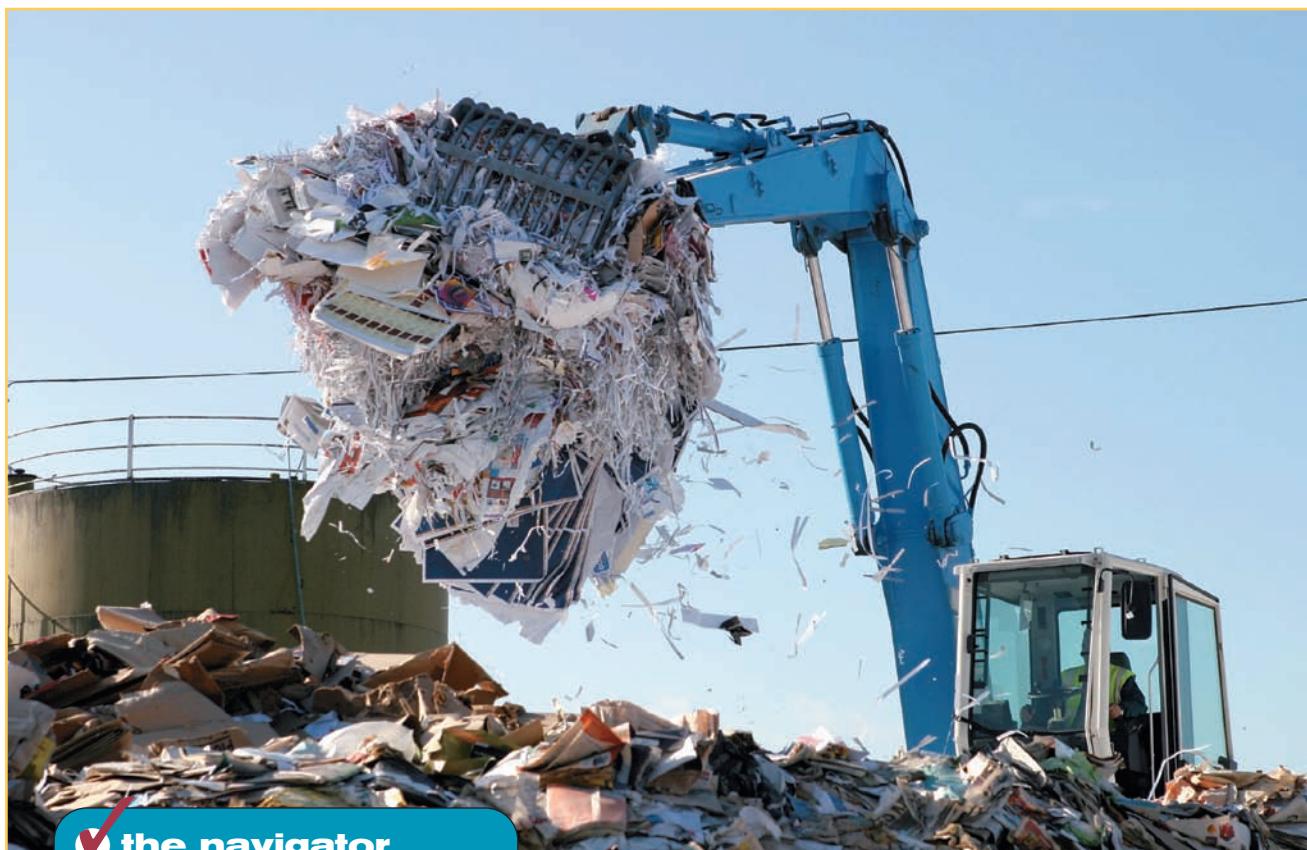


Budgetary Control and Responsibility Accounting



the navigator

- Scan Study Objectives
- Read Feature Story
- Read Preview
- Read Text and answer **Do it!**
p. 444 p. 446 p. 455 p. 460
- Work Using the Decision Toolkit
- Review Summary of Study Objectives
- Work Comprehensive **Do it!** p. 466
- Answer Self-Study Questions
- Complete Assignments

study objectives

After studying this chapter, you should be able to:

- 1 Describe the concept of budgetary control.
- 2 Evaluate the usefulness of static budget reports.
- 3 Explain the development of flexible budgets and the usefulness of flexible budget reports.
- 4 Describe the concept of responsibility accounting.
- 5 Indicate the features of responsibility reports for cost centers.
- 6 Identify the content of responsibility reports for profit centers.
- 7 Explain the basis and formula used in evaluating performance in investment centers.





Turning Trash into Treasure

Vancouver teenager Brian Scudamore needed to raise money to pay his way through college. With \$700 and a strong desire to do it on his own, he established his own junk-removal company. Fifteen years later, **1-800-GOT-JUNK?** had 113 franchise partners across Canada and the United States, and projected revenues of more than \$60 million.

"It was a high-school business project that was out of control," says Cameron Herold, vice president of operations.

While the exponential growth of **1-800-GOT-JUNK?** may seem unwieldy (at one point it had five consecutive years of 100-percent compounded growth), it has in fact involved sound financial planning, budgeting, and cash management. The company follows a "zero-based budget," says Mr. Herold. That is, it

only spends money it has; it has no outside investors or debt.

Managing this growth involves forecasting everything by creating a "painted picture" of what the company will look like in three years. The company knows its staffing plans, training requirements, and overhead and office-space needs well in advance. "That filters back to our budgeting process," Mr. Herold says. "We'll sit down and say, 'If this is where we're going, what are all the components of that? . . . Then we bring it back to zero and say, 'What's it going to cost us? Where does it fit into the budget?'"

Key to the company's growth management was the introduction of franchising. "We chose franchising because our franchise partners would actually finance our growth," Mr. Herold says. In addition to the initial franchise

fee, franchisees pay the head office 8 percent of their sales, plus another 7 percent to run the centralized call center.

While the company has used franchising to manage growth, a frugal approach to day-to-day costs has also been integral to its budgeting success. "We're always looking for ways to cut costs," Mr. Herold says. This includes establishing strategic relationships with the local coffee shop, doing regular cost analyses of office equipment and changing suppliers when needed, and buying office furniture in bulk from liquidators at 10 cents on the dollar. "All those little things start to really add up," he says.



Inside Chapter 10

Budgets and the Exotic Newcastle Disease (p. 445)

Competition versus Collaboration (p. 449)

Does Hollywood Look at ROI? (p. 458)

Flexible Manufacturing Requires Flexible Accounting (p. 459)

preview of chapter 10

In contrast to Chapter 9, we now consider how budgets are used by management to control operations. In the Feature Story on **1-800-GOT-JUNK?**, we saw that management tries to use the budget to adapt to the business environment. This chapter focuses on two aspects of management control: (1) budgetary control and (2) responsibility accounting.

The content and organization of Chapter 10 are as follows.

Budgetary Control and Responsibility Accounting				
The Concept of Budgetary Control	Static Budget Reports	Flexible Budgets	The Concept of Responsibility Accounting	Types of Responsibility Centers
<ul style="list-style-type: none">Budget reportsControl activitiesReporting systems	<ul style="list-style-type: none">ExamplesUses and limitations	<ul style="list-style-type: none">Why flexible budgets?DevelopmentCase studyReportsManagement by exception	<ul style="list-style-type: none">Controllable vs. noncontrollableReporting system	<ul style="list-style-type: none">Cost centersProfit centersInvestment centersPerformance evaluation



The Concept of Budgetary Control

study objective 1

Describe the concept of budgetary control.

One of management's major functions is to control company operations. Control consists of the steps taken by management to see that planned objectives are met. We now ask: How do budgets contribute to control of operations?

The use of budgets in controlling operations is known as **budgetary control**. Such control takes place by means of **budget reports** that compare actual results with planned objectives. The use of budget reports is based on the belief that planned objectives lose much of their potential value without some monitoring of progress along the way. Just as your professors give midterm exams to evaluate your progress, so top management requires periodic reports on the progress of department managers toward their planned objectives.

Budget reports provide management with feedback on operations. The feedback for a crucial objective, such as having enough cash on hand to pay bills, may be made daily. For other objectives, such as meeting budgeted annual sales and operating expenses, monthly budget reports may suffice. Budget reports are prepared as frequently as needed. From these reports, management analyzes any differences between actual and planned results and determines their causes. Management then takes corrective action, or it decides to modify future plans.

Budgetary control involves the activities shown in Illustration 10-1.

Budgetary control works best when a company has a formalized reporting system. The system does the following:

- Identifies the name of the budget report, such as the sales budget or the manufacturing overhead budget.
- States the frequency of the report, such as weekly or monthly.
- Specifies the purpose of the report.
- Indicates the primary recipient(s) of the report.

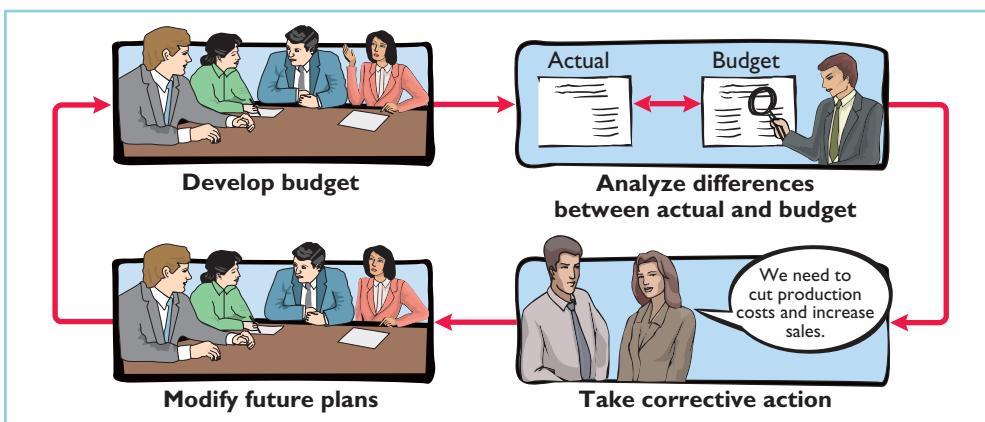


Illustration 10-2 provides a partial budgetary control system for a manufacturing company. Note the frequency of the reports and their emphasis on control. For example, there is a daily report on scrap and a weekly report on labor.

Illustration 10-2
Budgetary control reporting system

Name of Report	Frequency	Purpose	Primary Recipient(s)
Sales	Weekly	Determine whether sales goals are being met	Top management and sales manager
Labor	Weekly	Control direct and indirect labor costs	Vice president of production and production department managers
Scrap	Daily	Determine efficient use of materials	Production manager
Departmental overhead costs	Monthly	Control overhead costs	Department manager
Selling expenses	Monthly	Control selling expenses	Sales manager
Income statement	Monthly and quarterly	Determine whether income objectives are being met	Top management

Static Budget Reports

You learned in Chapter 9 that the master budget formalizes management's planned objectives for the coming year. When used in budgetary control, each budget included in the master budget is considered to be static. A **static budget** is a projection of budget data **at one level of activity**. These budgets do not consider data for different levels of activity. As a result, companies always compare actual results with budget data at the activity level that was used in developing the master budget.

study objective 2

Evaluate the usefulness of static budget reports.

EXAMPLES

To illustrate the role of a static budget in budgetary control, we will use selected data prepared for Hayes Company in Chapter 9. Budget and actual sales data for the Kitchen-Mate product in the first and second quarters of 2011 are as follows.

Sales	First Quarter	Second Quarter	Total
Budgeted	\$180,000	\$210,000	\$390,000
Actual	179,000	199,500	378,500
Difference	\$ 1,000	\$ 10,500	\$ 11,500

Illustration 10-3
Budget and actual sales data

The sales budget report for Hayes Company's first quarter is shown below. The right-most column reports the difference between the budgeted and actual amounts.

Illustration 10-4

Sales budget report—first quarter

Alternative Terminology The difference between budget and actual is sometimes called a *budget variance*.

HAYES COMPANY Sales Budget Report For the Quarter Ended March 31, 2011			
Product Line	Budget	Actual	Difference
			Favorable F Unfavorable U
Kitchen-Mate ^a	\$180,000	\$179,000	\$1,000 U

^aIn practice, each product line would be included in the report.

The report shows that sales are \$1,000 under budget—an unfavorable result. This difference is less than 1% of budgeted sales ($\$1,000 \div \$180,000 = .0056$). Top management's reaction to unfavorable differences is often influenced by the materiality (significance) of the difference. Since the difference of \$1,000 is immaterial in this case, we assume that Hayes Company management takes no specific corrective action.

Illustration 10-5 shows the budget report for the second quarter. It contains one new feature: cumulative year-to-date information. This report indicates that sales for the second quarter are \$10,500 below budget. This is 5% of budgeted sales ($\$10,500 \div \$210,000$). Top management may now conclude that the difference between budgeted and actual sales requires investigation.

Illustration 10-5

Sales budget report—second quarter

HAYES COMPANY
Sales Budget Report
For the Quarter Ended June 30, 2011

Product Line	Second Quarter			Year-to-Date		
	Budget	Actual	Difference	Budget	Actual	Difference
			Favorable F	Unfavorable U		
Kitchen-Mate	\$210,000	\$199,500	\$10,500 U	\$390,000	\$378,500	\$11,500 U

Management's analysis should start by asking the sales manager the cause(s) of the shortfall. Managers should consider the need for corrective action. For example, management may decide to spur sales by offering sales incentives to customers or by increasing the advertising of Kitchen-Mates. Or, if management concludes that a downturn in the economy is responsible for the lower sales, it may modify planned sales and profit goals for the remainder of the year.

USES AND LIMITATIONS

From these examples, you can see that a master sales budget is useful in evaluating the performance of a sales manager. It is now necessary to ask: Is the master budget appropriate for evaluating a manager's performance in controlling costs? Recall that in a static budget, data are not modified or adjusted, regardless of

changes in activity. It follows, then, that a static budget is appropriate in evaluating a manager's effectiveness in controlling costs when:

1. The actual level of activity closely approximates the master budget activity level, and/or
2. The behavior of the costs in response to changes in activity is fixed.

A static budget report is, therefore, appropriate for **fixed manufacturing costs** and for **fixed selling and administrative expenses**. But, as you will see shortly, static budget reports may not be a proper basis for evaluating a manager's performance in controlling variable costs.

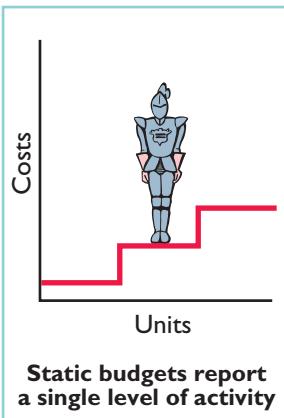
Flexible Budgets

In contrast to a static budget, which is based on one level of activity, a **flexible budget** projects budget data for various levels of activity. In essence, **the flexible budget is a series of static budgets at different levels of activity**. The flexible budget recognizes that the budgetary process is more useful if it is adaptable to changed operating conditions.

Flexible budgets can be prepared for each of the types of budgets included in the master budget. For example, **Marriott Hotels** can budget revenues and net income on the basis of 60%, 80%, and 100% of room occupancy. Similarly, **American Van Lines** can budget its operating expenses on the basis of various levels of truck miles driven. **Duke Energy** can budget revenue and net income on the basis of estimated billions of kwh (kilowatt hours) of residential, commercial, and industrial electricity generated. In the following pages, we will illustrate a flexible budget for manufacturing overhead.

WHY FLEXIBLE BUDGETS?

Assume that you are the manager in charge of manufacturing overhead in the Forging Department of Barton Steel. In preparing the manufacturing overhead budget for 2011, you prepare the following static budget based on a production volume of 10,000 units of steel ingots.



study objective 3
Explain the development of flexible budgets and the usefulness of flexible budget reports.

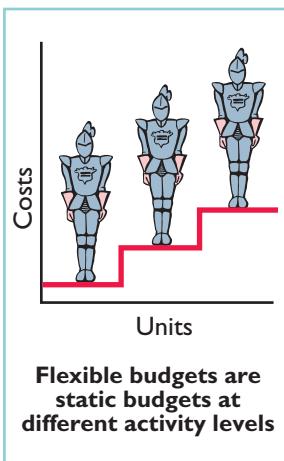


Illustration 10-6
Static overhead budget

BARTON STEEL	
Manufacturing Overhead Budget (Static)	
Forging Department	
For the Year Ended December 31, 2011	
Budgeted production in units (steel ingots)	<u>10,000</u>
Budgeted costs	
Indirect materials	\$ 250,000
Indirect labor	260,000
Utilities	190,000
Depreciation	280,000
Property taxes	70,000
Supervision	50,000
	<u><u>\$1,100,000</u></u>

Helpful Hint The master budget described in Chapter 9 is based on a static budget.

Fortunately for the company, the demand for steel ingots has increased, and Barton produces and sells 12,000 units during the year, rather than 10,000. You are elated: Increased sales means increased profitability, which should mean a bonus or a raise for you and the employees in your department. Unfortunately,

a comparison of Forging Department actual and budgeted costs has put you on the spot. The budget report is shown below.

Illustration 10-7

Overhead static budget report

	A	B	C	D	E
1	BARTON STEEL				
2	Manufacturing Overhead Static Budget Report				
3	For the Year Ended December 31, 2011				
4				Difference	
5		Budget	Actual	Favorable - F Unfavorable - U	
6	Production in units	10,000	12,000		
7					
8	Costs				
9	Indirect materials	\$ 250,000	\$ 295,000	\$ 45,000 U	
10	Indirect labor	260,000	312,000	52,000 U	
11	Utilities	190,000	225,000	35,000 U	
12	Depreciation	280,000	280,000	0	
13	Property taxes	70,000	70,000	0	
14	Supervision	50,000	50,000	0	
15		\$1,100,000	\$1,232,000	\$132,000 U	
16					

Helpful Hint A static budget is not useful for performance evaluation if a company has substantial variable costs.

This comparison uses budget data based on the original activity level (10,000 steel ingots). It indicates that the Forging Department is significantly **over budget** for three of the six overhead costs. And, there is a total unfavorable difference of \$132,000, which is 12% over budget ($\$132,000 \div \$1,100,000$). Your supervisor is very unhappy! Instead of sharing in the company's success, you may find yourself looking for another job. What went wrong?

When you calm down and carefully examine the manufacturing overhead budget, you identify the problem: The budget data are not relevant! At the time the budget was developed, the company anticipated that only 10,000 units of steel ingots would be produced, **not** 12,000. Comparing actual with budgeted variable costs is meaningless. As production increases, the budget allowances for variable costs should increase proportionately. The variable costs in this example are indirect materials, indirect labor, and utilities.

Analyzing the budget data for these costs at 10,000 units, you arrive at the following per unit results.

Illustration 10-8

Variable costs per unit

Item	Total Cost	Per Unit
Indirect materials	\$250,000	\$25
Indirect labor	260,000	26
Utilities	190,000	19
	<u><u>\$700,000</u></u>	<u><u>\$70</u></u>

Illustration 10-9 calculates the budgeted variable costs at 12,000 units.

Illustration 10-9

Budgeted variable costs, 12,000 units

Item	Computation	Total
Indirect materials	$\$25 \times 12,000$	\$300,000
Indirect labor	$26 \times 12,000$	312,000
Utilities	$19 \times 12,000$	228,000
	<u><u>\$840,000</u></u>	

Because fixed costs do not change in total as activity changes, the budgeted amounts for these costs remain the same. Illustration 10-10 shows the budget report based on the flexible budget for **12,000 units** of production. (Compare this with Illustration 10-7.)

	A	B	C	D	E
1	BARTON STEEL				
2	Manufacturing Overhead Flexible Budget Report				
3	For the Year Ended December 31, 2011				
4				Difference	
5		Budget	Actual	Favorable - F Unfavorable - U	
6	Production in units	12,000	12,000		
7					
8	Variable costs				
9	Indirect materials (\$25)	\$ 300,000	\$ 295,000	\$5,000 F	
10	Indirect labor (\$26)	312,000	312,000	0	
11	Utilities (\$19)	228,000	225,000	3,000 F	
12	Total variable costs	840,000	832,000	8,000 F	
13					
14	Fixed costs				
15	Depreciation	280,000	280,000	0	
16	Property taxes	70,000	70,000	0	
17	Supervision	50,000	50,000	0	
18	Total fixed costs	400,000	400,000	0	
19	Total costs	\$1,240,000	\$1,232,000	\$8,000 F	
20					

Illustration 10-10
Overhead flexible budget report

This report indicates that the Forging Department's costs are *under budget*—a favorable difference. Instead of worrying about being fired, you may be in line for a bonus or a raise after all! As this analysis shows, the only appropriate comparison is between actual costs at 12,000 units of production and budgeted costs at 12,000 units. Flexible budget reports provide this comparison.

DEVELOPING THE FLEXIBLE BUDGET

The flexible budget uses the master budget as its basis. To develop the flexible budget, management uses the following steps.

1. Identify the activity index and the relevant range of activity.
2. Identify the variable costs, and determine the budgeted variable cost per unit of activity for each cost.
3. Identify the fixed costs, and determine the budgeted amount for each cost.
4. Prepare the budget for selected increments of activity within the relevant range.

The activity index chosen should significantly influence the costs being budgeted. For manufacturing overhead costs, for example, the activity index is usually the same as the index used in developing the predetermined overhead rate—that is, direct labor hours or machine hours. For selling and administrative expenses, the activity index usually is sales or net sales.

The choice of the increment of activity is largely a matter of judgment. For example, if the relevant range is 8,000 to 12,000 direct labor hours, increments of 1,000 hours may be selected. The flexible budget is then prepared for each increment within the relevant range.



DECISION TOOLKIT

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Are the increased costs resulting from increased production reasonable?	Variable costs projected at different levels of production	Flexible budget	After taking into account different production levels, results are favorable if expenses are less than budgeted amounts.

FLEXIBLE BUDGET—A CASE STUDY

To illustrate the flexible budget, we use Fox Manufacturing Company. Fox's management uses a **flexible budget for monthly comparisons** of actual and budgeted manufacturing overhead costs of the Finishing Department. The master budget for the year ending December 31, 2011, shows expected annual operating capacity of 120,000 direct labor hours and the following overhead costs.

Illustration 10-11

Master budget data

Variable Costs		Fixed Costs	
Indirect materials	\$180,000	Depreciation	\$180,000
Indirect labor	240,000	Supervision	120,000
Utilities	60,000	Property taxes	60,000
Total	<u>\$480,000</u>	Total	<u>\$360,000</u>

The four steps for developing the flexible budget are applied as follows.

- STEP 1. **Identify the activity index and the relevant range of activity.** The activity index is direct labor hours. The relevant range is 8,000–12,000 direct labor hours per month.
- STEP 2. **Identify the variable costs, and determine the budgeted variable cost per unit of activity for each cost.** There are three variable costs. The variable cost per unit is found by dividing each total budgeted cost by the direct labor hours used in preparing the master budget (120,000 hours). For Fox Manufacturing, the computations are:

Illustration 10-12

Computation of variable cost per direct labor hour

Variable Cost	Computation	Variable Cost per Direct Labor Hour
Indirect materials	\$180,000 ÷ 120,000	\$1.50
Indirect labor	\$240,000 ÷ 120,000	2.00
Utilities	\$ 60,000 ÷ 120,000	0.50
Total		<u>\$4.00</u>

- STEP 3. **Identify the fixed costs, and determine the budgeted amount for each cost.** There are three fixed costs. Since Fox desires **monthly budget data**, it divides each annual budgeted cost by 12 to find the monthly amounts. For Fox Manufacturing, the monthly budgeted fixed costs are: depreciation \$15,000, supervision \$10,000, and property taxes \$5,000.
- STEP 4. **Prepare the budget for selected increments of activity within the relevant range.** Management prepares the budget in increments of 1,000 direct labor hours.

Illustration 10-13 shows Fox's flexible budget.

	A	B	C	D	E	F
FOX MANUFACTURING COMPANY						
Monthly Manufacturing Overhead Flexible Budget						
Finishing Department						
For Months During the Year 2011						
5	Activity level					
6	Direct labor hours	8,000	9,000	10,000	11,000	12,000
7	Variable costs					
8	Indirect materials (\$1.50)	\$12,000	\$13,500	\$15,000	\$16,500	\$18,000
9	Indirect labor (\$2.00)	16,000	18,000	20,000	22,000	24,000
10	Utilities (\$0.50)	4,000	4,500	5,000	5,500	6,000
11	Total variable costs	32,000	36,000	40,000	44,000	48,000
12	Fixed costs					
13	Depreciation	15,000	15,000	15,000	15,000	15,000
14	Supervision	10,000	10,000	10,000	10,000	10,000
15	Property taxes	5,000	5,000	5,000	5,000	5,000
16	Total fixed costs	30,000	30,000	30,000	30,000	30,000
17	Total costs	\$62,000	\$66,000	\$70,000	\$74,000	\$78,000
18						

Illustration 10-13
Monthly overhead flexible budget

Fox uses the formula below to determine total budgeted costs at any level of activity.

$$\text{Fixed Costs} + \text{Variable Costs*} = \text{Total Budgeted Costs}$$

*Total variable cost per unit of activity \times Activity level.

For Fox, fixed costs are \$30,000, and total variable cost per direct labor hour is \$4. At 9,000 direct labor hours, total budgeted costs are \$66,000 [$\$30,000 + (\$4 \times 9,000)$]. At 8,622 direct labor hours, total budgeted costs are \$64,488 [$\$30,000 + (\$4 \times 8,622)$].

Total budgeted costs can also be shown graphically, as in Illustration 10-15. In the graph, the horizontal axis represents the activity index, and costs are

Illustration 10-14
Formula for total budgeted costs

Helpful Hint Using the data given for Fox, what amount of total costs would be budgeted for 10,600 direct labor hours? Answer: $\$30,000$ fixed + $\$42,400$ variable (i.e., $10,600 \times \$4$) = $\$72,400$ total.

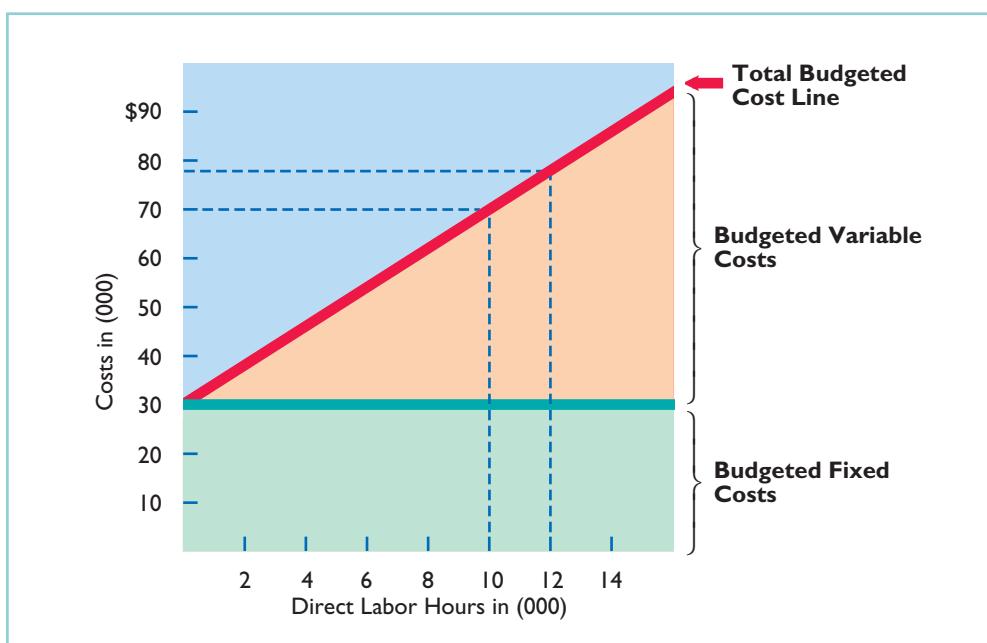


Illustration 10-15
Graphic flexible budget data highlighting 10,000 and 12,000 activity levels

indicated on the vertical axis. The graph highlights two activity levels (10,000 and 12,000). As shown, total budgeted costs at these activity levels are \$70,000 [$\$30,000 + (\$4 \times 10,000)$] and \$78,000 [$\$30,000 + (\$4 \times 12,000)$], respectively.

before you go on...

Flexible Budgets

Action Plan

- Apply the formula: Fixed costs + Variable costs
 $(\text{Total variable cost per unit} \times \text{Activity level}) = \text{Total budgeted costs.}$

Do it!

In Strassel Company's flexible budget graph, the fixed cost line and the total budgeted cost line intersect the vertical axis at \$36,000. The total budgeted cost line is \$186,000 at an activity level of 50,000 direct labor hours. Compute total budgeted costs at 30,000 direct labor hours.

Solution

Using the graph, fixed costs are \$36,000, and variable costs are \$3 per direct labor hour [$(\$186,000 - \$36,000) \div 50,000$]. Thus, at 30,000 direct labor hours, total budgeted costs are \$126,000 [$\$36,000 + (\$3 \times 30,000)$].

Related exercise material: BE10-4, E10-3, E10-5, and **Do it! 10-1.**



FLEXIBLE BUDGET REPORTS

Flexible budget reports are another type of internal report. The flexible budget report consists of two sections: (1) production data for a selected activity index, such as direct labor hours, and (2) cost data for variable and fixed costs. The report provides a basis for evaluating a manager's performance in two areas: production control and cost control. Flexible budget reports are widely used in production and service departments.

Illustration 10-16 shows a budget report for the Finishing Department of Fox Company for the month of January. In this month, 9,000 hours are worked. The

Illustration 10-16

Overhead flexible budget report

FOX MANUFACTURING COMPANY
Manufacturing Overhead Flexible Budget Report
Finishing Department
For the Month Ended January 31, 2011

	Budget at	Actual costs at	Difference	
6			Favorable - F	
7 Direct labor hours (DLH)	9,000 DLH	9,000 DLH	Unfavorable - U	
8				
9 Variable costs				
10 Indirect materials (\$1.50)	\$13,500	\$14,000	\$ 500	U
11 Indirect labor (\$2.00)	18,000	17,000	1,000	F
12 Utilities (\$0.50)	4,500	4,600	100	U
13 Total variable costs	36,000	35,600	400	F
14				
15 Fixed costs				
16 Depreciation	15,000	15,000	0	
17 Supervision	10,000	10,000	0	
18 Property taxes	5,000	5,000	0	
19 Total fixed costs	30,000	30,000	0	
20 Total costs	\$66,000	\$65,600	\$ 400	F
21				

budget data are therefore based on the flexible budget for 9,000 hours in Illustration 10-13 (page 443). The actual cost data are assumed.

How appropriate is this report in evaluating the Finishing Department manager's performance in controlling overhead costs? The report clearly provides a reliable basis. Both actual and budget costs are based on the activity level worked during January. Since variable costs generally are incurred directly by the department, the difference between the budget allowance for those hours and the actual costs is the responsibility of the department manager.

In subsequent months, Fox Manufacturing will prepare other flexible budget reports. For each month, the budget data are based on the actual activity level attained. In February that level may be 11,000 direct labor hours, in July 10,000, and so on.

Note that this flexible budget is based on a single cost driver. A more accurate budget often can be developed using the activity-based costing concepts explained in Chapter 4.



Service Company Insight

Budgets and the Exotic Newcastle Disease

Exotic Newcastle Disease, one of the most infectious bird diseases in the world, kills so swiftly that many victims die before any symptoms appear. When it broke out in Southern California in 2003, it could have spelled disaster for the [San Diego Zoo](#). "We have one of the most valuable collections of birds in the world, if not *the* most valuable," says Paula Brock, CFO of the Zoological Society of San Diego, which operates the zoo.

Bird exhibits were closed to the public for several months (the disease, which is harmless to humans, can be carried on clothes and shoes). The tires of arriving delivery trucks were sanitized, as were the shoes of anyone visiting the zoo's nonpublic areas. Zookeeper uniforms had to be changed and cleaned daily. And ultimately, the zoo, with \$150 million in revenues, spent almost half a million dollars on quarantine measures in 2003.

It worked: No birds got sick. Better yet, the damage to the rest of the zoo's budget was minimized by another protective measure: the monthly budget reforecast. "When we get a hit like this, we still have to find a way to make our bottom line," says Brock. Thanks to a new planning process Brock had introduced a year earlier, the zoo's scientists were able to raise the financial alarm as they redirected resources to ward off the disease. "Because we had timely awareness," she says, "we were able to make adjustments to weather the storm."

Budget reforecasting is nothing new. (The San Diego Zoo's annual static budget was behind the times before Brock took over as CFO in 2001.) But the reaction of the zoo's staff shows the benefits of Brock's immediate efforts to link strategy to the process. It's a move long touted by consultants as a key way to improve people's involvement in budgeting.

"To keep your company on a path, it has to have some kind of map," says Brock. "The budgeting-and-planning process is that map. I cannot imagine an organization feeling in control if it didn't have that sort of discipline."

Source: Tim Reason, "Budgeting in the Real World," *CFO Magazine*, July 12, 2005, www.cfodirect.com/cfopublic.nsf/vContentPrint/649A82C8FF8AB06B85257037004 (accessed July 2005).



What is the major benefit of tying a budget to the overall goals of the company?

MANAGEMENT BY EXCEPTION

Management by exception means that top management's review of a budget report is focused either entirely or primarily on differences between actual results and planned objectives. This approach enables top management to focus on problem areas. For example, many companies now use online reporting systems for employees to file their travel and entertainment expense reports. In addition to cutting reporting time in half, the online system enables managers to quickly analyze variances from travel budgets. This enables companies to cut down on expense account "padding" such as spending too much on meals or falsifying documents for costs that were never actually incurred.

Management by exception does not mean that top management will investigate every difference. For this approach to be effective, there must be guidelines for identifying an exception. The usual criteria are materiality and controllability.

Materiality

Without quantitative guidelines, management would have to investigate every budget difference regardless of the amount. Materiality is usually expressed as a percentage difference from budget. For example, management may set the percentage difference at 5% for important items and 10% for other items. Managers will investigate all differences either over or under budget by the specified percentage. Costs over budget warrant investigation to determine why they were not controlled. Likewise, costs under budget merit investigation to determine whether costs critical to profitability are being curtailed. For example, if maintenance costs are budgeted at \$80,000 but only \$40,000 is spent, major unexpected breakdowns in productive facilities may occur in the future.

Alternatively, a company may specify a single percentage difference from budget for all items and supplement this guideline with a minimum dollar limit. For example, the exception criteria may be stated at 5% of budget or more than \$10,000.

Controllability of the Item

Exception guidelines are more restrictive for controllable items than for items the manager cannot control. In fact, there may be no guidelines for noncontrollable items. For example, a large unfavorable difference between actual and budgeted property tax expense may not be flagged for investigation because the only possible causes are an unexpected increase in the tax rate or in the assessed value of the property. An investigation into the difference would be useless: The manager cannot control either cause.

before you go on...

Flexible Budget Reports

Do it!

Lawler Company expects to produce 40,000 units of product CV93 during the current year. Budgeted variable manufacturing costs per unit are direct materials \$6, direct labor \$15, and overhead \$24. Annual budgeted fixed manufacturing overhead costs are \$120,000 for depreciation and \$60,000 for supervision.

In the current month, Lawler produced 5,000 units and incurred the following costs: direct materials \$33,900, direct labor \$74,200, variable overhead \$120,500, depreciation \$10,000, and supervision \$5,000.

Prepare a flexible budget report. (Note: You do not have to prepare the heading.)
Were costs controlled?

Solution

The screenshot shows a Microsoft Excel spreadsheet titled "Lawler Company.xls". The spreadsheet has five columns labeled A, B, C, D, and E. Column A contains category names, column B contains budget amounts, column C contains actual cost amounts, column D contains the difference between budget and actual, and column E indicates whether the difference is favorable (F) or unfavorable (U). The data includes:

A	B	C	D	E
1			Difference	
2	Budget at	Actual costs at	Favorable - F Unfavorable - U	
3 Units produced	5,000 units	5,000 units		
4				
5 Variable costs				
6 Direct materials (\$6)	\$ 30,000	\$ 33,900	\$3,900	U
7 Direct labor (\$15)	75,000	74,200	800	F
8 Overhead (\$24)	120,000	120,500	500	U
9 Total variable costs	225,000	228,600	3,600	U
10				
11 Fixed costs				
12 Depreciation	10,000	10,000	0	
13 Supervision	5,000	5,000	0	
14 Total fixed costs	15,000	15,000	0	
15 Total costs	\$240,000	\$243,600	\$3,600	U
16				
17				

The responsibility report indicates that actual direct labor was only about 1% different from the budget, and overhead was less than half a percent different. Both appear to have been well-controlled.

This was not the case for direct materials. Its 13% unfavorable difference should probably be investigated.

Actual fixed costs had no difference from budget and were well-controlled.

Related exercise material: **BE10-5, E10-4, E10-6, E10-7, E10-8, E10-10, and *Do it!* 10-2.**



The Concept of Responsibility Accounting

Like budgeting, responsibility accounting is an important part of management accounting. **Responsibility accounting** involves accumulating and reporting costs (and revenues, where relevant) on the basis of the manager who has the authority to make the day-to-day decisions about the items. Under responsibility accounting, a manager's performance is evaluated on matters directly under that manager's control. Responsibility accounting can be used at every level of management in which the following conditions exist.

1. Costs and revenues can be directly associated with the specific level of management responsibility.
2. The costs and revenues can be controlled by employees at the level of responsibility with which they are associated.

Action Plan

- Use budget for actual units produced.
- Classify each cost as variable or fixed.
- Determine monthly fixed costs by dividing annual amounts by 12.
- Determine the difference as favorable or unfavorable.
- Determine the difference in total variable costs, total fixed costs, and total costs.

study objective 4

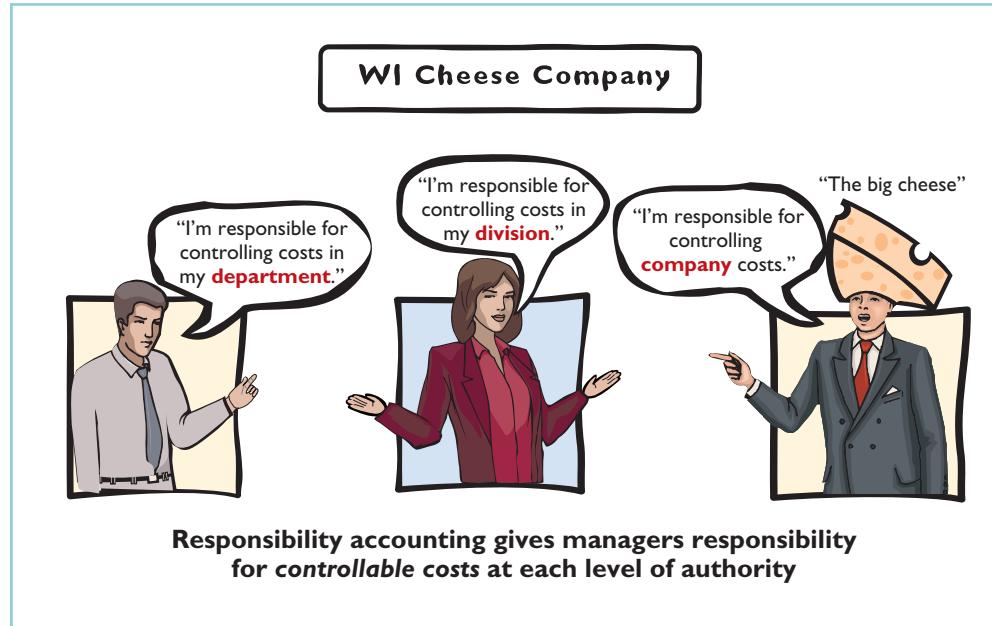
Describe the concept of responsibility accounting.

- Budget data can be developed for evaluating the manager's effectiveness in controlling the costs and revenues.

Illustration 10-17 depicts levels of responsibility for controlling costs.

Illustration 10-17

Responsibility for controllable costs at varying levels of management



Helpful Hint All companies use responsibility accounting. Without some form of responsibility accounting, there would be chaos in discharging management's control function.

Under responsibility accounting, any individual who controls a specified set of activities can be a responsibility center. Thus, responsibility accounting may extend from the lowest level of control to the top strata of management. Once responsibility is established, the company first measures and reports the effectiveness of the individual's performance for the specified activity. It then reports that measure upward throughout the organization.

Responsibility accounting is especially valuable in a decentralized company. **Decentralization** means that the control of operations is delegated to many managers throughout the organization. The term **segment** is sometimes used to identify an area of responsibility in decentralized operations. Under responsibility accounting, companies prepare segment reports periodically, such as monthly, quarterly, and annually, to evaluate managers' performance.

Responsibility accounting is an essential part of any effective system of budgetary control. The reporting of costs and revenues under responsibility accounting differs from budgeting in two respects:

- A distinction is made between controllable and noncontrollable items.
- Performance reports either emphasize or include only items controllable by the individual manager.

Responsibility accounting applies to both profit and not-for-profit entities. For-profit entities seek to maximize net income. Not-for-profit entities wish to provide services as efficiently as possible.





Management Insight

Competition versus Collaboration

Many compensation and promotion programs encourage competition among employees for pay raises. To get ahead you have to perform better than your fellow employees. While this may encourage hard work, it does not foster collaboration, and it can lead to distrust and disloyalty. Such results have led some companies to believe that cooperation and collaboration are essential in order to succeed in today's environment. For example, division managers might increase collaboration (and reduce costs) by sharing design and marketing resources or by jointly negotiating with suppliers. In addition, companies can reduce the need to hire and lay off employees by sharing employees across divisions as human resource needs increase and decrease.

As a consequence, many companies now explicitly include measures of collaboration in their performance measures. For example, [Procter & Gamble](#) measures collaboration in employees' annual performance reviews. At [Cisco Systems](#) the assessment of an employee's teamwork can affect the annual bonus by as much as 20%.

Source: Carol Hymowitz, "Rewarding Competitors Over Collaboration No Longer Makes Sense," *Wall Street Journal*, February 13, 2006.



How might managers of separate divisions be able to reduce division costs through collaboration?

CONTROLLABLE VERSUS NONCONTROLLABLE REVENUES AND COSTS

All costs and revenues are controllable at some level of responsibility within a company. This truth underscores the adage by the CEO of any organization that "the buck stops here." Under responsibility accounting, the critical issue is **whether the cost or revenue is controllable at the level of responsibility with which it is associated**. A cost over which a manager has control is called a **controllable cost**. From this definition, it follows that:

1. All costs are controllable by top management because of the broad range of its authority.
2. Fewer costs are controllable as one moves down to each lower level of managerial responsibility because of the manager's decreasing authority.

In general, **costs incurred directly by a level of responsibility are controllable at that level**. In contrast, costs incurred indirectly and allocated to a responsibility level are **noncontrollable costs** at that level.

Helpful Hint Are there more or fewer controllable costs as you move to higher levels of management?

Answer: More.

Helpful Hint The longer the time span, the more likely that the cost becomes controllable.

RESPONSIBILITY REPORTING SYSTEM

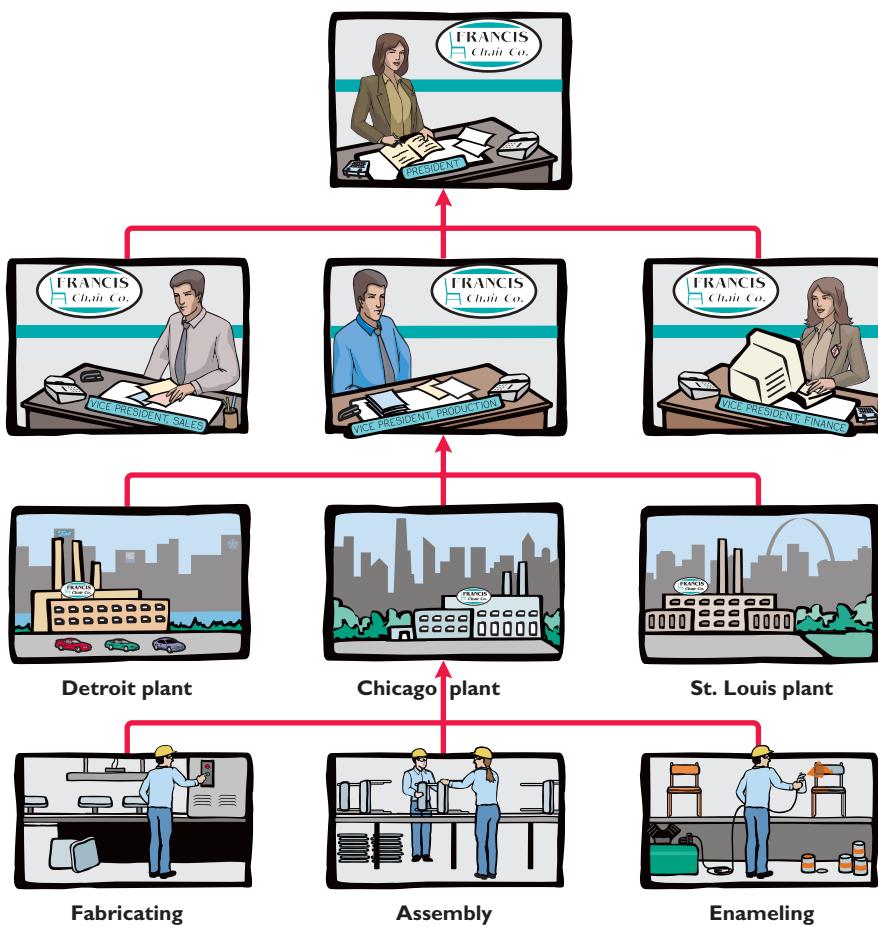
A **responsibility reporting system** involves the preparation of a report for each level of responsibility in the company's organization chart. To illustrate such a system, we use the partial organization chart and production departments of Francis Chair Company in Illustration 10-18 (page 450).

The responsibility reporting system begins with the lowest level of responsibility for controlling costs and moves upward to each higher level. Illustration 10-19 (page 451) details the connections between levels.

A brief description of the four reports for Francis Chair Company is as follows.

1. **Report D** is typical of reports that go to department managers. Similar reports are prepared for the managers of the Fabricating, Assembly, and Enameling Departments.

Illustration 10-18
Partial organization chart



2. **Report C** is an example of reports that are sent to plant managers. It shows the costs of the Chicago plant that are controllable at the second level of responsibility. In addition, Report C shows summary data for each department that is controlled by the plant manager. Similar reports are prepared for the Detroit and St. Louis plant managers.
3. **Report B** illustrates the reports at the third level of responsibility. It shows the controllable costs of the vice president of production and summary data on the three assembly plants for which this officer is responsible. Similar reports are prepared for the vice presidents of sales and finance.
4. **Report A** is typical of reports that go to the top level of responsibility—the president. It shows the controllable costs and expenses of this office and summary data on the vice presidents that are accountable to the president.

A responsibility reporting system permits management by exception at each level of responsibility. And, each higher level of responsibility can obtain the detailed report for each lower level of responsibility. For example, the vice president of production in the Francis Chair Company may request the Chicago plant manager's report because this plant is \$5,300 over budget.

This type of reporting system also permits comparative evaluations. In Illustration 10-19, the Chicago plant manager can easily rank the department managers' effectiveness in controlling manufacturing costs. Comparative rankings provide further incentive for a manager to control costs.

Illustration 10-19

Responsibility reporting system

Report A

President sees summary data of vice presidents.

	A	B	C	D	E
1					
2					
3	To President				Month: January
4	Controllable Costs:	Budget	Actual	Fav/Unfav	
5	President	\$ 150,000	\$ 151,500	\$ 1,500	U
6	Vice Presidents:				
7	Sales	185,000	187,000	2,000	U
8	Production	1,179,000	1,186,300	7,300	U
9	Finance	100,000	101,000	1,000	U
10	Total	\$1,614,000	\$1,625,800	\$11,800	U
11					

	A	B	C	D	E
1					
2					
3	To Vice President Production				Month: January
4	Controllable Costs:	Budget	Actual	Fav/Unfav	
5	V P Production	\$ 125,000	\$ 126,000	\$1,000	U
6	Assembly Plants:				
7	Detroit	420,000	418,000	2,000	F
8	Chicago	304,000	309,300	5,300	U
9	St. Louis	330,000	333,000	3,000	U
10	Total	\$1,179,000	\$1,186,300	\$7,300	U
11					

	A	B	C	D	E
1					
2					
3	To Plant Manager-Chicago				Month: January
4	Controllable Costs:	Budget	Actual	Fav/Unfav	
5	Chicago Plant	\$110,000	\$113,000	\$3,000	U
6	Departments:				
7	Fabricating	84,000	85,300	1,300	U
8	Enameling	62,000	64,000	2,000	U
9	Assembly	48,000	47,000	1,000	F
10	Total	\$304,000	\$309,300	\$5,300	U
11					

	A	B	C	D	E
1					
2					
3	To Fabricating Department Manager				Month: January
4	Controllable Costs:	Budget	Actual	Fav/Unfav	
5	Direct Materials	\$20,000	\$20,500	\$ 500	U
6	Direct Labor	40,000	41,000	1,000	U
7	Overhead	24,000	23,800	200	F
8	Total	\$84,000	\$85,300	\$1,300	U
9					

Report D

Department manager sees controllable costs of his/her department.

Types of Responsibility Centers

There are three basic types of responsibility centers: cost centers, profit centers, and investment centers. These classifications indicate the degree of responsibility the manager has for the performance of the center.

A **cost center** incurs costs (and expenses) but does not directly generate revenues. Managers of cost centers have the authority to incur costs. They are evaluated on their ability to control costs. **Cost centers are usually either production departments or service departments.** Production departments participate directly in making the product. Service departments provide only support services. In a **Ford Motor Company** automobile plant, the welding, painting, and assembling departments are production departments. Ford's maintenance, cafeteria, and human resources departments are service departments. All of them are cost centers.

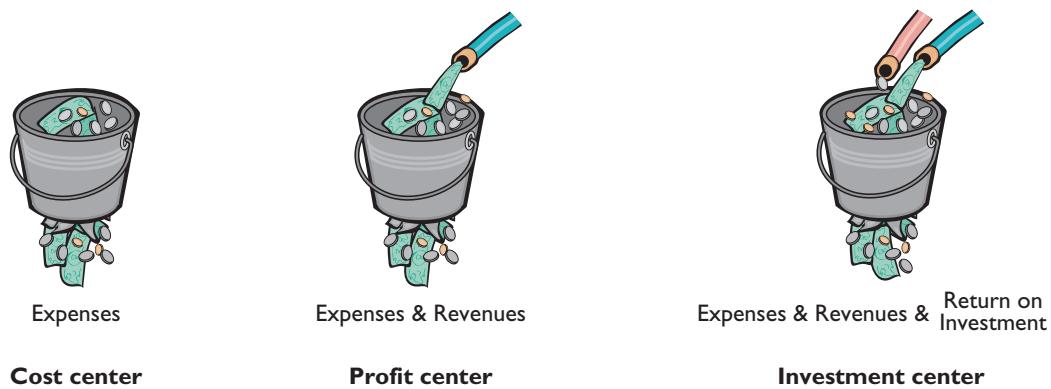
A **profit center** incurs costs (and expenses) and also generates revenues. Managers of profit centers are judged on the profitability of their centers. Examples of profit centers include the individual departments of a retail store, such as clothing, furniture, and automotive products, and branch offices of banks.

Like a profit center, an **investment center** incurs costs (and expenses) and generates revenues. In addition, an investment center has control over decisions regarding the assets available for use. Investment center managers are evaluated on both the profitability of the center and the rate of return earned on the funds invested. Investment centers are often associated with subsidiary companies. Utility **Duke Energy** has operating divisions such as electric utility, energy trading, and natural gas. Investment center managers control or significantly influence investment decisions related to such matters as plant expansion and entry into new market areas. Illustration 10-20 depicts the three types of responsibility centers.

Illustration 10-20

Types of responsibility centers

Types of Responsibility Centers



study objective **5**

Indicate the features of responsibility reports for cost centers.

RESPONSIBILITY ACCOUNTING FOR COST CENTERS

The evaluation of a manager's performance for cost centers is based on his or her ability to meet budgeted goals for controllable costs. **Responsibility reports for cost centers compare actual controllable costs with flexible budget data.**

Illustration 10-21 shows a responsibility report. The report is adapted from the flexible budget report for Fox Manufacturing Company in Illustration 10-16 (page 444). It assumes that the Finishing Department manager is able to control

	A	B	C	D	E
1	FOX MANUFACTURING COMPANY				
2	Finishing Department				
3	Responsibility Report				
4	For the Month Ended January 31, 2011				
5				Difference	
6	Controllable Cost	Budget	Actual	Favorable - F Unfavorable - U	
7	Indirect materials	\$13,500	\$14,000	\$ 500 U	
8	Indirect labor	18,000	17,000	\$1,000 F	
9	Utilities	4,500	4,600	100 U	
10	Supervision	4,000	4,000	0	
11		\$40,000	\$39,600	\$ 400 F	
12					

Illustration 10-21
Responsibility report for a cost center

all manufacturing overhead costs except depreciation, property taxes, and his own monthly salary of \$6,000. The remaining \$4,000 (\$10,000 – \$6,000) of supervision costs are assumed to apply to other supervisory personnel within the Finishing Department, whose salaries are controllable by the manager.

The report in Illustration 10-21 includes **only controllable costs**, and no distinction is made between variable and fixed costs. The responsibility report continues the concept of management by exception. In this case, top management may request an explanation of the \$1,000 favorable difference in indirect labor and/or the \$500 unfavorable difference in indirect materials.

RESPONSIBILITY ACCOUNTING FOR PROFIT CENTERS

To evaluate the performance of a profit center manager, upper management needs detailed information about both controllable revenues and controllable costs. The operating revenues earned by a profit center, such as sales, are controllable by the manager. All variable costs (and expenses) incurred by the center are also controllable by the manager because they vary with sales. However, to determine the controllability of fixed costs, it is necessary to distinguish between direct and indirect fixed costs.

study objective 6

Identify the content of responsibility reports for profit centers.

Direct and Indirect Fixed Costs

A profit center may have both direct and indirect fixed costs. **Direct fixed costs** relate specifically to one center and are incurred for the sole benefit of that center. Examples of such costs include the salaries established by the profit center manager for supervisory personnel and the cost of a timekeeping department for the center's employees. Since these fixed costs can be traced directly to a center, they are also called **traceable costs**. **Most direct fixed costs are controllable by the profit center manager**.

In contrast, **indirect fixed costs** pertain to a company's overall operating activities and are incurred for the benefit of more than one profit center. Management allocates indirect fixed costs to profit centers on some type of equitable basis. For example, property taxes on a building occupied by more than one center may be allocated on the basis of square feet of floor space used by each center. Or, the costs of a company's human resources department may be allocated to profit centers on the basis of the number of employees in each center. Because these fixed costs apply to more than one center, they are also called **common costs**. **Most indirect fixed costs are not controllable by the profit center manager**.

Responsibility Report

The responsibility report for a profit center shows budgeted and actual **controllable revenues and costs**. The report is prepared using the cost-volume-profit income statement explained in Chapter 5. In the report:

1. Controllable fixed costs are deducted from contribution margin.
2. The excess of contribution margin over controllable fixed costs is identified as **controllable margin**.
3. Noncontrollable fixed costs are not reported.

Illustration 10-22 shows the responsibility report for the manager of the Marine Division, a profit center of Mantle Manufacturing Company. For the year, the Marine Division also had \$60,000 of indirect fixed costs that were not controllable by the profit center manager.

Illustration 10-22

Responsibility report for profit center

A	B	C	D	E
1				
2	MANTLE MANUFACTURING COMPANY			
3	Marine Division			
4	Responsibility Report			
5	For the Year Ended December 31, 2011			
6			Difference	
7	Sales	Budget	Actual	
8		\$1,200,000	\$1,150,000	\$50,000
9	Variable costs			Favorable - F Unfavorable - U
10	Cost of goods sold	500,000	490,000	10,000
11	Selling and administrative	160,000	156,000	4,000
12	Total	660,000	646,000	14,000
13	Contribution margin	540,000	504,000	36,000
14	Controllable fixed costs			U
15	Cost of goods sold	100,000	100,000	0
16	Selling and administrative	80,000	80,000	0
17	Total	180,000	180,000	0
18	Controllable margin	\$ 360,000	\$ 324,000	\$36,000

Controllable margin is considered to be the best measure of the manager's performance **in controlling revenues and costs**. The report in Illustration 10-22 shows that the manager's performance was below budgeted expectations by 10% ($\$36,000 \div \$360,000$). Top management would likely investigate the causes of this unfavorable result. Note that the report does not show the Marine Division's noncontrollable fixed costs of \$60,000. These costs would be included in a report on the profitability of the profit center.

Management also may choose to see **monthly** responsibility reports for profit centers. In addition, responsibility reports may include cumulative year-to-date results.



DECISION TOOLKIT

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Have the individual managers been held accountable for the costs and revenues under their control?	Relevant costs and revenues, where the individual manager has authority to make day-to-day decisions about the items	Responsibility reports focused on cost centers, profit centers, and investment centers as appropriate	Compare budget to actual costs and revenues for controllable items.

before you go on...**Do it!**

Midwest Division operates as a profit center. It reports the following for the year:

	Budgeted	Actual
Sales	\$1,500,000	\$1,700,000
Variable costs	700,000	800,000
Controllable fixed costs	400,000	400,000
Noncontrollable fixed costs	200,000	200,000

Prepare a responsibility report for the Midwest Division for December 31, 2011.

Solution

MIDWEST DIVISION
Responsibility Report
For the Year Ended December 31, 2011

	Budget	Actual	Difference
			Favorable F
			Unfavorable U
Sales	\$1,500,000	\$1,700,000	\$200,000 F
Variable costs	700,000	800,000	100,000 U
Contribution margin	800,000	900,000	100,000 F
Controllable fixed costs	400,000	400,000	-0-
Controllable margin	\$ 400,000	\$ 500,000	\$100,000 F

Related exercise material: BE10-7, E10-15, and **Do it! 10-3**.



RESPONSIBILITY ACCOUNTING FOR INVESTMENT CENTERS

As explained earlier, an investment center manager can control or significantly influence the investment funds available for use. Thus, the primary basis for evaluating the performance of a manager of an investment center is **return on investment (ROI)**. The return on investment is considered to be a useful performance measurement because it shows the **effectiveness of the manager in utilizing the assets at his or her disposal**.

study objective 7

Explain the basis and formula used in evaluating performance in investment centers.

Return on Investment (ROI)

The formula for computing ROI for an investment center, together with assumed illustrative data, is shown in Illustration 10-23.

Controllable Margin	\div	Average Operating Assets	$=$	Return on Investment (ROI)
\$1,000,000	\div	\$5,000,000	$=$	20%

Illustration 10-23
ROI formula

Both factors in the formula are controllable by the investment center manager. Operating assets consist of current assets and plant assets used in operations by the center and controlled by the manager. Nonoperating assets such as idle plant assets and land held for future use are excluded. Average operating assets are usually based on the cost or book value of the assets at the beginning and end of the year.

Responsibility Report

The scope of the investment center manager's responsibility significantly affects the content of the performance report. Since an investment center is an independent entity for operating purposes, **all fixed costs are controllable by its manager**. For example, the manager is responsible for depreciation on investment center assets. Therefore, more fixed costs are identified as controllable in the performance report for an investment center manager than in a performance report for a profit center manager. The report also shows budgeted and actual ROI below controllable margin.

To illustrate this responsibility report, we will now assume that the Marine Division of Mantle Manufacturing Company is an investment center. It has budgeted and actual average operating assets of \$2,000,000. The manager can control \$60,000 of fixed costs that were not controllable when the division was a profit center. Illustration 10-24 shows the division's responsibility report.

Illustration 10-24

Responsibility report for investment center

MANTLE MANUFACTURING COMPANY
Marine Division
Responsibility Report
For the Year Ended December 31, 2011

	A	B	C	D	E
1					
2					
3					
4					
5					
6		Budget	Actual	Difference	
7	Sales	\$1,200,000	\$1,150,000	\$ 50,000	U
8	Variable costs				
9	Cost of goods sold	500,000	490,000	10,000	F
10	Selling and administrative	160,000	156,000	4,000	F
11	Total	660,000	646,000	14,000	F
12	Contribution margin	540,000	504,000	36,000	U
13	Controllable fixed costs				
14	Cost of goods sold	100,000	100,000	0	
15	Selling and administrative	80,000	80,000	0	
16	Other fixed costs	60,000	60,000	0	
17	Total	240,000	240,000	0	
18	Controllable margin	\$ 300,000	\$ 264,000	\$ 36,000	U
19	Return on investment	15.0%	13.2%	1.8%	U
20		(a)	(b)	(c)	
21					
22		(a) \$ 300,000 \$2,000,000	(b) \$ 264,000 \$2,000,000	(c) \$ 36,000 \$2,000,000	
23					

The report shows that the manager's performance based on ROI was below budget expectations by 1.8% (15.0% versus 13.2%). Top management would likely want an explanation of the reasons for this unfavorable result.

Judgmental Factors in ROI

The return on investment approach includes two judgmental factors:

1. **Valuation of operating assets.** Operating assets may be valued at acquisition cost, book value, appraised value, or market value. The first two bases are readily available from the accounting records.
2. **Margin (income) measure.** This measure may be controllable margin, income from operations, or net income.

Each of the alternative values for operating assets can provide a reliable basis for evaluating a manager's performance as long as it is consistently applied between reporting periods. However, the use of income measures other than

controllable margin will not result in a valid basis for evaluating the performance of an investment center manager.

Improving ROI

The manager of an investment center can improve ROI by increasing controllable margin, and/or reducing average operating assets. To illustrate, we will use the following assumed data for the Laser Division of Berra Manufacturing.

Sales	\$2,000,000
Variable cost	1,100,000
Contribution margin (45%)	900,000
Controllable fixed costs	300,000
Controllable margin (a)	\$ 600,000
Average operating assets (b)	\$5,000,000
Return on investment (a) ÷ (b)	12%

Illustration 10-25

Assumed data for Laser Division

INCREASING CONTROLLABLE MARGIN Controllable margin can be increased by increasing sales or by reducing variable and controllable fixed costs as follows.

- Increase sales 10%.** Sales will increase \$200,000 ($\$2,000,000 \times .10$). Assuming no change in the contribution margin percentage of 45%, contribution margin will increase \$90,000 ($\$200,000 \times .45$). Controllable margin will increase by the same amount because controllable fixed costs will not change. Thus, controllable margin becomes \$690,000 ($\$600,000 + \$90,000$). The new ROI is 13.8%, computed as follows.

$$\text{ROI} = \frac{\text{Controllable margin}}{\text{Average operating assets}} = \frac{\$690,000}{\$5,000,000} = \mathbf{13.8\%}$$

Illustration 10-26

ROI computation—increase in sales

An increase in sales benefits both the investment center and the company if it results in new business. It would not benefit the company if the increase was achieved at the expense of other investment centers.

- Decrease variable and fixed costs 10%.** Total costs decrease \$140,000 [$(\$1,100,000 + \$300,000) \times .10$]. This reduction results in a corresponding increase in controllable margin. Thus, controllable margin becomes \$740,000 ($\$600,000 + \$140,000$). The new ROI is 14.8%, computed as follows.

$$\text{ROI} = \frac{\text{Controllable margin}}{\text{Average operating assets}} = \frac{\$740,000}{\$5,000,000} = \mathbf{14.8\%}$$

Illustration 10-27

ROI computation—decrease in costs

This course of action is clearly beneficial when waste and inefficiencies are eliminated. But, a reduction in vital costs such as required maintenance and inspections is not likely to be acceptable to top management.

REDUCING AVERAGE OPERATING ASSETS Assume that average operating assets are reduced 10% or \$500,000 ($\$5,000,000 \times .10$). Average operating assets become \$4,500,000 ($\$5,000,000 - \$500,000$). Since controllable margin remains unchanged at \$600,000, the new ROI is 13.3%, computed as follows.

$$\text{ROI} = \frac{\text{Controllable margin}}{\text{Average operating assets}} = \frac{\$600,000}{\$4,500,000} = \mathbf{13.3\%}$$

Illustration 10-28

ROI computation—decrease in operating assets

Reductions in operating assets may or may not be prudent. It is beneficial to eliminate overinvestment in inventories and to dispose of excessive plant assets.

However, it is unwise to reduce inventories below expected needs or to dispose of essential plant assets.



Accounting Across the Organization

Does Hollywood Look at ROI?

If Hollywood were run like a real business, where things like return on investment mattered, there would be one unchallenged, sacred principle that studio chieftains would never violate: Make lots of G-rated movies.

No matter how you slice the movie business—by star vehicles, by budget levels, or by sequels or franchises—by far the best return on investment comes from the not-so-glamorous world of G-rated films. The problem is, these movies represent only 3% of the total films made in a typical year.

Take 2003: According to Motion Picture Association of America statistics, of the 940 movies released that year, only 29 were G-rated. Yet the highest-grossing movie of the year, *Finding Nemo*, was G-rated. . . . On the flip side are the R-rated films, which dominate the total releases and yet yield the worst return on investment. A whopping 646 R-rated films were released in 2003—69% of the total output—but only four of the top-20 grossing movies of the year were R-rated films.

This trend—G-rated movies are good for business but underproduced; R-rated movies are bad for business, and yet overdone—is something that has been driving economists batty for the past several years.

Source: David Grainger, "The Dysfunctional Family-Film Business," *Fortune*, January 10, 2005, pp. 20–21.

 What might be the reason that movie studios do not produce G-rated movies as much as R-rated ones?



DECISION TOOLKIT

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Has the investment center performed up to expectations?	Controllable margin (contribution margin minus controllable fixed costs), and average investment center operating assets	Return on investment	Compare actual ROI to expected ROI.

PRINCIPLES OF PERFORMANCE EVALUATION

Performance evaluation is at the center of responsibility accounting. **Performance evaluation** is a management function that compares actual results with budget goals. It involves both behavioral and reporting principles.

Behavioral Principles

The human factor is critical in evaluating performance. Behavioral principles include the following.

1. **Managers of responsibility centers should have direct input into the process of establishing budget goals of their area of responsibility.** Without such input, managers may view the goals as unrealistic or arbitrarily set by top management. Such views adversely affect the managers' motivation to meet the targeted objectives.
2. **The evaluation of performance should be based entirely on matters that are controllable by the manager being evaluated.** Criticism of a manager on matters outside his or her control reduces the effectiveness of the evaluation process. It leads to negative reactions by a manager and to doubts about the fairness of the company's evaluation policies.

3. **Top management should support the evaluation process.** As explained earlier, the evaluation process begins at the lowest level of responsibility and extends upward to the highest level of management. Managers quickly lose faith in the process when top management ignores, overrules, or bypasses established procedures for evaluating a manager's performance.
4. **The evaluation process must allow managers to respond to their evaluations.** Evaluation is not a one-way street. Managers should have the opportunity to defend their performance. Evaluation without feedback is both impersonal and ineffective.
5. **The evaluation should identify both good and poor performance.** Praise for good performance is a powerful motivating factor for a manager. This is especially true when a manager's compensation includes rewards for meeting budget goals.

Reporting Principles

Performance evaluation under responsibility accounting should be based on certain reporting principles. These principles pertain primarily to the internal reports that provide the basis for evaluating performance. Performance reports should:

1. Contain only data that are controllable by the manager of the responsibility center.
2. Provide accurate and reliable budget data to measure performance.
3. Highlight significant differences between actual results and budget goals.
4. Be tailor-made for the intended evaluation.
5. Be prepared at reasonable intervals.

In recent years companies have come under increasing pressure from influential shareholder groups to do a better job of linking executive pay to corporate performance. For example, software maker **Siebel Systems** unveiled a new incentive plan after lengthy discussions with the California Public Employees' Retirement System. One unique feature of the plan is that managers' targets will be publicly disclosed at the beginning of each year for investors to evaluate.



Management Insight

Flexible Manufacturing Requires Flexible Accounting

Flexible budgeting is useful because it enables managers to evaluate performance in light of changing conditions. But the ability to react quickly to changing conditions is even more important. Among automobile manufacturing facilities in the U.S., nobody has more flexible plants than **Honda**. The manufacturing facilities of some auto companies can make slight alterations to the features of a vehicle in response to changes in demand for particular features. But for most plants, to switch from production of one type of vehicle to a completely different type of vehicle, when demand for types of vehicles shifts, typically takes months and costs hundreds of millions of dollars. But at the Honda plant, the switch takes minutes. For example, it takes about five minutes to install different hand-like parts on the robots so they can switch from making Civic compacts to the longer, taller CR-V crossover. This ability to adjust quickly to changing demand gave Honda a huge advantage when gas prices surged and demand for more fuel-efficient cars increased quickly.



Source: Kate Linebaugh, "Honda's Flexible Plants Provide Edge," Wall Street Journal Online, September 23, 2008.



What implications do these improvements in production capabilities have for management accounting information and performance evaluation within the organization?

before you go on...

Performance Evaluation**Do it!**

The service division of Metro Industries reported the following results for 2011.

Sales	\$400,000
Variable costs	320,000
Controllable fixed costs	40,800
Average operating assets	280,000

Management is considering the following independent courses of action in 2012 in order to maximize the return on investment for this division.

1. Reduce average operating assets by \$80,000, with no change in controllable margin.
 2. Increase sales \$80,000, with no change in the contribution margin percentage.
- (a) Compute the controllable margin and the return on investment for 2011.
 (b) Compute the controllable margin and the expected return on investment for each proposed alternative.

Action Plan

- Recall key formulas: Sales – Variable costs = Contribution margin.
- Contribution margin ÷ Sales = Contribution margin percentage.
- Contribution margin – Controllable fixed costs = Controllable margin.
- Return on investment = Controllable margin ÷ Average operating assets.

Solution

- (a) Return on investment for 2011

Sales	\$400,000
Variable costs	320,000
Contribution margin	80,000
Controllable fixed costs	40,800
Controllable margin	\$ 39,200
Return on investment	\$39,200 \$280,000 = 14%

- (b) Expected return on investment for alternative 1:

$$\frac{\$39,200}{\$280,000 - \$80,000} = 19.6\%$$

Expected return on investment for alternative 2:

Sales (\$400,000 + \$80,000)	\$480,000
Variable costs (\$320,000/\$400,000 × \$480,000)	384,000
Contribution margin	96,000
Controllable fixed costs	40,800
Controllable margin	\$ 55,200
Return on investment	\$55,200 \$280,000 = 19.7%

Related exercise material: BE10-8, BE10-9, BE10-10, E10-16, E10-17, and **Do it! 10-4**.





USING THE DECISION TOOLKIT

The manufacturing overhead budget for Reebles Company contains the following items.

Variable costs	
Indirect materials	\$25,000
Indirect labor	12,000
Maintenance expenses	10,000
Manufacturing supplies	6,000
Total variable	<u>\$53,000</u>
Fixed costs	
Supervision	\$17,000
Inspection costs	1,000
Insurance expenses	2,000
Depreciation	15,000
Total fixed	<u>\$35,000</u>

The budget was based on an estimated 2,000 units being produced. During November, 1,500 units were produced, and the following costs incurred.

Variable costs	
Indirect materials	\$25,200
Indirect labor	13,500
Maintenance expenses	8,200
Manufacturing supplies	5,100
Total variable	<u>\$52,000</u>
Fixed costs	
Supervision	\$19,300
Inspection costs	1,200
Insurance expenses	2,200
Depreciation	14,700
Total fixed	<u>\$37,400</u>

Instructions

- Determine which items would be controllable by Ed Lopat, the production manager. (Assume “supervision” excludes Lopat’s own salary.)
- How much should have been spent during the month for the manufacture of the 1,500 units?
- Prepare a flexible manufacturing overhead budget report for Mr. Lopat.
- Prepare a responsibility report. Include only the costs that would have been controllable by Mr. Lopat. In an attached memo, describe clearly for Mr. Lopat the areas in which his performance needs to be improved.

Solution

- Ed Lopat should be able to control all the variable costs and the fixed costs of supervision and inspection. Insurance and depreciation ordinarily are not the responsibility of the department manager.
- The total variable cost per unit is \$26.50 ($\$53,000 \div 2,000$). The total budgeted cost during the month to manufacture 1,500 units is variable costs \$39,750 ($1,500 \times \26.50) plus fixed costs (\$35,000), for a total of \$74,750 ($\$39,750 + \$35,000$).

(c)

REEBLES COMPANY
Production Department
Manufacturing Overhead Budget Report (Flexible)
For the Month Ended November 30, 2011

	Budget at 1,500 Units	Actual at 1,500 Units	Difference
			Favorable F Unfavorable U
Variable costs			
Indirect materials (\$12.50)	\$18,750	\$25,200	\$ 6,450 U
Indirect labor (\$6)	9,000	13,500	4,500 U
Maintenance (\$5)	7,500	8,200	700 U
Manufacturing supplies (\$3)	4,500	5,100	600 U
Total variable	<u>39,750</u>	<u>52,000</u>	<u>12,250</u> U
Fixed costs			
Supervision	17,000	19,300	2,300 U
Inspection	1,000	1,200	200 U
Insurance	2,000	2,200	200 U
Depreciation	<u>15,000</u>	<u>14,700</u>	<u>300</u> F
Total fixed	<u>35,000</u>	<u>37,400</u>	<u>2,400</u> U
Total costs	<u>\$74,750</u>	<u>\$89,400</u>	<u>\$14,650</u> U

- (d) Because a production department is a cost center, the responsibility report should include only the costs that are controllable by the production manager. In this type of report, no distinction is made between variable and fixed costs. Budget data in the report should be based on the units actually produced.

REEBLES COMPANY
Production Department
Manufacturing Overhead Responsibility Report
For the Month Ended November 30, 2011

Controllable Cost	Budget	Actual	Difference
			Favorable F Unfavorable U
Indirect materials	\$18,750	\$25,200	\$ 6,450 U
Indirect labor	9,000	13,500	4,500 U
Maintenance	7,500	8,200	700 U
Manufacturing supplies	4,500	5,100	600 U
Supervision	17,000	19,300	2,300 U
Inspection	<u>1,000</u>	<u>1,200</u>	<u>200</u> U
Total	<u>\$57,750</u>	<u>\$72,500</u>	<u>\$14,750</u> U

To: Mr. Ed Lopat, Production Manager

From: _____, Vice President of Production

Subject: Performance Evaluation for the Month of November

Your performance in controlling costs that are your responsibility was very disappointing in the month of November. As indicated in the accompanying responsibility report, total costs were \$14,750 over budget. On a percentage basis, costs were 26% over budget. As you can see, actual costs were over budget for every cost item. In three instances, costs were significantly over budget (indirect materials 34%, indirect labor 50%, and supervision 14%).

Ed, it is imperative that you get costs under control in your department as soon as possible.

I think we need to talk about ways to implement more effective cost control measures. I would like to meet with you in my office at 9 a.m. on Wednesday to discuss possible alternatives.





Summary of Study Objectives

- 1 Describe the concept of budgetary control.** Budgetary control consists of (a) preparing periodic budget reports that compare actual results with planned objectives, (b) analyzing the differences to determine their causes, (c) taking appropriate corrective action, and (d) modifying future plans, if necessary.
- 2 Evaluate the usefulness of static budget reports.** Static budget reports are useful in evaluating the progress toward planned sales and profit goals. They are also appropriate in assessing a manager's effectiveness in controlling costs when (a) actual activity closely approximates the master budget activity level, and/or (b) the behavior of the costs in response to changes in activity is fixed.
- 3 Explain the development of flexible budgets and the usefulness of flexible budget reports.** To develop the flexible budget it is necessary to: (a) Identify the activity index and the relevant range of activity. (b) Identify the variable costs, and determine the budgeted variable cost per unit of activity for each cost. (c) Identify the fixed costs, and determine the budgeted amount for each cost. (d) Prepare the budget for selected increments of activity within the relevant range. Flexible budget reports permit an evaluation of a manager's performance in controlling production and costs.
- 4 Describe the concept of responsibility accounting.** Responsibility accounting involves accumulating and

reporting revenues and costs on the basis of the individual manager who has the authority to make the day-to-day decisions about the items. The evaluation of a manager's performance is based on the matters directly under the manager's control. In responsibility accounting, it is necessary to distinguish between controllable and noncontrollable fixed costs and to identify three types of responsibility centers: cost, profit, and investment.

- 5 Indicate the features of responsibility reports for cost centers.** Responsibility reports for cost centers compare actual costs with flexible budget data. The reports show only controllable costs, and no distinction is made between variable and fixed costs.
- 6 Identify the content of responsibility reports for profit centers.** Responsibility reports show contribution margin, controllable fixed costs, and controllable margin for each profit center.
- 7 Explain the basis and formula used in evaluating performance in investment centers.** The primary basis for evaluating performance in investment centers is return on investment (ROI). The formula for computing ROI for investment centers is: Controllable margin ÷ Average operating assets.



DECISION TOOLKIT A SUMMARY

DECISION CHECKPOINTS	INFO NEEDED FOR DECISION	TOOL TO USE FOR DECISION	HOW TO EVALUATE RESULTS
Are the increased costs resulting from increased production reasonable?	Variable costs projected at different levels of production	Flexible budget	After taking into account different production levels, results are favorable if expenses are less than budgeted amounts.
Have the individual managers been held accountable for the costs and revenues under their control?	Relevant costs and revenues, where the individual manager has authority to make day-to-day decisions about the items	Responsibility reports focused on cost centers, profit centers, and investment centers as appropriate	Compare budget to actual costs and revenues for controllable items.
Has the investment center performed up to expectations?	Controllable margin (contribution margin minus controllable fixed costs), and average investment center operating assets	Return on investment	Compare actual ROI to expected ROI.

appendix

Residual Income—Another Performance Measurement

study objective 8

Explain the difference between ROI and residual income.

Illustration 10A-1

ROI formula

$$\text{Controllable Margin} \quad \div \quad \text{Average Operating Assets} \quad = \quad \text{Return on Investment (ROI)}$$

$$\$1,000,000 \quad \div \quad \$5,000,000 \quad = \quad 20\%$$

The Electronics Division is considering producing a new product, a GPS satellite tracker (hereafter referred to as Tracker), for its boats. To produce Tracker, operating assets will have to increase \$2,000,000. Tracker is expected to generate an additional \$260,000 of controllable margin. Illustration 10A-2 shows how Tracker will effect ROI.

Illustration 10A-2

ROI comparison

	Without Tracker	Tracker	With Tracker
Controllable margin (a)	\$1,000,000	\$ 260,000	\$1,260,000
Average operating assets (b)	\$5,000,000	\$2,000,000	\$7,000,000
Return on investment [(a) ÷ (b)]	20%	13%	18%

The investment in Tracker reduces ROI from 20% to 18%.

Let's suppose that you are the manager of the Electronics Division and must make the decision to produce or not produce Tracker. If you were evaluated using ROI, you probably would not produce Tracker because your ROI would drop from 20% to 18%. The problem with this ROI analysis is that it ignores an important variable, the minimum rate of return on a company's operating assets. The **minimum rate of return** is the rate at which the Electronics Division can cover its costs and earn a profit. Assuming that the Electronics Division has a minimum rate of return of 10%, it should invest in Tracker because its ROI of 13% is greater than 10%.

RESIDUAL INCOME COMPARED TO ROI

To evaluate performance using the minimum rate of return, companies use the residual income approach. **Residual income** is the income that remains after subtracting from the controllable margin the minimum rate of return on a company's average operating assets. The residual income for Tracker would be computed as follows.

Illustration 10A-3

Residual income formula

Controllable Margin	–	Minimum Rate of Return × Average Operating Assets	=	Residual Income
\$260,000	–	10% × \$2,000,000	=	\$60,000

As shown, the residual income related to the Tracker investment is \$60,000. Illustration 10A-4 indicates how residual income changes as the additional investment is made.

	Without Tracker	Tracker	With Tracker
Controllable margin (a)	\$1,000,000	\$260,000	\$1,260,000
Average operating assets \times 10% (b)	500,000	200,000	700,000
Residual income [(a) – (b)]	\$ 500,000	\$ 60,000	\$ 560,000

Illustration 10A-4
Residual income comparison

This example illustrates how performance evaluation based on ROI can be misleading and can even cause managers to reject projects that would actually increase income for the company. As a result, many companies such as **Coca-Cola**, **Briggs and Stratton**, **Eli Lilly**, and **Siemens AG** use residual income (or a variant often referred to as economic value added) to evaluate investment alternatives and measure company performance.

RESIDUAL INCOME WEAKNESS

It might appear from the above discussion that the goal of any company should be to maximize the total amount of residual income in each division. This goal, however, ignores the fact that one division might use substantially fewer assets to attain the same level of residual income as another division. For example, we know that to produce Tracker, the Electronics Division of Pujols Manufacturing used \$2,000,000 of average operating assets to generate \$260,000 of controllable margin. Now let's say a different division produced a product called SeaDog, which used \$4,000,000 to generate \$460,000 of controllable margin, as shown in Illustration 10A-5.

	Tracker	SeaDog
Controllable margin (a)	\$260,000	\$460,000
Average operating assets \times 10% (b)	200,000	400,000
Residual income [(a) – (b)]	\$ 60,000	\$ 60,000

Illustration 10A-5
Comparison of two products

If the performance of these two investments were evaluated using residual income, they would be considered equal: Both products have the same total residual income. This ignores, however, the fact that SeaDog required **twice** as many operating assets to achieve the same level of residual income.

Summary of Study Objective for Appendix

- 8 Explain the difference between ROI and residual income.** ROI is controllable margin divided by average operating assets. Residual income is the income that remains after subtracting the minimum rate of return

on a company's average operating assets. ROI sometimes provides misleading results because profitable investments are often rejected when the investment reduces ROI but increases overall profitability.



Glossary

- Budgetary control** (p. 436) The use of budgets to control operations.
- Controllable cost** (p. 449) A cost over which a manager has control.
- Controllable margin** (p. 454) Contribution margin less controllable fixed costs.
- Cost center** (p. 452) A responsibility center that incurs costs but does not directly generate revenues.
- Decentralization** (p. 448) Control of operations is delegated to many managers throughout the organization.
- Direct fixed costs** (p. 453) Costs that relate specifically to a responsibility center and are incurred for the sole benefit of the center.
- Flexible budget** (p. 439) A projection of budget data for various levels of activity.
- Indirect fixed costs** (p. 453) Costs that are incurred for the benefit of more than one profit center.
- Investment center** (p. 452) A responsibility center that incurs costs, generates revenues, and has control over decisions regarding the assets available for use.
- Management by exception** (p. 446) The review of budget reports by top management focused entirely or primarily on differences between actual results and planned objectives.
- Noncontrollable costs** (p. 449) Costs incurred indirectly and allocated to a responsibility center that are not controllable at that level.
- Profit center** (p. 452) A responsibility center that incurs costs and also generates revenues.
- Responsibility accounting** (p. 447) A part of management accounting that involves accumulating and reporting revenues and costs on the basis of the manager who has the authority to make the day-to-day decisions about the items.
- Responsibility reporting system** (p. 449) The preparation of reports for each level of responsibility in the company's organization chart.
- Residual income** (p. 464) The income that remains after subtracting from the controllable margin the minimum rate of return on a company's average operating assets.
- Return on investment (ROI)** (p. 455) A measure of management's effectiveness in utilizing assets at its disposal in an investment center.
- Segment** (p. 448) An area of responsibility in decentralized operations.
- Static budget** (p. 437) A projection of budget data at one level of activity.



Comprehensive **Do it!**



Glenda Company uses a flexible budget for manufacturing overhead based on direct labor hours. For 2011 the master overhead budget for the Packaging Department based on 300,000 direct labor hours was as follows.

Variable Costs		Fixed Costs	
Indirect labor	\$360,000	Supervision	\$ 60,000
Supplies and lubricants	150,000	Depreciation	24,000
Maintenance	210,000	Property taxes	18,000
Utilities	120,000	Insurance	12,000
	<u><u>\$840,000</u></u>		<u><u>\$114,000</u></u>

During July, 24,000 direct labor hours were worked. The company incurred the following variable costs in July: indirect labor \$30,200, supplies and lubricants \$11,600, maintenance \$17,500, and utilities \$9,200. Actual fixed overhead costs were the same as monthly budgeted fixed costs.

Instructions

Prepare a flexible budget report for the Packaging Department for July.

Solution to Comprehensive *Do it!*

GLENDY COMPANY
Manufacturing Overhead Budget Report (Flexible)
Packaging Department
For the Month Ended July 31, 2011

Direct labor hours (DLH)	Budget	Actual Costs	Difference
	<u>24,000 DLH</u>	<u>24,000 DLH</u>	Favorable F Unfavorable U
Variable costs			
Indirect labor (\$1.20)	\$28,800	\$30,200	\$1,400 U
Supplies and lubricants (\$0.50)	12,000	11,600	400 F
Maintenance (\$0.70)	16,800	17,500	700 U
Utilities (\$0.40)	9,600	9,200	400 F
Total variable	<u>67,200</u>	<u>68,500</u>	<u>1,300</u> U
Fixed costs			
Supervision	\$ 5,000*	\$ 5,000	-0-
Depreciation	2,000*	2,000	-0-
Property taxes	1,500*	1,500	-0-
Insurance	1,000*	1,000	-0-
Total fixed	<u>9,500</u>	<u>9,500</u>	<u>-0-</u>
Total costs	<u><u>\$76,700</u></u>	<u><u>\$78,000</u></u>	<u><u>\$1,300</u></u> U

*Annual cost divided by 12.

Action Plan

- Classify each cost as variable or fixed.
- Compute the budgeted cost per direct labor hour for all variable costs.
- Use budget data for actual direct labor hours worked.
- Determine the difference between budgeted and actual costs.
- Identify the difference as favorable or unfavorable.
- Determine the difference in total variable costs, total fixed costs, and total costs.



Note: All asterisked Questions, Exercises, and Problems relate to material in the appendix to the chapter.

**Self-Study Questions**

Answers are at the end of the chapter.

- (SO 1) 1. Budgetary control involves all but one of the following:
- modifying future plans.
 - analyzing differences.
 - using static budgets.
 - determining differences between actual and planned results.
- (SO 1) 2. Budget reports are prepared:
- daily.
 - weekly.
 - monthly.
 - All of the above.
- (SO 1) 3. A production manager in a manufacturing company would most likely receive a:
- sales report.
 - income statement.
 - scrap report.
 - shipping department overhead report.
- (SO 2) 4. A static budget is:
- a projection of budget data at several levels of activity within the relevant range of activity.
- (b) a projection of budget data at a single level of activity.
(c) compared to a flexible budget in a budget report.
(d) never appropriate in evaluating a manager's effectiveness in controlling costs.
5. A static budget is useful in controlling costs when (SO 2) cost behavior is:
- mixed.
 - fixed.
 - variable.
 - linear.
6. At zero direct labor hours in a flexible budget graph, (SO 3) the total budgeted cost line intersects the vertical axis at \$30,000. At 10,000 direct labor hours, a horizontal line drawn from the total budgeted cost line intersects the vertical axis at \$90,000. Fixed and variable costs may be expressed as:
- \$30,000 fixed plus \$6 per direct labor hour variable.
 - \$30,000 fixed plus \$9 per direct labor hour variable.
 - \$60,000 fixed plus \$3 per direct labor hour variable.
 - \$60,000 fixed plus \$6 per direct labor hour variable.

- (SO 3) 7. At 9,000 direct labor hours, the flexible budget for indirect materials is \$27,000. If \$28,000 of indirect materials costs are incurred at 9,200 direct labor hours, the flexible budget report should show the following difference for indirect materials:
- \$1,000 unfavorable.
 - \$1,000 favorable.
 - \$400 favorable.
 - \$400 unfavorable.
- (SO 4) 8. Under responsibility accounting, the evaluation of a manager's performance is based on matters that the manager:
- directly controls.
 - directly and indirectly controls.
 - indirectly controls.
 - has shared responsibility for with another manager.
- (SO 4) 9. Responsibility centers include:
- cost centers.
 - profit centers.
 - investment centers.
 - all of the above.
- (SO 5) 10. Responsibility reports for cost centers:
- distinguish between fixed and variable costs.
 - use static budget data.
 - include both controllable and noncontrollable costs.
 - include only controllable costs.
- (SO 5) 11. The accounting department of a manufacturing company is an example of:
- a cost center.
 - a profit center.
 - an investment center.
 - a contribution center.
12. To evaluate the performance of a profit center manager, upper management needs detailed information about:
- controllable costs.
 - controllable revenues.
 - controllable costs and revenues.
 - controllable costs and revenues and average operating assets.
13. In a responsibility report for a profit center, controllable fixed costs are deducted from contribution margin to show:
- profit center margin.
 - controllable margin.
 - net income.
 - income from operations.
14. In the formula for return on investment (ROI), the factors for controllable margin and operating assets are, respectively:
- controllable margin percentage and total operating assets.
 - controllable margin dollars and average operating assets.
 - controllable margin dollars and total assets.
 - controllable margin percentage and average operating assets.
15. A manager of an investment center can improve ROI by:
- increasing average operating assets.
 - reducing sales.
 - increasing variable costs.
 - reducing variable and/or controllable fixed costs.

Go to the book's companion website,
www.wiley.com/college/weygandt,
 for Additional Self-Study Questions.



Questions

- (a) What is budgetary control?
- Greg Gilligan is describing budgetary control. What steps should be included in Greg's description?
- The following purposes are part of a budgetary reporting system: (a) Determine efficient use of materials. (b) Control overhead costs. (c) Determine whether income objectives are being met. For each purpose, indicate the name of the report, the frequency of the report, and the primary recipient(s) of the report.
- How may a budget report for the second quarter differ from a budget report for the first quarter?
- Joe Cey questions the usefulness of a master sales budget in evaluating sales performance. Is there justification for Joe's concern? Explain.
- Under what circumstances may a static budget be an appropriate basis for evaluating a manager's effectiveness in controlling costs?
- "A flexible budget is really a series of static budgets." Is this true? Why?
- The static manufacturing overhead budget based on 40,000 direct labor hours shows budgeted indirect labor costs of \$54,000. During March, the department incurs \$65,000 of indirect labor while working 45,000 direct labor hours. Is this a favorable or unfavorable performance? Why?
- A static overhead budget based on 40,000 direct labor hours shows Factory Insurance \$6,500 as a fixed cost. At the 50,000 direct labor hours worked in March, factory insurance costs were \$6,200. Is this a favorable or unfavorable performance? Why?
- Kate Coulter is confused about how a flexible budget is prepared. Identify the steps for Kate.
- Alou Company has prepared a graph of flexible budget data. At zero direct labor hours, the total budgeted cost line intersects the vertical axis at \$25,000. At 10,000 direct labor hours, the line drawn from the total budgeted cost line intersects the vertical axis at \$85,000. How may the fixed and variable costs be expressed?

- 11.** The flexible budget formula is fixed costs \$40,000 plus variable costs of \$4 per direct labor hour. What is the total budgeted cost at (a) 9,000 hours and (b) 12,345 hours?
- 12.** What is management by exception? What criteria may be used in identifying exceptions?
- 13.** What is responsibility accounting? Explain the purpose of responsibility accounting.
- 14.** Ann Wilkins is studying for an accounting examination. Describe for Ann what conditions are necessary for responsibility accounting to be used effectively.
- 15.** Distinguish between controllable and noncontrollable costs.
- 16.** How do responsibility reports differ from budget reports?
- 17.** What is the relationship, if any, between a responsibility reporting system and a company's organization chart?
- 18.** Distinguish among the three types of responsibility centers.
- 19.** (a) What costs are included in a performance report for a cost center? (b) In the report, are variable and fixed costs identified?
- 20.** How do direct fixed costs differ from indirect fixed costs? Are both types of fixed costs controllable?
- 21.** Lori Quan is confused about controllable margin reported in an income statement for a profit center. How is this margin computed, and what is its primary purpose?
- 22.** What is the primary basis for evaluating the performance of the manager of an investment center? Indicate the formula for this basis.
- 23.** Explain the ways that ROI can be improved.
- 24.** Indicate two behavioral principles that pertain to (a) the manager being evaluated and (b) top management.
- *25.** What is a major disadvantage of using ROI to evaluate investment and company performance?
- *26.** What is residual income, and what is one of its major weaknesses?



Brief Exercises

BE10-1 For the quarter ended March 31, 2011, Noble Company accumulates the following sales data for its product, Garden-Tools: \$310,000 budget; \$304,000 actual. Prepare a static budget report for the quarter.

Prepare static budget report.
(SO 2)

BE10-2 Data for Noble Company are given in BE10-1. In the second quarter, budgeted sales were \$380,000, and actual sales were \$383,000. Prepare a static budget report for the second quarter and for the year to date.

Prepare static budget report for 2 quarters.
(SO 2)

BE10-3 In Goody Company, direct labor is \$20 per hour. The company expects to operate at 10,000 direct labor hours each month. In January 2011, direct labor totaling \$203,000 is incurred in working 10,400 hours. Prepare (a) a static budget report and (b) a flexible budget report. Evaluate the usefulness of each report.

Show usefulness of flexible budgets in evaluating performance.
(SO 3)

BE10-4 Ortiz Company expects to produce 1,200,000 units of Product XX in 2011. Monthly production is expected to range from 80,000 to 120,000 units. Budgeted variable manufacturing costs per unit are: direct materials \$4, direct labor \$6, and overhead \$8. Budgeted fixed manufacturing costs per unit for depreciation are \$2 and for supervision are \$1. Prepare a flexible manufacturing budget for the relevant range value using 20,000 unit increments.

Prepare a flexible budget for variable costs.
(SO 3)

BE10-5 Data for Ortiz Company are given in BE10-4. In March 2011, the company incurs the following costs in producing 100,000 units: direct materials \$425,000, direct labor \$590,000, and variable overhead \$805,000. Actual fixed costs were equal to budgeted fixed costs. Prepare a flexible budget report for March. Were costs controlled?

Prepare flexible budget report.
(SO 3)

BE10-6 In the Assembly Department of Everly Company, budgeted and actual manufacturing overhead costs for the month of April 2011 were as follows.

Prepare a responsibility report for a cost center.
(SO 5)

	Budget	Actual
Indirect materials	\$15,000	\$14,300
Indirect labor	20,000	20,600
Utilities	10,000	10,750
Supervision	5,000	5,000

All costs are controllable by the department manager. Prepare a responsibility report for April for the cost center.

BE10-7 Justus Manufacturing Company accumulates the following summary data for the year ending December 31, 2011, for its Water Division which it operates as a profit center: sales—\$2,000,000 budget, \$2,080,000 actual; variable costs—\$1,000,000 budget,

Prepare a responsibility report for a profit center.
(SO 6)

Prepare a responsibility report for an investment center.
(SO 7)

Compute return on investment using the ROI formula.
(SO 7)

Compute return on investment under changed conditions.
(SO 7)

Compute ROI and residual income.
(SO 8)

Compute ROI and residual income.
(SO 8)

Compute total budgeted costs in flexible budget.
(SO 3)

Prepare and evaluate a flexible budget report.
(SO 3)

Prepare a responsibility report.
(SO 6)

\$1,050,000 actual; and controllable fixed costs—\$300,000 budget, \$310,000 actual. Prepare a responsibility report for the Water Division.

BE10-8 For the year ending December 31, 2011, Mize Company accumulates the following data for the Plastics Division which it operates as an investment center: contribution margin—\$700,000 budget, \$715,000 actual; controllable fixed costs—\$300,000 budget, \$309,000 actual. Average operating assets for the year were \$2,000,000. Prepare a responsibility report for the Plastics Division beginning with contribution margin.

BE10-9 For its three investment centers, Perine Company accumulates the following data:

	I	II	III
Sales	\$2,000,000	\$3,000,000	\$ 4,000,000
Controllable margin	1,200,000	2,000,000	3,200,000
Average operating assets	5,000,000	8,000,000	10,000,000

Compute the return on investment (ROI) for each center.

BE10-10 Data for the investment centers for Perine Company are given in BE10-9. The centers expect the following changes in the next year: (I) increase sales 15%; (II) decrease costs \$200,000; (III) decrease average operating assets \$400,000. Compute the expected return on investment (ROI) for each center. Assume center I has a contribution margin percentage of 75%.

***BE10-11** Agee, Inc. reports the following financial information.

Average operating assets	\$3,000,000
Controllable margin	\$ 600,000
Minimum rate of return	9%

Compute the return on investment and the residual income.

***BE10-12** Presented below is information related to the San Diego Division of Lumber, Inc.

Contribution margin	\$1,200,000
Controllable margin	\$ 800,000
Average operating assets	\$3,200,000
Minimum rate of return	16%

Compute the San Diego's return on investment and residual income.

Do it! Review

Do it! 10-1 In Moore Company's flexible budget graph, the fixed cost line and the total budgeted cost line intersect the vertical axis at \$90,000. The total budgeted cost line is \$330,000 at an activity level of 60,000 direct labor hours. Compute total budgeted costs at 70,000 direct labor hours.

Do it! 10-2 Chickasaw Company expects to produce 50,000 units of product IOA during the current year. Budgeted variable manufacturing costs per unit are direct materials \$7, direct labor \$12, and overhead \$18. Annual budgeted fixed manufacturing overhead costs are \$96,000 for depreciation and \$45,000 for supervision.

In the current month, Chickasaw produced 6,000 units and incurred the following costs: direct materials \$38,900, direct labor \$70,200, variable overhead \$116,500, depreciation \$8,000, and supervision \$4,000.

Prepare a flexible budget report. (*Note:* You do not need to prepare the heading.) Were costs controlled?

Do it! 10-3 The Deep South Division operates as a profit center. It reports the following for the year.

	Budgeted	Actual
Sales	\$2,000,000	\$1,800,000
Variable costs	800,000	750,000
Controllable fixed costs	550,000	550,000
Noncontrollable fixed costs	250,000	250,000

Prepare a responsibility report for the Deep South Division at December 31, 2011.

Do it! 10-4 The service division of Retro Industries reported the following results for 2011.

Sales	\$500,000
Variable costs	300,000
Controllable fixed costs	75,000
Average operating assets	450,000

Compute ROI and expected return on investments.

(SO 7)

Management is considering the following independent courses of action in 2012 in order to maximize the return on investment for this division.

1. Reduce average operating assets by \$50,000, with no change in controllable margin.
2. Increase sales \$100,000, with no change in the contribution margin percentage.

(a) Compute the controllable margin and the return on investment for 2011. (b) Compute the controllable margin and the expected return on investment for each proposed alternative.

Exercises



E10-1 Jake Palermo has prepared the following list of statements about budgetary control.

1. Budget reports compare actual results with planned objectives.
2. All budget reports are prepared on a weekly basis.
3. Management uses budget reports to analyze differences between actual and planned results and determine their causes.
4. As a result of analyzing budget reports, management may either take corrective action or modify future plans.
5. Budgetary control works best when a company has an informal reporting system.
6. The primary recipients of the sales report are the sales manager and the vice-president of production.
7. The primary recipient of the scrap report is the production manager.
8. A static budget is a projection of budget data at one level of activity.
9. Top management's reaction to unfavorable differences is not influenced by the materiality of the difference.
10. A static budget is not appropriate in evaluating a manager's effectiveness in controlling costs unless the actual activity level approximates the static budget activity level or the behavior of the costs is fixed.

Understand the concept of budgetary control.

(SO 1, 2, 3)

Instructions

Identify each statement as true or false. If false, indicate how to correct the statement.

E10-2 Bruno Company budgeted selling expenses of \$30,000 in January, \$35,000 in February, and \$40,000 in March. Actual selling expenses were \$31,000 in January, \$34,500 in February, and \$47,000 in March.

Prepare and evaluate static budget report.

(SO 2)

Instructions

- (a) Prepare a selling expense report that compares budgeted and actual amounts by month and for the year to date.
- (b) What is the purpose of the report prepared in (a), and who would be the primary recipient?
- (c) What would be the likely result of management's analysis of the report?

E10-3 Roche Company uses a flexible budget for manufacturing overhead based on direct labor hours. Variable manufacturing overhead costs per direct labor hour are as follows.

Indirect labor	\$1.00
Indirect materials	0.50
Utilities	0.40

Prepare flexible manufacturing overhead budget.

(SO 3)



Fixed overhead costs per month are: Supervision \$4,000, Depreciation \$1,500, and Property Taxes \$800. The company believes it will normally operate in a range of 7,000–10,000 direct labor hours per month.

Prepare flexible budget reports for manufacturing overhead costs, and comment on findings.

(SO 3)



Prepare flexible selling expense budget.

(SO 3)



Prepare flexible budget reports for selling expenses.

(SO 3)

Prepare flexible budget report for cost center.

(SO 3)

Instructions

Prepare a monthly manufacturing overhead flexible budget for 2011 for the expected range of activity, using increments of 1,000 direct labor hours.

E10-4 Using the information in E10-3, assume that in July 2011, Roche Company incurs the following manufacturing overhead costs.

Variable Costs		Fixed Costs	
Indirect labor	\$8,700	Supervision	\$4,000
Indirect materials	4,300	Depreciation	1,500
Utilities	3,200	Property taxes	800

Instructions

- Prepare a flexible budget performance report, assuming that the company worked 9,000 direct labor hours during the month.
- Prepare a flexible budget performance report, assuming that the company worked 8,500 direct labor hours during the month.
- Comment on your findings.

E10-5 Zeller Company uses flexible budgets to control its selling expenses. Monthly sales are expected to range from \$170,000 to \$200,000. Variable costs and their percentage relationship to sales are: Sales Commissions 5%, Advertising 4%, Traveling 3%, and Delivery 2%. Fixed selling expenses will consist of Sales Salaries \$34,000, Depreciation on Delivery Equipment \$7,000, and Insurance on Delivery Equipment \$1,000.

Instructions

Prepare a monthly flexible budget for each \$10,000 increment of sales within the relevant range for the year ending December 31, 2011.

E10-6 The actual selling expenses incurred in March 2011 by Zeller Company are as follows.

Variable Expenses		Fixed Expenses	
Sales commissions	\$9,200	Sales salaries	\$34,000
Advertising	7,000	Depreciation	7,000
Travel	5,100	Insurance	1,000
Delivery	3,500		

Instructions

- Prepare a flexible budget performance report for March using the budget data in E10-5, assuming that March sales were \$170,000. Expected and actual sales are the same.
- Prepare a flexible budget performance report, assuming that March sales were \$180,000. Expected sales and actual sales are the same.
- Comment on the importance of using flexible budgets in evaluating the performance of the sales manager.

E10-7 Kitchen Care Inc. (KCI) is a manufacturer of toaster ovens. To improve control over operations, the president of KCI wants to begin using a flexible budgeting system, rather than use only the current master budget. The following data are available for KCI's expected costs at production levels of 90,000, 100,000, and 110,000 units.

Variable costs	
Manufacturing	\$6 per unit
Administrative	\$3 per unit
Selling	\$1 per unit
Fixed costs	
Manufacturing	\$150,000
Administrative	\$ 80,000

Instructions

- Prepare a flexible budget for each of the possible production levels: 90,000, 100,000, and 110,000 units.
- If KCI sells the toaster ovens for \$15 each, how many units will it have to sell to make a profit of \$250,000 before taxes?

(CGA adapted)

E10-8 Doggone Groomers is in the dog-grooming business. Its operating costs are described by the following formulas:

Grooming supplies (variable)	$y = \$0 + \$4x$
Direct labor (variable)	$y = \$0 + \$12x$
Overhead (mixed)	$y = \$8,000 + \$1x$

Puli, the owner, has determined that direct labor is the cost driver for all three categories of costs.

Instructions

- Prepare a flexible budget for activity levels of 550, 600, and 700 direct labor hours.
- Explain why the flexible budget is more informative than the static budget.
- Calculate the total cost per direct labor hour at each of the activity levels specified in part (a).
- The groomers at Doggone normally work a total of 650 direct labor hours during each month. Each grooming job normally takes a groomer $1\frac{1}{4}$ hours. Puli wants to earn a profit equal to 40% of the costs incurred. Determine what she should charge each pet owner for grooming.

(CGA adapted)

E10-9 Turney Company's manufacturing overhead budget for the first quarter of 2011 contained the following data.

Variable Costs	Fixed Costs
Indirect materials \$12,000	Supervisory salaries \$36,000
Indirect labor 10,000	Depreciation 7,000
Utilities 8,000	Property taxes and insurance 8,000
Maintenance 6,000	Maintenance 5,000

Actual variable costs were: indirect materials \$13,800, indirect labor \$9,600, utilities \$8,700, and maintenance \$4,900. Actual fixed costs equaled budgeted costs except for property taxes and insurance, which were \$8,200. The actual activity level equaled the budgeted level.

All costs are considered controllable by the production department manager except for depreciation, and property taxes and insurance.

Instructions

- Prepare a manufacturing overhead flexible budget report for the first quarter.
- Prepare a responsibility report for the first quarter.

E10-10 As sales manager, Sam Batista was given the following static budget report for selling expenses in the Clothing Department of Garza Company for the month of October.

Prepare flexible budget report; compare flexible and static budgets.

(SO 2, 3)



Prepare flexible budget and responsibility report for manufacturing overhead.

(SO 3, 5)

Prepare flexible budget report, and answer question.

(SO 2, 3)

GARZA COMPANY
Clothing Department
Budget Report
For the Month Ended October 31, 2011

	Budget	Actual	Difference
			Favorable F Unfavorable U
Sales in units	8,000	10,000	2,000 F
Variable expenses			
Sales commissions	\$ 2,000	\$ 2,600	\$ 600 U
Advertising expense	800	850	50 U
Travel expense	3,600	4,000	400 U
Free samples given out	1,600	1,300	300 F
Total variable	8,000	8,750	750 U
Fixed expenses			
Rent	1,500	1,500	-0-
Sales salaries	1,200	1,200	-0-
Office salaries	800	800	-0-
Depreciation—autos (sales staff)	500	500	-0-
Total fixed	4,000	4,000	-0-
Total expenses	\$12,000	\$12,750	\$ 750 U

As a result of this budget report, Sam was called into the president's office and congratulated on his fine sales performance. He was reprimanded, however, for allowing his costs to get out of control. Sam knew something was wrong with the performance report that he had been given. However, he was not sure what to do, and comes to you for advice.

Instructions

- Prepare a budget report based on flexible budget data to help Sam.
- Should Sam have been reprimanded? Explain.

Prepare and discuss a responsibility report.

(SO 3, 5)



E10-11 Edington Plumbing Company is a newly formed company specializing in plumbing services for home and business. The owner, Steve Edington, had divided the company into two segments: Home Plumbing Services and Business Plumbing Services. Each segment is run by its own supervisor, while basic selling and administrative services are shared by both segments.

Steve has asked you to help him create a performance reporting system that will allow him to measure each segment's performance in terms of its profitability. To that end, the following information has been collected on the Home Plumbing Services segment for the first quarter of 2011.

	Budgeted	Actual
Service revenue	\$25,000	\$26,000
Allocated portion of:		
Building depreciation	11,000	11,000
Advertising	5,000	4,200
Billing	3,500	3,000
Property taxes	1,200	1,000
Material and supplies	1,500	1,200
Supervisory salaries	9,000	9,400
Insurance	4,000	3,500
Wages	3,000	3,300
Gas and oil	2,700	3,400
Equipment depreciation	1,600	1,300

Instructions

- Prepare a responsibility report for the first quarter of 2011 for the Home Plumbing Services segment.
- Write a memo to Steve Edington discussing the principles that should be used when preparing performance reports.

State total budgeted cost formulas, and prepare flexible budget graph.

(SO 3)

E10-12 Chandler Company has two production departments, Fabricating and Assembling. At a department managers' meeting, the controller uses flexible budget graphs to explain total budgeted costs. Separate graphs based on direct labor hours are used for each department. The graphs show the following.

- At zero direct labor hours, the total budgeted cost line and the fixed cost line intersect the vertical axis at \$40,000 in the Fabricating Department and \$30,000 in the Assembling Department.
- At normal capacity of 50,000 direct labor hours, the line drawn from the total budgeted cost line intersects the vertical axis at \$150,000 in the Fabricating Department, and \$110,000 in the Assembling Department.

Instructions

- State the total budgeted cost formula for each department.
- Compute the total budgeted cost for each department, assuming actual direct labor hours worked were 53,000 and 47,000, in the Fabricating and Assembling Departments, respectively.
- Prepare the flexible budget graph for the Fabricating Department, assuming the maximum direct labor hours in the relevant range is 100,000. Use increments of 10,000 direct labor hours on the horizontal axis and increments of \$50,000 on the vertical axis.

Prepare reports in a responsibility reporting system.

(SO 4, 5)

E10-13 Neely Company's organization chart includes the president; the vice president of production; three assembly plants—Dallas, Atlanta, and Tucson; and two departments within each plant—Machining and Finishing. Budget and actual manufacturing cost data for July 2011 are as follows:

Finishing Department—Dallas: Direct materials \$41,500 actual, \$45,000 budget; direct labor \$83,000 actual, \$82,000 budget; manufacturing overhead \$51,000 actual, \$49,200 budget.

Machining Department—Dallas: Total manufacturing costs \$220,000 actual, \$216,000 budget.

Atlanta Plant: Total manufacturing costs \$424,000 actual, \$421,000 budget.

Tucson Plant: Total manufacturing costs \$494,000 actual, \$496,500 budget.

The Dallas plant manager's office costs were \$95,000 actual and \$92,000 budget. The vice president of production's office costs were \$132,000 actual and \$130,000 budget. Office costs are not allocated to departments and plants.

Instructions

Using the format on page 451, prepare the reports in a responsibility system for:

- The Finishing Department—Dallas.
- The plant manager—Dallas.
- The vice president of production.

E10-14 The Mixing Department manager of Hardin Company is able to control all overhead costs except rent, property taxes, and salaries. Budgeted monthly overhead costs for the Mixing Department, in alphabetical order, are:

Indirect labor	\$12,000	Property taxes	\$ 1,000
Indirect materials	7,500	Rent	1,800
Lubricants	1,700	Salaries	10,000
Maintenance	3,500	Utilities	5,000

Actual costs incurred for January 2011 are indirect labor \$12,200; indirect materials \$10,200; lubricants \$1,650; maintenance \$3,500; property taxes \$1,100; rent \$1,800; salaries \$10,000; and utilities \$6,500.

Prepare a responsibility report for a cost center.
(\$O 5)

Instructions

- Prepare a responsibility report for January 2011.
- What would be the likely result of management's analysis of the report?

E10-15 Fuqua Manufacturing Inc. has three divisions which are operated as profit centers. Actual operating data for the divisions listed alphabetically are as follows.

Compute missing amounts in responsibility reports for three profit centers, and prepare a report.
(\$O 6)

Operating Data	Women's Shoes	Men's Shoes	Children's Shoes
Contribution margin	\$240,000	(3)	\$180,000
Controllable fixed costs	100,000	(4)	(5)
Controllable margin	(1)	\$ 90,000	96,000
Sales	600,000	450,000	(6)
Variable costs	(2)	330,000	250,000

Instructions

- Compute the missing amounts. Show computations.
- Prepare a responsibility report for the Women's Shoe Division assuming (1) the data are for the month ended June 30, 2011, and (2) all data equal budget except variable costs which are \$10,000 over budget.

E10-16 The Sports Equipment Division of Duncan Donnegal Company is operated as a profit center. Sales for the division were budgeted for 2011 at \$900,000. The only variable costs budgeted for the division were cost of goods sold (\$440,000) and selling and administrative (\$60,000). Fixed costs were budgeted at \$100,000 for cost of goods sold, \$90,000 for selling and administrative and \$70,000 for noncontrollable fixed costs. Actual results for these items were:

Prepare a responsibility report for a profit center, and compute ROI.
(\$O 6, 7)

Sales	\$880,000
Cost of goods sold	
Variable	409,000
Fixed	105,000
Selling and administrative	
Variable	61,000
Fixed	67,000
Noncontrollable fixed	80,000

Instructions

- Prepare a responsibility report for the Sports Equipment Division for 2011.
- Assume the division is an investment center, and average operating assets were \$1,000,000. The noncontrollable fixed costs are controllable at the investment center level. Compute ROI.

Compute ROI for current year and for possible future changes.

(SO 7)

Prepare a responsibility report for an investment center.

(SO 7)



Prepare missing amounts in responsibility reports for three investment centers.

(SO 7)



E10-17 The Blue Division of Dalby Company reported the following data for the current year.

Sales	\$3,000,000
Variable costs	1,950,000
Controllable fixed costs	600,000
Average operating assets	5,000,000

Top management is unhappy with the investment center's return on investment (ROI). It asks the manager of the Blue Division to submit plans to improve ROI in the next year. The manager believes it is feasible to consider the following independent courses of action.

1. Increase sales by \$320,000 with no change in the contribution margin percentage.
2. Reduce variable costs by \$100,000.
3. Reduce average operating assets by 4%.

Instructions

- (a) Compute the return on investment (ROI) for the current year.
- (b) Using the ROI formula, compute the ROI under each of the proposed courses of action. (Round to one decimal.)

E10-18 The Danner and LaRussa Dental Clinic provides both preventive and orthodontic dental services. The two owners, Riley Danner and Alexa LaRussa, operate the clinic as two separate investment centers: Preventive Services and Orthodontic Services. Each of them is in charge of one of the centers: Riley for Preventive Services and Alexa for Orthodontic Services. Each month they prepare an income statement for the two centers to evaluate performance and make decisions about how to improve the operational efficiency and profitability of the clinic.

Recently they have been concerned about the profitability of the Preventive Services operations. For several months it has been reporting a loss. Shown below is the responsibility report for the month of May 2011.

	<u>Actual</u>	<u>Difference from Budget</u>
Service revenue	\$ 40,000	<u>\$1,000 F</u>
Variable costs:		
Filling materials	5,000	100 U
Novocain	4,000	200 U
Supplies	2,000	250 F
Dental assistant wages	2,500	-0-
Utilities	500	50 U
Total variable costs	<u>14,000</u>	<u>100 U</u>
Fixed costs:		
Allocated portion of receptionist's salary	3,000	200 U
Dentist salary	10,000	500 U
Equipment depreciation	6,000	-0-
Allocated portion of building depreciation	15,000	1,000 U
Total fixed costs	<u>34,000</u>	<u>1,700 U</u>
Operating income (loss)	<u><u>\$ (8,000)</u></u>	<u><u>\$ 800 U</u></u>

In addition, the owners know that the investment in operating assets at the beginning of the month was \$82,400, and it was \$77,600 at the end of the month. They have asked for your assistance in evaluating their current performance reporting system.

Instructions

- (a) Prepare a responsibility report for an investment center as illustrated in the chapter.
- (b) Write a memo to the owners discussing the deficiencies of their current reporting system.

E10-19 The Trenshaw Transportation Company uses a responsibility reporting system to measure the performance of its three investment centers: Planes, Taxis, and Limos.

Segment performance is measured using a system of responsibility reports and return on investment calculations. The allocation of resources within the company and the segment managers' bonuses are based in part on the results shown in these reports.

Recently, the company was the victim of a computer virus that deleted portions of the company's accounting records. This was discovered when the current period's responsibility reports were being prepared. The printout of the actual operating results appeared as follows.

	Planes	Taxis	Limos
Service revenue	\$?	\$500,000	\$?
Variable costs	5,500,000	?	320,000
Contribution margin	?	200,000	480,000
Controllable fixed costs	1,500,000	?	?
Controllable margin	?	80,000	240,000
Average operating assets	25,000,000	?	1,600,000
Return on investment	12%	10%	?

Instructions

Determine the missing pieces of information above.

- ***E10-20** Presented below is selected information for three regional divisions of Glendo Company.

Compare ROI and residual income.

(SO 8)

	Divisions		
	North	West	South
Contribution margin	\$ 300,000	\$ 500,000	\$ 400,000
Controllable margin	\$ 150,000	\$ 400,000	\$ 225,000
Average operating assets	\$1,000,000	\$2,000,000	\$1,500,000
Minimum rate of return	13%	16%	10%

Instructions

- (a) Compute the return on investment for each division.
- (b) Compute the residual income for each division.
- (c) Assume that each division has an investment opportunity that would provide a rate of return of 19%.
 - (1) If ROI is used to measure performance, which division or divisions will probably make the additional investment?
 - (2) If residual income is used to measure performance, which division or divisions will probably make the additional investment?

- ***E10-21** Presented below is selected financial information for two divisions of Best Brewing. You are to supply the missing information for the lettered items.

Fill in information related to ROI and residual income.

(SO 8)

	Lager	Lite Lager
Contribution margin	\$500,000	\$ 300,000
Controllable margin	200,000	(c)
Average operating assets	(a)	\$1,000,000
Minimum rate of return	(b)	13%
Return on investment	25%	(d)
Residual income	\$ 90,000	\$ 200,000

Exercises: Set B



Visit the book's companion website at www.wiley.com/college/weygandt, and choose the Student Companion site, to access Exercise Set B.

Problems: Set A

- P10-1A** Hass Company estimates that 360,000 direct labor hours will be worked during the coming year, 2011, in the Packaging Department. On this basis, the budgeted manufacturing overhead cost data, shown on the next page, are computed for the year.

Prepare flexible budget and budget report for manufacturing overhead.

(SO 3)



Fixed Overhead Costs		Variable Overhead Costs	
Supervision	\$ 90,000	Indirect labor	\$126,000
Depreciation	60,000	Indirect materials	90,000
Insurance	30,000	Repairs	54,000
Rent	24,000	Utilities	72,000
Property taxes	18,000	Lubricants	18,000
	<u><u>\$222,000</u></u>		<u><u>\$360,000</u></u>

It is estimated that direct labor hours worked each month will range from 27,000 to 36,000 hours.

During October, 27,000 direct labor hours were worked and the following overhead costs were incurred.

Fixed overhead costs: Supervision \$7,500, Depreciation \$5,000, Insurance \$2,470, Rent \$2,000, and Property taxes \$1,500.

Variable overhead costs: Indirect labor \$10,360, Indirect materials, \$6,400, Repairs \$4,000, Utilities \$5,700, and Lubricants \$1,640.

Instructions

- (a) Total costs: DLH 27,000, \$45,500; DLH 36,000, \$54,500
- (b) Total \$1,070 U

P10-2A Deleon Company manufactures tablecloths. Sales have grown rapidly over the past 2 years. As a result, the president has installed a budgetary control system for 2011. The following data were used in developing the master manufacturing overhead budget for the Ironing Department, which is based on an activity index of direct labor hours.

Variable Costs	Rate per Direct Labor Hour	Annual Fixed Costs
Indirect labor	\$0.40	Supervision \$42,000
Indirect materials	0.50	Depreciation 18,000
Factory utilities	0.30	Insurance 12,000
Factory repairs	0.20	Rent 24,000

The master overhead budget was prepared on the expectation that 480,000 direct labor hours will be worked during the year. In June, 42,000 direct labor hours were worked. At that level of activity, actual costs were as shown below.

Variable—per direct labor hour: Indirect labor \$0.43, Indirect materials \$0.49, Factory utilities \$0.32, and Factory repairs \$0.24.

Fixed: same as budgeted.

Instructions

- (a) Total costs: 35,000 DLH, \$57,000; 50,000 DLH, \$78,000
- (b) Budget \$66,800
Actual \$70,160

State total budgeted cost formula, and prepare flexible budget reports for 2 time periods.

(SO 2, 3)



P10-3A Colt Company uses budgets in controlling costs. The August 2011 budget report for the company's Assembling Department is as follows.

COLT COMPANY
Budget Report
Assembling Department
For the Month Ended August 31, 2011

Manufacturing Costs	Budget	Actual	Difference
			Favorable F
			Unfavorable U
Variable costs			
Direct materials	\$ 48,000	\$ 47,000	\$1,000 F
Direct labor	54,000	51,300	2,700 F
Indirect materials	24,000	24,200	200 U
Indirect labor	18,000	17,500	500 F
Utilities	15,000	14,900	100 F
Maintenance	9,000	9,200	200 U
Total variable	<u>168,000</u>	<u>164,100</u>	<u>3,900</u> F
Fixed costs			
Rent	12,000	12,000	-0-
Supervision	17,000	17,000	-0-
Depreciation	7,000	7,000	-0-
Total fixed	<u>36,000</u>	<u>36,000</u>	<u>-0-</u>
Total costs	<u>\$204,000</u>	<u>\$200,100</u>	<u>\$3,900</u> F

The monthly budget amounts in the report were based on an expected production of 60,000 units per month or 720,000 units per year. The Assembling Department manager is pleased with the report and expects a raise, or at least praise for a job well done. The company president, however, is unhappy with the results for August, because only 58,000 units were produced.

Instructions

- (a) State the total monthly budgeted cost formula.
- (b) Prepare a budget report for August using flexible budget data. Why does this report provide a better basis for evaluating performance than the report based on static budget data? (b) Budget \$198,400
- (c) In September, 64,000 units were produced. Prepare the budget report using flexible budget data, assuming (1) each variable cost was 10% higher than its actual cost in August, and (2) fixed costs were the same in September as in August. (c) Budget \$215,200
Actual \$216,510

P10-4A Krause Manufacturing Inc. operates the Patio Furniture Division as a profit center. Operating data for this division for the year ended December 31, 2011, are as shown below.

*Prepare responsibility report for a profit center.
(\$O 6)*

	Budget	Difference from Budget
Sales	\$2,500,000	\$60,000 F
Cost of goods sold		
Variable	1,300,000	41,000 F
Controllable fixed	200,000	6,000 U
Selling and administrative		
Variable	220,000	7,000 U
Controllable fixed	50,000	2,000 U
Noncontrollable fixed costs	70,000	4,000 U

In addition, Krause Manufacturing incurs \$180,000 of indirect fixed costs that were budgeted at \$175,000. Twenty percent (20%) of these costs are allocated to the Patio Furniture Division.

Instructions

- (a) Prepare a responsibility report for the Patio Furniture Division for the year.
- (b) Comment on the manager's performance in controlling revenues and costs. (a) Contribution margin
\$94,000 F
Controllable margin
\$86,000 F
- (c) Identify any costs excluded from the responsibility report and explain why they were excluded.

Prepare responsibility report for an investment center, and compute ROI.
(SO 7)

P10-5A Mercer Manufacturing Company manufactures a variety of tools and industrial equipment. The company operates through three divisions. Each division is an investment center. Operating data for the Home Division for the year ended December 31, 2011, and relevant budget data are as follows.

	Actual	Comparison with Budget
Sales	\$1,500,000	\$100,000 favorable
Variable cost of goods sold	700,000	60,000 unfavorable
Variable selling and administrative expenses	125,000	25,000 unfavorable
Controllable fixed cost of goods sold	170,000	On target
Controllable fixed selling and administrative expenses	80,000	On target

Average operating assets for the year for the Home Division were \$2,500,000 which was also the budgeted amount.

Instructions

(a) Controllable margin:
Budget \$410;
Actual \$425

- (a) Prepare a responsibility report (in thousands of dollars) for the Home Division.
- (b) Evaluate the manager's performance. Which items will likely be investigated by top management?
- (c) Compute the expected ROI in 2012 for the Home Division, assuming the following independent changes to actual data.
 - (1) Variable cost of goods sold is decreased by 6%.
 - (2) Average operating assets are decreased by 10%.
 - (3) Sales are increased by \$200,000, and this increase is expected to increase contribution margin by \$90,000.

Prepare reports for cost centers under responsibility accounting, and comment on performance of managers.

(SO 4)

P10-6A Litwin Company uses a responsibility reporting system. It has divisions in Denver, Seattle, and San Diego. Each division has three production departments: Cutting, Shaping, and Finishing. The responsibility for each department rests with a manager who reports to the division production manager. Each division manager reports to the vice president of production. There are also vice presidents for marketing and finance. All vice presidents report to the president.

In January 2011, controllable actual and budget manufacturing overhead cost data for the departments and divisions were as shown below.

Manufacturing Overhead	Actual	Budget
Individual costs—Cutting Department—Seattle		
Indirect labor	\$ 73,000	\$ 70,000
Indirect materials	47,700	46,000
Maintenance	20,500	18,000
Utilities	20,100	17,000
Supervision	22,000	20,000
	<u><u>\$183,300</u></u>	<u><u>\$171,000</u></u>
Total costs		
Shaping Department—Seattle	\$158,000	\$148,000
Finishing Department—Seattle	210,000	206,000
Denver division	676,000	673,000
San Diego division	722,000	715,000

Additional overhead costs were incurred as follows: Seattle division production manager—actual costs \$52,500, budget \$51,000; vice president of production—actual costs \$65,000, budget \$64,000; president—actual costs \$76,400, budget \$74,200. These expenses are not allocated.

The vice presidents who report to the president, other than the vice president of production, had the following expenses.

Vice President	Actual	Budget
Marketing	\$133,600	\$130,000
Finance	109,000	105,000

Instructions

- (a) Using the format on page 451, prepare the following responsibility reports.
- (1) Manufacturing overhead—Cutting Department manager—Seattle division.
 - (2) Manufacturing overhead—Seattle division manager.
 - (3) Manufacturing overhead—vice president of production.
 - (4) Manufacturing overhead and expenses—president.
- (b) Comment on the comparative performances of:
- (1) Department managers in the Seattle division.
 - (2) Division managers.
 - (3) Vice presidents.

(a) (1) \$12,300 U
 (2) \$27,800 U
 (3) \$38,800 U
 (4) \$48,600 U

***P10-7A** Orton Industries has manufactured prefabricated houses for over 20 years. The houses are constructed in sections to be assembled on customers' lots. Orton expanded into the precut housing market when it acquired Urbina Company, one of its suppliers. In this market, various types of lumber are precut into the appropriate lengths, banded into packages, and shipped to customers' lots for assembly. Orton designated the Urbina Division as an investment center.

Compare ROI and residual income.
(SO 8)

Orton uses return on investment (ROI) as a performance measure with investment defined as average operating assets. Management bonuses are based in part on ROI. All investments are expected to earn a minimum rate of return of 16%. Urbina's ROI has ranged from 20.1% to 23.5% since it was acquired. Urbina had an investment opportunity in 2011 that had an estimated ROI of 19%. Urbina's management decided against the investment because it believed the investment would decrease the division's overall ROI.

Selected financial information for Urbina are presented below. The division's average operating assets were \$12,300,000 for the year 2011.

URBINA DIVISION
Selected Financial Information
For the Year Ended December 31, 2011

Sales	\$26,000,000
Contribution margin	9,100,000
Controllable margin	2,460,000

Instructions

- (a) Calculate the following performance measures for 2011 for the Urbina Division.
- (1) Return on investment (ROI).
 - (2) Residual income.
- (b) Would the management of Urbina Division have been more likely to accept the investment opportunity it had in 2011 if residual income were used as a performance measure instead of ROI? Explain your answer.

(CMA adapted)

Problems: Set B

P10-1B Ogleby Company estimates that 240,000 direct labor hours will be worked during 2011 in the Assembly Department. On this basis, the following budgeted manufacturing overhead data are computed.

Prepare flexible budget and budget report for manufacturing overhead.
(SO 3)

Variable Overhead Costs		Fixed Overhead Costs	
Indirect labor	\$ 72,000	Supervision	\$ 75,000
Indirect materials	48,000	Depreciation	30,000
Repairs	36,000	Insurance	12,000
Utilities	26,400	Rent	9,000
Lubricants	9,600	Property taxes	6,000
	<hr/> <u>\$192,000</u>		<hr/> <u>\$132,000</u>

It is estimated that direct labor hours worked each month will range from 18,000 to 24,000 hours.

During January, 20,000 direct labor hours were worked and the following overhead costs were incurred.

Variable Overhead Costs	Fixed Overhead Costs
Indirect labor \$ 6,200	Supervision \$ 6,250
Indirect materials 3,600	Depreciation 2,500
Repairs 2,400	Insurance 1,000
Utilities 1,700	Rent 850
Lubricants 830	Property taxes 500
<u><u>\$14,730</u></u>	<u><u>\$11,100</u></u>

Instructions

- (a) Total costs: 18,000 DLH, \$25,400; 24,000 DLH, \$30,200
- (b) Budget \$27,000
Actual \$25,830

Prepare flexible budget, budget report, and graph for manufacturing overhead.

(SO 3)

P10-2B Parcells Manufacturing Company produces one product, Olpe. Because of wide fluctuations in demand for Olpe, the Assembly Department experiences significant variations in monthly production levels.

The annual master manufacturing overhead budget is based on 300,000 direct labor hours. In July 27,500 labor hours were worked. The master manufacturing overhead budget for the year and the actual overhead costs incurred in July are as follows.

Overhead Costs	Master Budget (annual)	Actual in July
Variable		
Indirect labor	\$330,000	\$29,000
Indirect materials	180,000	14,000
Utilities	90,000	8,100
Maintenance	60,000	5,400
Fixed		
Supervision	150,000	12,500
Depreciation	96,000	8,000
Insurance and taxes	60,000	5,000
Total	<u><u>\$966,000</u></u>	<u><u>\$82,000</u></u>

Instructions

- (a) Total costs: 22,500 DLH, \$75,000; 30,000 DLH, \$91,500
- (b) Budget \$86,000
Actual \$82,000

State total budgeted cost formula, and prepare flexible budget reports for 2 time periods.

(SO 2, 3)

(a) Prepare a monthly flexible overhead budget for the year ending December 31, 2011, assuming monthly production levels range from 22,500 to 30,000 direct labor hours. Use increments of 2,500 direct labor hours.

(b) Prepare a budget report for the month of July 2011, comparing actual results with budget data based on the flexible budget.

(c) Were costs effectively controlled? Explain.

(d) State the formula for computing the total monthly budgeted costs in the Parcells Manufacturing Company.

(e) Prepare the flexible budget graph showing total budgeted costs at 25,000 and 27,500 direct labor hours. Use increments of 5,000 on the horizontal axis and increments of \$10,000 on the vertical axis.

P10-3B Fornetti Company uses budgets in controlling costs. The May 2011 budget report for the company's Packaging Department is as follows.

FERNETTI COMPANY
Budget Report
Packaging Department
For the Month Ended May 31, 2011

Manufacturing Costs	Budget	Actual	Difference
			Favorable F Unfavorable U
Variable costs			
Direct materials	\$ 40,000	\$ 41,000	\$1,000 U
Direct labor	45,000	47,000	2,000 U
Indirect materials	15,000	15,200	200 U
Indirect labor	12,500	13,000	500 U
Utilities	10,000	9,600	400 F
Maintenance	5,000	5,200	200 U
Total variable	<u>127,500</u>	<u>131,000</u>	<u>3,500</u> U
Fixed costs			
Rent	10,000	10,000	-0-
Supervision	7,000	7,000	-0-
Depreciation	5,000	5,000	-0-
Total fixed	<u>22,000</u>	<u>22,000</u>	<u>-0-</u>
Total costs	<u><u>\$149,500</u></u>	<u><u>\$153,000</u></u>	<u><u>\$3,500</u></u> U

The monthly budget amounts in the report were based on an expected production of 50,000 units per month or 600,000 units per year.

The company president was displeased with the department manager's performance. The department manager, who thought he had done a good job, could not understand the unfavorable results. In May, 55,000 units were produced.

Instructions

- (a) State the total budgeted cost formula.
- (b) Prepare a budget report for May using flexible budget data. Why does this report provide a better basis for evaluating performance than the report based on static budget data? (b) Budget \$162,250
- (c) In June, 40,000 units were produced. Prepare the budget report using flexible budget data, assuming (1) each variable cost was 20% less in June than its actual cost in May, and (2) fixed costs were the same in the month of June as in May. (c) Budget \$124,000
Actual \$126,800

P10-4B Widnet Manufacturing Inc. operates the Home Appliance Division as a profit center. Operating data for this division for the year ended December 31, 2011, are shown below.

*Prepare responsibility report for a profit center.
(\$O 6)*

	Budget	Difference from Budget
Sales	\$2,400,000	\$100,000 U
Cost of goods sold		
Variable	1,200,000	60,000 U
Controllable fixed	200,000	8,000 F
Selling and administrative		
Variable	240,000	8,000 F
Controllable fixed	60,000	4,000 U
Noncontrollable fixed costs	50,000	2,000 U

In addition, Widnet Manufacturing incurs \$150,000 of indirect fixed costs that were budgeted at \$155,000. Twenty percent (20%) of these costs are allocated to the Home Appliance Division. None of these costs are controllable by the division manager.

Instructions

- (a) Prepare a responsibility report for the Home Appliance Division (a profit center) for the year.
- (b) Comment on the manager's performance in controlling revenues and costs.

*(a) Contribution margin
\$152,000 U
Controllable margin
\$148,000 U*

- (c) Identify any costs excluded from the responsibility report and explain why they were excluded.

Prepare responsibility report for an investment center, and compute ROI.

(SO 7)

P10-5B Schwinn Manufacturing Company manufactures a variety of garden and lawn equipment. The company operates through three divisions. Each division is an investment center. Operating data for the Lawnmower Division for the year ended December 31, 2011, and relevant budget data are as follows.

	Actual	Comparison with Budget
Sales	\$2,900,000	\$120,000 unfavorable
Variable cost of goods sold	1,400,000	90,000 unfavorable
Variable selling and administrative expenses	300,000	50,000 favorable
Controllable fixed cost of goods sold	270,000	On target
Controllable fixed selling and administrative expenses	140,000	On target

Average operating assets for the year for the Lawnmower Division were \$5,000,000, which was also the budgeted amount.

Instructions

(a) Controllable margin:
Budget \$950
Actual \$790

- (a) Prepare a responsibility report (in thousands of dollars) for the Lawnmower Division.
 (b) Evaluate the manager's performance. Which items will likely be investigated by top management?
 (c) Compute the expected ROI in 2012 for the Lawnmower Division, assuming the following independent changes.
 (1) Variable cost of goods sold is decreased by 15%.
 (2) Average operating assets are decreased by 20%.
 (3) Sales are increased by \$500,000, and this increase is expected to increase contribution margin by \$210,000.

Prepare reports for cost centers under responsibility accounting, and comment on performance of managers.

(SO 4)

P10-6B Kirk Company uses a responsibility reporting system. It has divisions in San Francisco, Phoenix, and Tulsa. Each division has three production departments: Cutting, Shaping, and Finishing. The responsibility for each department rests with a manager who reports to the division production manager. Each division manager reports to the vice president of production. There are also vice presidents for marketing and finance. All vice presidents report to the president.

In January 2011, controllable actual and budget manufacturing overhead cost data for the departments and divisions were as shown below.

Manufacturing Overhead	Actual	Budget
Individual costs—Cutting Department—Phoenix		
Indirect labor	\$ 95,000	\$ 90,000
Indirect materials	62,500	61,000
Maintenance	27,400	25,000
Utilities	25,200	20,000
Supervision	31,000	28,000
	<u><u>\$241,100</u></u>	<u><u>\$224,000</u></u>
Total costs		
Shaping Department—Phoenix	\$190,000	\$177,000
Finishing Department—Phoenix	250,000	246,000
San Francisco division	722,000	715,000
Tulsa division	760,000	750,000

Additional overhead costs were incurred as follows: Phoenix division production manager—actual costs \$73,100, budget \$70,000; vice president of production—actual costs \$72,000, budget \$70,000; president—actual costs \$94,200, budget \$91,300. These expenses are not allocated.

The vice presidents, who report to the president (other than the vice president of production), had the following expenses.

Vice President	Actual	Budget
Marketing	\$167,200	\$160,000
Finance	124,000	120,000

Instructions

- (a) Using the format on page 451, prepare the following responsibility reports.
 - (1) Manufacturing overhead—Cutting Department manager—Phoenix division.
 - (2) Manufacturing overhead—Phoenix division manager.
 - (3) Manufacturing overhead—vice president of production.
 - (4) Manufacturing overhead and expenses—president.
- (b) Comment on the comparative performances of:
 - (1) Department managers in the Phoenix division.
 - (2) Division managers.
 - (3) Vice presidents.

(a) (1) \$17,100 U
 (2) \$37,200 U
 (3) \$56,200 U
 (4) \$70,300 U

***P10-7B** Scotty Industries has manufactured prefabricated garages for over 20 years. The garages are constructed in sections to be assembled on customers' lots. Scotty expanded into the precut housing market when it acquired Federation Enterprises, one of its suppliers. In this market, various types of lumber are precut into the appropriate lengths, banded into packages, and shipped to customers' lots for assembly. Scotty designated the Federation Division as an investment center.

Compare ROI and residual income.
 (SO 8)

Scotty uses return on investment (ROI) as a performance measure, with investment defined as average operating assets. Management bonuses are based in part on ROI. All investments are expected to earn a minimum rate of return of 16%. Federation Enterprise's ROI has ranged from 19.9% to 23.3% since it was acquired. Federation had an investment opportunity in 2011 that had an estimated ROI of 19%. Federation's management decided against the investment because it believed the investment would decrease the division's overall ROI.

Selected financial information for Federation Enterprises is presented below. The division's average operating assets were \$7,600,000 for the year 2011.

FEDERATION ENTERPRISES DIVISION

Selected Financial Information
For the Year Ended December 31, 2011

Sales	\$16,000,000
Contribution margin	5,600,000
Controllable margin	1,500,000

Instructions

- (a) Calculate the following performance measures for 2011 for the Federation Enterprises Division.
 - (1) Return on investment (ROI).
 - (2) Residual income.
- (b) Would the management of Federation Enterprises have been more likely to accept the investment opportunity it had in 2011 if residual income were used as a performance measure instead of ROI? Explain your answer.

Problems: Set C

Visit the book's companion website at www.wiley.com/college/weygandt, and choose the Student Companion site, to access Problem Set C.



Waterways Continuing Problem

(Note: This is a continuation of the Waterways Problem from Chapters 1 through 9.)

WCP10 Waterways Corporation is continuing its budget preparations. This problem gives you static budget information as well as actual overhead costs, and asks you to calculate amounts related to budgetary control and responsibility accounting.



Go to the book's companion website,
www.wiley.com/college/weygandt,
to find the completion of this problem.

broadening your perspective



Decision Making Across the Organization



BYP10-1 G-Bar Pastures is a 400-acre farm on the outskirts of the Kentucky Bluegrass, specializing in the boarding of broodmares and their foals. A recent economic downturn in the thoroughbred industry has led to a decline in breeding activities, and it has made the boarding business extremely competitive. To meet the competition, G-Bar Pastures planned in 2011 to entertain clients, advertise more extensively, and absorb expenses formerly paid by clients such as veterinary and blacksmith fees.

The budget report for 2011 is presented below. As shown, the static income statement budget for the year is based on an expected 21,900 boarding days at \$25 per mare. The variable expenses per mare per day were budgeted: Feed \$5, Veterinary fees \$3, Blacksmith fees \$0.30, and Supplies \$0.55. All other budgeted expenses were either semifixed or fixed.

During the year, management decided not to replace a worker who quit in March, but it did issue a new advertising brochure and did more entertaining of clients.¹

G-BAR PASTURES Static Budget Income Statement For the Year Ended December 31, 2011

	<u>Actual</u>	<u>Master Budget</u>	<u>Difference</u>
Number of mares	52	60	8 U
Number of boarding days	<u>18,980</u>	<u>21,900</u>	<u>2,920 U</u>
Sales	\$379,600	\$547,500	\$167,900 U
Less: Variable expenses			
Feed	104,390	109,500	5,110 F
Veterinary fees	58,838	65,700	6,862 F
Blacksmith fees	6,074	6,570	496 F
Supplies	10,178	12,045	1,867 F
Total variable expenses	<u>179,480</u>	<u>193,815</u>	<u>14,335 F</u>
Contribution margin	200,120	353,685	153,565 U
Less: Fixed expenses			
Depreciation	40,000	40,000	-0-
Insurance	11,000	11,000	-0-
Utilities	12,000	14,000	2,000 F
Repairs and maintenance	10,000	11,000	1,000 F
Labor	88,000	96,000	8,000 F
Advertisement	12,000	8,000	4,000 U
Entertainment	7,000	5,000	2,000 U
Total fixed expenses	<u>180,000</u>	<u>185,000</u>	<u>5,000 F</u>
Net income	<u>\$ 20,120</u>	<u>\$168,685</u>	<u>\$148,565 U</u>

¹Data for this case are based on Hans Sprohge and John Talbott, "New Applications for Variance Analysis," *Journal of Accountancy* (AICPA, New York), April 1989, pp. 137–141.

Instructions

With the class divided into groups, answer the following.

- (a) Based on the static budget report:
 - (1) What was the primary cause(s) of the loss in net income?
 - (2) Did management do a good, average, or poor job of controlling expenses?
 - (3) Were management's decisions to stay competitive sound?
- (b) Prepare a flexible budget report for the year.
- (c) Based on the flexible budget report, answer the three questions in part (a) above.
- (d) What course of action do you recommend for the management of G-Bar Pastures?

Managerial Analysis

BYP10-2 Fugate Company manufactures expensive watch cases sold as souvenirs. Three of its sales departments are: Retail Sales, Wholesale Sales, and Outlet Sales. The Retail Sales Department is a profit center. The Wholesale Sales Department is a cost center. Its managers merely take orders from customers who purchase through the company's wholesale catalog. The Outlet Sales Department is an investment center, because each manager is given full responsibility for an outlet store location. The manager can hire and discharge employees, purchase, maintain, and sell equipment, and in general is fairly independent of company control.

Jane Duncan is a manager in the Retail Sales Department. Richard Wayne manages the Wholesale Sales Department. Jose Lopez manages the Golden Gate Club outlet store in San Francisco. The following are the budget responsibility reports for each of the three departments.

Budget			
	Retail Sales	Wholesale Sales	Outlet Sales
Sales	\$ 750,000	\$ 400,000	\$200,000
Variable costs			
Cost of goods sold	150,000	100,000	25,000
Advertising	100,000	30,000	5,000
Sales salaries	75,000	15,000	3,000
Printing	10,000	20,000	5,000
Travel	20,000	30,000	2,000
Fixed costs			
Rent	50,000	30,000	10,000
Insurance	5,000	2,000	1,000
Depreciation	75,000	100,000	40,000
Investment in assets	1,000,000	1,200,000	800,000

Actual Results			
	Retail Sales	Wholesale Sales	Outlet Sales
Sales	\$ 750,000	\$ 400,000	\$200,000
Variable costs			
Cost of goods sold	195,000	120,000	26,250
Advertising	100,000	30,000	5,000
Sales salaries	75,000	15,000	3,000
Printing	10,000	20,000	5,000
Travel	15,000	20,000	1,500
Fixed costs			
Rent	40,000	50,000	12,000
Insurance	5,000	2,000	1,000
Depreciation	80,000	90,000	60,000
Investment in assets	1,000,000	1,200,000	800,000

Instructions

- Determine which of the items should be included in the responsibility report for each of the three managers.
- Compare the budgeted measures with the actual results. Decide which results should be called to the attention of each manager.

Real-World Focus

BYP10-3 Computer Associates International, Inc., the world's leading business software company, delivers the end-to-end infrastructure to enable e-business through innovative technology, services, and education. CA has 19,000 employees worldwide and recently had revenue of over \$6 billion.

Presented below is information from the company's annual report.

COMPUTER ASSOCIATES INTERNATIONAL

Management Discussion

The Company has experienced a pattern of business whereby revenue for its third and fourth fiscal quarters reflects an increase over first- and second-quarter revenue. The Company attributes this increase to clients' increased spending at the end of their calendar year budgetary periods and the culmination of its annual sales plan. Since the Company's costs do not increase proportionately with the third- and fourth-quarters' increase in revenue, the higher revenue in these quarters results in greater profit margins and income. Fourth-quarter profitability is traditionally affected by significant new hirings, training, and education expenditures for the succeeding year.

Instructions

- Why don't the company's costs increase proportionately as the revenues increase in the third and fourth quarters?
- What type of budgeting seems appropriate for the Computer Associates situation?

Exploring the Web



BYP10-4 There are many useful resources regarding budgeting available on websites. The following activity investigates the results of a comprehensive budgeting study.

Address: http://www.accountingweb.com/whitepapers/centage_ioma.pdf, or go to www.wiley.com/college/weygandt

Instructions

- Go the address above and then answer the following questions.
- What are cited as the two most common "pain points" of budgeting?
 - What percentage of companies that participated in the survey said that they prepare annual budgets? Of those that prepare budgets, what percentage say that they start the budgeting process by first generating sales projections?
 - What is the most common amount of time for the annual budgeting process?
 - When evaluating variances from budgeted amounts, what was the most commonly defined range of acceptable tolerance levels?
 - The study defines three types of consequences for varying from budgeted amounts. How does it describe "severe" consequences?

Communication Activity

BYP10-5 The manufacturing overhead budget for Edmonds Company contains the following items.

Variable costs		Fixed costs	
Indirect materials	\$24,000	Supervision	\$18,000
Indirect labor	12,000	Inspection costs	1,000
Maintenance expense	10,000	Insurance expense	2,000
Manufacturing supplies	6,000	Depreciation	15,000
Total variable	<u>\$52,000</u>	Total fixed	<u>\$36,000</u>

The budget was based on an estimated 2,000 units being produced. During the past month, 1,500 units were produced, and the following costs incurred.

Variable costs		Fixed costs	
Indirect materials	\$24,200	Supervision	\$19,300
Indirect labor	13,500	Inspection costs	1,200
Maintenance expense	8,200	Insurance expense	2,200
Manufacturing supplies	5,100	Depreciation	14,700
Total variable	<u>\$51,000</u>	Total fixed	<u>\$37,400</u>

Instructions

- Determine which items would be controllable by Mark Farris, the production manager.
- How much should have been spent during the month for the manufacture of the 1,500 units?
- Prepare a flexible manufacturing overhead budget report for Mr. Farris.
- Prepare a responsibility report. Include only the costs that would have been controllable by Mr. Farris. Assume that the supervision cost above includes Mr. Farris's salary of \$10,000, both at budget and actual. In an attached memo, describe clearly for Mr. Farris the areas in which his performance needs to be improved.

Ethics Case

BYP10-6 National Products Corporation participates in a highly competitive industry. In order to meet this competition and achieve profit goals, the company has chosen the decentralized form of organization. Each manager of a decentralized investment center is measured on the basis of profit contribution, market penetration, and return on investment. Failure to meet the objectives established by corporate management for these measures has not been acceptable and usually has resulted in demotion or dismissal of an investment center manager.

An anonymous survey of managers in the company revealed that the managers feel the pressure to compromise their personal ethical standards to achieve the corporate objectives. For example, at certain plant locations there was pressure to reduce quality control to a level which could not assure that all unsafe products would be rejected. Also, sales personnel were encouraged to use questionable sales tactics to obtain orders, including gifts and other incentives to purchasing agents.

The chief executive officer is disturbed by the survey findings. In his opinion such behavior cannot be condoned by the company. He concludes that the company should do something about this problem.

Instructions

- Who are the stakeholders (the affected parties) in this situation?
- Identify the ethical implications, conflicts, or dilemmas in the above described situation.
- What might the company do to reduce the pressures on managers and decrease the ethical conflicts?

“All About You” Activity

BYP10-7 It is one thing to prepare a personal budget; it is another thing to stick to it. Financial planners have suggested various mechanisms to provide support for enforcing personal budgets. One approach is called “envelope budgeting.”

Instructions

Read the article provided at http://en.wikipedia.org/wiki/Envelope_budgeting, and answer the following questions.

- Summarize the process of envelope budgeting.
- Evaluate whether you think you would benefit from envelope budgeting. What do you think are its strengths and weaknesses relative to your situation?

Answers to *Insight and Accounting Across the Organization* Questions

Budgets and the Exotic Newcastle Disease, p. 445

- Q: What is the major benefit of tying a budget to the overall goals of the company?
 A: People working on a budgeting process that is clearly guided and focused by strategic goals spend less time arguing about irrelevant details and more time focusing on the items that matter.

Competition versus Collaboration, p. 449

- Q: How might managers of separate divisions be able to reduce division costs through collaboration?
 A: Division managers might reduce costs by sharing design and marketing resources or by jointly negotiating with suppliers. In addition, they can reduce the need to hire and lay off employees by sharing staff across divisions as human resource needs change.

Does Hollywood Look at ROI?, p. 458

- Q: What might be the reason that movie studios do not produce G-rated movies as much as R-rated ones?
 A: Perhaps Hollywood believes that big-name stars or large budgets, both of which are typical of R-rated movies, sell movies. However, one study recently concluded, “We can’t find evidence that stars help movies, and we can’t find evidence that bigger budgets increase return on investment.” Some film companies are going out of their way to achieve at least a PG rating.

Flexible Manufacturing Requires Flexible Accounting, p. 459

- Q: What implications do these improvements in production capabilities have for management accounting information and performance evaluation within the organization?
 A: In order to maximize the potential of flexible manufacturing facilities, managers need to be supplied with information on a more frequent basis. In turn, the tools used to evaluate performance need to take into account what information management had at its disposal, and what decisions were made in response to this information.

Answers to *Self-Study Questions*

1. c 2. d 3. c 4. b 5. b 6. a 7. d 8. a 9. d 10. d 11. a 12. c 13. b 14. b
 15. d



Remember to go back to the navigator box on the chapter-opening page and check off your completed work.

