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**Problem Definition**

* Classic Pen Company has an ineffective product costing system.

**Quantitative Analysis**

* Exhibit 1 shows how overhead costs related to indirect labour and computer systems have been sub-divided based on activities performed. This provides a more precise cost division than pooling these cost items into single categories. Fringe benefits have been excluded from the cost allocation and instead a 40% premium on all labour costs was included. This reduces the number of costs items and therefore simplifies the company’s understanding of cost drivers.
* Exhibit 2 demonstrates the total overhead costs per cost driver. This will provide information on cost per units of the various cost drivers.
* Exhibit 3 shows the unit product costs for each product category using ABC costing. This method charges to each product its actual consumption of indirect costs, which is more effective than allocating costs based on plant-wide averages.
* Exhibit 4 shows a revised income statement based on ABC overhead allocation. Contrary to Ms. Dempsey’s previous statement, PURPLE and RED pens actually generate operating losses.
* Exhibit 5 demonstrates the percentage revenue of each product category. PURPLE and RED pens only account for 10% of total revenues, a figure that is not that significant compared to the amount of resources they consume to produce.

**Qualitative Analysis**

* The company is making product development decisions based on inaccurate information.
* Increasing the price of PURPLE and RED pens is not a viable option for the company, as pen prices are sold based on a fixed premium driven by market.
* With total annual revenues of $150K, the company most likely cannot sustain a sales manager, a controller, a manufacturing manager, manufacturing and maintenance staff on the payroll.
* Focusing on price rather than profitability and/or revenue potential is not an effective sales strategy if the company’s goal is to maximize profits.
* Since physical changeovers account for 40% of indirect labor, color diversification is costly, especially if volumes are low.

**Recommendation**

* Adopt ABC costing in order to assess the profitability of products more effectively.
* Stop taking orders for RED and PURPLE pens, and once orders are fulfilled, color productions should be discontinued.
* Make longer production runs of BLACK and BLUE to minimize physical changeovers and thereby reduce associated overheads.

## Exhibits

# Exhibit 1: Plant wide overhead cost allocation based on various activities.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Expense Category** | **Expense** | Cost Driver | Total Cost Driver | $ / unit driver |
| Ind. Labor - Scheduling Runs | $10,000.00 | # Runs | 150 | $66.67 |
| Ind. Labor - Changeover | $8,000.00 | Setup Time | 526 | $15.21 |
| Ind. Labor - Records | $2,000.00 | # of Products | 4 | $500.00 |
| Fringe Benefits | $16,000.00 | Total Labor H | Add 40% on LH |  |
| Computer Systems /Run | $8,000.00 | # Runs | 150 | $53.33 |
| Computer Systems - Records | $2,000.00 | # Products | 4 | $500.00 |
| Machinery | $8,000.00 | Machine H | 10000 | $0.80 |
| Maintenance | $4,000.00 | Machine H | 10000 | $0.40 |
| Energy | $2,000.00 | Machine H | 10000 | $0.20 |
| TOTAL | $60,000.00 |  |  |  |

# Exhibit 2: Total overhead cost per cost driver

|  |  |  |
| --- | --- | --- |
| # Runs | |  |
|  | Ind. Labor - Scheduling Runs | $66.67 |
|  | 40% Frings on ind. Labor | $26.67 |
|  | Computer Systems /Run | $53.33 |
| Total OH cost / # Runs | | $146.67 |
|  |  |  |
| Setup Time | |  |
|  | Ind. Labor - Cangeover | $15.21 |
|  | 40% Frings on ind. Labor | $6.08 |
| Total OH / Setup H | | $21.29 |
|  |  |  |
| Machine Hour | |  |
|  | Machinery | $0.80 |
|  | Maintenance | $0.40 |
|  | Energy | $0.20 |
| Total OH / Machine Hour | | $1.40 |
|  |  |  |
| # Products | |  |
|  | Ind. Labor - Records | $500.00 |
|  | 40% Frings on ind. Labor | $200.00 |
|  | Computer Systems - Records | $500.00 |
| Total OH / # Products | | $1,200.00 |

# Exhibit 3: Overhead costs allocated based on resource utilization



# Exhibit 4: Revised income statement

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | BLUE |  | BLACK |  | RED |  | PURPLE |  | TOTAL |
| Sales | | $75,000 |  | $60,000 |  | $13,950 |  | $1,650 |  | $150,600 |
|  |  |  |  |  |  |  |  |  |  |  |
|  | Materials | $25,000 |  | $20,000 |  | $4,680 |  | $550 |  | $50,230 |
|  | Direct Labor | $10,000 |  | $8,000 |  | $1,800 |  | $200 |  | $20,000 |
| Total Direct COGS | | $35,000 |  | $28,000 |  | $6,480 |  | $750 |  | $70,230 |
|  |  |  |  |  |  |  |  |  |  |  |
| Indirect OH costs | | $23,792 |  | $18,398 |  | $13,608 |  | $4,202 |  | $60,000 |
|  |  |  |  |  |  |  |  |  |  |  |
| Total Costs | | $58,792 |  | $46,398 |  | $20,088 |  | $4,952 |  | $130,230 |
|  |  |  |  |  |  |  |  |  |  |  |
| **Operating Income** | | **$16,208** |  | **$13,602** |  | **-$6,138** |  | **-$3,302** |  | **$20,370** |

# Exhibit 5: Revenue % per pen color

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | BLUE |  | BLACK |  | RED |  | PURPLE |  | TOTAL |
| $ Sales | $75,000 |  | $60,000 |  | $13,950 |  | $1,650 |  | $150,600 |
| % Total Sales | 50% |  | 40% |  | 9% |  | 1% |  | 100% |