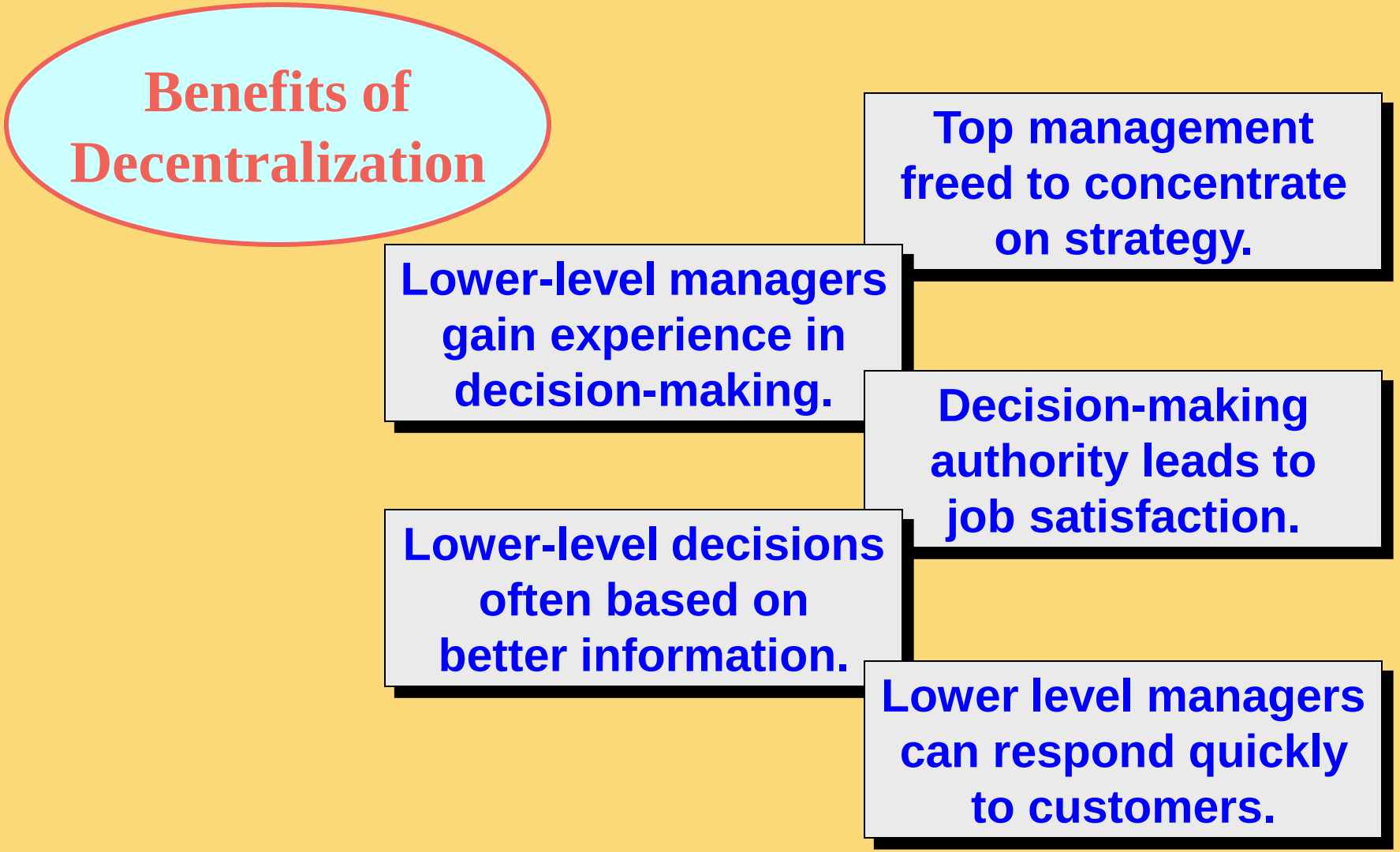
Segment Reporting and Decentralization

Chapter Twelve

Decentralization in Organizations



Decentralization in Organizations

Disadvantages of Decentralization

- Lower-level managers may make decisions without seeing the "big picture."
- May be a lack of coordination among autonomous managers.
- Lower-level manager's objectives may not be those of the organization.
- May be difficult to spread innovative ideas in the organization.

Cost, Profit, and Investments Centers

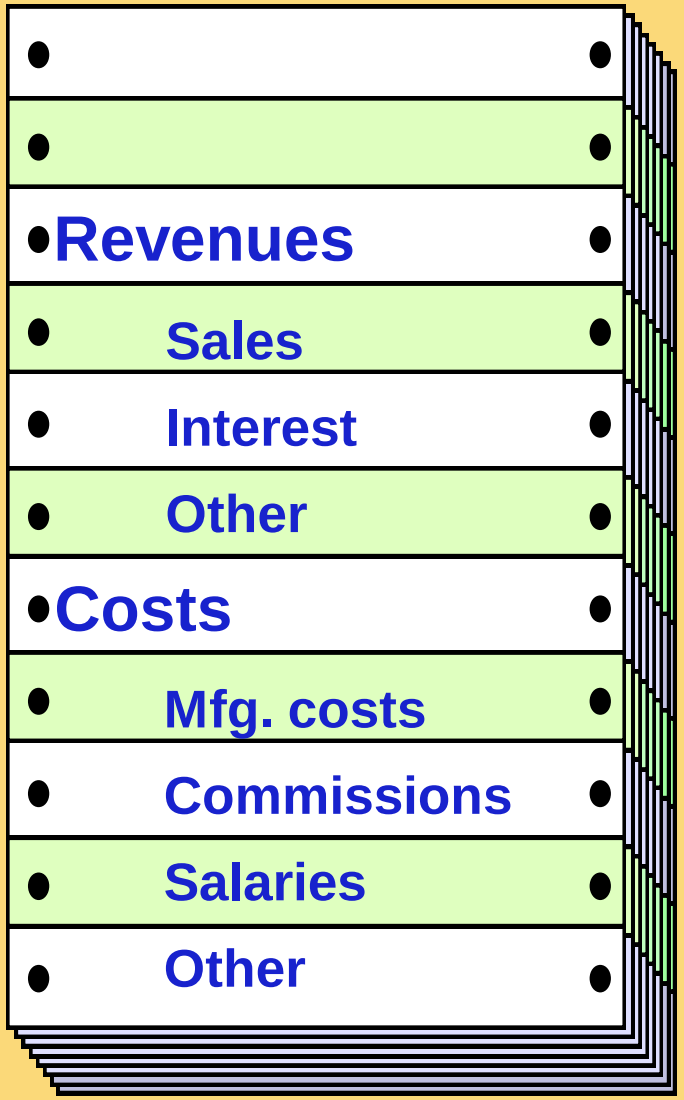
Cost, profit, and investment centers are all known as responsibility centers.

Cost Center

A segment whose manager has control over costs, but not over revenues or investment funds.

Profit Center

A segment whose manager has control over **both** costs and revenues, but no control over investment funds.

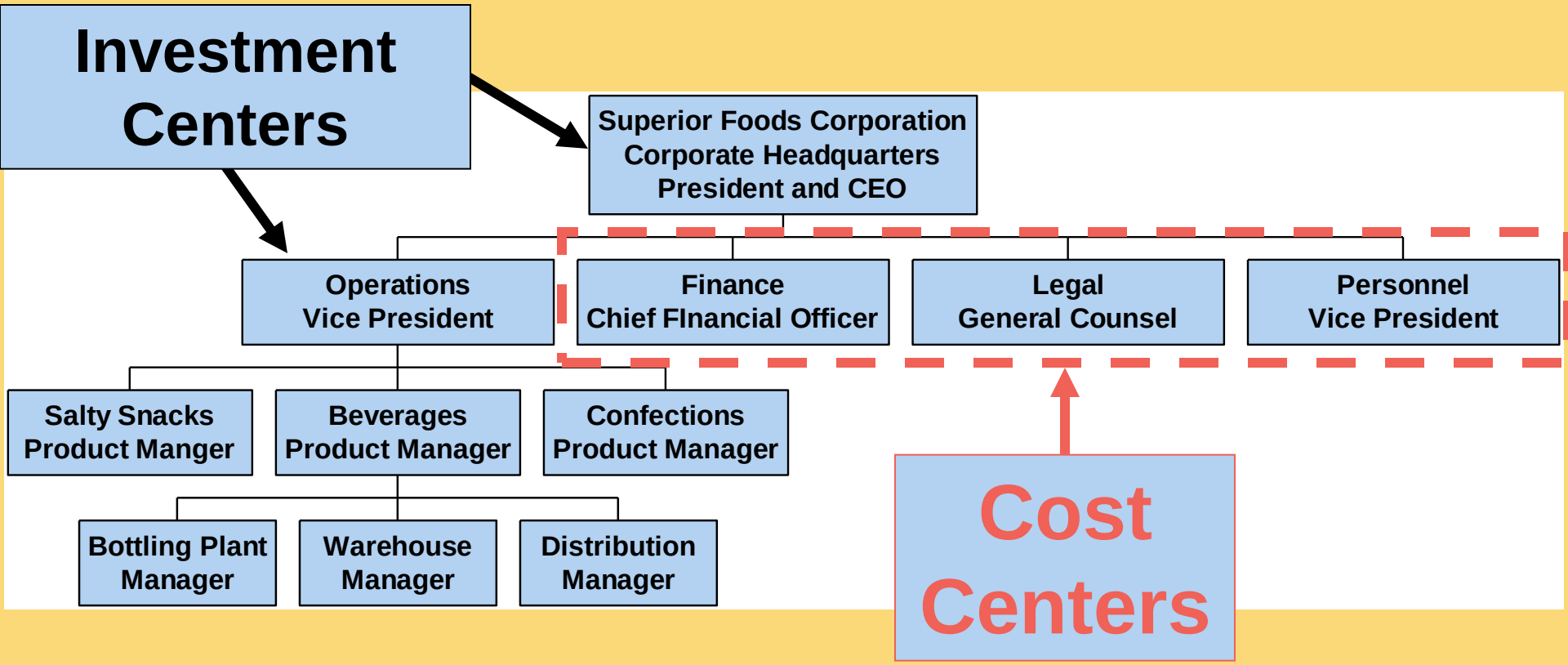


Investment Center

A segment whose manager has control over costs, revenues, and investments in operating assets.

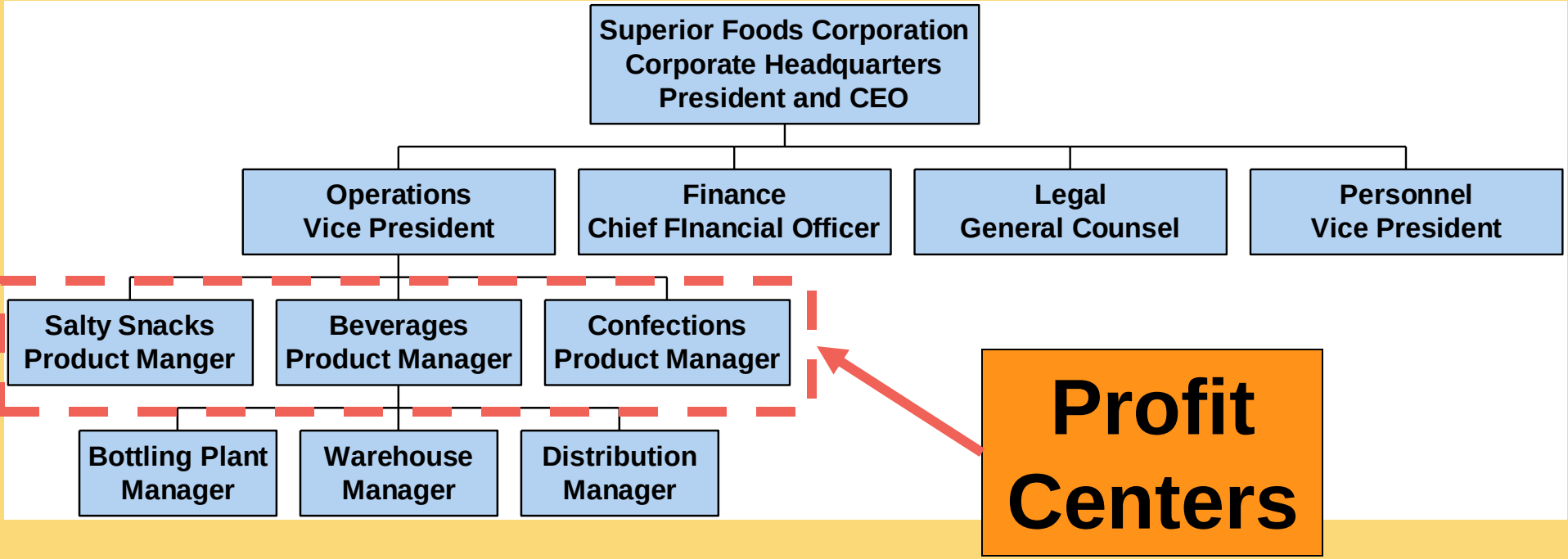
Corporate Headquarters

Responsibility Centers



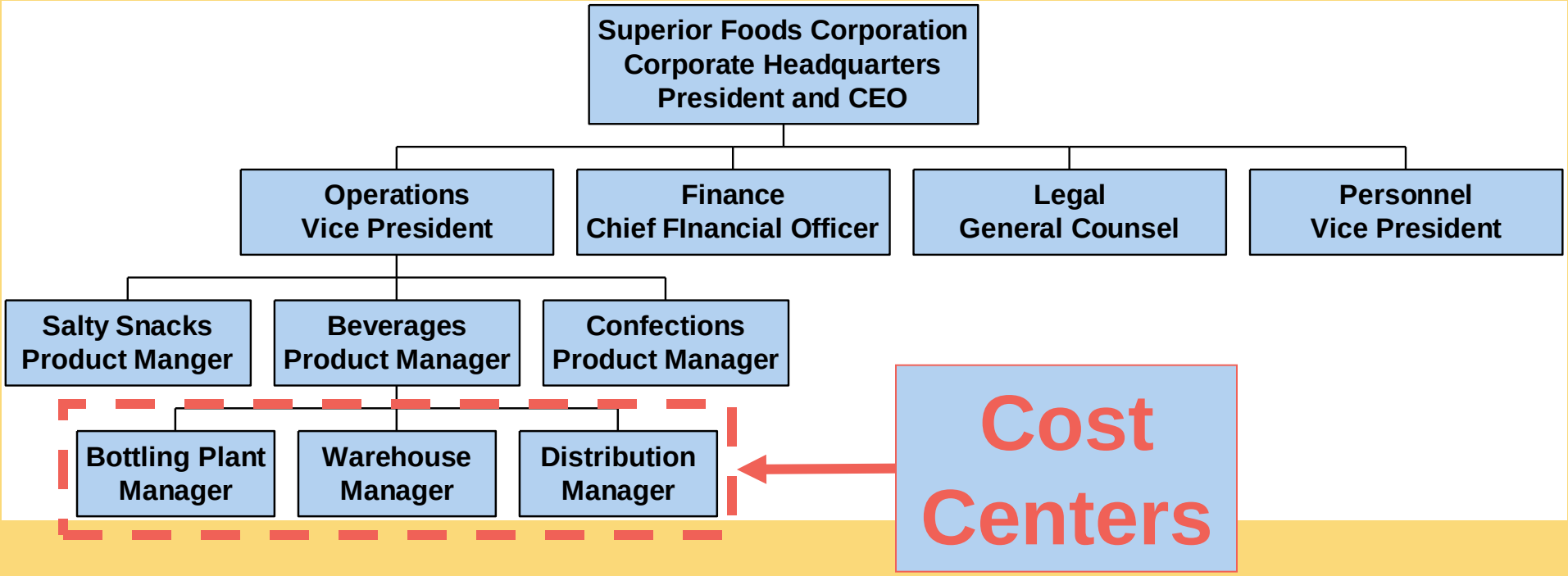
Superior Foods Corporation provides an example of the various kinds of responsibility centers that exist in an organization.

Responsibility Centers



Superior Foods Corporation provides an example of the various kinds of responsibility centers that exist in an organization.

Responsibility Centers



Superior Foods Corporation provides an example of the various kinds of responsibility centers that exist in an organization.

Learning Objective 1

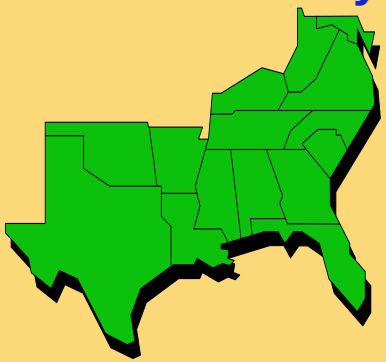
Prepare a segmented income statement using the contribution margin format, and explain the difference between traceable fixed costs and common fixed costs.

Decentralization and Segment Reporting

A **segment** is any part or activity of an organization about which a manager seeks cost, revenue, or profit data. A segment can be . . .

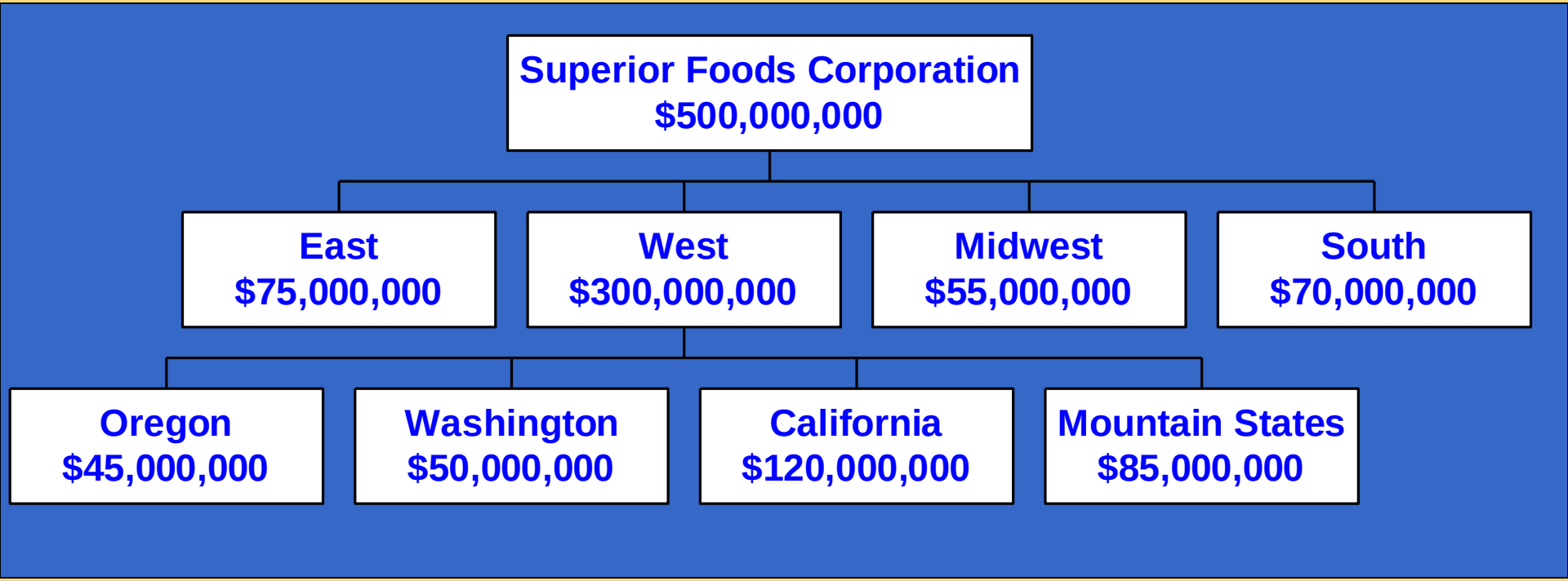
An Individual Store

A Sales Territory



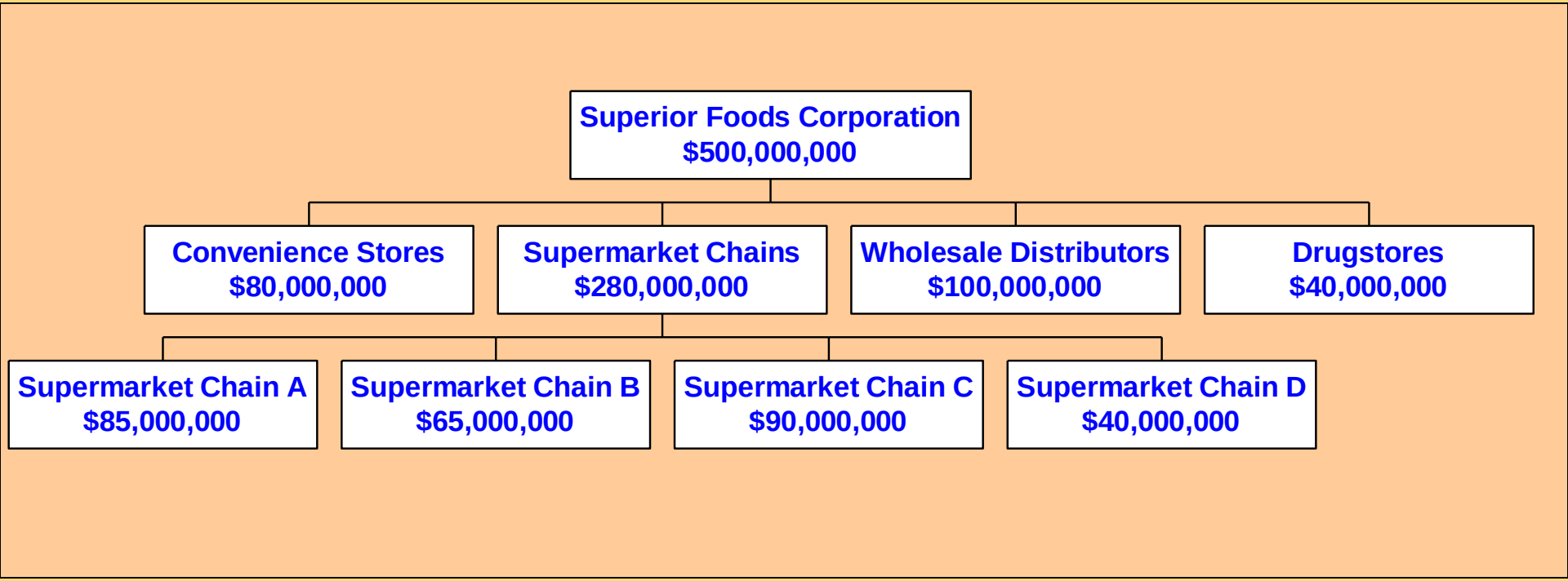
A Service Center

Superior Foods: Geographic Regions



Superior Foods Corporation could segment its business by geographic regions.

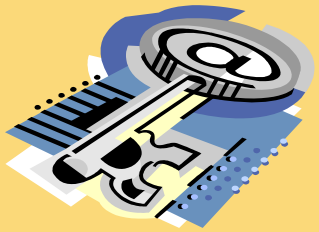
Superior Foods: Customer Channel



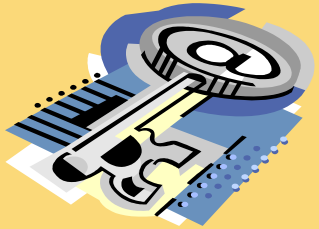
Superior Foods Corporation could segment its business by customer channel.

Keys to Segmented Income Statements

There are two keys to building segmented income statements:



A contribution format should be used because it separates fixed from variable costs and it enables the calculation of a contribution margin.

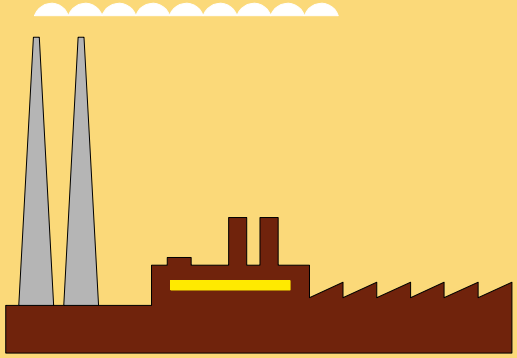


Traceable fixed costs should be separated from common fixed costs to enable the calculation of a segment margin.

Identifying Traceable Fixed Costs

Traceable costs arise because of the existence of a particular segment and would disappear over time if the segment itself disappeared.

No computer division means . . .

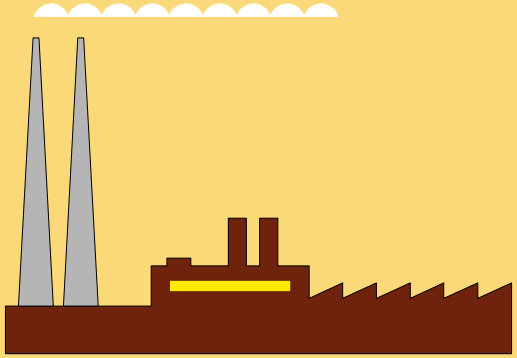


No computer division manager.

Identifying Common Fixed Costs

Common costs arise because of the overall operation of the company and would not disappear if any particular segment were eliminated.

No computer division but . . .



We still have a company president.

Traceable Costs Can Become Common Costs

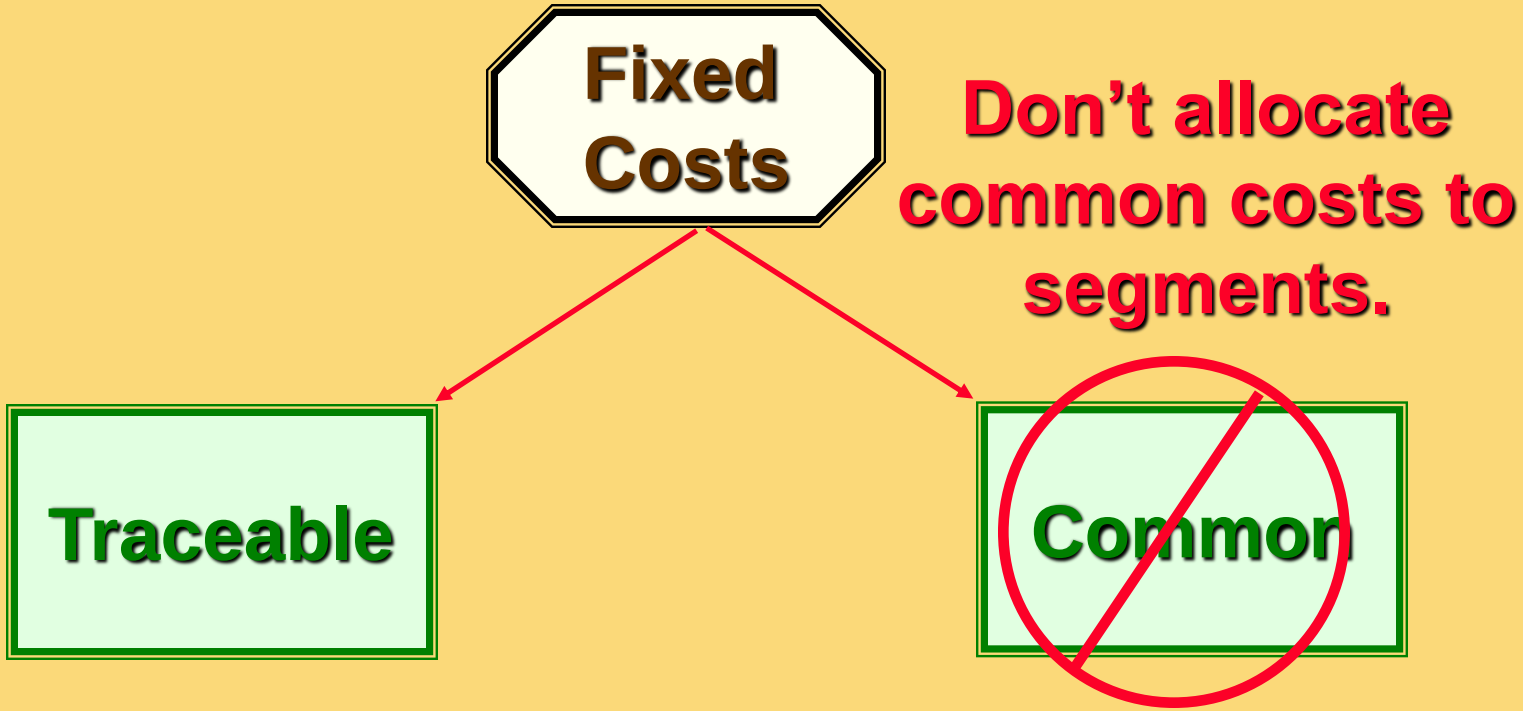
It is important to realize that the traceable fixed costs of one segment may be a common fixed cost of another segment.

For example, the landing fee paid to land an airplane at an airport is traceable to the particular flight, but it is not traceable to first-class, business-class, and economy-class passengers.

Segment Margin

The segment margin, which is computed by subtracting the traceable fixed costs of a segment from its contribution margin, is the best gauge of the long-run profitability of a segment.

Traceable and Common Costs

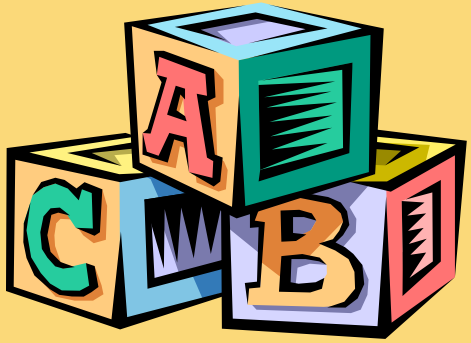


Activity-Based Costing

Activity-based costing can help identify how costs shared by more than one segment are traceable to individual segments.

Assume that three products, 9-inch, 12-inch, and 18-inch pipe, share 10,000 square feet of warehousing space, which is leased at a price of $4 per square foot.

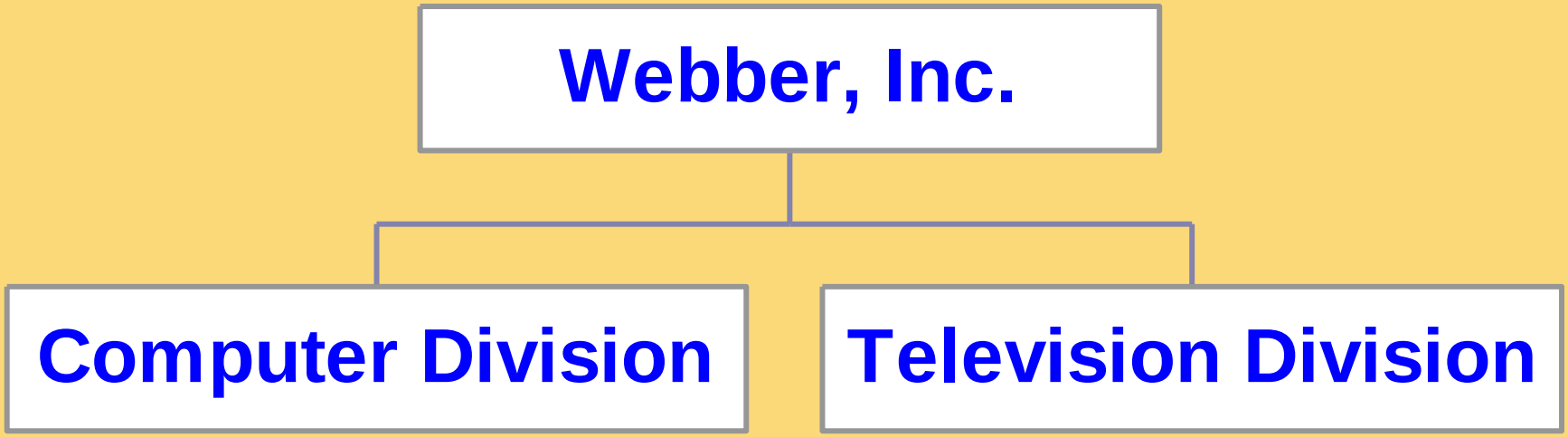
If the 9-inch, 12-inch, and 18-inch pipes occupy 1,000, 4,000, and 5,000 square feet, respectively, then ABC can be used to trace the warehousing costs to the three products as shown.



	Pipe Products			
	9-inch	12-inch	18-inch	Total
Warehouse sq. ft.	1,000	4,000	5,000	10,000
Lease price per sq. ft.	$ 4	$ 4	$ 4	$ 4
Total lease cost	$ 4,000	$ 16,000	$ 20,000	$ 40,000

Levels of Segmented Statements

Webber, Inc. has two divisions.



Let's look more closely at the Television Division's income statement.

Levels of Segmented Statements

Our approach to segment reporting uses the contribution format.

Income Statement Contribution Margin Format Television Division	
Sales	$300,000
Variable COGS	120,000
Other variable costs	30,000
Total variable costs	150,000
Contribution margin	150,000
Traceable fixed costs	90,000
Division margin	$ 60,000

Cost of goods sold consists of variable manufacturing costs.

Fixed and variable costs are listed in separate sections.

Levels of Segmented Statements

Our approach to segment reporting uses the contribution format.

Income Statement Contribution Margin Format Television Division	
Sales	$300,000
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Total variable costs	150,000
Contribution margin	150,000
Traceable fixed costs	90,000
Division margin	$ 60,000

Contribution margin is computed by taking sales minus variable costs.

Segment margin is Television's contribution to profits.

Levels of Segmented Statements

Income Statement			
	Company	Television	Computer
Sales	$ 500,000	$ 300,000	$ 200,000
Variable costs	230,000	150,000	80,000
CM	270,000	150,000	120,000
Traceable FC	170,000	90,000	80,000
Division margin	100,000	$ 60,000	$ 40,000
Common costs			
Net operating income			

Levels of Segmented Statements

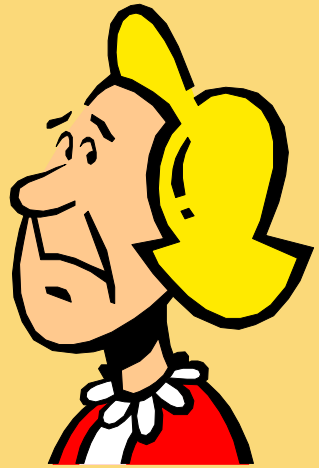
Income Statement			
	Company	Television	Computer
Sales	$ 500,000	$ 300,000	$ 200,000
Variable costs	230,000	150,000	80,000
CM	270,000	150,000	120,000
Traceable FC	170,000	90,000	80,000
Division margin	100,000	$ 60,000	$ 40,000
Common costs	25,000		
Net operating income	$ 75,000		

Common costs should not be allocated to the divisions. These costs would remain even if one of the divisions were eliminated.

Traceable Costs Can Become Common Costs

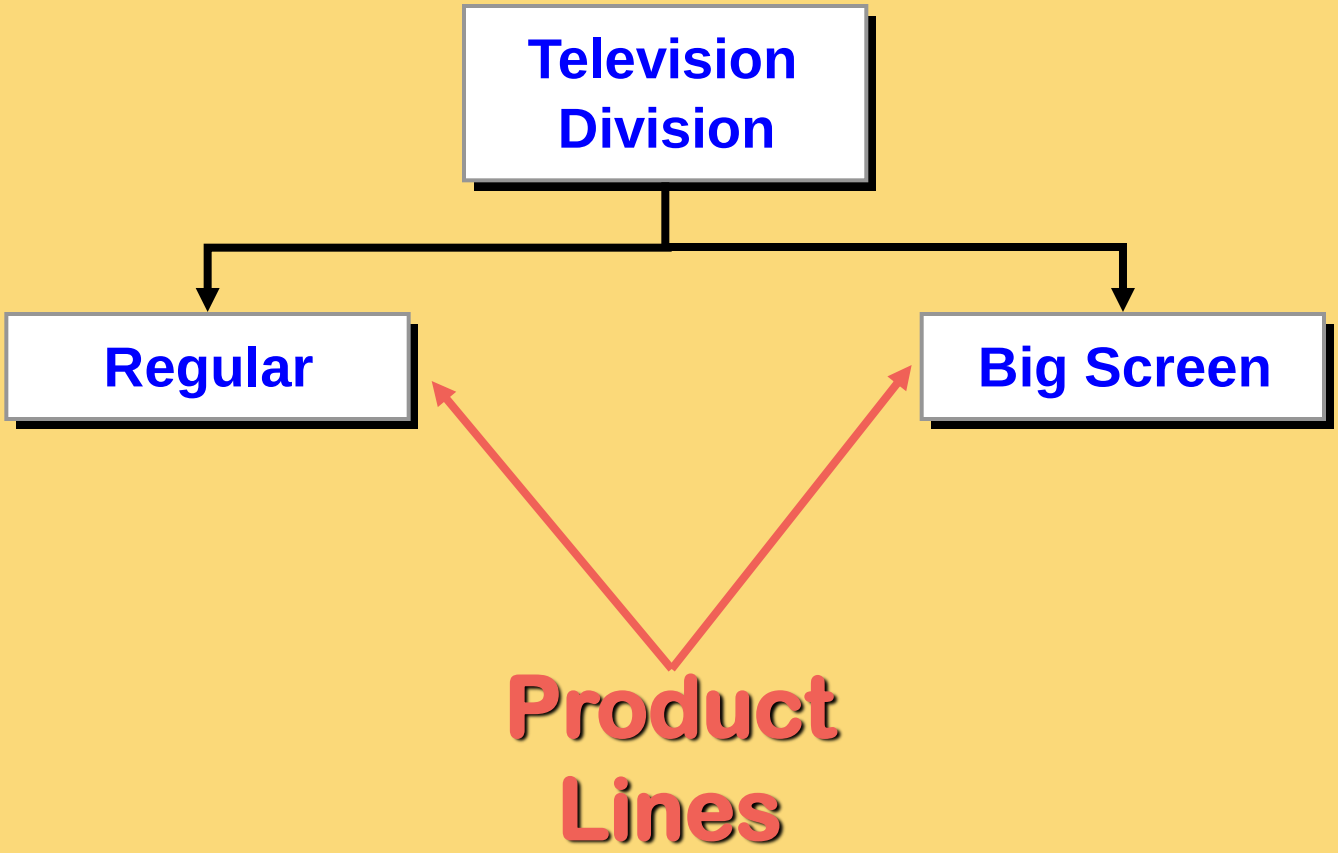
As previously mentioned, fixed costs that are traceable to one segment can become common if the company is divided into smaller segments.

Let's see how this works using the Webber, Inc. example!



Traceable Costs Can Become Common Costs

Webber's Television Division



Traceable Costs Can Become Common Costs

Income Statement			
	Television Division	Regular	Big Screen
Sales		$ 200,000	$ 100,000
Variable costs		95,000	55,000
CM		105,000	45,000
Traceable FC		45,000	35,000
Product line margin		$ 60,000	$ 10,000
Common costs			
Divisional margin			

We obtained the following information from the Regular and Big Screen segments.

Traceable Costs Can Become Common Costs

Income Statement			
	Television Division	Regular	Big Screen
Sales	$ 300,000	$ 200,000	$ 100,000
Variable costs	150,000	95,000	55,000
CM	150,000	105,000	45,000
Traceable FC	80,000	45,000	35,000
Product line margin	70,000	$ 60,000	$ 10,000
Common costs	10,000		
Divisional margin	$ 60,000		

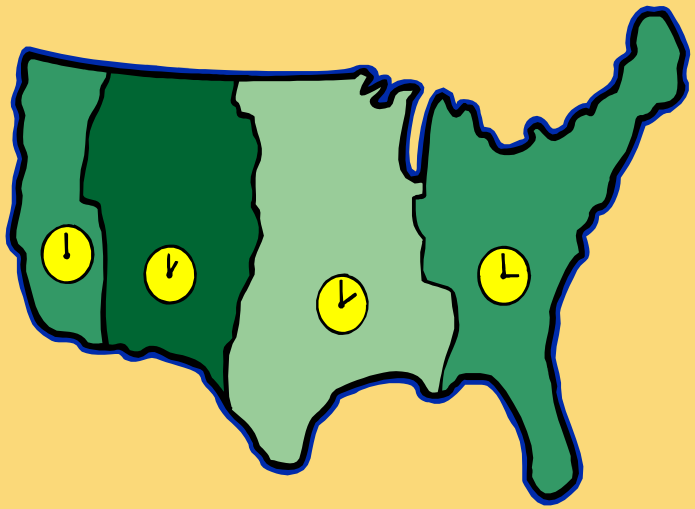
Fixed costs directly traced to the Television Division

$80,000 + $10,000 = $90,000

External Reports

The Financial Accounting Standards Board now requires that companies in the United States include segmented financial data in their annual reports.

1. Companies must report segmented results to shareholders using the same methods that are used for internal segmented reports.
2. Since the contribution approach to segment reporting does not comply with GAAP, it is likely that some managers will choose to construct their segmented financial statements using the absorption approach to comply with GAAP.



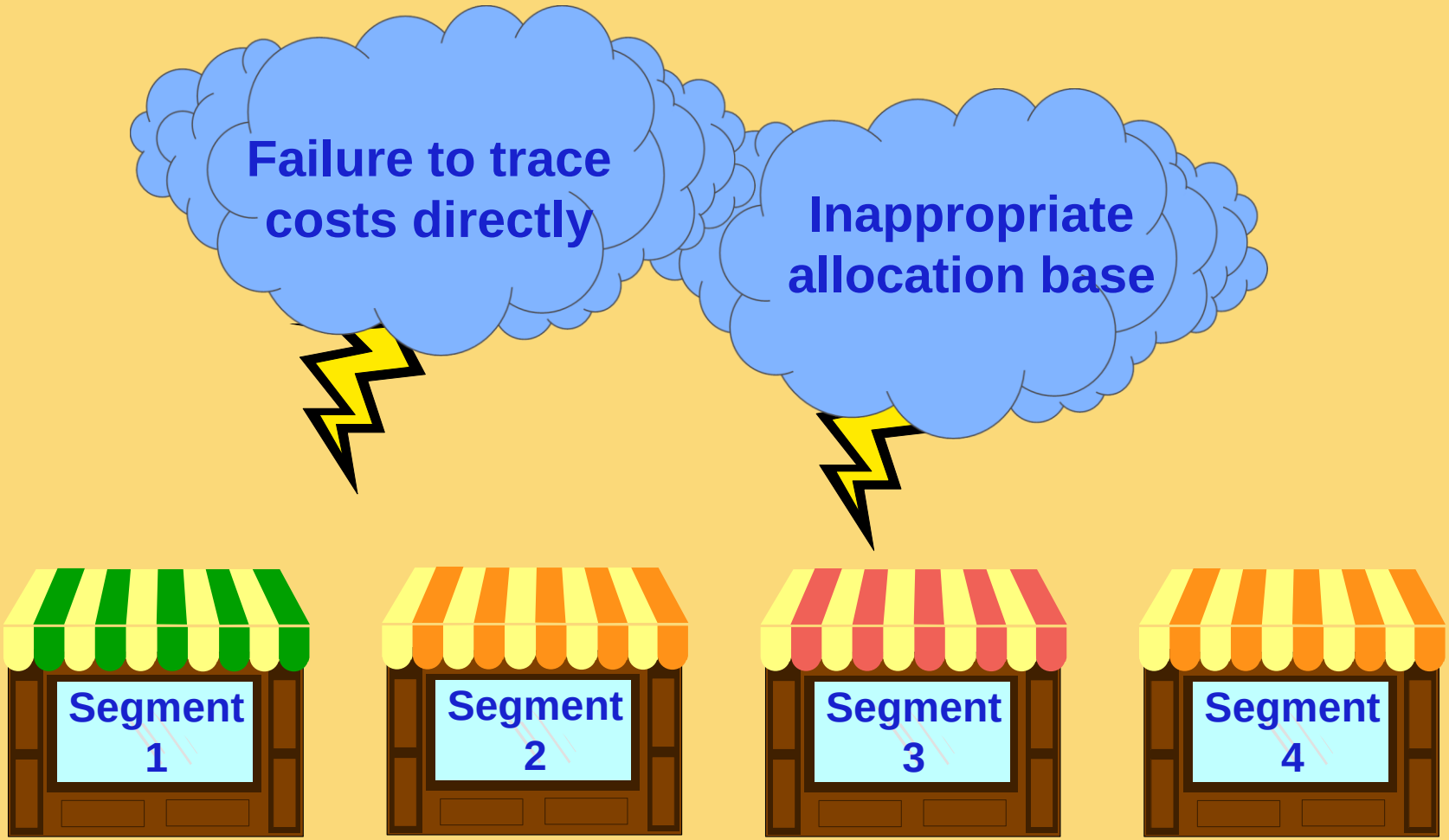
Omission of Costs

Costs assigned to a segment should include all costs attributable to that segment from the company's entire value chain.

Business Functions Making Up The Value Chain

R&D	Product Design	Manufacturing	Marketing	Distribution	Customer Service

Inappropriate Methods of Allocating Costs Among Segments

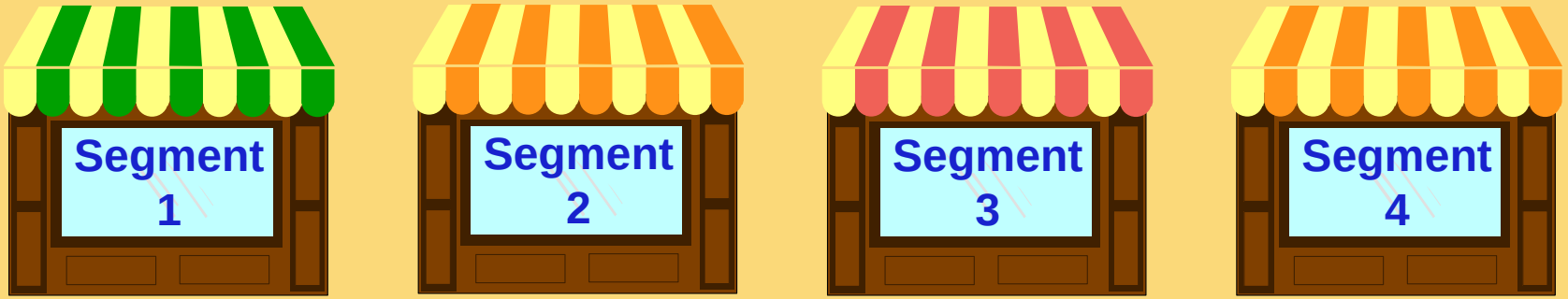


Common Costs and Segments

Common costs should not be arbitrarily allocated to segments based on the rationale that "someone has to cover the common costs" for two reasons:

1. **This practice may make a profitable business segment appear to be unprofitable.**

2. **Allocating common fixed costs forces managers to be held accountable for costs they cannot control.**



Quick Check ✓

Income Statement			
	Haglund's Lakeshore	Bar	Restaurant
Sales	$ 800,000	$ 100,000	$ 700,000
Variable costs	310,000	60,000	250,000
CM	490,000	40,000	450,000
Traceable FC	246,000	26,000	220,000
Segment margin	244,000	$ 14,000	$ 230,000
Common costs	200,000		
Profit	$ 44,000		

Assume that Hoagland's Lakeshore prepared its segmented income statement as shown.

Quick Check ✓

How much of the common fixed cost of $200,000 can be avoided by eliminating the bar?

a. None of it.

b. Some of it.

c. All of it.

Quick Check ✓

How much of the common fixed cost of $200,000 can be avoided by eliminating the bar?

a. None of it.

b. Some of it.

c. All of it.

A common fixed cost cannot be eliminated by dropping one of the segments.

Quick Check ✓

Suppose square feet is used as the basis for allocating the common fixed cost of $200,000. How much would be allocated to the bar if the bar occupies 1,000 square feet and the restaurant 9,000 square feet?

a. $20,000

b. $30,000

c. $40,000

d. $50,000

Quick Check ✓

Suppose square feet is used as the basis for allocating the common fixed cost of $200,000. How much would be allocated to the bar if the bar occupies 1,000 square feet and the restaurant 9,000 square feet?

a. $20,000

b. $30,000

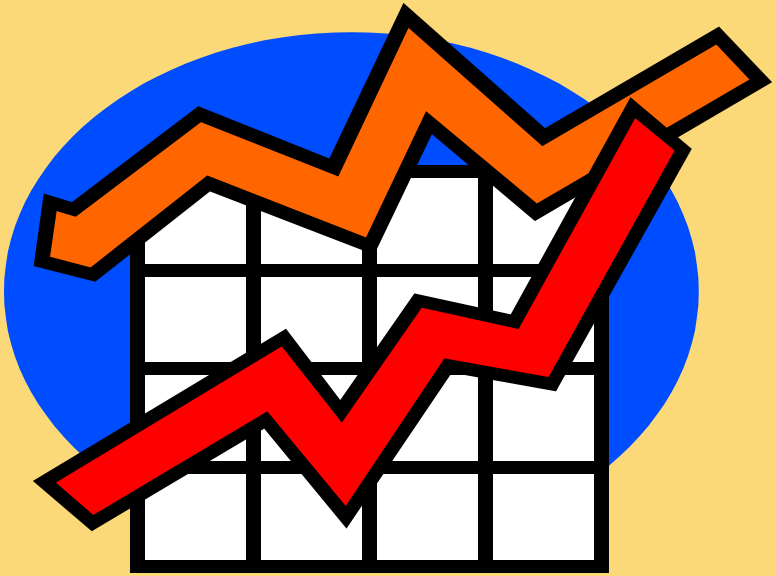
c. $40,000

d. $50,000

The bar would be allocated 1/10 of the cost or $20,000.

Quick Check ✓

If Hoagland's allocates its common costs to the bar and the restaurant, what would be the reported profit of each segment?



Allocations of Common Costs

Income Statement	Haglund's Lakeshore	Bar	Restaurant
Sales	$ 800,000	$ 100,000	$ 700,000
Variable costs	310,000	60,000	250,000
CM	490,000	40,000	450,000
Traceable FC	246,000	26,000	220,000
Segment margin	244,000	14,000	230,000
Common costs	200,000	20,000	180,000
Profit	$ 44,000	$ (6,000)	$ 50,000

Hurray, now everything adds up!!!

Quick Check ✓

Should the bar be eliminated?

a. Yes

b. No

Quick Check ✓

Should the bar be eliminated?

a. Yes

b. No

The profit was $44,000 before eliminating the bar. If we eliminate the bar, profit drops to $30,000!

	Haglund's Lakeshore	Bar	Restaurant
Sales	$ 700,000		$ 700,000
Variable costs	250,000		250,000
CM	450,000		450,000
Traceable FC	220,000		220,000
Segment margin	230,000		230,000
Common costs	200,000		200,000
Profit	$ 30,000		$ 30,000

Learning Objective 2

Compute return on investment (ROI) and show how changes in sales, expenses, and assets affect ROI.

Return on Investment (ROI) Formula

Income before interest and taxes (EBIT)

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Average operating assets}}$$

Cash, accounts receivable, inventory, plant and equipment, and other productive assets.

Net Book Value vs. Gross Cost

Most companies use the net book value of depreciable assets to calculate average operating assets.

Acquisition cost
Less: Accumulated depreciation
Net book value

Understanding ROI

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Average operating assets}}$$

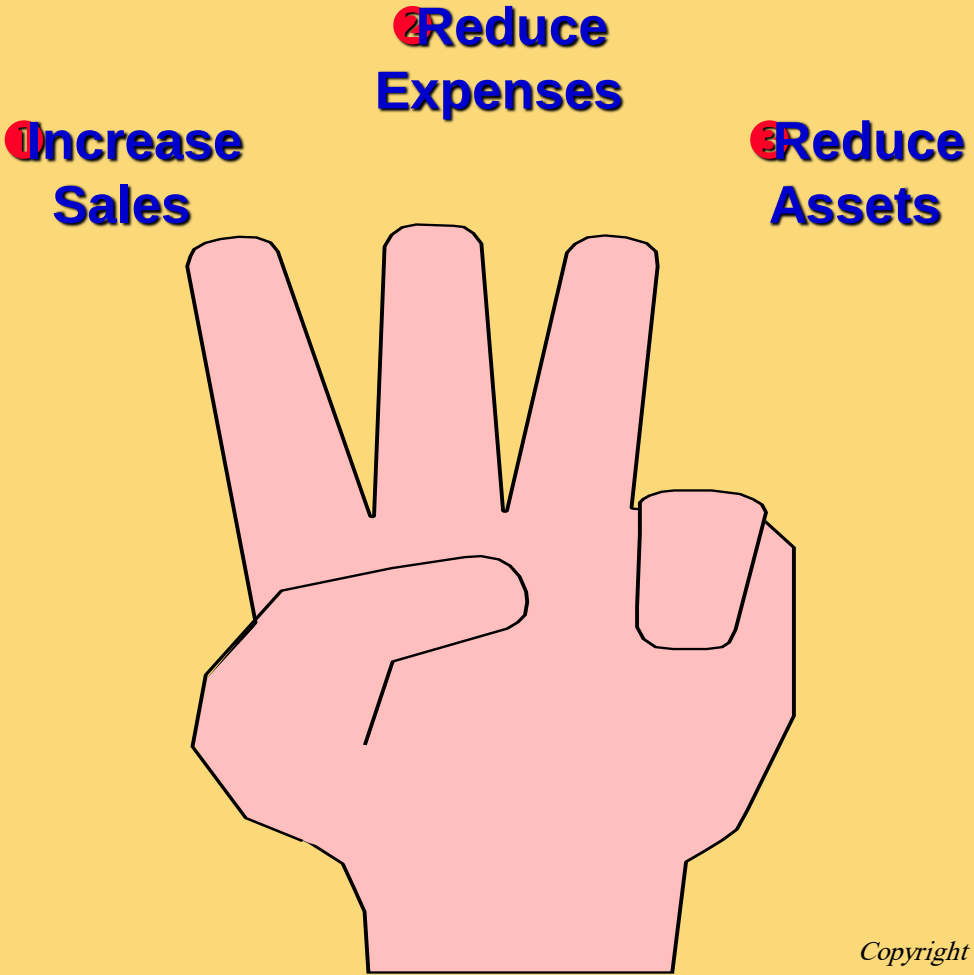
$$\text{Margin} = \frac{\text{Net operating income}}{\text{Sales}}$$

$$\text{Turnover} = \frac{\text{Sales}}{\text{Average operating assets}}$$

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

Increasing ROI

There are three ways to increase ROI . . .



Increasing ROI – An Example

Regal Company reports the following:

Net operating income	$ 30,000
Average operating assets	$ 200,000
Sales	$ 500,000
Operating expenses	$ 470,000

What is Regal Company's ROI?

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

Increasing ROI – An Example

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

$$\text{ROI} = \frac{\$30{,}000}{\$500{,}000} \times \frac{\$500{,}000}{\$200{,}000}$$

$$\text{ROI} = 6\% \times 2.5 = 15\%$$

Increasing Sales Without an Increase in Operating Assets

- Regale's manager was able to increase sales to $600,000, while operating expenses increased to $558,000.
- Regale's net operating income increased to $42,000.
- There was no change in the average operating assets of the segment.

Let's calculate the new ROI.

Increasing Sales Without an Increase in Operating Assets

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

$$\text{ROI} = \frac{\$42{,}000}{\$600{,}000} \times \frac{\$600{,}000}{\$200{,}000}$$

$$\text{ROI} = 7\% \times 3.0 = 21\%$$

ROI increased from 15% to 21%.

Decreasing Operating Expenses with no Change in Sales or Operating Assets

Assume that Regale's manager was able to reduce operating expenses by $10,000, without affecting sales or operating assets. This would increase net operating income to $40,000.

Regal Company reports the following:

Net operating income	$ 40,000
Average operating assets	$ 200,000
Sales	$ 500,000
Operating expenses	$ 460,000

Let's calculate the new ROI.

Decreasing Operating Expenses with no Change in Sales or Operating Assets

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

$$\text{ROI} = \frac{\$40{,}000}{\$500{,}000} \times \frac{\$500{,}000}{\$200{,}000}$$

$$\text{ROI} = 8\% \times 2.5 = 20\%$$

ROI increased from 15% to 20%.

Decreasing Operating Assets with no Change in Sales or Operating Expenses

Assume that Regale's manager was able to reduce inventories by $20,000 using just-in-time techniques, without affecting sales or operating expenses.

Regal Company reports the following:

Net operating income	$ 30,000
Average operating assets	$ 180,000
Sales	$ 500,000
Operating expenses	$ 470,000

Let's calculate the new ROI.

Decreasing Operating Assets with no Change in Sales or Operating Expenses

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

$$\text{ROI} = \frac{\$30{,}000}{\$500{,}000} \times \frac{\$500{,}000}{\$180{,}000}$$

$$\text{ROI} = 6\% \times 2.78 = 16.7\%$$

ROI increased from 15% to 16.7%.

Investing in Operating Assets to Increase Sales

Assume that Regale's manager invests in a $30,000 piece of equipment that increases sales by $35,000, while increasing operating expenses by $15,000.

Regal Company reports the following:

Net operating income	$ 50,000
Average operating assets	$ 230,000
Sales	$ 535,000
Operating expenses	$ 485,000

Let's calculate the new ROI.

Investing in Operating Assets to Increase Sales

$$\text{ROI} = \text{Margin} \times \text{Turnover}$$

$$\text{ROI} = \frac{\text{Net operating income}}{\text{Sales}} \times \frac{\text{Sales}}{\text{Average operating assets}}$$

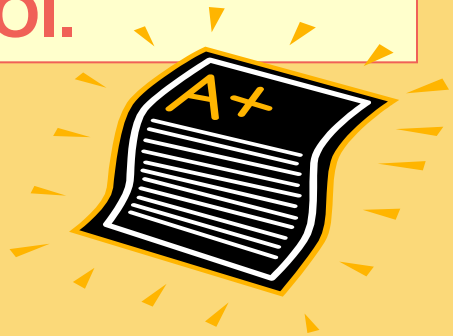
$$\text{ROI} = \frac{\$50{,}000}{\$535{,}000} \times \frac{\$535{,}000}{\$230{,}000}$$

$$\text{ROI} = 9.35\% \times 2.33 = 21.8\%$$

ROI increased from 15% to 21.8%.

ROI and the Balanced Scorecard

It may not be obvious to managers how to increase sales, decrease costs, and decrease investments in a way that is consistent with the company's strategy. A well constructed **balanced scorecard** can provide managers with a **road map** that indicates how the company intends to increase ROI.



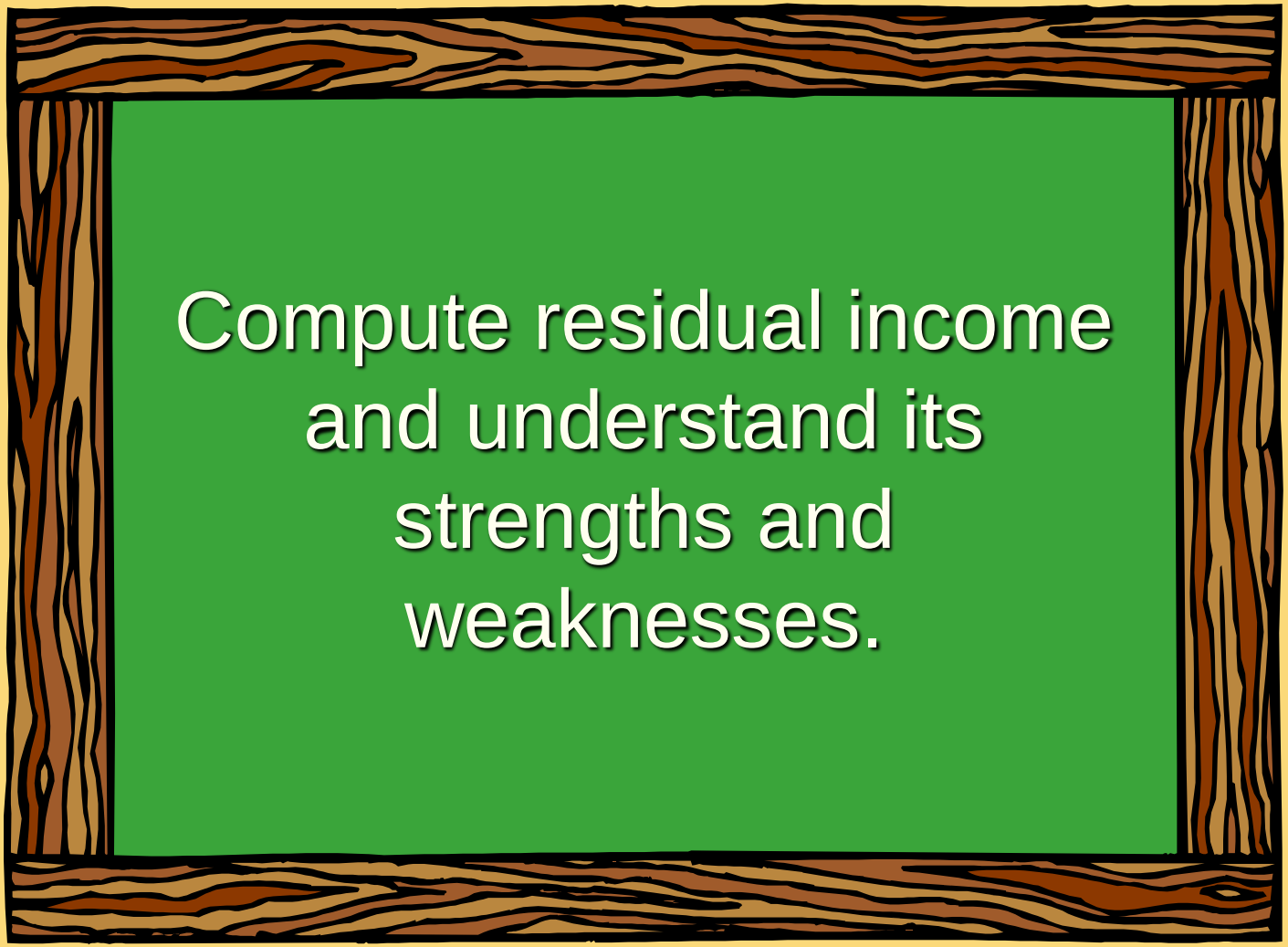
Which internal business process should be improved?

Which customers should be targeted and how will they be attracted and retained at a profit?

Criticisms of ROI

- In the absence of the balanced scorecard, management may not know how to increase ROI.
- Managers often inherit many committed costs over which they have no control.
- Managers evaluated on ROI may reject profitable investment opportunities.

Learning Objective 3



Residual Income - Another Measure of Performance

Calculating Residual Income

$$\text{Residual income} = \text{Net operating income} - \left(\text{Average operating assets} \times \text{Minimum required rate of return}\right)$$

This computation differs from ROI.

ROI measures net operating income earned relative to the investment in average operating assets.

Residual income measures net operating income earned less the minimum required return on average operating assets.

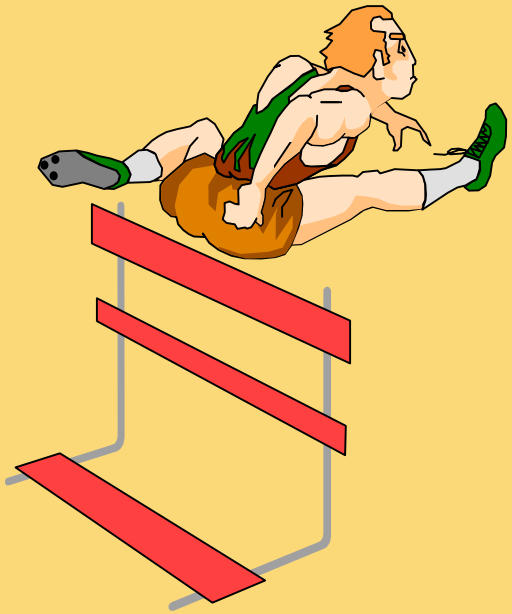
Residual Income – An Example

- The Retail Division of Zephyr, Inc. has average operating assets of $100,000 and is required to earn a return of 20% on these assets.
- In the current period, the division earns $30,000.

Let's calculate residual income.

Residual Income – An Example

Operating assets	$100,000
Required rate of return ×	20%
Minimum required return	$ 20,000



Actual income	$ 30,000
Minimum required return	(20,000)
Residual income	$ 10,000

Motivation and Residual Income

Residual income encourages managers to make profitable investments that would be rejected by managers using ROI.

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. The required rate of return for the company is 15%. What is the division's ROI?

a. 25%

b. 5%

c. 15%

d. 20%

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. The required rate of return for the company is 15%. What is the division's ROI?

a. 25%

b. 5%

c. 15%

d. 20%

ROI = NOI/Average operating assets

= $60,000/$300,000 = 20%

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. If the manager of the division is evaluated based on ROI, will she want to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. If the manager of the division is evaluated based on ROI, will she want to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

ROI = $78,000/$400,000 = 19.5%

This lowers the division's ROI from 20.0% down to 19.5%.

Quick Check ✓

The company's required rate of return is 15%. Would the company want the manager of the Redmond Awnings division to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

Quick Check ✓

The company's required rate of return is 15%. Would the company want the manager of the Redmond Awnings division to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

ROI = $18,000/$100,000 = 18%

The return on the investment exceeds the minimum required rate of return.

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. The required rate of return for the company is 15%. What is the division's residual income?

a. $240,000

b. $ 45,000

c. $ 15,000

d. $ 51,000

Quick Check ✓

Redmond Awnings, a division of Wrap-up Corp., has a net operating income of $60,000 and average operating assets of $300,000. The required rate of return for the company is 15%. What is the division's residual income?

a. $240,000

b. $ 45,000

c. $ 15,000

d. $ 51,000

Net operating income	**$60,000**
Required return (15% of $300,000)	**(45,000)**
Residual income	**$15,000**

Quick Check ✓

If the manager of the Redmond Awnings division is evaluated based on residual income, will she want to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

Quick Check ✓

If the manager of the Redmond Awnings division is evaluated based on residual income, will she want to make an investment of $100,000 that would generate additional net operating income of $18,000 per year?

a. Yes

b. No

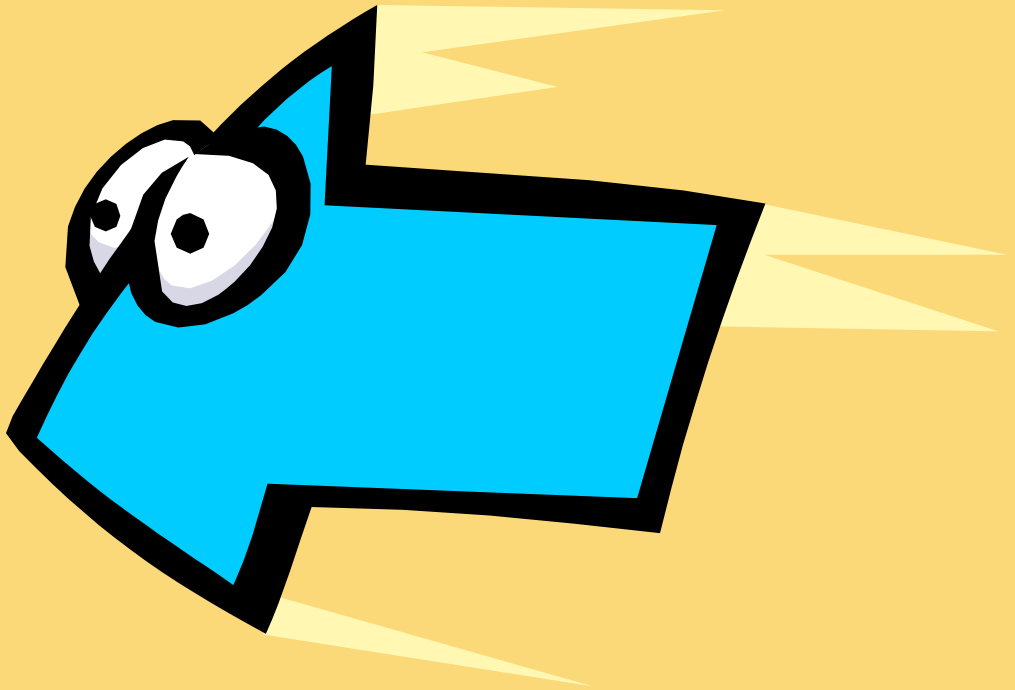
Net operating income	$78,000
Required return (15% of $400,000)	(60,000)
Residual income	$18,000

Yields an increase of $3,000 in the residual income.

Divisional Comparisons and Residual Income

The residual income approach has one major disadvantage.

It cannot be used to compare performance of divisions of different sizes.



Zephyr, Inc. - Continued

Recall the following information for the Retail Division of Zephyr, Inc.

Assume the following information for the Wholesale Division of Zephyr, Inc.

	Retail	Wholesale
Operating assets	$ 100,000	$ 1,000,000
Required rate of return ×	20%	20%
Minimum required return	$ 20,000	$ 200,000

	Retail	Wholesale
Actual income	$ 30,000	$ 220,000
Minimum required return	(20,000)	(200,000)
Residual income	$ 10,000	$ 20,000

Zephyr, Inc. - Continued

The residual income numbers suggest that the Wholesale Division outperformed the Retail Division because its residual income is $10,000 higher. However, the Retail Division earned an ROI of 30% compared to an ROI of 22% for the Wholesale Division. The Wholesale Division's residual income is larger than the Retail Division simply because it is a bigger division.

	Retail	Wholesale
Operating assets	$ 100,000	$ 1,000,000
Required rate of return ×	20%	20%
Minimum required return	$ 20,000	$ 200,000

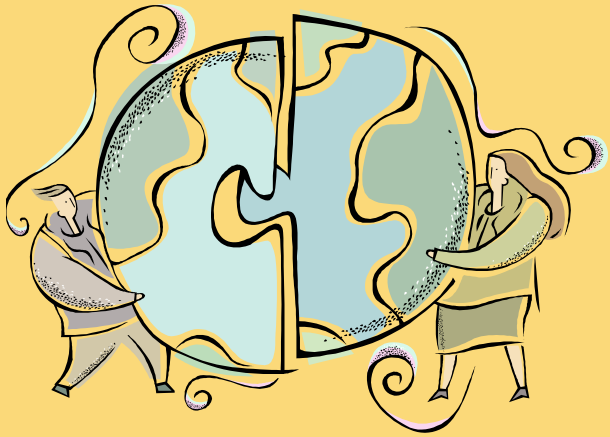
	Retail	Wholesale
Actual income	$ 30,000	$ 220,000
Minimum required return	(20,000)	(200,000)
Residual income	$ 10,000	$ 20,000

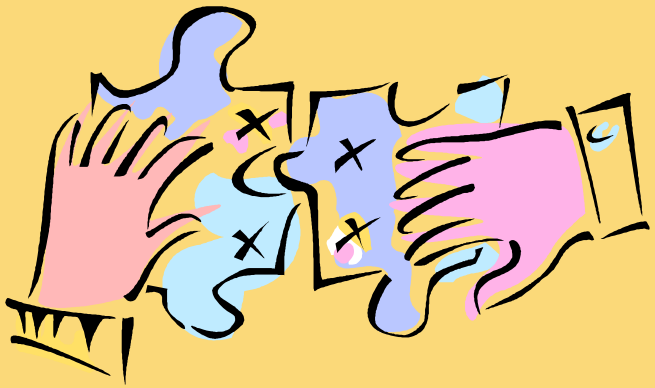
Transfer Pricing

Appendix 12A

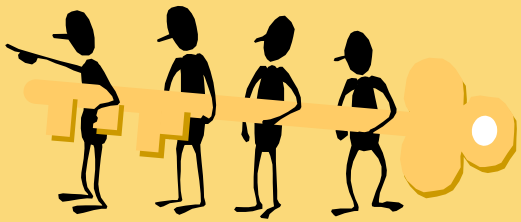
Key Concepts/Definitions

A transfer price is the price charged when one segment of a company provides goods or services to another segment of the company.

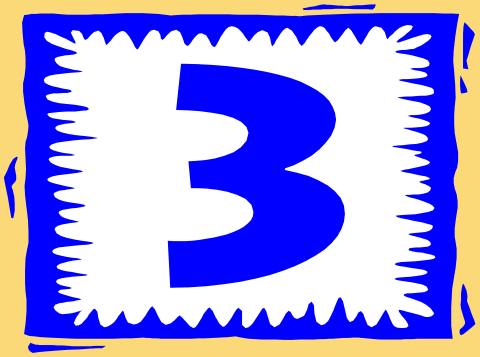




The fundamental objective in setting transfer prices is to motivate managers to act in the best interests of the overall company.



Three Primary Approaches



There are three primary approaches to setting transfer prices:

1. **Negotiated transfer prices;**
2. **Transfers at the cost to the selling division; and**
3. **Transfers at market price.**

Learning Objective 4

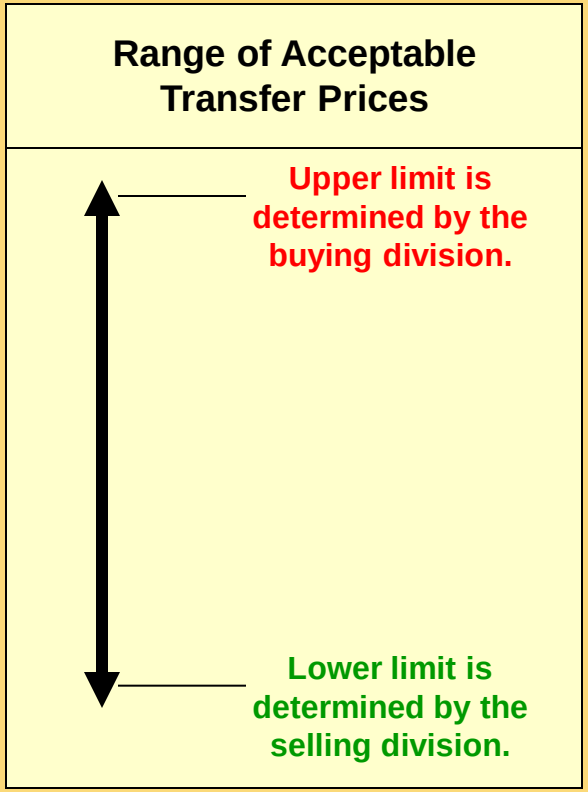
Determine the range, if any, within which a negotiated transfer price should fall.

Negotiated Transfer Prices

A negotiated transfer price results from discussions between the selling and buying divisions.

Advantages of negotiated transfer prices:

1. They preserve the autonomy of the divisions, which is consistent with the spirit of decentralization.
2. The managers negotiating the transfer price are likely to have much better information about the potential costs and benefits of the transfer than others in the company.



Harris and Louder – An Example

Assume the information as shown with respect to Imperial Beverages and Pizza Maven (both companies are owned by Harris and Louder).

Imperial Beverages:		
Ginger beer production capactiy per month	10,000	barrels
Variable cost per barrel of ginger beer	£8	per barrel
Fixed costs per month	£70,000	
Selling price of Imperial Beverages ginger beer on the outside market	£20	per barrel
Pizza Maven:		
Purchase price of regular brand of ginger beer	£18	per barrel
Monthly comsumption of ginger beer	2,000	barrels

Harris and Louder – An Example

The selling division's (Imperial Beverages) lowest acceptable transfer price is calculated as:

$$\text{Transfer Price} \geq \text{Variable cost per unit} + \frac{\text{Total contribution margin on lost sales}}{\text{Number of units transferred}}$$

Let's calculate the lowest and highest acceptable transfer prices under three scenarios.

The buying division's (Pizza Maven) highest acceptable transfer price is calculated as:

$$\text{Transfer Price} \leq \text{Cost of buying from outside supplier}$$

If an outside supplier does not exist, the highest acceptable transfer price is calculated as:

$$\text{Transfer Price} \leq \text{Profit to be earned per unit sold (not including the transfer price)}$$

Harris and Louder – An Example

If Imperial Beverages has sufficient idle capacity (3,000 barrels) to satisfy Pizza Maven's demands (2,000 barrels), without sacrificing sales to other customers, then the lowest and highest possible transfer prices are computed as follows:

Selling division's lowest possible transfer price:

$$\text{Transfer Price} \geq £8 + \frac{£0}{2{,}000} = £8$$

Buying division's highest possible transfer price:

$$\text{Transfer Price} \leq \text{Cost of buying from outside supplier} = £18$$

Therefore, the range of acceptable transfer price is £8 – £18.

Harris and Louder – An Example

If Imperial Beverages has no idle capacity (0 barrels) and must sacrifice other customer orders (2,000 barrels) to meet Pizza Maven's demands (2,000 barrels), then the lowest and highest possible transfer prices are computed as follows:

Selling division's lowest possible transfer price:

$$\text{Transfer Price} \geq £8 + \frac{(£20 - £8) \times 2{,}000}{2{,}000} = £20$$

Buying division's highest possible transfer price:

$$\text{Transfer Price} \leq \text{Cost of buying from outside supplier} = £18$$

Therefore, there is no range of acceptable transfer prices.

Harris and Louder – An Example

If Imperial Beverages has some idle capacity (1,000 barrels) and must sacrifice other customer orders (1,000 barrels) to meet Pizza Maven's demands (2,000 barrels), then the lowest and highest possible transfer prices are computed as follows:

Selling division's lowest possible transfer price:

$$\text{Transfer Price} \geq £8 + \frac{(£20 - £8) \times 1{,}000}{2{,}000} = £14$$

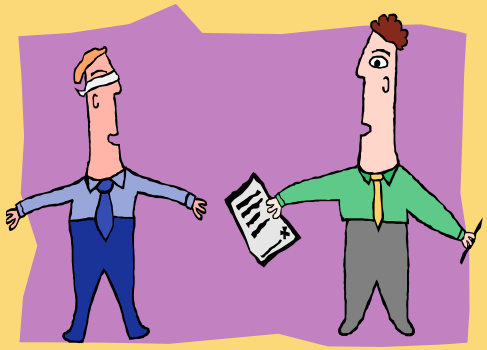
Buying division's highest possible transfer price:

$$\text{Transfer Price} \leq \text{Cost of buying from outside supplier} = £18$$

Therefore, the range of acceptable transfer price is £14 – £18.

Evaluation of Negotiated Transfer Prices

If a transfer within a company would result in higher overall profits for the company, there is **always** a range of transfer prices within which both the selling and buying divisions would have higher profits if they agree to the transfer.



If managers are pitted against each other rather than against their past performance or reasonable benchmarks, a **no cooperative atmosphere** is almost guaranteed.

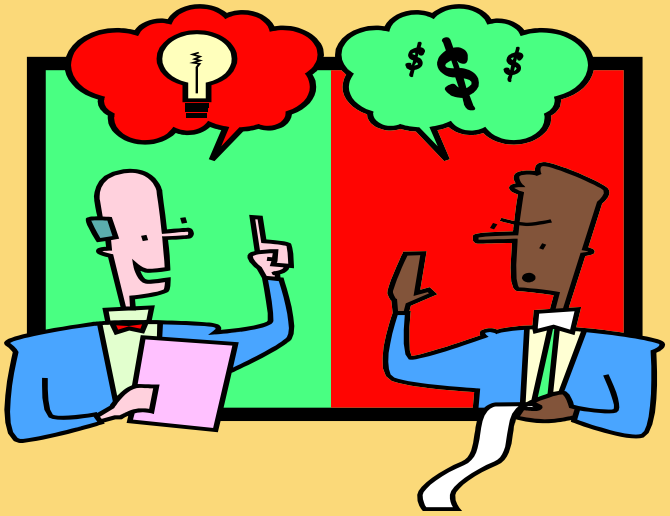
Given the disputes that often accompany the negotiation process, **most companies rely on some other means of setting transfer prices**.

Transfers at the Cost to the Selling Division

Many companies set transfer prices at either the variable cost or full (absorption) cost incurred by the selling division.

Drawbacks of this approach include:

1. **Using full cost as a transfer price and can lead to suboptimization.**
2. **The selling division will never show a profit on any internal transfer.**
3. **Cost-based transfer prices do not provide incentives to control costs.**



Transfers at Market Price

A market price (i.e., the price charged for an item on the open market) is often regarded as the best approach to the transfer pricing problem.

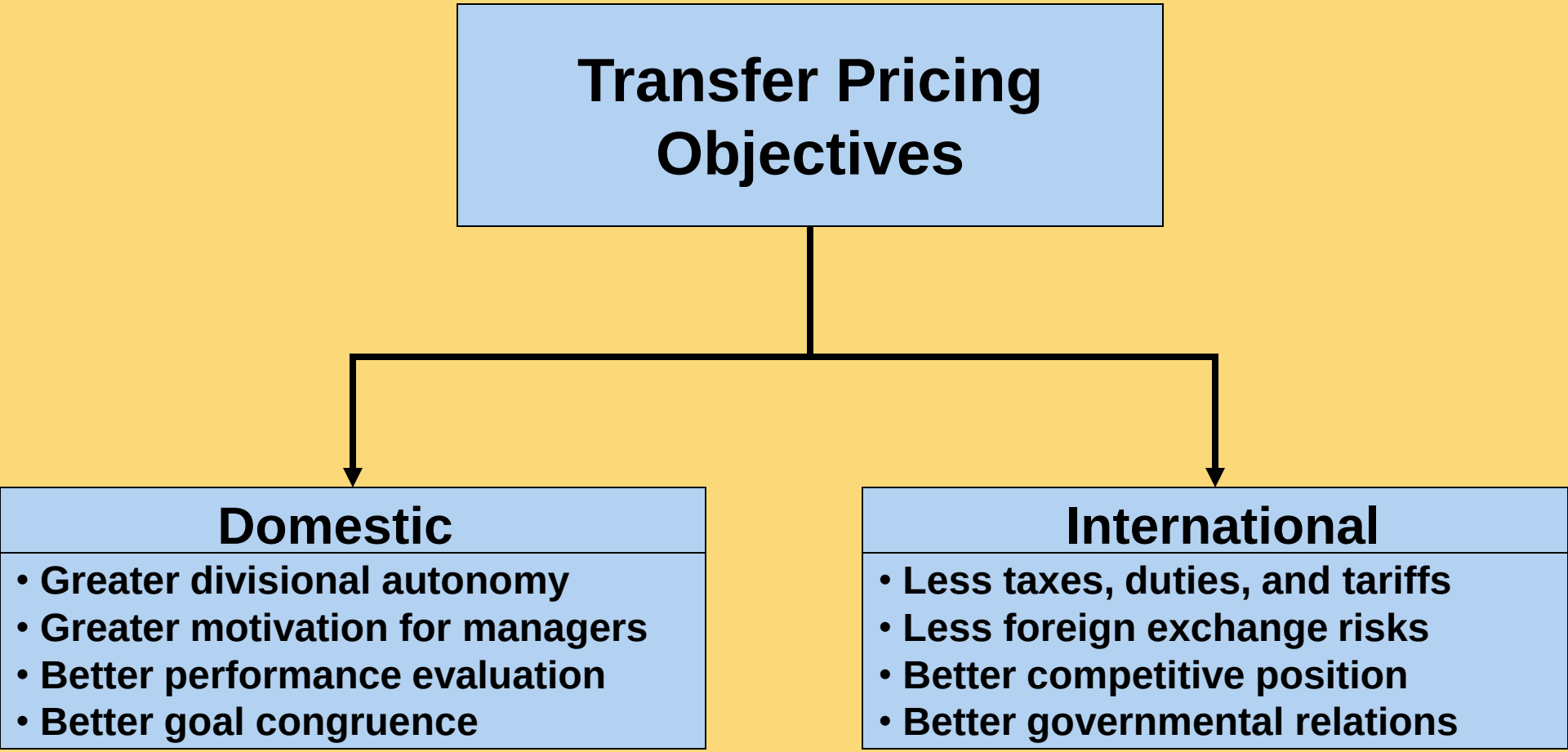
1. A market price approach works best when the product or service is sold in its present form to outside customers and the selling division has no idle capacity.
2. A market price approach does not work well when the selling division has idle capacity.

Divisional Autonomy and Sub optimization

The principles of decentralization suggest that companies should grant managers autonomy to set transfer prices and to decide whether to sell internally or externally, even if this may occasionally result in suboptimal decisions.

This way top management allows subordinates to control their own destiny.

International Aspects of Transfer Pricing



Service Department Charges

Appendix 12B

Learning Objective 5

Charge operating departments for services provided by service departments.

Service Department Charges

Operating Departments

Carry out central purposes of organization.

Service Departments

Do not directly engage in operating activities.

Reasons for Charging Service Department Costs

Service department costs are charged to operating departments for a variety of reasons including:

To encourage operating departments to wisely use service department resources.

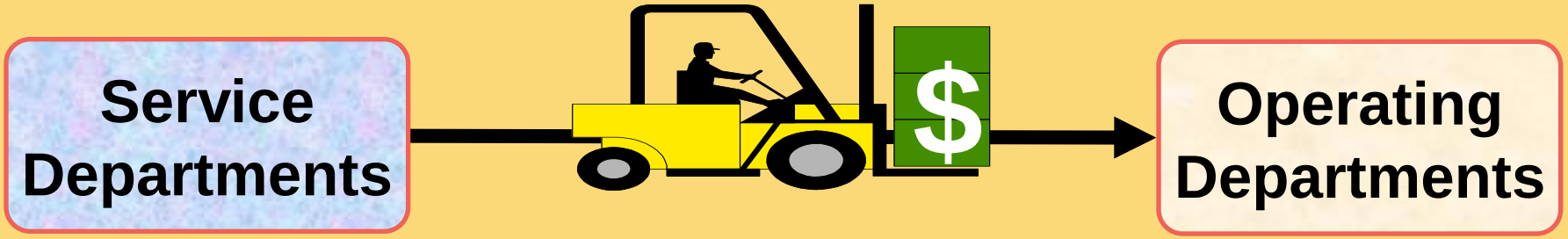
To provide operating departments with more complete cost data for making decisions.

To help measure the profitability of operating departments.

To create an incentive for service departments to operate efficiently

Transfer Prices

The service department charges considered in this appendix can be viewed as a transfer price that is charged for services provided by service departments to operating departments.



Charging Costs by Behavior

Whenever possible, variable and fixed service department costs should be charged separately.

Charging Costs by Behavior

Variable service department costs should be charged to consuming departments according to whatever activity causes the incurrence of the cost.

Charging Costs by Behavior

Charge fixed service department costs to consuming departments in predetermined lump-sum amounts that are based on the consuming departments' peak-period or long-run average servicing needs.

- Are based on amounts of capacity each consuming department requires.
- Should not vary from period to period.

Should Actual or Budgeted Costs Be Charged?

Budgeted variable and fixed service department costs should be charged to operating departments.

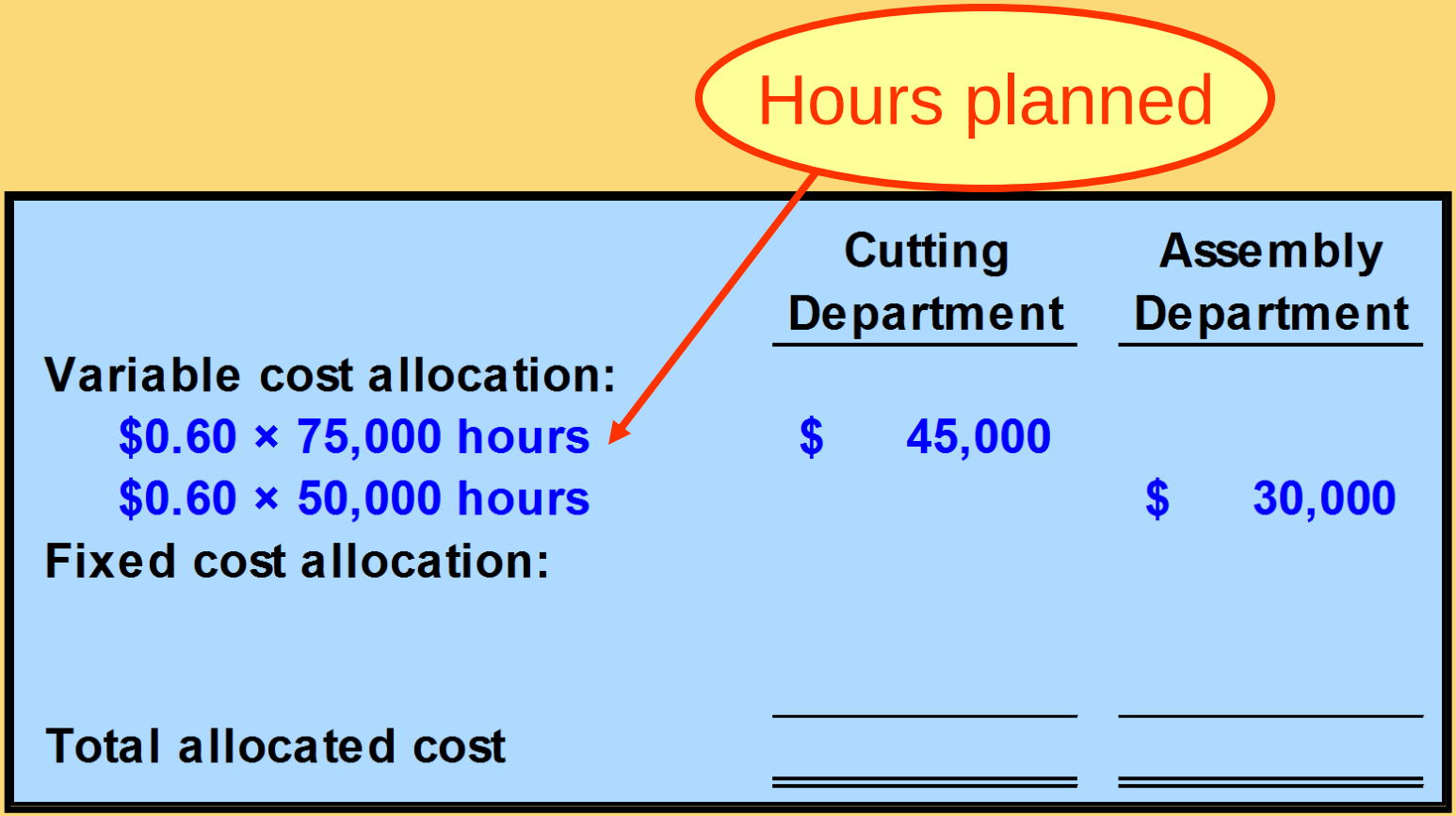
Sipco: An Example

Sipco has a maintenance department and two operating departments: cutting and assembly. Variable maintenance costs are budgeted at $0.60 per machine hour. Fixed maintenance costs are budgeted at $200,000 per year. Data relating to the current year are:

Operating Departments	Percent of Peak-Period Capacity Required	Hours Planned	Hours Used
Cutting	60%	75,000	80,000
Assembly	40%	50,000	40,000
Total hours	100%	125,000	120,000

Allocate maintenance costs to the two operating departments.

Sipco: Beginning of the Year



Sipco: Beginning of the Year

Hours planned

	Cutting Department	Assembly Department
Variable cost allocation:		
$0.60 × 75,000 hours	$ 45,000	
$0.60 × 50,000 hours		$ 30,000
Fixed cost allocation:		
60% of $200,000	120,000	
40% of $200,000		80,000
Total allocated cost	$ 165,000	$ 110,000

Percent of peak-period capacity.

Quick Check ✓

Foster City has an ambulance service that is used by the two public hospitals in the city. Variable ambulance costs are budgeted at $4.20 per mile. Fixed ambulance costs are budgeted at $120,000 per year. Data relating to the current year are:

Hospitals	Percent of Peak-Period Capacity Required	Miles Planned	Miles Used
Mercy	45%	15,000	16,000
Northside	55%	17,000	17,500
Total	100%	32,000	33,500

Quick Check ✓

How much ambulance service cost will be allocated to Mercy Hospital at the beginning of the year?

a. $117,000

b. $254,400

c. $114,480

d. $119,250

Quick Check ✓

How much ambulance service cost will be allocated to Mercy Hospital at the beginning of the year?

a. $117,000

b. $254,400

	Mercy	Northside
Variable cost allocation:		
$4.20 × 15,000 miles	$ 63,000	
$4.20 × 17,000 miles		$ 71,400
Fixed cost allocation		
45% of $120,000	54,000	
55% of $120,000		66,000
Total allocated cost	$ 117,000	$ 137,400

Pitfalls in Allocating Fixed Costs

Pitfall 1

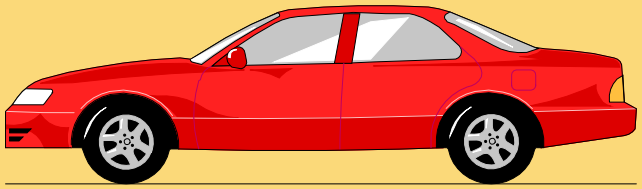
Allocating fixed costs using a variable allocation base

Result

Fixed costs allocated to one department are heavily influenced by what happens in other departments.

Colby Products: An Example

Colby Products has two sales territories, the Eastern Territory and the Western Territory. Both sales territories are serviced by one auto service center, whose costs are all fixed. Contrary to good practice, Colby allocates the fixed service center costs to the sales territories on the basis of actual miles driven (a variable base).



Colby Products: An Example

	Year 1	Year 2
Auto service center costs (all fixed)	$ 120,000	$ 120,000
Miles driven		
Western sales territory	1,500,000	1,500,000
Eastern sales territory	1,500,000	900,000
Total miles driven	3,000,000	2,400,000
Allocation rate per mile	$ 0.04	$ 0.05

$120,000 ÷ 3,000,000 miles

$120,000 ÷ 2,400,000 miles

Colby Products: First–year Allocations

Western sales territory	
1,500,000 miles @ $0.04 per mile	$ 60,000
Eastern sales territory	
1,500,000 miles @ $0.04 per mile	60,000
Total cost allocated	$ 120,000

The two sales territories share the service center's costs equally because the miles driven in each territory are equal.

Colby Products: Second–year Allocation

Western sales territory	
1,500,000 miles @ $0.05 per mile	**$ 75,000**
Eastern sales territory	
900,000 miles @ $0.05 per mile	**45,000**
Total cost allocated	**$ 120,000**

Western territory has the same number of miles as last year, but $15,000 more cost is allocated because Eastern's miles declined in year 2.

Pitfalls in Allocating Fixed Costs

Pitfall 2

Using sales dollars as an allocation base

Result

Sales of one department influence the service department costs allocated to other departments.

Clothier Inc. – An Example

Clothier Inc., a men's clothing store, has one service department and three sales departments, Suits, Shoes, and Accessories. Service department costs total $60,000 for both years in the example. Contrary to good practice, Clothier allocates the service department costs based on sales.

Clothier Inc. – First-year Allocation

	Departments			
	Suits	Shoes	Accessories	Total
Sales by department	$ 260,000	$ 40,000	$ 100,000	$ 400,000
Percentage of total sales	65%	10%	25%	100%
Allocation of service department costs	$ 39,000	$ 6,000	$ 15,000	$ 60,000

$260,000 ÷ $400,000

65% of $60,000

In the next year, the manager of the Suit Department increases sales by $100,000. Sales in the other departments are unchanged. Let's allocate the $60,000 service department cost for the second year given the sales increase.

Clothier Inc. – Second-year Allocation

	Departments			
	Suits	Shoes	Accessories	Total
Sales by department	$ 360,000	$ 40,000	$ 100,000	$ 500,000
Percentage of total sales	72%	8%	20%	100%
Allocation of service department costs	$ 43,200	$ 4,800	$ 12,000	$ 60,000

$360,000 ÷ $500,000

72% of $60,000

If you were the suit department manager, would you be happy with the increased service department costs allocated to your department?

End of Chapter 12