Managerial Accounting

What are the Goals?

Performance Evaluation (Control)
- Budgeting
- Variance Analysis
- Profit and Cost Centers

Costing
- Financial Reporting
- Decision Making

Pricing
- Product Mix
- Make or Buy
- Change Methods
- Discontinue

Production

What are the Goals?
BASIC COST TERMS

Cost
A sacrifice of resources. Distinguish from “expense”

Cost Object
Any activity or item for which a separate measurement of costs is desired.

Cost objects are the “something” in the statement: “We need the cost of ‘something’”!

Cost Driver
Any factor whose change “causes” a change in the total cost of a related cost object.

Note: Cost drivers can be factors other than volume
BASIC COST TERMS (contd.)

Direct Costs
Costs that can be traced to a given cost object (product, department, etc.) in an economically feasible way.

Indirect Costs
Costs that cannot be traced to a given cost object in an economically feasible way. These costs are also known as “overhead” or “burden.”

Cost Assignment
Direct costs are traced to a cost object.
Indirect costs are allocated or assigned to a cost object.

Product Costs
All costs that “attach” to the units that are produced and are not reported as expenses until the goods are sold (e.g., direct materials, direct labor, applied overhead).
BASIC COST TERMS (contd.)

Period costs
   Costs that must be charged against income in the period incurred and cannot be inventoried (e.g., selling and administrative expenses).

Manufacturing Costs
   The sum of direct materials, direct labor, and indirect manufacturing costs

Unit Costs
   Total cost of units divided by units produced.

Controllable Costs
   Any cost that is primarily subject to the influence of a given manager of a given responsibility center for a given time period.
COST BEHAVIOR

Variable Costs
  Costs that change directly in proportion to changes in the related cost driver

Fixed Costs
  Costs that remain unchanged for a given time period regardless of changes in the related cost driver.

Other Common Functions for Cost Behavior
  • Semivariable Costs (part variable and part fixed)
  • Step costs

Major Assumptions Needed to Define Fixed and Variable Costs
  • Cost object, Time span, Linear functional form
  • Relevant range- the band of cost driver activity in which a specific relationship between a cost and a driver holds.
The “Ins” of Inventory Accounting

What costs are assigned to inventory as products are manufactured?

GAAP requires *Full Absorption Costing*: the products *fully absorb* all manufacturing costs, including:

- **Variable manufacturing Costs**: Material, Labor
- **Fixed manufacturing Costs**: Overhead

Results in *unitizing* fixed costs: convert total fixed costs (TFC) to a unit cost by allocating TFC to the units produced.
Traditional Costing System

- **Direct Costs**
  - Direct Labor
  - Direct Materials

- **Overhead Costs**
  - Indirect Labor
  - Indirect Materials
  - Depreciation

- **Traced directly**
  - Traced using allocation base
  - e.g., direct labor hrs, machine hrs

**Product Costs**
Example of Product Costing

Electron, Inc. produces 10,000 units in one month.

• Variable manufacturing costs are:
  • $6/unit for material,
  • $1/unit for direct labor, and
  • $1/unit for variable overhead.

• Fixed mfg overhead is $50,000/month.

• Unit costs are $8 (variable) + $50,000/10,000 (fixed) or $13/unit.

• How do these costs flow through Inventory Accounts?
Product Costing Events

First half of November:

11/ 1: Purchase and receive $60,000 of material (Nov. supply)
11/ 2: Requisition half of the materials to the factory floor ($30,000)
11/ 5: Apply labor to the materials ($5,000)
11/ 7: Recognize depreciation expense for the month ($50,000)
11/ 8: Apply variable OH to the materials ($5,000)
11/ 9: Transfer 5,000 completed calculators from WIP to FG Inventory
11/10: Ship 2,000 completed calculators to customer
# How do Costs Flow through Inventory Accounts?

<table>
<thead>
<tr>
<th></th>
<th>Cash</th>
<th>Raw Mat's Inv</th>
<th>WIP Inv</th>
<th>Fin Goods Inv</th>
<th>Net PP&amp;E</th>
<th>=</th>
<th>Wages Payable</th>
<th>RE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buy Materials</td>
<td>-60</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Requisition half of materials to factory</td>
<td>-30</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply labor</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Apply fixed OH (PP&amp;E depreciation)</td>
<td>50</td>
<td>-50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apply variable OH</td>
<td>-5</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer to FG inventory</td>
<td>-65</td>
<td>65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sell 2,000 units</td>
<td></td>
<td>-26</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>-26</td>
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</table>
Key Strategic Management Decisions

- Pricing
- Dropping unprofitable products
- Re-engineering/restructuring
- Making new investments
- Mergers & acquisitions
- Targeting customer groups
Cost Information for Strategic Decisions

- Product Costs
  - Pricing
  - Dropping unprofitable products

- Process/Business Costs
  - Re-engineering/restructuring
  - Making new investments
  - Mergers & acquisitions

- Customer Costs
  - Targeting customer groups
Activity-Based Costing System

Direct Costs
- Direct Labor
- Direct Materials

Overhead Costs
- Indirect Labor
- Indirect Materials
- Depreciation

Activities that drive overhd

Product Costs

15.514 Summer 2003
Examples of Overhead Activities

- Purchase order processing
- Receiving/Inventorying materials
- Inspecting materials
- Processing accounts payable
- Facility maintenance
- Scheduling production
- Customer complaints
- Quality inspection/testing
Typical Activity Cost Drivers

- Number of alteration notices per product
- Units produced
- Number of receipts for materials/parts
- Stockroom transfers
- Direct labor hours
- Set-up hours
- Inspection hours
- Facility hours
- Number of customer complaints
ABC Example

Dialglow Corporation manufactures travel clocks and watches. Overhead costs are currently allocated using direct labor hours, but the controller has recommended an activity-based costing system using the following data:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost Driver</th>
<th>Cost</th>
<th>Clocks</th>
<th>Watches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Setup</td>
<td>No. of Setups</td>
<td>$120,000</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Material Handling &amp; Requisition</td>
<td>No. of Parts</td>
<td>30,000</td>
<td>18</td>
<td>36</td>
</tr>
<tr>
<td>Packaging &amp; Shipping</td>
<td>#Units Shipped</td>
<td>60,000</td>
<td>45,000</td>
<td>75,000</td>
</tr>
<tr>
<td>Total Overhead</td>
<td></td>
<td>$210,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Existing Cost System:

Allocate Total OH based on labor hours
(35,000 hours for travel clocks; 105,000 hours for watches.)

OH Rate:
$210,000/140,000$ hours = $1.50$/hour

OH cost per Travel Clock:
($1.50/hr \times 35,000$ hrs) / 45,000 units = $1.167$

OH cost per Watch:
($1.50/hr \times 105,000$ hrs) / 75,000 units = $2.10$
## ABC Example, contd.

**Allocation of:**
- Production Setup Costs: \( \frac{120,000}{(10+15)} \) setups = $4,800/setup
- Material Handl’g Costs: \( \frac{30,000}{(18+36)} \) part numbers = $555.56/part no.
- Packing/Shipping Costs: \( \frac{60,000}{(45,000+75,000)} \) units = $0.50/unit shipped

### Resulting ABC-based Product Costs:

<table>
<thead>
<tr>
<th></th>
<th>Clocks</th>
<th>Watches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production Setup</td>
<td>$48,000</td>
<td>$72,000</td>
</tr>
<tr>
<td>Material Handling</td>
<td>10,000</td>
<td>20,000</td>
</tr>
<tr>
<td>Packing/Shipping</td>
<td>22,500</td>
<td>37,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$80,500</td>
<td>$129,500</td>
</tr>
<tr>
<td><strong>Per Unit</strong></td>
<td><strong>$1.79</strong></td>
<td><strong>$1.73</strong></td>
</tr>
</tbody>
</table>