

Accounting 440
Project 2 - Activity Based Costing (A)

Marvel Components

Activity Table

Activity Relational Table: Marvel Components, Inc.

<i>Activity</i>	<i>Activity Name</i>	<i>Process</i>	<i>Level</i>	<i>Activity Driver</i>	<i>Capacity</i>	<i>Cost</i>
1	Developing test program	Sorting	Product	No. of products	2	\$300,000
2	Making probe cards	Sorting	Product	No. of products	2	160,000
3	Testing products	Sorting	Unit	No. of dies	2,000,000	275,000
4	Setting up batches	Sorting	Batch	No. of batches	400	120,000
5	Engineering design	Sorting	Product	Change orders	40	130,000
6	Handling wafer lots	Sorting	Batch	No. of batches	400	90,000
7	Inserting dies	Sorting	Unit	No. of dies	2,000,000	225,000
8	Purchasing materials	Procurement	Batch	Purchase orders	800	200,000
9	Receiving materials	Procurement	Batch	Purchase orders	800	320,000
10	Paying suppliers	Procurement	Product	No. of parts	4,000,000	180,000
11	Providing utilities	Sustaining	Facility	DL hours	200,000	20,000
12	Providing space	Sustaining	Facility	DL hours	200,000	50,000

Sorted by Process

<i>Process</i>	<i>Level</i>	<i>Pool Number</i>	<i>Rate</i>
Sorting	Unit	1	\$0.25 per die
	Batch	2	\$525 per batch
	Product	3	\$230,000 per product
	Product	4	\$3,250 per engineering order
Procurement	Batch	5	\$650 per purchase order
	Product	6	\$0.045 per part
Sustaining	Facility	7	\$0.35 per direct labor hour

For convenience, Marvel's product relational table is reproduced below:

<i>Product Number</i>	<i>Product Name</i>	<i>Activity Driver Number</i>	<i>Activity Driver Name</i>	<i>Activity Usage</i>
1	Wafer A	1	Units	100,000
1	Wafer A	2	No. of dies	600,000
1	Wafer A	3	No. of batches	200
1	Wafer A	4	Change orders	10
1	Wafer A	5	No. of products	1
1	Wafer A	6	Purchase orders	400
1	Wafer A	7	No. of parts	1,000,000
1	Wafer A	8	Direct labor hours	80,000
2	Wafer B	1	Units	200,000
2	Wafer B	2	No. of dies	1,400,000
2	Wafer B	3	No. of batches	200
2	Wafer B	4	Change orders	30
2	Wafer B	5	No. of products	1
2	Wafer B	6	Purchase orders	400
2	Wafer B	7	No. of parts	3,000,000
2	Wafer B	8	Direct labor hours	120,000

Required:

1. Calculate the costs allocated to Wafer A and B using a data base program.

Activity-based Costing

Home Entertainment, Inc., manufactures two types of DVD players: standard and deluxe. It attempts to set selling prices based on a 50% markup on manufacturing costs to cover selling and administrative expenses and to earn an acceptable return for shareholders. Tom Sales, Vice President-Marketing, is confused because the numbers provided by Anne Cash, Controller, indicate that standard DVD players should be priced at \$150 per unit and deluxe DVD players at \$300 per unit. The competition is selling comparable models for \$145 and \$525, respectively.

Sales informs Cash that there must be something wrong with the job costing system. He had recently attended a seminar where the speaker stated that "All production costs are not a function of how many units are produced, or of how many labor hours, labor dollars, or machine hours are expended." He knows that the company uses direct labor dollars as its only cost allocation base. Tom thinks that perhaps this explains why the product costs and, therefore selling prices, are so different from those of the competitors.

Currently, the costs per unit are determined as follows:

	Standard	Deluxe
Direct materials	\$ 30.00	\$ 50.00
Direct labor	17.50	37.50
Factory overhead (300% of direct labor \$)	<u>52.50</u>	<u>112.50</u>
Manufacturing cost per unit	<u>\$100.00</u>	<u>\$200.00</u>

Factory overhead is currently applied using a plantwide rate based on direct labor cost. This year's rate was computed as follows:

Budgeted factory overhead:	
Direct labor support	\$ 300,000
Machine support	400,000
Setup costs	200,000
Design costs	<u>100,000</u>
Total	<u>\$1,000,000</u>

Budgeted direct labor cost is \$333,333.

Budgeted factory overhead rate = $\$1,000,000 / \$333,333 = 300\%$ of direct labor dollars

Cash, knowing that you had recently studied activity-based costing in your cost accounting course, employs you as a consultant to determine what effect its usage would have on the product costs. You first gathered the following data:

	Standard	Deluxe	Total
Units produced	10,000	2,000	12,000
Direct labor hours	60,000	40,000	100,000
Machine hours	30,000	20,000	50,000
Machine setups	200	800	1,000
Design changes	50	200	250

Required:

1. From the data that you gathered, determine the best allocation base for each of the four components of factory overhead.
2. Compute an overhead rate for each of the four components.
3. Determine the new unit cost for standard and deluxe models using activity-based costing.
4. Why are the product costs so dramatically different when activity-based costing is used?
5. Would Home Entertainment's selling prices be closer to those of the competition if activity-based costing were used?