



Activity-Based Costing
and
Activity-Based Management

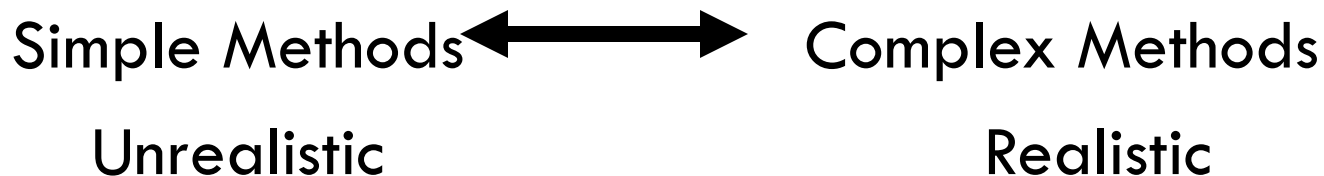
CHAPTER 5



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 trade-offs 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.

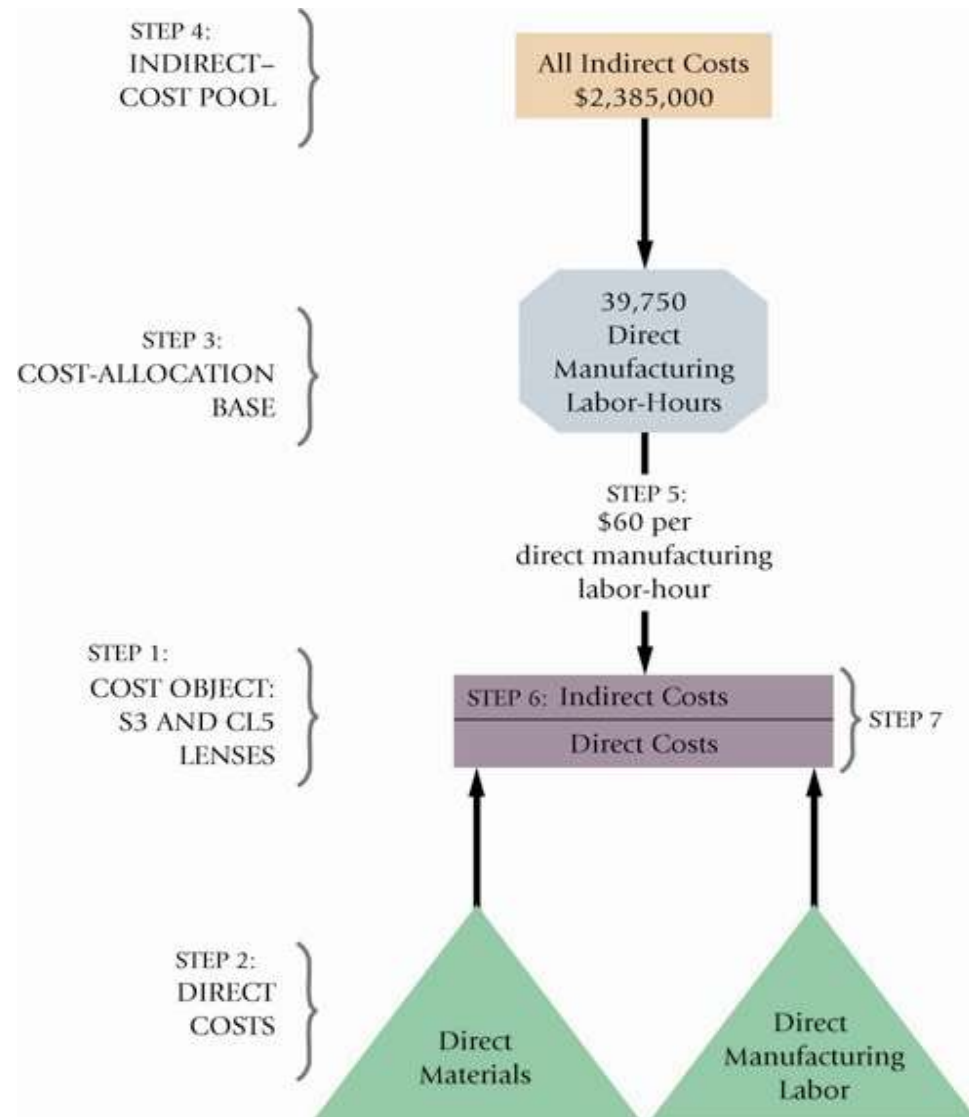
CROSS-SUBSIDIZATION

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.

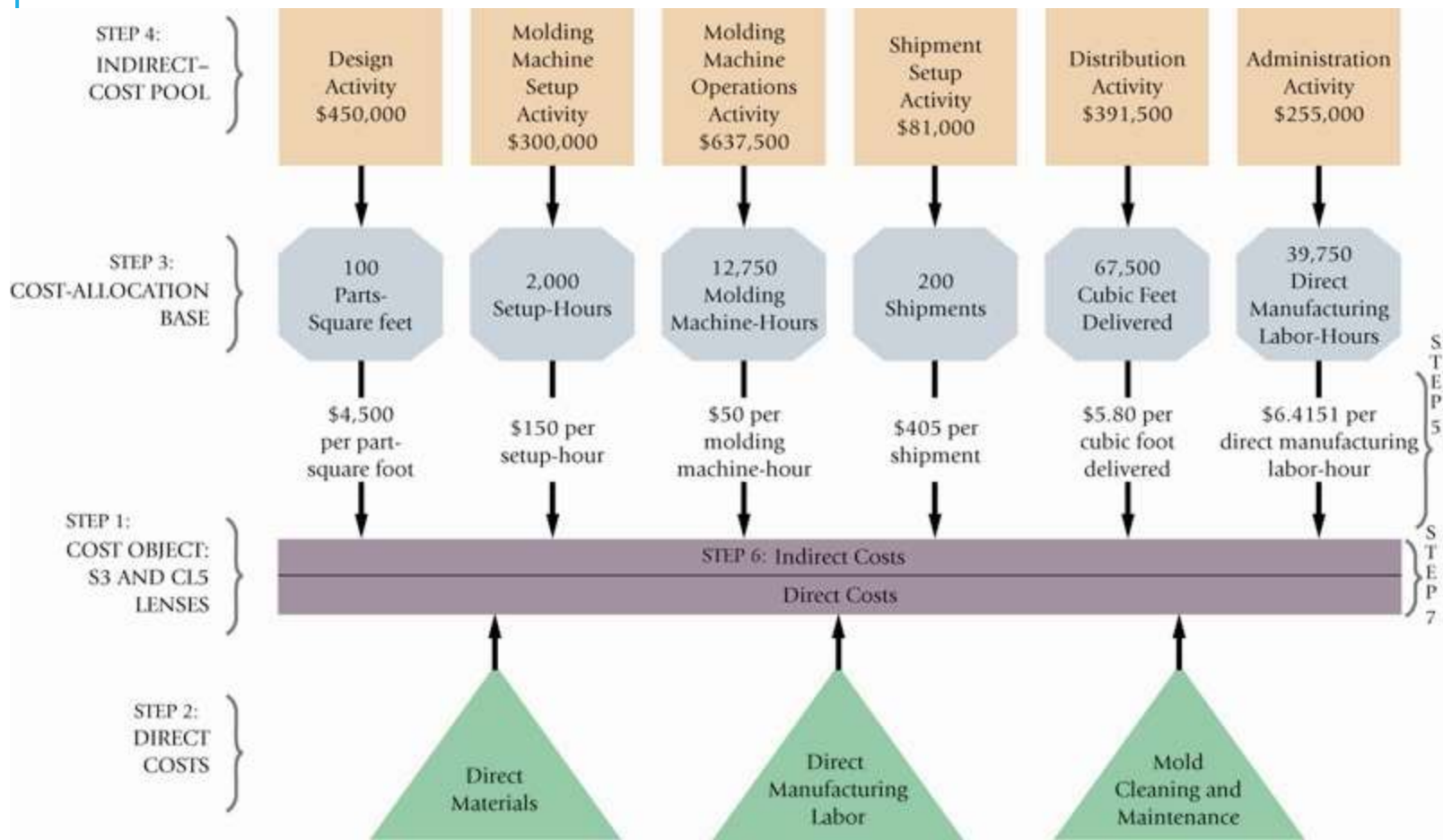
AN EXAMPLE: PLASTIM



PLASTIM AND SIMPLE COSTING

File Edit View Insert Format Tools Data Window Help							
	A	B	C	D	E	F	G
1		60,000			15,000		
2		Simple Lenses (S3)			Complex Lenses (CL5)		
3		Total	per Unit		Total	per Unit	Total
4		(1)	(2) = (1) ÷ 60,000		(3)	(4) = (3) ÷ 15,000	(5) = (1) + (3)
5	Direct materials	\$1,125,000	\$18.75		\$ 675,000	\$45.00	\$1,800,000
6	Direct manufacturing labor	<u>600,000</u>	<u>10.00</u>		<u>195,000</u>	<u>13.00</u>	<u>795,000</u>
7	Total direct costs (Step 2)	1,725,000	28.75		870,000	58.00	2,595,000
8	Indirect costs allocated (Step 6)	<u>1,800,000</u>	<u>30.00</u>		<u>585,000</u>	<u>39.00</u>	<u>2,385,000</u>
9	Total costs (Step 7)	<u>\$3,525,000</u>	<u>\$58.75</u>		<u>\$1,455,000</u>	<u>\$97.00</u>	<u>\$4,980,000</u>
10							

PLASTIM AND ABC ILLUSTRATED



PLASTIM AND ABC RATE CALCULATION

File Edit View Insert Format Tools Data Window Help								
	A	B	C	D	E	F	G	H
1			(Step 4)	(Step 3)		(Step 5)		
2	Activity	Cost Hierarchy Category	Total Budgeted Indirect Costs	Budgeted Quantity of Cost-Allocation Base		Budgeted Indirect Cost Rate		Cause-and-Effect Relationship Between Allocation Base and Activity Cost
3	(1)	(2)	(3)	(4)		(5) = (3) ÷ (4)		(6)
4	Design	Product-sustaining	\$450,000	100	parts-square feet	\$ 4,500	per part-square foot	Design Department indirect costs increase with more complex molds (more parts, larger surface area).
5	Setup molding machines	Batch-level	\$300,000	2,000	setup-hours	\$ 150	per setup-hour	Indirect setup costs increase with setup-hours.
6	Machine operations	Output unit-level	\$637,500	12,750	molding machine-hours	\$ 50	per molding machine-hour	Indirect costs of operating molding machines increases with molding machine-hours.
7	Shipment setup	Batch-level	\$ 81,000	200	shipments	\$ 405	per shipment	Shipping costs incurred to prepare batches for shipment increase with the number of shipments.
8	Distribution	Output-unit-level	\$391,500	67,500	cubic feet delivered	\$ 5.80	per cubic foot delivered	Distribution costs increase with the cubic feet of packages delivered.
9	Administration	Facility sustaining	\$255,000	39,750	direct manuf. labor-hours	\$6.4151	per direct manuf. labor-hour	The demand for Administrative resources increases with direct manufacturing labor-hours.

PLASTIM AND ABC PRODUCT COSTS

	A	B	C	D	E	F	G
1		60,000			15,000		
2		Simple Lenses (S3)			Complex Lenses (CL5)		
3		Total	per Unit		Total	per Unit	Total
4	Cost Description	(1)	(2) = (1) ÷ 60,000		(3)	(4) = (3) ÷ 15,000	(5) = (1) + (3)
5	Direct costs						
6	Direct materials	\$1,125,000	\$18.75		\$ 675,000	\$ 45.00	\$1,800,000
7	Direct manufacturing labor	600,000	10.00		195,000	13.00	795,000
8	Direct mold cleaning and maintenance costs	<u>120,000</u>	<u>2.00</u>		<u>150,000</u>	<u>10.00</u>	<u>270,000</u>
9	Total direct costs (Step 2)	<u>1,845,000</u>	<u>30.75</u>		<u>1,020,000</u>	<u>68.00</u>	<u>2,865,000</u>
10	Indirect Costs of Activities						
11	Design						
12	S3, 30 parts-sq.ft. x \$4,500	135,000	2.25				} 450,000
13	CL5, 70 parts-sq.ft. x \$4,500				315,000	21.00	
14	Setup of molding machines						
15	S3, 500 setup-hours x \$150	75,000	1.25				} 300,000
16	CL5, 1,500 setup-hours x \$150				225,000	15.00	
17	Machine operations						
18	S3, 9,000 molding machine-hours x \$50	450,000	7.50				} 637,500
19	CL5, 3,750 molding machine-hours x \$50				187,500	12.50	
20	Shipment setup						
21	S3, 100 shipments x \$405	40,500	0.67				} 81,000
22	CL5, 100 shipments x \$405				40,500	2.70	
23	Distribution						
24	S3, 45,000 cubic feet delivered x \$5.80	261,000	4.35				} 391,500
25	CL5, 22,500 cubic feet delivered x \$5.80				130,500	8.70	
26	Administration						
27	S3, 30,000 dir. manuf. labor-hours x \$6.4151	192,453	3.21				} 255,000
28	CL5, 9,750 dir. manuf. labor-hours x \$6.4151				<u>62,547</u>	<u>4.17</u>	
29	Total indirect costs allocated (Step 6)	<u>1,153,953</u>	<u>19.23</u>		<u>961,047</u>	<u>64.07</u>	<u>2,115,000</u>
30	Total Costs (Step 7)	<u>\$2,998,953</u>	<u>\$49.98</u>		<u>\$1,981,047</u>	<u>\$132.07</u>	<u>\$4,980,000</u>
31							

PLASTIM: SIMPLE AND ABC COMPARED

	Simple Costing System Using a Single Indirect-Cost Pool (1)	ABC System (2)	Difference (3) = (2) – (1)
Direct-cost categories	2	3	1
	Direct materials	Direct materials	
	Direct manufacturing labor	Direct manufacturing labor	
		Direct mold cleaning and maintenance labor	
Total direct costs	\$2,595,000	\$2,865,000	\$270,000
Indirect-cost pools	1	6	5
	Single indirect-cost pool allocated using direct manufacturing labor-hours	Design (parts-square feet) ¹	
		Molding machine setup (setup-hours)	
		Machine operations (molding machine-hours)	
		Shipment setup (number of shipments)	
		Distribution (cubic feet delivered)	
		Administration (direct manufacturing labor-hours)	
Total indirect costs	\$2,385,000	\$2,115,000	(\$270,000)
Total costs assigned to simple (S3) lens	\$3,525,000	\$2,998,953	(\$526,047)
Cost per unit of simple (S3) lens	\$58.75	\$49.98	(\$8.77)
Total costs assigned to complex (CL5) lens	\$1,455,000	\$1,981,047	\$526,047
Cost per unit of complex (CL5) lens	\$97.00	\$132.07	\$35.07

¹Cost drivers for the various indirect-cost pools are shown in parentheses.

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 entire 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 uses 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

SIGNALS THAT SUGGEST THAT ABC IMPLEMENTATION 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

ABC AND SERVICE/MERCHANDISING FIRMS

ABC implementation is widespread in a variety of applications outside manufacturing, including:

- Health Care
- Banking
- Telecommunications
- Retailing
- Transportation



This work is protected by United States copyright laws and is provided solely for the use of instructors in teaching their courses and assessing student learning. Dissemination or sale of any part of this work (including on the World Wide Web) will destroy the integrity of the work and is not permitted. The work and materials from it should never be made available to students except by instructors using the accompanying text in their classes. All recipients of this work are expected to abide by these restrictions and to honor the intended pedagogical purposes and the needs of other instructors who rely on these materials.