

QUICK REVIEW

■ CHAPTER 1

EXHIBIT 1-4 ■ Structural, Organizational, and Activity Cost Drivers

Structural Cost Drivers

Fundamental choices about the size and scope of operations and technologies employed in delivering products or services to customers. For example, General Motors' decision to locate its Saturn automobile plant in Tennessee, is an example of a structural cost driver.

Organizational Cost Drivers

Choices concerning the organization of activities and the involvement of persons inside and outside the organization in decision making. Authorizing employees to make decisions is an example of an organizational cost driver.

Activity Cost Drivers

Specific units of work (activities) performed to serve customer needs that consume costly resources. Assembling a product is an example of an activity cost driver.

■ CHAPTER 2

$$\text{Variable costs per unit} = \frac{\text{Difference in total costs}}{\text{Difference in activity}}$$

$$\text{Fixed costs} = \text{Total costs} - \text{Variable costs}$$

EXHIBIT 2-9 ■ Hierarchy of Activity Costs

Activity Level	Reason for Activity	Examples of Activity Cost
1. Unit level	Performed for each unit of product produced or sold	<ul style="list-style-type: none"> • Cost of raw materials • Cost of inserting a component • Utilities cost of operating equipment • Some costs of packaging • Sales commissions
2. Batch level	Performed for each batch of product produced or sold	<ul style="list-style-type: none"> • Cost of processing sales order • Cost of issuing and tracking work order • Cost of equipment setup • Cost of moving batch between workstations • Cost of inspection (assuming same number of units inspected in each batch)
3. Product level	Performed to support each different product that can be produced	<ul style="list-style-type: none"> • Cost of product development • Cost of product marketing such as advertising • Cost of specialized equipment • Cost of maintaining specialized equipment
4. Facility level	Performed to maintain general manufacturing capabilities	<ul style="list-style-type: none"> • Cost of maintaining general facilities such as buildings and grounds • Cost of nonspecialized equipment • Cost of maintaining nonspecialized equipment • Cost of real property taxes • Cost of general advertising • Cost of general administration such as the plant manager's salary

Total cost equation for a single-product organization:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3$$

where

Y = total costs for a period

a = facility-level costs that do not vary with units, batches, or products

X_1 = unit-level cost drivers, where the subscript $_1$ refers to the unit level

b_1 = variable cost per unit

X_2 = batch-level cost drivers, where the subscript $_2$ refers to the batch level

b_2 = variable cost per batch

X_3 = product-level cost drivers, where the subscript $_3$ refers to the product level

b_3 = product costs that do not vary with the number of units or batches

CHAPTER 3

$$\text{Break-even unit sales volume} = \frac{\text{Fixed costs}}{\text{Selling price per unit} - \text{Variable costs per unit}}$$

$$\text{Break-even unit sales volume} = \frac{\text{Fixed costs}}{\text{Unit contribution margin}}$$

$$\text{Target unit sales volume} = \frac{\text{Fixed costs} + \text{Desired profit}}{\text{Unit contribution margin}}$$

$$\text{Dollar break-even point} = \frac{\text{Fixed costs}}{\text{Contribution margin ratio}}$$

$$\text{Target dollar sales volume} = \frac{\text{Fixed costs} + \text{Desired profit}}{\text{Contribution margin ratio}}$$

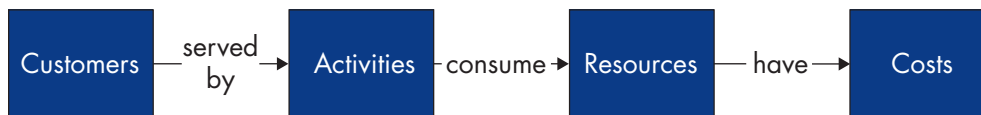
CHAPTER 4

EXHIBIT 4-6 ■ Summary Classification of Relevant and Irrelevant Costs

RELEVANT COSTS		IRRELEVANT COSTS	
Future costs that differ among competing alternatives		Costs that do not differ among competing alternatives	
Opportunity Costs	Outlay Costs	Sunk Costs	
Net cash flow from the best alternative	Future costs requiring future expenditures that differ	Future costs requiring future expenditures that do not differ	A historical cost resulting from a past decision

CHAPTER 5

1. Activities performed to fill customer needs consume resources that cost money.



2. The cost of resources consumed by activities should be assigned to cost objectives on the basis of the units of activity consumed by the cost objective.

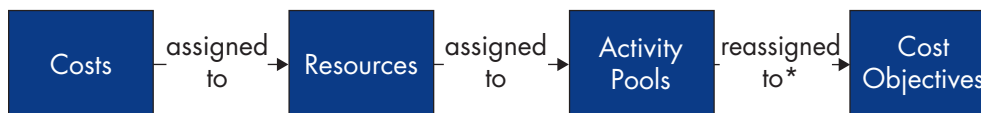
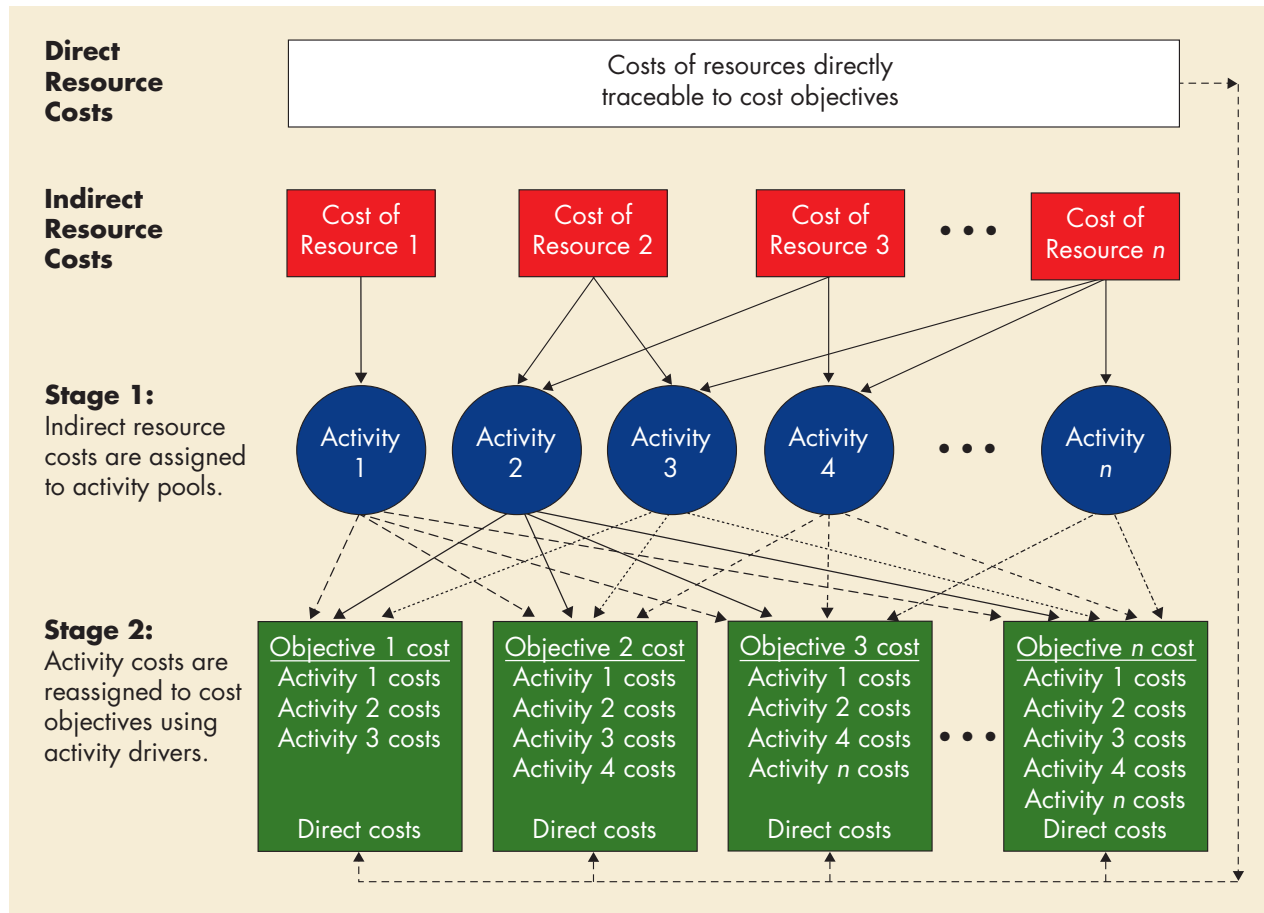
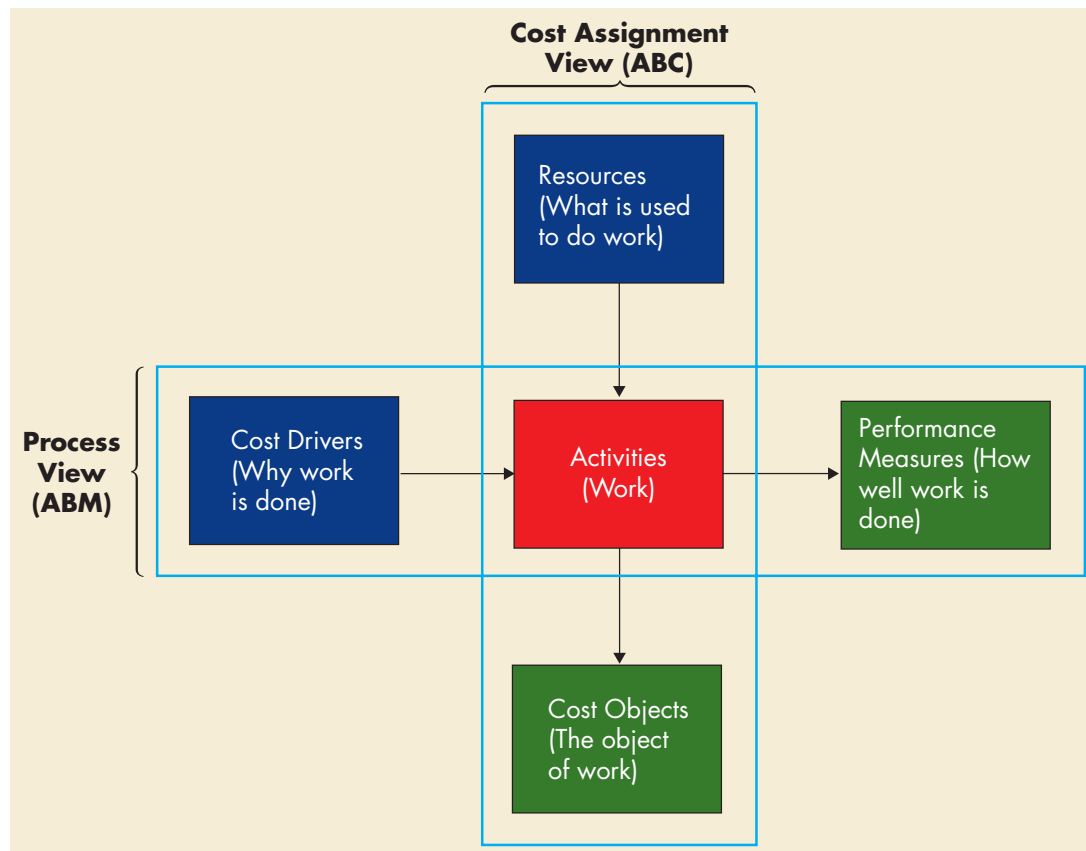


EXHIBIT 5-4 ■ Two-Stage Activity-Based Costing Model



The ABC/ABM Cross



CHAPTER 6

EXHIBIT 6-2 ■ Product Costs and Period Costs

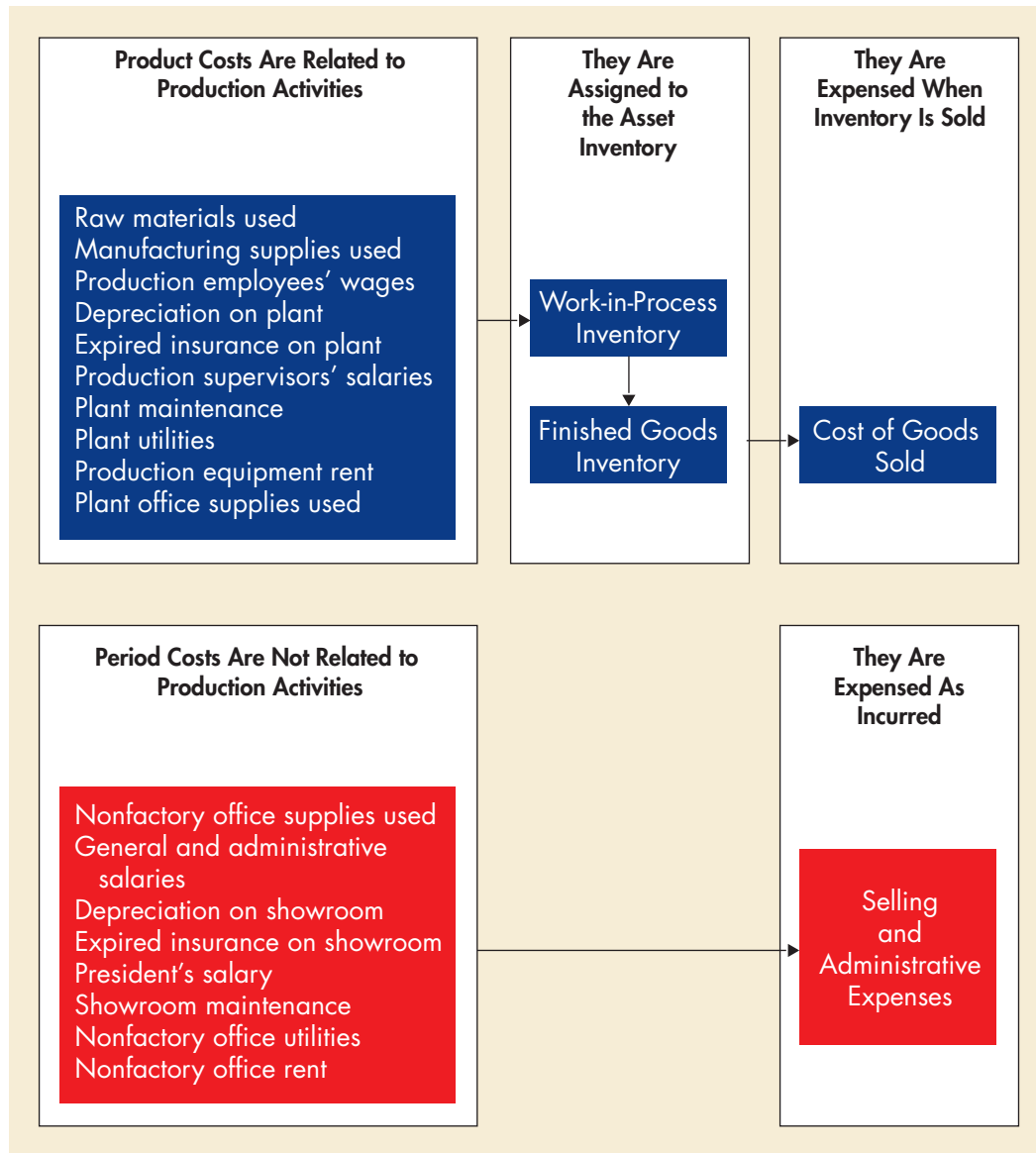
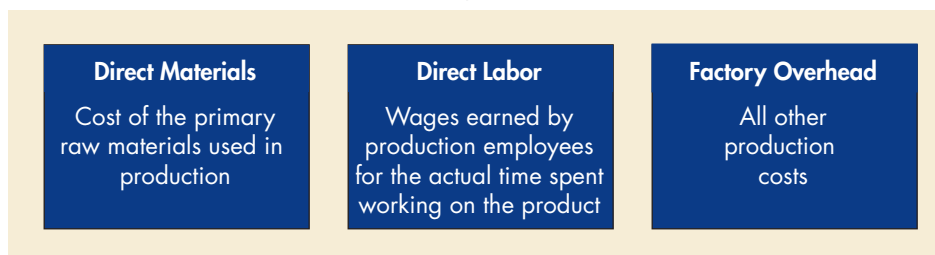


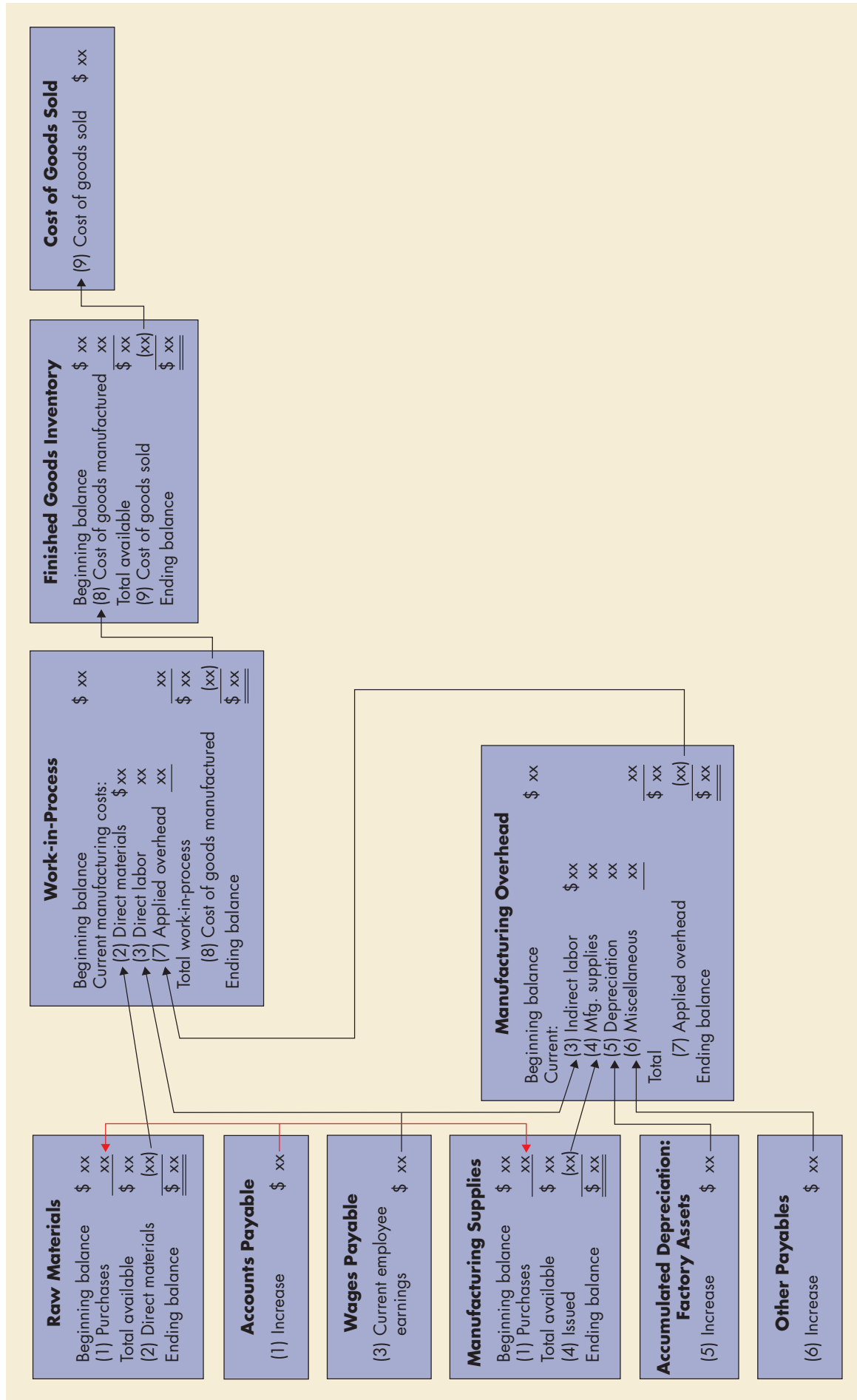
EXHIBIT 6-3 ■ Three Product Cost Components



$$\text{Predetermined manufacturing overhead rate per direct labor hour} = \frac{\text{Predicted total manufacturing overhead cost for the year}}{\text{Predicted total direct labor hours for the year}}$$

$$\text{Manufacturing overhead assigned to Work-in-Process Inventory} = \text{Actual direct labor hours} \times \text{Predetermined manufacturing overhead rate per direct labor hour}$$

EXHIBIT 6-6 ■ Basic Production Cost Flows



Statement of Cost of Goods Manufactured

Sales	\$X,XXX
Less cost of goods sold	
Beginning inventory	\$XXXX
Plus purchases	<u>XXXX</u>
Goods available for sale	XXXX
Less ending inventory	<u>(XXXX)</u>
Cost of goods sold	<u>(X,XXX)</u>
Gross profit	X,XXX
Less selling and administrative expenses	<u>(X,XXX)</u>
Net income	<u>\$X,XXX</u>

CHAPTER 7

EXHIBIT 7-1 ■ Flow of Costs—Direct Method

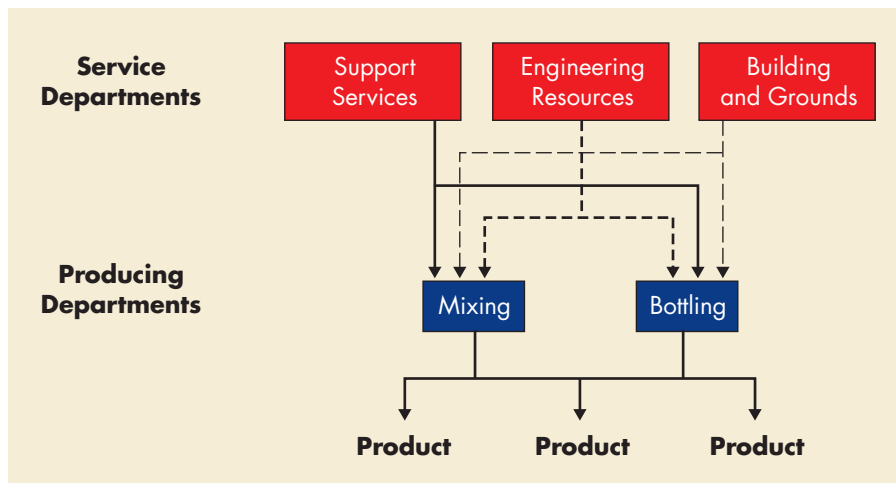


EXHIBIT 7-3 ■ Flow of Costs—Step Method

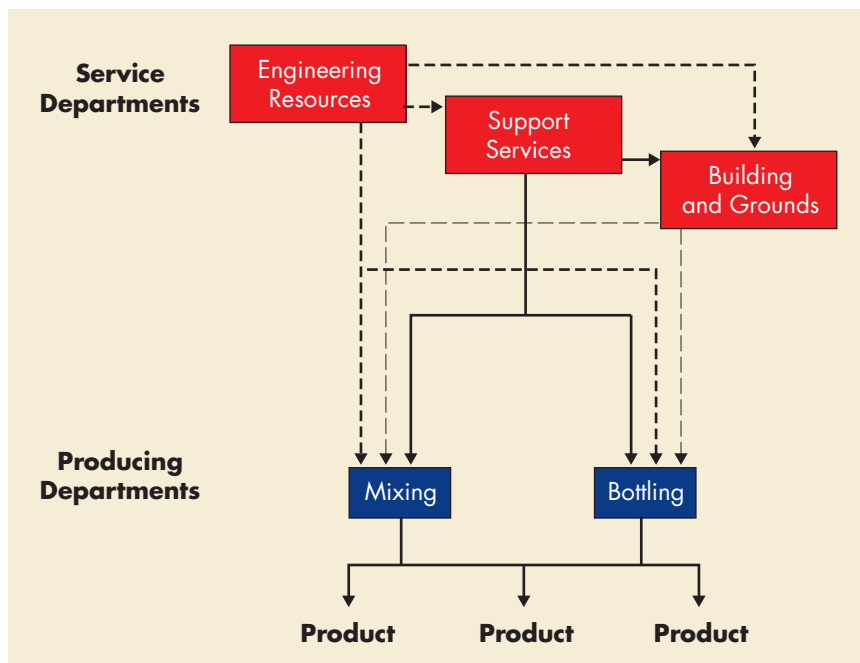


EXHIBIT 7-5 ■ Flow of Costs—Linear Algebra Method

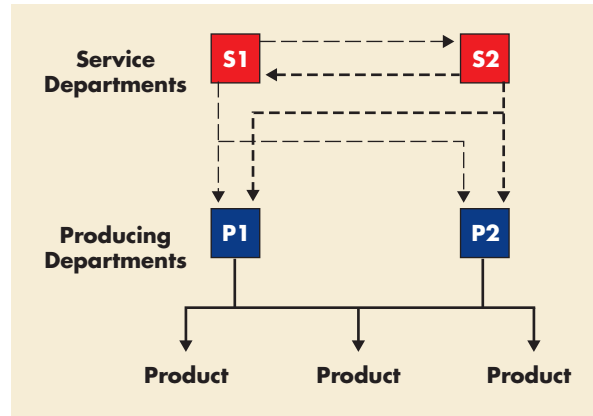
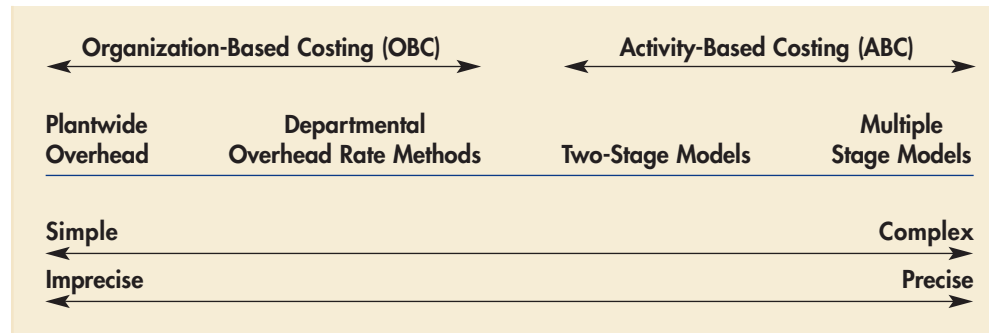


EXHIBIT 7-7 ■ Product Costing Continuum



CHAPTER 8

EXHIBIT 8-1 ■ Comparison of Absorption and Variable Costing

Absorption Costing	Variable Costing
Product Costs	
Direct materials	Direct materials
Direct labor	Direct labor
Variable manufacturing overhead	Variable manufacturing overhead
Fixed manufacturing overhead	—
Period Costs	
Variable selling and administrative	Variable selling and administrative
Fixed selling and administrative	Fixed selling and administrative
—	Fixed manufacturing overhead

$$\text{Variable costing net income} + \text{Increase (or minus decrease) in inventoried fixed manufacturing overhead} = \text{Absorption costing net income}$$

$$\text{Absorption costing net income} + \text{Decrease (or minus increase) in inventoried fixed manufacturing overhead} = \text{Variable costing net income}$$

$$\text{Inventory Turnover in Units} = \frac{\text{Annual demand in units}}{\text{Average inventory in units}}$$

$$\text{Inventory Turnover in Dollars} = \frac{\text{Cost of goods sold}}{\text{Average inventory (in dollars)}}$$

$$\text{Cycle time} = \text{Setup time} + \text{Processing time} + \text{Movement time} + \text{Waiting time} + \text{Inspection time}$$

CHAPTER 9

$$\text{Markup on cost base} = \frac{\text{Costs not included in the base} + \text{Desired profit}}{\text{Costs included in the base}}$$

Quality costs are costs incurred because poor quality of conformance does (or could) exist. There are two basic types of quality costs, and each basic type is classified in two subcategories:

1. Quality costs *are incurred because of the possibility of poor conformance* between actual products or services and their design standards:
 - a. **Prevention costs** are incurred to prevent nonconforming products from being produced or nonconforming services from being performed.
 - b. **Appraisal costs** are incurred to identify nonconforming products or services before they are delivered to customers.
2. Quality costs *are incurred because of poor conformance* between actual products or services and their design standards:
 - a. **Internal failure costs** occur when materials, components, products, or services are identified as defective before delivery to customers.
 - b. **External failure costs** occur when nonconforming products or services are delivered to customers.

CHAPTER 10

$$\text{Cost of equity capital} = \frac{\text{Current annual dividend per common share}}{\text{Current market price per common share}} + \text{Expected dividend growth rate}$$

$$\text{Payback period} = \frac{\text{Initial investment}}{\text{Annual operating cash inflows}}$$

$$\text{Accounting rate of return on initial investment} = \frac{\text{Average annual increase in net income}}{\text{Initial investment}}$$

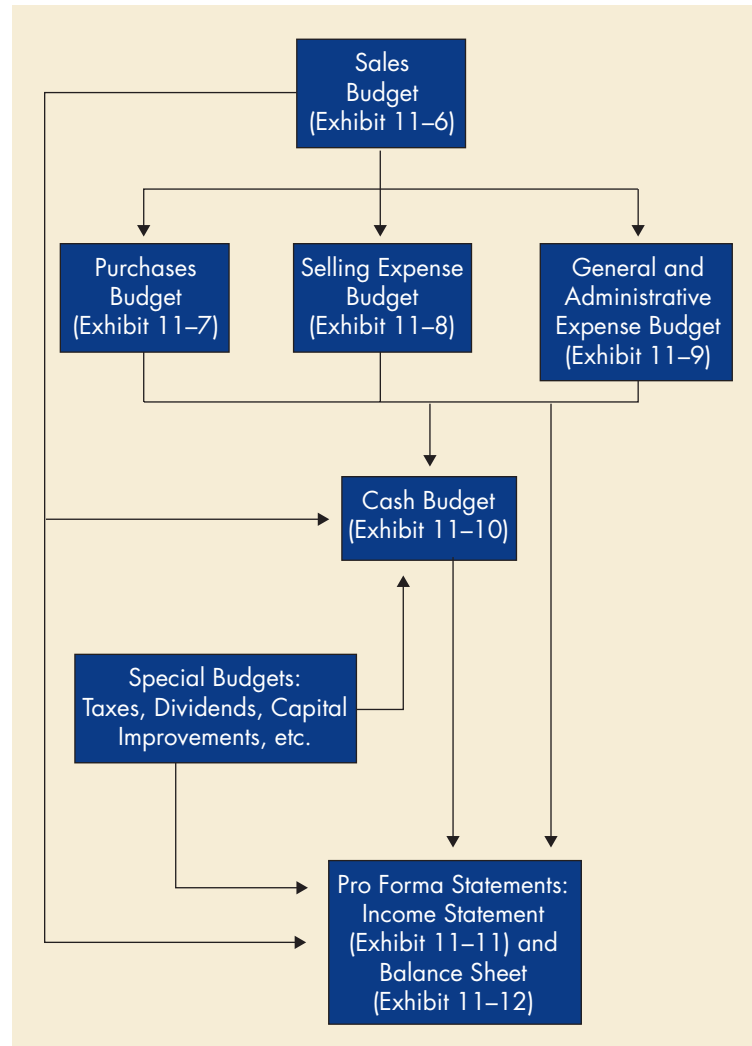
$$\text{Accounting rate of return on average investment} = \frac{\text{Average annual increase in net income}}{\text{Average investment}}$$

$$\text{Present value index} = \frac{\text{Present value of subsequent cash flows}}{\text{Initial investment}}$$

$$\text{Depreciation tax shield} = \text{Depreciation} \times \text{Tax rate}$$

CHAPTER 11

EXHIBIT 11-4 ■ Budget Assembly for a Merchandiser



CHAPTER 12

Improvement Variance = Cost Base × Continuous improvement factor = Target Cost – Actual Cost

Materials price variance = Actual quantity (Actual price – Standard price)

Materials quantity variance = Standard price (Actual quantity – Standard quantity)

Assembly rate variance = Actual hours (Actual rate – Standard rate)

Assembly efficiency variance = Standard rate (Actual hours – Standard hours)

Revenue variance = (Actual volume × Actual price) – (Budgeted volume × Budgeted price)

Sales price variance = (Actual selling price – Budgeted selling price) × Actual sales volume

Sales volume variance = (Actual sales volume – Budgeted sales volume) × Budgeted selling price

CHAPTER 13

$$\text{ROI} = \frac{\text{Sales}}{\text{Investment center asset base}} \times \frac{\text{Investment center income}}{\text{Sales}} = \frac{\text{Investment center income}}{\text{Investment center asset base}}$$

Residual income = Investment center income – (Investment center asset base × Minimum return %)

Economic value added (EVA) = Income after taxes – (Net assets employed × Cost of capital)

EXHIBIT 13-4 ■ Balanced Scorecard Illustration

	Standard	Prior Period	Current Period
Key financial indicators			
Cash flow	\$25,000	\$(4,000)	\$21,000
Return on investment (ROI)	0.18	0.22	0.19
Economic value added	\$130,000	\$133,000	\$123,000
Sales	\$4,400,000	\$4,494,000	\$4,342,000
Key customer indicators			
Average customers per hour	75	80	71
Number of customer complaints per period	22	21	17
Number of sales returns per period	10	8	5
Key operating indicators			
Bagels sold/produced per day ratio	0.96	0.93	0.91
Daily units lost (burned, dropped, etc.)	25	32	34
Employee turnover per period	0.10	0.07	0.00
Key growth and innovation indicators			
New products introduced during period	1	1	0
Products discontinued during period	1	1	1
Number of sales promotions	3	3	2
Special offers, discounts, etc.	4	5	3