

ACTIVITY BASED COSTING

LO 1: Costing Systems

Terms

Review:

Overhead Cost

Predetermined Overhead Rate

New:

Activity-Based Costing

Activity

Activity Cost Pool

Cost Driver

	Traditional Costing	ABC Costing
	relied on a single plantwide overhead rate to apply overhead to work-in-process	Allocates overhead to multiple activity cost pools, and then assigns the costs to products using related cost drivers that measure the resources consumed
	Traditional Job Costing	Activity-Based Costing
Cost Pools	One	One for each activity
Costs	Total overhead cost	Total overhead is divided among the cost pools
Activities	One plant-wide measure of production volume	One per cost pool which measures the level of the pool's activity
Predetermined/ Activity Rates	One plant-wide predetermined overhead rate	One rate for each activity cost pool

Activity-Based Costing (ABC) Steps:

Step 1: Identify and Classify the activities

- Assign overhead costs to activity cost pools. An activity cost pool is a “cost bucket” in which costs for a particular activity are accumulated.

Step 2: Identify the cost driver

- A cost driver is an activity that has a strong correlation to the costs accumulated in that cost pool.

Step 3: Compute the activity-based overhead rate for each cost pool

- $\text{Estimated overhead per Activity} / \text{Expected use of the cost driver per Activity} = \text{Activity-Based Overhead Rate}$

Step 4: Allocate overhead costs to products

- $\text{Expected use of cost drivers per product} * \text{Activity- Based Overhead Rates} = \text{Cost Allocated per activity cost pool}$

LO 2: Applying Activity-Based Costing

Step 1: An analysis of how resources are being consumed determines activity cost pools. These cost pools will be given. Overhead is then allocated to the cost pools. In total the overhead amount does not change, it is just allocated to the different cost pools. This information is also given.

Step 2: A cost driver measures the actual consumption of the activity. There is a high degree of correlation between the cost driver and the overhead. This information is also given.

<u>Step 3:</u> <u>Activity-Based</u> <u>Overhead Rate</u>	<u>Step 4:</u> <u>Product Overhead</u>	<u>Overhead Cost/Unit</u>
Calculate overhead rate to apply overhead	Assign total overhead to each product	Calculate the overhead cost per unit for each product
How: Estimated overhead per activity divided by expected use of cost driver per activity	How: expected use of cost driver per product multiplied by activity-base overhead rate for each pool and add the results	How: total cost assigned to each product divided by the units produced

Practice #1

T Company makes two types of chairs, a hand-built lounge chair and a folding beach chair. The company had used a job-order costing system and applies overhead on the basis of direct labor hours. Best Chair expects to produce 40,000 lounge chairs and 100,000 beach chairs next year. Total direct material costs are \$3,200,000 for lounge chairs and \$1,000,000 for beach chairs.

T Company has begun changing to an activity based costing system. The company has reported the following results from the first-stage cost allocations for year’s production:

<u>Activity</u>	<u>Overhead</u> <u>Cost</u> <u>Assigned</u>	<u>Activities by Product</u>	
		<u>Lounge Chairs</u>	<u>Beach Chairs</u>
Labor related	\$300,000	100,000 DLH	200,000 DLH

Machine related	\$450,000	30,000 MH	60,000 MH
Machine setups	\$730,000	4,000 Setups	1,000 Setups
Order processing	\$600,000	4,500 Orders	1,500 Orders
General factory	\$500,000	\$2,000,000 DL\$	\$3,000,000 DL\$

- Required:
- Determine the pre-determined overhead rate using traditional job-order costing.
 - Determine the total overhead cost per unit for each product using traditional job-order costing.
 - Determine Activity-Based Rates for each cost pool activity
 - Determine the total cost per unit for each product using activity based costing.

LO 3: Benefits and Limitations of ABC

Terms

Unit-level activities

Batch-level activities

Product-level activities

Facility-level activities

Value-added activities

Non-value added activities

Benefits:

- More accurate product costing
- More control over overhead rates
- Better management decisions
- Establish performance measures
- Allows for benchmarking

Limitations:

- Expensive
- Still requires estimations

Classifications:

- To accurately use ABC costing, management must characterize activities by activity level groups
 - Unit-level: performed for each unit of production
 - Batch-level: performed for each batch of a product
 - Product-level: performed for each new product
 - Facility-level: supports entire production process

When to use ABC:

- Product lines differ greatly in volume and complexity
- Product lines require various degrees of support services
- Overhead costs are significant in proportion to total costs
- Manufacturing process has changed significantly
- Pricing or product decisions are not being made effectively

LO 4: Service Industries and ABC

- The objective of ABC is no different in service industries, and are performed the same way as a manufacturing company
- The difficulty is that a larger portion of overhead costs are company-wide and cannot be traced to a specific service performed

LO 5: Just-in-time processing

- Dedicated to having the right amount of materials, parts, or products just as they are needed
- Strives to eliminate inventories
- Elements
 - Dependable suppliers
 - Multi-skilled work force
 - Total quality control system- eliminating defects
- Benefits
 - Significant reduction or elimination of inventory
 - Enhanced product quality
 - Reduction in rework and inventory storage
 - Production cost savings

Solution #1

a) Pre-determined Overhead Rate

		<u>Overhead Cost</u>	
	Labor related	\$300,000	
	Machine related	\$450,000	
	Machine setups	\$730,000	
	Order processing	\$600,000	
	General factory	<u>\$500,000</u>	
Predetermined overhead rate	Total Overhead Total DLH	<u>\$2,580,000</u> 100,000+200,000	= \$8.60 per DLH

b) Traditional Job-Order Costing

	<u>Lounge Chairs</u>		<u>Beach Chairs</u>
Overhead	$\frac{\$8.60 \times 100,000 \text{ DLH}}{40,000 \text{ units}} = \21.50	=	$\frac{\$8.60 \times 200,000 \text{ DLH}}{100,000 \text{ units}} = \17.20

c) Activity Based Costing

<u>Activities</u>	<u>Overhead Cost</u>	<u>÷ Total Expected Activity</u>	<u>= Activity Rate</u>
Labor related	\$300,000	100,000 + 200,000 DLH	= \$1.00 per DLH
Machine related	\$450,000	30,000 + 60,000 MH	= \$5.00 per MH
Machine setups	\$730,000	4,000 + 1,000 setups	= \$146.00 per setup
Order processing	\$600,000	4,500 + 1,500 orders	= \$100.00 per order
General factory	\$500,000	\$2,000,000 + \$3,000,000	= \$.10 per DLH

<u>d) Activities</u>	<u>Activity Rate</u>	<u>Lounge Chair</u>		<u>Beach Chair</u>	
		<u>Activity</u>	<u>Amount</u>	<u>Activity</u>	<u>Amount</u>
Labor related	\$1.00	100,000	\$100,000	200,000	\$200,000
Machine related	\$5.00	30,000	\$150,000	60,000	\$300,000
Machine setups	\$146.00	4,000	\$584,000	1,000	\$146,000
Order processing	\$100.00	4,500	\$450,000	1,500	\$150,000
General factory	\$.10	\$2,000,000	\$200,000	\$3,000,000	\$300,000
Total Overhead Assigned to each Product			<u>\$1,484,000</u>		<u>\$1,096,000</u>
Total Units Produced			<u>40,000</u>		<u>100,000</u>
Overhead Cost per Unit			<u>\$37.10</u>		<u>\$10.96</u>

Reconcile: 2,084,000 Total Overhead= Lounge Chair overhead 1,484,000+ Beach chair overhead of 1,096,000