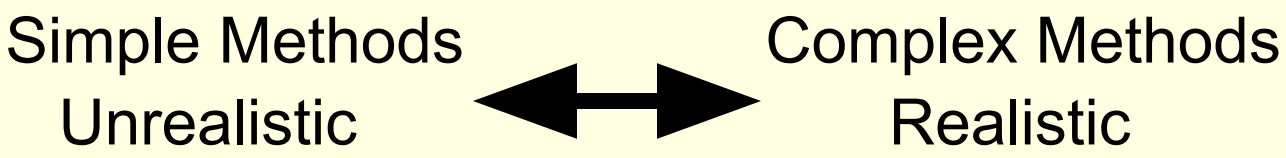
CHAPTER 5

Activity-Based Costing
and
Activity-Based Management

Background

- Recall that Factory Overhead is applied to production in a rational systematic manner, using some type of averaging. There are a variety of methods to accomplish this goal.
- These methods often involve tradeoffs between simplicity and realism



Broad Averaging

- Historically, firms produced a limited variety of goods while their indirect costs were relatively small.
- Allocating overhead costs was simple: use broad averages to allocate costs uniformly regardless of how they are actually incurred
  - Peanut-butter Costing
- The end-result: overcosting and undercosting

Over- and Undercosting

- Overcosting – a product consumes a low level of resources but is allocated high costs per unit
- Undercosting – a product consumes a high level of resources but is allocated low costs per unit

Cross-subsidization

- The results of overcosting one product and undercosting another
- The overcosted product absorbs too much cost, making it seem less profitable than it really is
- The undercosted product is left with too little cost, making it seem more profitable than it really is

An Example

- Consider an example of two products of Cactus Jelly:
  - Regular and Deluxe De-spined
- CactiCorp sells equal quantities of each
- Regular sells for $35 per jar, and Deluxe $46
- Both products have the same Direct Materials costs
- Deluxe takes twice as much Direct Labor due to the extensive de-spining required

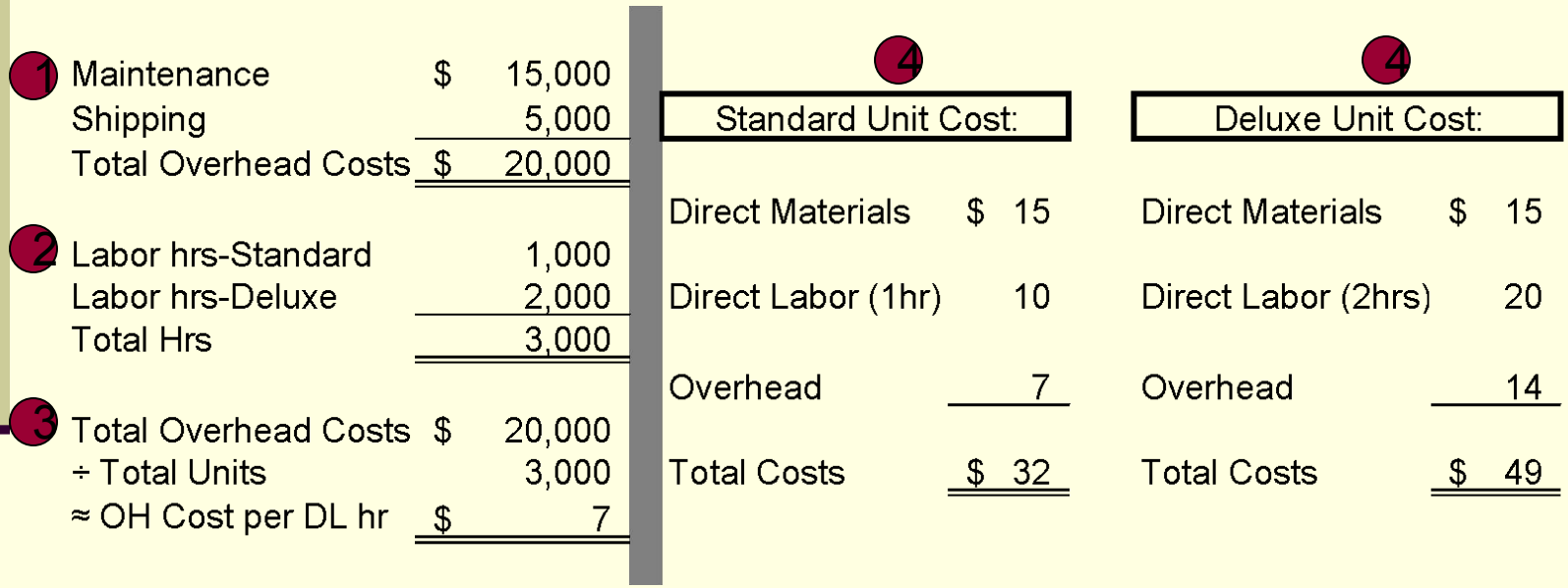
An Example, continued

- Based on the previous assumptions, costs could be allocated, based on units, as follows:

1	Maintenance	$ 15,000	4	Standard Unit Cost:		4 Deluxe Unit Cost:	
	Shipping	5,000					
	Total Overhead Costs	$ 20,000		Direct Materials	$ 15	Direct Materials	$ 15
2	Regular Units	1,000					
	Deluxe Units	1,000		Direct Labor	10	Direct Labor	20
	Total Units	2,000					
				Overhead	10	Overhead	10
3	Total Overhead Costs	$ 20,000					
	÷ Total Units	2,000		Total Costs	$ 35	Total Costs	$ 45
	= OH Cost per Unit	$ 10					

An Example, continued

- Or it could be costed differently using another cost driver, in this case, Direct Labor Hours



An Example, continued

- Or it could be costed using two separate cost drivers. Using multiple cost drivers is called Activity-Based Costing
- Drivers could be any relevant or related activity
  - Number of Patients
  - Number of Meals
  - Pounds, Gallons, Barrels, Board-Feet, etc.
- The next slide displays cost allocation for the Cactus Jelly using two new drivers together

An Example, continued

1

Allocate Maintenance on Machine Hours:	
Standard: 1 Mhr/unit X 1000 units =	1,000
Deluxe: 4 Mhr/unit X 1000 units =	4,000
Total Machine Hours	5,000
Maintenance Costs	$ 15,000
÷ Machine Hours	5,000
Maintenance cost per Mhr	$ 3
Maintenance Cost per Standard Unit $3 X 1 Mhr/unit	$ 3
Maintenance Cost per Deluxe Unit $3 X 4 Mhr/unit	$ 12

2

Allocate Shipping on Number of Shipments	
Standard Shipments (shipped in lots of 40)	25
Deluxe Shipments (shipped in lots of 10)	100
Total Shipments	125
Shipping Costs	$ 5,000
÷ Shipments	125
Shipping Cost per Shipment	$ 40
Shipping Cost per unit:	
Standard: $40 ÷ 40 units per shipment	$ 1
Deluxe $40 ÷ 10 units per shipment	$ 4

An Example, continued

- ABC yields different cost per unit results as compared to the previous single-driver methods:

Standard Unit Cost:		Deluxe Unit Cost:	
Direct Materials	$ 15	Direct Materials	$ 15
Direct Labor (1hr)	10	Direct Labor (2hrs)	20
Overhead		Overhead	
Maintenance	3	Maintenance	3
Shipping	1	Shipping	4
Total Costs	$ 29	Total Costs	$ 42

An Example, concluded:
Different Costs Lead to Different Profits

Standard Units		Deluxe Units	
Revenue	$ 40	Revenue	$ 50
Total Cost:		Total Cost:	
Units as single OH driver	35	Units as single OH driver	45
Gross Profit	5	Gross Profit	5
Gross Profit %	12.5%	Gross Profit %	10.0%
Total Cost:		Total Cost:	
DL hours as single OH driver	32	DL hours as single OH driver	49
Gross Profit	8	Gross Profit	1
Gross Profit %	20.0%	Gross Profit %	2.0%
Total Cost:		Total Cost:	
OH allocated through ABC	29	OH allocated through ABC	42
Gross Profit	11	Gross Profit	8
Gross Profit %	27.5%	Gross Profit %	16.0%

Conclusions

- Each method is mathematically correct
- Each method is acceptable
- Each method yields a different cost figure, which will lead to different Gross Margin calculations
- Only Overhead is involved. Total Costs for the firm remain the same – they are just allocated to different cost objects within the firm
- Selection of the appropriate method and drivers should be based on experience, industry practices, as well as a cost-benefit analysis of each option under consideration

A Cautionary Tale

- A number of critical decisions can be made using this information:
  - Should one product be “pushed” over another?
  - Should one product be dropped?
- Accounting for overhead costs is an imprecise science. Accordingly, best efforts should be put forward to arrive at a cost that is fair and reasonable.

Rationale for Selecting a More Refined Costing System

- Increase in product diversity
- Increase in Indirect Costs
- Advances in information technology
- Competition in foreign markets

Cost Hierarchies

- ABC uses a four-level cost structure to determine how far down the production cycle costs should be pushed:
  - Unit-level (output-level)
  - Batch-level
  - Product-sustaining-level
  - Facility-sustaining-level

ABC vs. Simple Costing Schemes

- ABC is generally perceived to produce superior costing figures due to the use of multiple drivers across multiple levels
- ABC is only as good as the drivers selected, and their actual relationship to costs. Poorly chosen drivers will produce inaccurate costs, even with ABC

Activity-Based Management

- A method of management that used ABC as an integral part in critical decision-making situations, including:
  - Pricing and product-mix decisions
  - Cost reduction and process improvement decisions
  - Design decisions
  - Planning and managing activities

Warning Signs That Suggest That ABC Could help a Firm:

- Significant overhead costs allocated using one or two cost pools
- Most or all overhead is considered unit-level
- Products that consume different amounts of resources
- Products that a firm should successfully make and sell consistently show small profits
- Operations staff disagreeing with accounting over manufacturing and marketing costs

