

The ABCs of Cost Allocation in the Wood Products Industry: Applications in the Furniture Industry

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Introduction

Every manufacturing firm requires allocation of raw materials consumption, labor, and overhead expenses to processed goods in order to determine the final manufacturing costs. In most industries, manufacturing costs range from 60 to 70 percent of the final sale price. Therefore, the need for effective cost allocation systems is vital to control manufacturing costs. In manufacturing firms such as the furniture industries, raw materials and labor might be assigned directly to a product, process, or activity. However, some overhead or indirect costs require the establishment of distributing or cost driving bases to allocate them to final goods.

This publication was developed based on concerns from furniture producers that more training in cost accounting methods should be available for practitioners. The paper discusses the basics of cost accounting and explains the strengths and weaknesses of two cost accounting techniques — the direct method and the activity-based costing (ABC) method — using simple examples and applications in the furniture industry.

The Impact of Cost in Manufacturing

Manufacturing costs including design and engineering activities have critical impacts on overall manufacturing costs. Many of the problems encountered in manufacturing can be traced back to the design process. In wood products companies such as furniture firms, there are many manufacturing problems that arise because of a bad design.

Figure 1 shows the behavior of total cost as a function of time (from design to manufacturing). As much as

80 percent of total costs is committed during the first 20 percent of lead time. However, less than 2 percent of total sales is spent or allocated to design and engineering activities in many industries, including wood products industries. The lack of attention to the design process has harmed the competitiveness and profitability of the wood products industry, which might have significant savings down the production stream if design factors such as engineering, tooling design, finishing, and tolerances were considered when designing a new product.

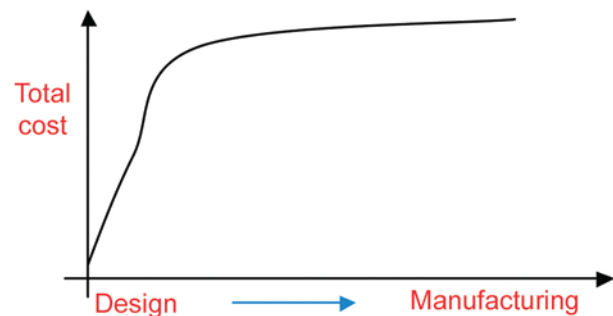


Figure 1. Product life cycle and relationship with cost (Dorf and Kusiak 1994).

Specific assertions about cost commitment in design are offered by Dorf and Kusiak (1994).

- Factors such as quality and lead time are mostly design problems, not manufacturing problems.
- Market loss by U.S. companies is primarily due to design deficiencies.
- Many technical problems associated with manufacturing are traceable to design problems.
- The best opportunities to compete in the global marketplace are found in engineering design.

Take the example of a wooden case that was made of four side panels cut out independently and required special hardware and glue (figure 2). Long lead times, quality problems resulting in customer complaints, and reprocessing sent product costs out of control. Though market analysis showed demand for this product, cost and quality specifications could not be met under the current poor design.



Figure 2. Example of a reinvented product.

After the engineering group met and analyzed the situation, it was decided that the product needed to be redesigned. This redesign from four different panels to one single panel that folds to form the case reduced lead times by 75 percent and reduced customer complaints, reprocesses, and overall costs by 50 percent.

There are several ways we can classify costs to accommodate accounting system requirements (figure 3). The use of information technologies also plays an important role here, because these classifications might depend

on how powerful the technology is to maintain the cost accounting system. For instance, a wood products firm might not be interested in analyzing monthly income and balance and cash flow statements of its production operations. Instead, the company might like to have a detailed report on how much cost was consumed by every product. Other firms would like to use both reporting strategies. It all depends on how many resources the firm has to collect, prepare, analyze, and report financial information.

When a firm would like to know precisely how much raw material is being consumed by a product, process, or activity cost, traceability becomes critical for managers. There are raw materials that can be precisely traced to the final product (direct materials) but others become difficult to quantify and allocate (overhead or indirect materials). For instance, it is relatively easy to quantify how many board feet (BF) of red oak are required to manufacture a piece of furniture. However, it is not as easy to quantify the exact amount of glue or paint required for the same piece of furniture.

For other managers, it is important to know what portion of the cost is considered fixed or variable. “Fixed” costs are important because no matter how much production is processed, the company will have fixed costs. Rent, depreciation, managers’ or supervisors’ salaries, and loan payments are all considered fixed costs.

On the other hand, there are costs that increase or decrease depending on the production volume. The amount of labor and direct and indirect materials are all considered “variable” costs because they depend on the production volume.

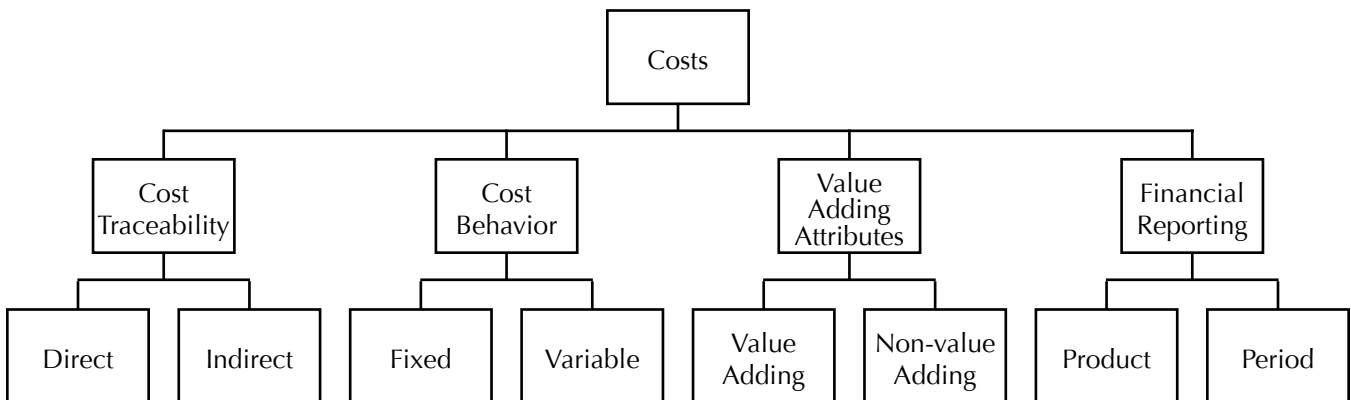


Figure 3. Cost classification (Clinton and Van der Merwe 2006).

Relationship of Manufacturing Cost and Lean¹ Thinking

A manager might also consider that every activity in the production process could be classified as value-added or nonvalue-added activities. When managers use this strategy, the organization is focused on value-added processes and the goal is to eliminate all activities that are considered waste, nonvalue-adding, or cost producers.

Under this classification, managers will have to clearly identify activities that are strictly necessary to produce the goods or services. These activities will absorb the cost based on cost drivers that are also defined by the managers. Later, the cost is translated to the goods or services, depending on how much of the cost driver (distribution-based) was consumed by every product. This approach helps the company understand that cost cannot be controlled, but the activities that generate costs can be. Therefore, the activities that generate too much cost or waste can be minimized or perhaps eliminated, increasing the added value of the goods or services.

As an example, a hardwood flooring manufacturer has adopted this classification scheme for costs. All activities related to the production of hardwood flooring have been classified as either nonvalue-added or value-added activities. One of the activities — transportation from the lumberyard to the kiln drying operation — was absorbing too much cost. The manager decided to carefully analyze this activity by breaking it into smaller

steps. After further consideration of all steps, the manager made a 25 percent cost reduction by redesigning the overall activity.

Elements of Product Cost

Cost can be classified depending on the financial format used for reporting. For manufacturing companies, cost is usually reported based on product cost. Under this reporting format, the cost needs to be broken out into direct materials, direct labor, and overhead/indirect costs (figure 4).

Direct materials costs are directly linked to a product, activity, or process and sometimes are the largest portion of the total costs. Direct materials can be raw materials or subassemblies as well.

Direct labor cost refers to all employees that worked in the manufacturing of a product; they can be allocated by activity, product, or process as well. Collecting direct labor cost information might require intensive use of information technologies, and these costs are a major driver for business strategy in value-added wood products industries such as the furniture industry, which is very labor intensive.

For either direct materials or direct labor costs, information systems are critical to properly collect the required data. In some instances, firms use paper forms to trace direct materials and direct labor for a product, activ-

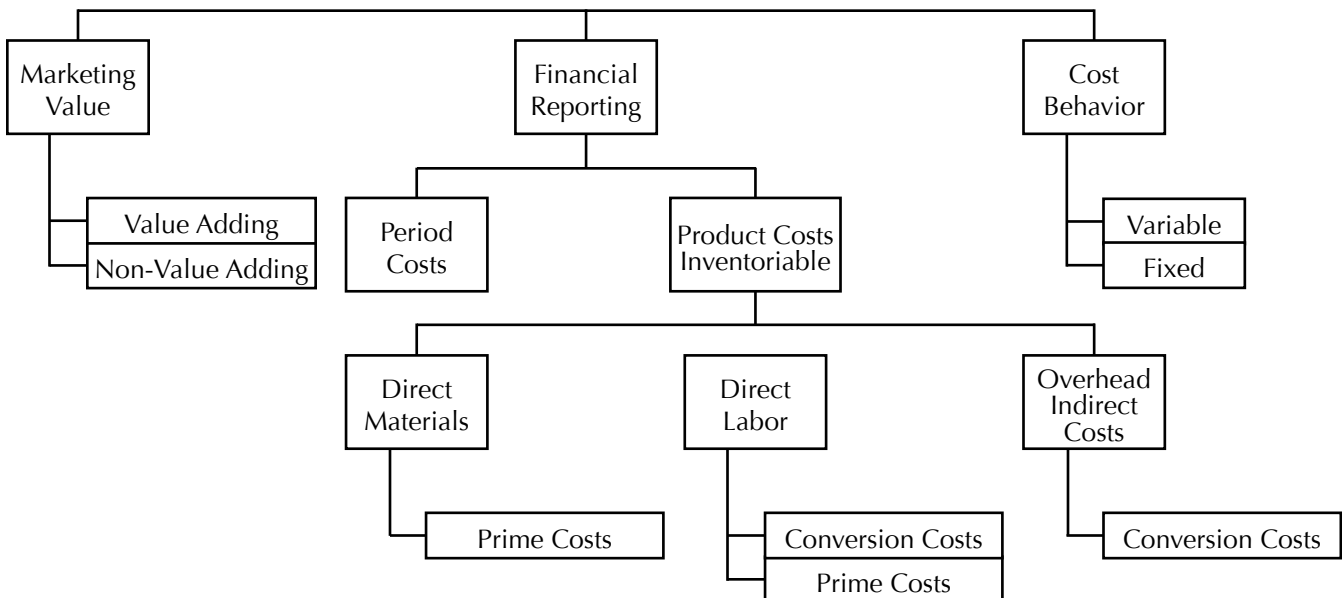


Figure 4. Product cost elements (Hicks 2005).

¹A philosophy that has as a goal to eliminate or minimize waste in manufacturing and service firms by separating value-added from nonvalue-added activities.

ity, or process. Others use more advanced information technologies, such as bar code readers, radio frequency identification (RFID), or similar tools.

All other manufacturing costs that cannot be classified or traced back to the product, activity, or process are considered “indirect costs” or “overhead”; these might include labor, materials, or supplies. Because overhead costs cannot be directly allocated to a product, activity, or process, a cost driver is needed to allocate the cost into a “cost pool.” A cost pool is a collection of indirect costs assigned to a cost object (machine hours, units produced, etc.). Some examples of indirect costs/overhead in a wood products industry include glue, paint, sandpaper, tooling, electricity, hardware, insurance, water, administrative salaries, and energy.

Cost Reporting Systems

As indicated earlier, tracing direct materials and direct labor to a product, activity, or process could be costly and demanding. In wood products industries, two types of cost reporting systems are customary: job order and process cost. “Job-order costing systems” are used if the wood products company produces large, unique, special-order, or made-to-order products (figure 5).

Order #	452	Date	4/4/2009
Customer Name	Radford public library		
Product Description	Solid wood bookshelves		
Number of Units	100		
Materials	Bf/unit	Cost/bf	Total cost
Cherry 11/4	30	7	\$21,000.00
Type of Finish	Lacquer		
Labor requirements	Cost/h	\$ 11.5	
Cross cutting	# hours/u	Total hours	Total cost
Ripping	0.75	75	\$ 852.50
Machining	0.25	25	\$ 287.50
Sanding	0.2	20	\$ 230.00
Assembly	1.25	125	\$ 1,437.50
Finishing	0.2	20	\$ 230.00
Packaging	0.1	10	\$ 115.00
	Total hours	275	\$ 3,162.50
	Estimated overhead		\$ 5,250.00
	Total cost order		\$29,412.50
	Total unit cost		\$ 294.13

Figure 5. A format to report cost for a job order cost system.

This type of system is very effective at measuring the cost of each final unit, and therefore, to control cost budgets. Also, indirect costs are reported and charged to an overhead account that is later allocated to the final products using a cost driver.

“Process costing systems” are more fit to wood products industries such as softwood sawmills, OSB, plywood, or hardwood floorings that produce large amounts of similar products or have a continuous product flow process. In this case, direct materials, direct labor, and overhead are traced back to processes or cost centers and then assigned to the products processed in those cost centers, depending on the amount of cost drivers consumed (machine hours, direct labor time, number of employees, etc.). Some other examples of wood products industries that would use process costing systems are paper, laminated veneer lumber, or pellet manufacturing firms.

Figure 6 shows an example of a process costing system report card used by a railroad tie manufacturer. In this costing system, all cost elements are traced back to the processes or cost centers. At the end of the accounting period, the amount of product produced is calculated and a cost per unit is determined.

Calculation of Cost of Goods Sold

In a manufacturing environment such as a wood products firm, the cost of goods sold (COGS) needs to be reported in the income statement, balance sheet, and cash flow statements as inventory costs. The calculation of COGS is a reporting requirement to comply with regulatory issues from state and federal organizations and does not necessarily help in understanding whether or not a company is properly managing its costs. COGS calculations will help a company report how much inventory it has as raw materials, work in process (WIP), and finished inventory. Inventory valuation methods vary, but the most-used method is based on the “first-in, first-out” (FIFO) rule, which values inventory based on its purchase price.

Table 1 shows an example of COGS calculations using raw material inventory at the beginning, how much was purchased during the same period, and how much raw material was used (passed to the work-in-process inventory). The amount of raw material inventory used then becomes “purchases” in the second column, WIP inventory. In this column, in addition to the purchases of raw material, we need to add labor and overhead.

VA Railroad Ties Incorp.										
Date	4/20/2009									
Process	Materials				Labor				Overhead	Total cost
	Material	BF	Unit/cost	Total cost	# employees	Hour/shift	Total hours	Labor cost		
Sawmill	YP	25000	2.5	\$62,500.00	3	7.5	22.5	\$258.75	\$12,500.00	\$75,258.75
Ripping					2	7	14	\$ 161.00	\$ 32.20	\$ 193.20
Crosscutting					2	7	14	\$ 161.00	\$ 32.20	\$ 193.20
Grading					5	8	40	\$ 460.00	\$ 9200	\$ 552.00
Palletizing					3	6	18	\$ 207.00	\$ 41.40	\$ 248.40
Storage					2	8	16	\$ 184.00	\$ 36.80	\$ 220.80
Totals				\$62,500.00				\$ 1,431.75	\$12,734.60	\$76,666.35
Total finished product	8000 BF									
Cost/bf finished product	\$ 9.58									

Figure 6. Sample of a process costing system report card for a railroad tie manufacturer.

Table 1. Calculation of COGS for a wood products manufacturer.

	Raw materials (\$)	Work in process (\$)	Finished goods (\$)
Beginning inventory	50	75	100
Purchases	150	125	225
Labor used	0	40	0
Other cost	0	10	0
Total cost	200	250	325
Materials used	125	225	175
Ending inventory	75	25	150

Therefore, the total cost for the WIP column is calculated as

$$\text{WIP total cost} = \text{beginning inventory} + \text{purchases (raw materials)} + \text{labor} + \text{other costs}$$

To calculate the cost of finished goods, we use the formula

$$\text{cost of finished goods} = \text{beginning inventory} + \text{purchases (from WIP)} + \text{labor} + \text{other costs}$$

Notice that in this example, the COGS is obtained from the finished goods column and is 175. This would be the amount reported in the income statement. Although we produced 225 units (“materials used” in WIP column), we only used (sold) 175 units. The balance, 150 units, in the finished goods column will be the beginning inventory for the next period to fulfill the COGS

accounting requirements, though it does not really help to evaluate and analyze which products, processes, or activities are consuming manufacturing costs.

Traditional Cost Systems: The Direct Method

A bad estimate of product and process costs could lead to increases in overhead and lot sizes, quality problems, unnecessary higher inventory levels, and other types of waste that affect the performance of the firm. Also, extended lead times could potentially result in delays, thus increasing customer dissatisfaction.

Traditional cost systems such as the direct method are very popular because of their simplicity and low cost to maintain. However, they carry the potential for many problems. For instance, the use of a single cost driver to allocate overhead might hide critical cost issues that could harm the company’s performance. The use of direct labor as the cost driver to allocate overhead has been the norm in manufacturing firms such as furniture industries. In the past, this was acceptable because direct labor was the major cost component in furniture firms, among other wood products industries.

Today, firms have reduced labor and increased automation, and now different cost drivers need to be used to better control overhead. We have seen this problem — particularly in furniture industries where computer numerical control (CNC) equipment has been acquired with the only purpose of reducing direct labor — with numerous costly consequences for many furniture manufacturers. Figure 7 shows an example of CNC equipment actually used in an institutional furniture industry.



Figure 7. Computer numerical control (CNC) equipment with dual table used in an institutional furniture factory.

Traditional accounting systems rely mostly on cost drivers originated from direct costs (materials and labor) to allocate overhead, and a two-stage process is used. First, overhead is reported to cost centers. Second, the overhead is distributed from the cost centers to the actual products, depending on the amount of cost driver consumed by each product in a specific cost center. This way of calculating cost does not provide an effective operating management performance system that can help managers obtain relevant product and process information that can lead to improvements, as we noticed in the previous section.

Table 2 demonstrates an example from a small and medium enterprise (SME) reporting cost system by processes (cost centers).

This SME has four cost centers — rough cutting, machining, assembly, and finishing — and the table shows the overhead costs and direct labor hours that were reported to each cost center. Employees turn in a daily report at the end of their shifts specifying which production orders they worked on during the shift. With this information, the supervisor inputs the employee’s name, the cost center where he/she worked, and the distribution of time by production order into the cost reporting system. This ensures that the exact amount of direct labor is assigned to a cost center and to a production order.

Every time direct materials such as lumber, hardware, or finishing oil are checked out of the warehouse, the requisition order must specify the cost center and the production order so that a warehouse employee can allocate the materials by both. In the case of indirect materials, only the cost center is reported.

At the end of the accounting period, overhead is allocated to every production order using a cost driver. In this example, table 2 shows that the total reported overhead for the cost center “rough cutting” was \$8,500. This amount might include indirect materials, tools, parts, electricity, and insurance. Everything that cannot be directly allocated to a production order will be labeled as overhead/indirect costs in that cost center. Notice that 704 hours of direct labor were reported for this cost center.

Table 3 shows the cost information for order No. 1232, consisting of 50 red oak chairs. This report says that the order required 4.17 hours at the rough cutting cost center. To determine how much overhead must be allocated for the order in that cost center, the percentage of direct labor (4.17 hours) to total rough cutting direct labor (704 hours, from table 2) is taken. This calculation is 0.5923 percent, which must be multiplied by the total overhead cost allocated in the rough cutting cost center (\$8,500). This results in \$50.30 as overhead for the order in the rough cutting cost center. The reader can use the same procedure to verify the overhead cost allocation for the other cost centers for order No. 1232. The total cost of this order was calculated at \$4,365.10 and the unit cost was calculated at \$87.30.

This example illustrates a potential problem associated with the use of direct labor as a cost driver for allocating overhead. Notice that the raw material cost for order No. 1232 in the rough cutting cost center (table 3) was \$600, while labor was only \$75. Instead of using direct labor as the cost driver, the manager should have used raw materials as the driver — the more expensive resource. For “machining,” it makes sense to use direct labor as the cost driver, because labor is a much higher cost.

Traditional costing methods, including the direct method, might lead to the use of traditional accounting performance measures, such as direct labor efficiency,

Table 2. Allocation of overhead and total direct labor by cost centers.

	Rough cutting	Machining	Assembly	Finishing	Total
Total overhead (\$)	\$8,500	\$12,500	\$6,500	\$9,800	\$37,300
Total direct labor (hours)	704	880	704	352	2,640

Table 3. Allocation of overhead to a single product using direct labor as the allocating base.

Order 1232	No. of units	Material	Model		
	50	oak chairs	Model AF-50		
	Rough cutting	Machining	Assembly	Finishing	Total cost
Raw materials	\$600.00	–	\$750.00	\$150.00	\$1,500.00
Direct labor (hours)	4.17	25.00	50.00	12.50	91.70
Direct labor (\$)	\$75.00	\$450.00	\$900.00	\$225.00	\$1,650.00
Overhead	\$50.35				
\$355.11	\$461.65	\$348.01	\$1,215.12		
				Total order cost	\$4,365.12
				Unit cost	\$ 87.30

direct labor use, direct labor productivity, machine use, and others that will not help the manager determine an overall picture of what is really going on. For example, there is no information on how many production orders and deliveries are required to complete a customer order. On the other hand, the direct costing method is easy to understand and requires the least amount of resources for its management.

Activity-Based Costing Method

The activity-based costing method was introduced in the late 1970s by the Consortium for Advanced Management-International (CAM-I), which provided leadership in the introduction of the ABC method. Kaplan and Bruns (1987) see the ABC method as a better resource to allocate increasing overhead than traditional costing due to the increasing use of technology and automation. Also, the ABC method is more oriented to customer demand than the traditional method because it distinguishes value-added activities from nonvalue-added activities. The ABC method has a goal of identifying cause and effect relationships to objectively assign costs.

Some of the most important characteristics of the ABC method are:

- It provides insight into the fastest-growing and least-visible element of cost overhead.
- It improves profitability by monitoring total life cycle cost and performance.
- It improves the effectiveness of budgeting by identifying the cost/performance relationship of different service levels.

- It encourages continuous improvement and total quality control because planning and control are directed at the process level.
- It links corporate strategy to operational decision making.
- It facilitates the elimination of waste by providing visibility of nonvalue-added activities.
- It improves make-or-buy decisions, estimating, and pricing decisions that are based on product costs that mirror the manufacturing process.

The ABC method has evolved from a product cost tool to a performance enhancement tool that helps to compute a more accurate cost. This, of course, is of minimal value unless there is an associated effort to reduce cost and improve performance.

The ABC method has some limitations. For instance, an ABC information system method might be very expensive to implement and requires special expertise. It has lost ground to the economic value-added (EVA) analysis and the balance scorecard methodology as a strategic tool. Finally, gathering and maintaining accurate activity information has always been the Achilles heel of the ABC method.

In traditional costing, the cost objects (products, processes, or activities) consume cost and it is assumed that the cost is controllable. The ABC method assigns the cost to specific activities and those activities are related to the cost objects by the activity drivers (figure 8). This premise is critical in order to understand that the only way to control costs is by analyzing those activi-

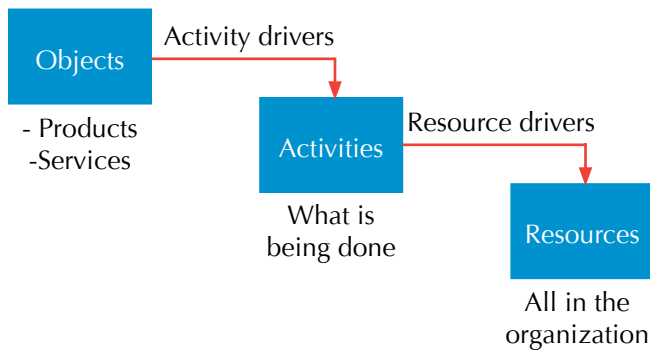


Figure 8. Concept of value-added activities in the activity-based costing (ABC) method.

ties. Notice also that every activity will be related to the organizational resources by means of resource drivers. The cost drivers can be defined as a cause and effect relationship between the cost objects and the activities. These drivers are also considered an estimate of cost behavior, and they help to find critical cost factors.

In a manufacturing firm, cost drivers can occur at four different levels: unit, batch, product, and factory levels.

Unit Level

A cost driver at the unit level only affects one production unit and its costs. Direct labor and direct materials are considered cost drivers at the unit level. In other words, the cost can be traced directly to the unit product. Table 4 shows cost drivers at the unit level for three types of chairs in a furniture company. Notice that direct materials and direct labor are directly assigned to every product unit.

Table 4. Example of cost drivers at the unit level.

Cost items	Chairs			Total
	A	B	C	
Sales and production (units)	300	100	50	450
Raw materials usage (units)	35	20	40	14,500
Direct materials cost (\$/unit)	\$22.75	\$13.00	\$26.00	\$9,425.00
Direct labor hours (hours/unit)	5	6	3	2,250
Direct labor cost (\$/unit)	\$67.50	\$81.00	\$40.50	\$30,375.00

Batch Level

A batch-level cost driver might affect the entire production lot when it is produced or inspected. Examples of cost drivers at the batch level are the number of machine setups, number of required receiving batches, and number of required deliveries to a customer.

Table 5 shows the reported overhead costs of the list of cost activities identified in the same furniture company as in table 4. Table 6 shows that the cost drivers (cost items) of every activity are broken down by product type (A, B, and C). For instance, chair type A requires six production runs and three deliveries to the end customers.

Table 5. Overhead costs.

Overhead costs	\$
Setup	\$ 5,000
Machines	6,500
Receiving	6,500
Packing	8,500
Engineering	6,500
Insurance	4,500
Utilities	15,500
Total	\$53,000

Table 6. Cost drivers for three products.

Cost items	Chairs			Total
	A	B	C	
Machine hours (hours/unit)	4	2	5	1,650
No. of production runs (runs/total units)	6	2	1	9
No. of deliveries (deliveries/total units)	3	5	10	18
Area used by product (sq ft)	25,000	15,000	10,000	50,000
No. of receipts (receipts/total units)	4	4	1	9
No. of production orders (order/total units)	2	5	10	17

Product Level

Product-level cost drivers come from cost activities that support product activities, like product engineering, order processing, or order scheduling. In table 5, for instance, engineering is the cost activity at the product level and its cost driver is the number of production orders in table 6. For the case of product, type A is required for two production orders.

Factory Level

Finally, factory-level cost drivers come from cost activities that support the operation of the entire facility, such as utilities, insurance, security, and building maintenance. Table 5 shows insurance and utilities cost activities as factory-level activities and their cost driver is the area used by product (they use the same cost driver) in table 6.

ABC Calculations

Once we have determined the cost activities, the cost activities' costs, and their cost drivers, we can calculate the value of each cost driver. For example, we will calculate the value of the cost driver scheduling (engineering). From tables 5 and 6, we know that engineering has a reported cost of \$6,500 and a total of 17 production orders were scheduled. Based on this information, we know that every time we schedule a production order, it costs \$382.40. Similar calculations can be performed to get the other driver cost values shown in figure 9.

Once the value of each cost driver is calculated, we can determine how much of that cost driver value corresponds to each individual product. For instance, from figure 9 the delivery cost driver was estimated at \$472.20 per delivery. To calculate how much of that cost driver corresponds to every individual product of type B, we multiply \$472.20 per delivery by five deliveries. The result of this is then divided by the number of product type B (100). This yields \$23.61 per unit B. Figure 10 shows the calculations for the other two products. Notice that the sum of each column is the overhead for every product.

Table 7 shows a summary of the final unit costs for each type of product. By looking at table 7, we can see that the final cost, for instance, of product A is \$167.35 — the sum of direct materials and direct labor costs (from table 4) and overhead (from). If we were to calculate the cost of these three products using conventional costing techniques, the results would be as shown in figure 11.

Cost pools	Drivers	Value of driver
Machine usage	Hour rate	\$ 3.9
Set ups	cost/set up	\$ 555.6
Receiving	cost/receive	\$ 722.2
Delivery	cost/package	\$ 472.2
Scheduling	cost/order	\$ 382.4 \$6500 ÷ 17 orders = \$382.4
Insurance	cost/ft ²	\$ 0.1
Utilities	cost/ft ²	\$ 0.3

Figure 9. Value of cost drivers.

Overhead cost	A	B	C
Machine	15.76	7.88	19.70
Set up cost	11.11	11.11	11.11
Receiving cost	9.63	28.89	14.44
Delivery cost	4.72	23.61	94.44
Scheduling Cost	2.55	19.12	76.47
Insurance cost	7.50	13.50	18.00
Utilities cost	25.83	46.50	62.00
Total overhead	77.10	150.61	296.17

\$472.2 for every delivery
 5 deliveries
 100 products B
 $(\$472.2 * 5) \div 100 = \$23.61/\text{unit B}$

Figure 10. Overhead calculation for individual products.

Table 7. Summary of cost calculations.

Cost	A	B	C
Direct materials	\$ 22.75	\$ 13.00	\$ 26.00
Direct labor	67.50	81.00	40.50
Overhead	77.10	150.61	296.17
Unit cost	\$167.35	\$244.61	\$296.17

The top section of figure 11 shows the results of cost calculations using three different methods. The conventional (direct) method uses the number of labor hours to distribute the overhead to every product.

The multiple allocation method combines more than one type of cost driver to do the same allocation.

For instance, the overhead allocation found by using the direct method could be very misleading because it does not show hidden critical cost factors that might be affecting the total cost calculations. Take a look at product C. The unit cost of product C using the direct method is \$137.17; using the ABC method, the unit cost is \$362.67. The reason behind this difference is

Unit cost	A	B	C
Direct Method	208.03	235.33	137.17
Multiple allocation method	205.53	169.48	283.88
ABC	167.35	244.61	362.67

Overhead	A	B	C
Direct Method	117.78	141.33	70.67
Multiple allocation method •	115.28	75.48	217.38
ABC	77.10	150.61	296.17

Overhead as a % of total cost	A	B	C
Direct Method	57%	60%	52%
Multiple allocation method	56%	45%	• 77%
ABC	46%	62%	• 82%

Figure 11. Comparison between the traditional costing and ABC methods.

that the direct method does not consider that product C requires 10 deliveries, compared to only three deliveries for product A and five for product B.

Also, product C requires 10 production orders, compared to two for product A and five for product B. This tells us that 82 percent of the cost of product C is overhead (small volume, too many deliveries and production orders) and the direct method was not able to account for this. This analysis shows that perhaps product C is not a good fit for this firm because the overhead is too much compared to the other products, unless the company is getting a good profit from it.

Final Remarks

Effective cost management is critical to making sure that manufacturing firms are controlling their value-added processes. Techniques such as the ABC method can be very helpful to better control costs by focusing on the activities that create value. As this publication shows, cost has three main elements: direct materials, direct labor, and overhead.

Conventional costing techniques, such as the direct method, allow for a rapid allocation of overhead costs according to a distribution or cost driver base. However, this allocation technique fails to recognize and separate products that are consuming too much overhead, leading to cost-inefficient organizations and poor profitability.

Instead, the ABC method is process-oriented and gathers information from the processes. It can be used to identify what needs to be done, helping to allocate resources most productively. Also, the ABC method gives managers the ability to match the resource needs with available capacity, hence improving productivity compared to traditional costing systems that give no decision support in allocating capacity to match resource needs.

Although the ABC method has some advantages over traditional costing techniques, the implementation of this solution might take more time and resources than traditional costing techniques; however, the cost savings in the long term could offset such implementation costs.

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Appendix: Cost Management Information

Related Books

Blocher, E. J., D. E. Stout, G. Cokins, and K. H. Chen. 2008. *Cost Management: A Strategic Emphasis*. 4th ed. New York: McGraw-Hill.

Hilton, Ronald W., Michael W. Maher, and Frank H. Selto. 2000. *Cost Management: Strategies for Business Decisions*. New York: McGraw-Hill.

Williston, E. M. 1991. *Value-Added Wood Products: Manufacturing and Marketing Strategies*. San Francisco: Miller Freeman.

Cost Management Training

Cost Management for Wood Products Industries. Online continuing education course; Henry Quesada, instructor. Virginia Tech. Available at www.vto.vt.edu/course_noncredit.php?cid=1710.

Cost Management Templates

Go to <http://pubs.ext.vt.edu/420/420-147/CostManagementTemplate.xls> to download an Excel template with three cost allocation methods.