

ACTIVITY-BASED COSTING PROBLEM
Contrasting Traditional Costing & Activity-Based Costing
ACCT 2102: Handout #7-1

The Columbus Company produces only two products: a major computer part and cell phones. The company uses a normal cost system and overhead costs are currently allocated using a plant-wide overhead rate based on direct labor hours. Outside cost consultants have recommended, however, that the company use activity-based costing to charge overhead to products.

The company expects to produce 4,000 computer parts and 2,000 cell phones in 1999. Each computer part requires two direct labor hours to produce and each cell phone requires one-half hour to produce.

The direct material and direct labor costs included in the two products are as follows:

<u>Item</u>	<u>Computer Part</u>	<u>Cell-Phone</u>
Direct Material (per unit)	\$30	\$17
Direct Labor (per unit)	\$16	\$ 4

Budgeted (Estimated) Total Factory Overhead Data For 1999:

<u>Activity</u>	<u>Budgeted Overhead Dollars</u>	<u>Estimated Volume Level</u>
Production Setups	\$80,000	20 setups
Material Handling	\$70,000	5,000 lbs.
Packaging and Shipping	<u>\$120,000</u>	6,000 boxes
Total Factory Overhead	\$270,000	

Based on an analysis of the three overhead activities, it was estimated that the two products would require these activities as follows in 1999:

<u>Activity</u>	<u>Computer Parts</u>	<u>Cell Phones</u>	<u>Overall Totals</u>
Production Setups	5 setups	15 setups	20 setups
Material Handling	1,000 lbs.	4,000 lbs.	5,000 lbs.
Packaging and Shipping	4,000 boxes	2,000 boxes	6,000 boxes

Required:

1. Calculate the cost of each product using a plant-wide rate based on direct labor hours.
2. Calculate the activity cost rates for (a) setups, (b) material handling and (c) packaging and shipping.
3. Cost out the two products using an activity-based costing system.

**ACTIVITY-BASED COSTING PROBLEM
SOLUTION TO HANDOUT #7-1**

1. The Cost of Each Product Using a Plant-Wide Rate Based On Direct Labor Hours:

Step 1: Calculation of plant-wide overhead rate:

Total budgeted DLH = 4,000 computer parts x 2 DLH per part + 2,000 cell phones x 0.5 DLH per phone = 9,000 DLH

OH Rate = Total Budgeted Overhead Dollars/Total Budgeted Direct Labor Hours = \$270,000/ 9,000 DLH = \$30 per DLH

Step 2: Calculation of each product's cost using a plant-wide rate:

Cost Item	Computer Parts	Cell Phones
Direct Material	\$30.00	\$17.00
Direct Labor	16.00	4.00
Manufacturing Overhead	<u>60.00*</u>	<u>15.00**</u>
Total Unit Cost	\$106.00	\$36.00

*2 DLH @ \$30 per DLH = \$60 & **0.5 DLH @ 30 per DLH = \$15

2. The Activity Cost Rates for (1) Setups, (2) Material Handling and (3) Packaging and Shipping:

<u>Activity</u>	(1) Budgeted Overhead Dollars	(2) Estimated Volume Level	(3) Activity Cost Rates*
Production Setups	\$80,000	20 setups	\$4,000 per setup
Material Handling	\$70,000	5,000 lbs.	\$14 per lb.
Packaging and Shipping	\$120,000	6,000 boxes	\$20 per box

Note: Column 3 = column 1 divided by column 2

3. Cost of The Two Products Using an Activity-Based Costing System:

Cost Item	4,000 Computer Parts	2,000 Cell Phones
Direct Material	120,000	34,000
Direct Labor	64,000	8,000
Manufacturing Overhead:		
- <u>Production Setups:</u> 5 setups @ \$4,000 per setup = \$20,000 15 setups @ \$4,000 per setup = \$60,000	20,000	60,000
- <u>Material Handling:</u> 1,000 lbs @ \$14 per lb = \$14,000 4,000 lbs @ \$14 per lb = \$56,000	14,000	56,000
- <u>Packaging & Shipping:</u> 4,000 boxes @ \$20 per box = \$80,000 2,000 boxes @ \$20 per box = \$40,000	80,000	40,000
Total Manufacturing Cost For All Units	\$298,000	\$198,000
Total Units Produced	4,000 parts	2,000 phones
Total Cost Per Unit	\$74.50* per part	\$99.00** per phone

* \$298,000 / 4,000 parts = \$ 74.50 per part

** \$198,000 / 2,000 phones = \$ 99.00 per phone