ACTIVITY BASED COSTING

Unlike the first cost allocation criterion, activity based costing uses a number of cost pools, organized by activity, to allocate the overhead costs (Hirsch, 2006; Cokins, 2001). The main aim of this type of costing is to allocate costs to each cabinet based on their individual use of the costly activities (Heisinger, 2008). Activity based costing is generally implemented in five steps. The first step is to identify the costly activities required to complete the products. In this case the costly activities are all summarized in the table below.

|  |  |
| --- | --- |
| Costly Activity |  Total Cost of Activity |
| Set up costs (6 set ups in march) |    12,200 |
| Purchasing and checking wood edging |      8,000 |
| Purchase of wood |      5,100 |
| Quality inspection of wood edging |      7,400 |
| Dispatch and Transport |    12,000 |
| Administration and personnel costs |           27,600 |
|  |    72,300 |

Notice that the overall total cost for all the activities corresponds to the total cost of overheads in the original profit statement.

The second step is to assign the overhead costs to the activities identified in the first step. This has already been done in the table above.  The third step is to identify the cost drivers for each activity. These drivers are summarized in the table below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Cost Driver** | **Impero** | **Escana** | **Driftwood** | **Total** |
| Wood (metres) per cabinet | 15 | 15 | 10 | 40 |
| Wood edging (metres) per cabinet | 4 | 4 | 0 | 8 |
| Labour (hours) per cabinet | 48 | 40 | 32 | 120 |
| No. of set ups | 2 | 2 | 1 | 5 |
| No. of dispatches | 30 | 120 | 150 | 300 |

After matching the cost drivers, the next step is to determine the overhead application rate for each activity. This is summarized in the table below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activity** | **Cost Driver** | **Total Overhead Cost** | **Total Consumption by Cost Driver** | **Overhead Application Rate** |
| Set up costs (6 set ups in March) | No Set Ups |    12,200 | 6 | 2033.33 |
| Purchasing and checking wood edging | Wood edging |      8,000 | 8 | 1000 |
| Purchase of wood | Wood |      5,100 | 40 | 127.5 |
| Quality inspection of wood edging | Wood edging |      7,400 | 8 | 925 |
| Dispatch and Transport | No. of Dispatches |    12,000 | 300 | 40 |
| Administration and personnel costs | Labour hours |           27,600 | 120 | 230 |

The reason why the number of set ups and the number of dispatches were chosen as the cost drivers for the set up costs and dispatch and transport costs respectively, is rather obvious. The number of sets has without a doubt the most significant influence on the set up costs and so does the number of dispatches with regard to the dispatch and transport cost. The same applies to wood and purchase of wood; and wood edging and purchase and checking of wood edging. Because quality inspection of wood edging cannot take place when the products being inspected do not contain any wood edging, it was also more prudent to use wood edging as a cost driver for the inspection as opposed to labour hours. If this were the case, then the cost of the inspection would also apply to Driftwood, which is not made out of any wood edging. Finally, labour hours were selected for the administrative and personnel costs because the latter are incurred when paying the workers who engage either directly or indirectly in production of the cabinets and paying for the utilities they used in order to achieve these tasks. Additionally, the work performed by personnel is traditionally measured in labour hours (Chapman, et al., 2007).

Once the overhead application rates have been established, overhead costs are allocated to each individual product as illustrated below

|  |
| --- |
| **Impero** |
| Materials | Application Rate | Cost Driver Activity | Cost |
| Set up costs | 2,033.33 | 2 | 4,066.67 |
| Purchasing and checking wood edging | 1,000.00 | 4 | 4,000.00 |
| Purchase of wood | 127.50 | 15 | 1,912.50 |
| Quality inspection of wood edging | 925.00 | 4 | 3,700.00 |
| Dispatch and Transport | 40.00 | 30 | 1,200.00 |
| Administration and personnel costs | 230.00 | 48 | 11,040.00 |
|  |  |  | 25,919.17 |

|  |
| --- |
| **Escana** |
| Materials |  Application Rate | Cost Driver Activity | Cost |
| Set up costs |         2,033.33 | 2 |      4,066.67 |
| Purchasing and checking wood edging |         1,000.00 | 4 |      4,000.00 |
| Purchase of wood |             127.50 | 15 |      1,912.50 |
| Quality inspection of wood edging |             925.00 | 4 |      3,700.00 |
| Dispatch and Transport |               40.00 | 120 |      4,800.00 |
| Administration and personnel costs |             230.00 | 40 |      9,200.00 |
|  |  |  |   27,679.17 |

|  |
| --- |
| **Driftwood** |
| Materials |  Application Rate | Cost Driver Activity | Cost |
| Set up costs |         2,033.33 | 1 |      2,033.33 |
| Purchasing and checking wood edging |         1,000.00 | 0 |                   – |
| Purchase of wood |             127.50 | 10 |      1,275.00 |
| Quality inspection of wood edging |             925.00 | 0 |                   – |
| Dispatch and Transport |               40.00 | 150 |      6,000.00 |
| Administration and personnel costs |             230.00 | 32 |      7,360.00 |
|  |  |  |   16,668.33 |

The Revised Profit statement will appear as shown below

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sales Revenue |  | 167,100 |  |  |
| Material Costs |       37,000.00 |  |  |  |
| Labour Costs |       57,600.00 |  |  |  |
| Overheads |       70,266.67 |           164,867 |  |  |
| Profit |  |               2,233 |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  | **Impero** | **Escana** | **Driftwood** |
| Units produced and sold during March |  | 40 | 120 | 150 |
|  |  |  £ |  £ |  £ |
| Selling price per table |  |             780.00 |         570.00 |      450.00 |
| Less: Cost per table |  |  |  |  |
| Material |  |             160.00 |         130.00 |      100.00 |
| Labour |  |             240.00 |         200.00 |      160.00 |
| Overhead (Activity based) |  |             647.98 |         230.66 |      111.12 |
|  |  |         1,047.98 |         560.66 |      371.12 |
| Profit per table |  | (267.98) |              9.34 |         78.88 |

It should be noted that the profit in this case is slightly higher than the profit in the first case because the cost of the sixth set up has not been included in the overhead cost, perhaps because the job associated with that set up spilled over to the next month.

The revised profit statement provides an adequate basis to make decisions on the future production volume and price of the Driftwood. This is because it provides a more accurate analysis of the overhead costs associated with the design. As aforementioned, it would be wrong to charge any cost associated with wood ending to Driftwood because none of its parts are made out of edge wood. For this reason the cost of each material is charged to the most appropriate cabinet design. The cost allocation method used to derive this profit statement essentially helps the management to identify those activities or product that do not add value to the organization, which in turn have to be eliminated. In this case the method suggests that Driftwood should not be eliminated because it is apparently the most profitable cabinet for the company to produce.

The profitability for all the three products changed because a different costing technique was adopted. While all the overhead costs were initially allocated basing on labour hours, the allocation of costs in this second technique is activity based. This implies that all the costly activities had to be traced in the three products before they could be charged on them. If a product did not require any of the activities then there was no point in charging the cost of the activity on the product. Other than that, the costs associated with these activities were allocated on a pro rata basis in order to determine the actual contribution of the individual products to the overall profitability of the firm. Instead of registering a profit, Impero was characterized by a loss because it  had the most cost driver activities with the highest overhead application rates. On the other hand, instead of breaking even, the profitability of Escana increased slightly while that of Driftwood increased remarkably because of the elimination of wood edging costs. I would adopt the activity based costing technique before making the final decision because it is more accurate.

It is difficult to trace a company’s service costs to any particular customer. As such, most organizations generally allocate these costs to each customer based on their share of the company’s total revenues (Hansen, et al., 2009). If for instance a customer accounts for 5% of its total revenues, the company allocates them 5% of the service cost. The company then uses this cost to determine the margin for each customer.  This is however a very inaccurate measure of profitability. An organization should adopt an activity based costing system that accounts for the costs occasioned by its operating, distribution and marketing activities (Vanderbeck, 2013; Walther & Skousen, 2009). To achieve this, customer services costs should be categorized and billed according to the level of activity associated with each individual customer (Macintosh & Quattrone, 2009).  As opposed to expressing service costs as a percentage of the total revenue for each customer, it should be assumed that service costs are directly proportional to activities such as product handling, taking orders from customers, delivering the product, expediting deliveries and sales visits for each individual customer. With this system, the first step is to estimate the unit costs for each of these activities for instance by dividing the total cost for each activity by its cost driver. The unit cost for the activities should then be used to derive the activity based costs for each of the customers, which are in turn summed up to determine the total costs for the customers.

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