Problems evaluating sales representative performance?
Try activity-based costing

Victoria Dickinson\textsuperscript{a}, John C. Lere\textsuperscript{b,*}

\textsuperscript{a}School of Business, University of Wisconsin-Madison, Madison, WI 53706-1323, USA
\textsuperscript{b}Department of Accounting, St. Cloud State University, 720 4th Avenue S, St. Cloud, MN 56301-4498, USA

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Abstract

Activity-based costing (ABC) offers a way to improve performance evaluation by providing estimates of the cost of satisfying sales terms to which a sales representative may agree, such as number of batches in which an order is produced and number of training hours provided to customer employees. It also provides estimates of the cost of resources that a sales representative may use while engaging in marketing activities, such as making sales calls and attending trade shows. Traditional costing, which assumes that costs only vary at the unit level, does not provide estimates of the costs of many of these terms and activities.

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1. Introduction

Is the compensation of your sales representatives growing rapidly while your profit declines? Are your marketing costs increasing while sales remain unchanged? Do you feel that the cost estimates provided by your accounting system are not helpful to you as you evaluate sales representative performance?

If the answers to these questions are “yes,” activity-based costing (ABC), a relatively new type of costing system, which analyzes a company’s costs differently than does a traditional costing system, may provide the answers to these and other important concerns facing you in your role as marketing manager.

Although ABC is frequently thought of in the context of manufacturing cost [1–4], it has the potential to provide cost data to facilitate decision making for decisions well beyond those related to the manufacture of a product [5]. The present paper describes ways in which ABC can facilitate managing the marketing function. Specifically, it explores the potential of ABC to enhance performance evaluation for sales representatives.

Understanding ABC and how it can facilitate decision making is important to a marketing manager for two reasons. First, a change to an ABC system provides the potential for the accounting department to provide cost data for more informed decision-making. However, it is up to the marketing manager to ask for this data and to understand what it means and how it can help. Second, initiatives to change accounting systems should come from those who use the figures provided by the system. An appreciation for the potential benefits of an ABC system may suggest to the marketing manager that a change to an ABC system will be desirable. In this case, the marketing function can join with other users who may benefit from ABC cost data to push for a change.

Section 2 contrasts the types of data available from an ABC system with that available from a traditional costing system with an emphasis on those features that can assist the marketing manager in managing the marketing function. ABC data can assist the marketing manager by providing a more appropriate measure of a sales representative’s output to use in evaluating the performance of and determining appropriate rewards for individual sales representatives.

Separate sections of the paper demonstrate how ABC data
reflect (1) the impact of terms negotiated by a sales representative and (2) resources used by sales representatives on firm cost and profitability. The concluding section of the paper provides a summary.

2. ABC versus traditional costing

The important distinctions between ABC and traditional costing can be divided into issues of cost behavior and issues of cost assignment. This section briefly reviews these distinctions using manufacturing cost examples. Later sections expand this discussion to customer service costs and marketing costs.

When applied in manufacturing, differences between ABC and traditional costing are related to the handling of manufacturing overhead (all production-related costs that are not direct materials or direct labor).

Traditional costing divides costs into those that vary with some measure of volume, “variable costs,” and those that do not vary, “fixed costs.” For manufacturing overhead, the volume measure used is units produced or one that varies with units produced, such as direct labor hours (DLHs) worked or machine hours worked.

GMI, a hypothetical firm that manufactures products to customer specifications, provides an illustration. A portion of GMI’s manufacturing overhead increases at the rate of US$4.65/DLH. Therefore, GMI’s variable manufacturing overhead is US$4.65/DLH. Most of the costs that make up GMI’s manufacturing overhead, such as the depreciation cost on the manufacturing facility, the cost of retooling a machine for a new production run, and the cost of redesigning a product, do not vary with volume. At GMI, the total of these fixed manufacturing overhead costs is US$11,610,000.

Unlike traditional costing, ABC recognizes that some costs that do not vary with a volume measure such as DLHs do vary with other measures. In ABC, the activities that cause a cost to be incurred or the measures with which a cost varies are called cost drivers. ABC categorizes drivers by unit-, batch-, and product-level activities. Unit-level activities are those activities that are performed on every unit of product. Examples of unit-level manufacturing activities are machining products, assembling products, and inspecting products. Batch-level activities are performed on a group of units and usually include activities such as machine set-up and material handling. Product-level activities are tasks that relate to a specific product in its entirety and can include design re-engineering, product design testing, and parts administration.

As in traditional costing, there are some costs that do not vary with unit-, batch-, or product-level cost drivers. These costs are called facility-level costs. They include costs such as depreciation on equipment and property taxes on facilities, as well as costs associated with such activities as factory security, custodial maintenance, and grounds maintenance [6].

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### Table 1

<table>
<thead>
<tr>
<th>Activity</th>
<th>Level</th>
<th>Cost driver</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power usage</td>
<td>Unit</td>
<td>Machine hours (MH)</td>
<td>US$1.10/MH</td>
</tr>
<tr>
<td>Inspection</td>
<td>Unit</td>
<td>Units</td>
<td>US$2.10/unit</td>
</tr>
<tr>
<td>Machine setup</td>
<td>Batch</td>
<td>Number of setups</td>
<td>US$750.00/setup</td>
</tr>
<tr>
<td>Materials handling</td>
<td>Batch</td>
<td>Moves</td>
<td>US$210.00/move</td>
</tr>
<tr>
<td>Parts administration</td>
<td>Product</td>
<td>Number of new parts</td>
<td>US$1000.00/new part</td>
</tr>
<tr>
<td>Product engineering</td>
<td>Product</td>
<td>Engineering hours (EH)</td>
<td>US$31.00/EH</td>
</tr>
</tbody>
</table>

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GMI identified seven activities: power usage, inspection, machine setup, materials handling, parts administration, product engineering, and providing space. The cost driver and cost per unit of cost driver for each unit-, batch-, and product-level activity are shown in Table 1. The cost per unit of cost driver for each of these activities represents the increase in total manufacturing cost GMI expects for each unit increase in the activity’s cost driver.

Providing space is a facility-level activity. An analysis by GMI’s accountants indicates that the total cost of providing space is US$6,930,000. This cost behaves like the traditional costing fixed cost.

Assigning fixed manufacturing overhead and the cost of facility-level activities to units creates a challenge because these costs do not vary at the unit level. Therefore, these costs are allocated to units.

Because their variable manufacturing overhead varies with DLHs, GMI allocates fixed manufacturing overhead to units using a rate based on DLHs. GMI anticipates that 600,000 DLHs will be worked during the year. This yields a fixed manufacturing overhead rate of US$19.35/DLH (US$11,610,000/600,000 DLH). When combined with GMI’s variable manufacturing overhead rate of US$4.65, this yields a total manufacturing overhead rate of US$24/DLH. The top portion of Table 2 illustrates the computation of the cost for Job #IM939 using this overhead rate.

The bottom part of Table 2 illustrates computation of the cost of Job #IM939 if GMI uses ABC. The direct material and direct labor costs of the job are the same as when a single overhead rate based on DLHs is used. The difference is in the assignment of overhead. Now the cost of each unit-, batch-, and product-level activity is assigned to the job based on the job’s use of that activity.

At GMI, the cost of the facility-level activity is allocated using a rate based on units. Because GMI plans to produce 700,000 units, their allocation rate for providing space is US$9.90/unit (US$6,930,000/700,000 units).

As indicated in Table 2, the traditional costing system results in a higher cost assignment of US$7094 (US$5,500 – US$7094) for Job #IM939.
The ABC cost estimates of interest can be divided into two groups. The first group is cost estimates of special features of a customer order that are negotiated by a sales representative, such as frequency with which goods are shipped or hours of training provided to the customer. The second group is cost estimates that reflect the resources used by sales representatives to achieve the sale, such as preparing special bids, attending trade shows, and making sales calls.

4. Evaluating a sales representative’s output

To close a sale, a sales representative may have the ability to negotiate with a customer on a variety of dimensions of the order in addition to price. The costs of batch- and product-level activities necessary to satisfy the terms negotiated by a sales representative are not estimated by traditional costing because it only recognizes that costs change at the batch level. ABC, however, provides estimates of costs that change at the batch and product level. Sometimes, these costs are included in the cost to manufacture the goods sold. Other times, the costs are related to the marketing function.

Because traditional costing does not provide estimates of the costs of these activities, measures used to evaluate the performance of sales representatives based on traditional costing will not reflect the impact of the negotiated terms. Measures based on ABC will reflect that impact.

4.1. Terms reflected in manufacturing cost

The impact of any term negotiated by a sales representative that in some way affects the manufacture of the product may or may not be reflected in the product cost. If the firm uses ABC to determine its product cost, the impact of terms that require batch- and product-level activities will be reflected in the product cost. If the company uses traditional costing methods, they will not. If the impact is reflected in manufacturing cost, it will also be reflected in gross profit.
Batch-level manufacturing activities at GMI include setting up machines. Therefore, if the customer ordering Job #IM939 originally wished to have the order produced and shipped at the end of each month for 8 months, this would have required GMI to set up machines and incur the associated cost of setups eight times instead of the two times on which the customer finally agreed.

Product-level manufacturing activities at GMI include activities associated with using a part that is unique to a customer’s order. Using nonstandard parts require a number of costly activities. The firm must modify their accounting system to recognize a nonstandard part. Frequently, storage areas have to be modified to provide space for the part. The firm may have to develop a new supplier relationship in order to obtain the nonstandard part requiring actions such as developing credit relationships and adding the new supplier to the payables system. All of these actions result in increased cost to the firm.

If a sales representative agrees to a customer order that requires a nonstandard part, the firm’s cost will increase. ABC will provide an estimate of this cost increase; traditional costing will not.

Batch- and product-level costs related to the manufacture of the product are reflected in the cost to manufacture the product with ABC. There are, however, other costs that are not part of the cost to manufacture the product that can also be affected by the terms agreed to by the sales representative. As in the cost to manufacture the product, these costs can be classified as unit-, batch-, and product-level costs.

4.2. Terms not reflected in manufacturing cost

Although the discussion so far has considered ABC as it is used to estimate the cost to manufacture a product, ABC can also be applied to the marketing function.

Traditional accounting systems treat marketing costs as one aggregate category on the income statement as prescribed by financial accounting standards. As a result, in an effort to present information to outside financial statement users, such as creditors and investors, much of the true power of using marketing cost data in decision-making remains unleashed.

In those cases in which a firm does break down marketing costs for use in performance evaluation, the traditional approach to cost analysis only provides estimates of the unit-level costs. These unit-level costs are subtracted in determining the measure used to evaluate performance. Therefore, this measure reflects the unit level nonmanufacturing costs imposed on the firm by terms agreed to by a sales representative. It is the batch- and product-level costs that are overlooked unless a firm uses ABC.

4.2.1. Batch-level customer service costs

Some customer service activities required to fulfill terms negotiated by a sales representative are batch-level activities. Examples of terms affecting batch-level activities are frequency of shipments, number of delivery destinations, and distance of delivery. These terms affect groups of units as opposed to units themselves.

For example, consider two sales that are the same except that one is to be delivered to one location and the other delivered to three locations. It will be more costly to the firm to make deliveries to three locations. Three loadings will be necessary if the three deliveries are to be made by three trucks. If the same delivery vehicle is used to deliver to all three locations, the truck must be stopped, opened, and closed at each stop. All of these activities take time and consume resources. In addition, extra packing time may be required to group and position the orders to facilitate efficient unloading at the three locations. The costs associated with these batch-level delivery activities, which are not estimated by a traditional accounting system, can be estimated by an ABC system.

4.2.2. Product-level customer service costs

Costs incurred to meet other terms of an agreement are product-level costs. Some examples of product-level costs that are not included in the manufacturing cost are customer training costs and package and label design costs.

Providing 40 hours of training to a customer’s employees will cost more than will providing 20 hours of training. However, this difference in costs does not depend on the number of units that the customer orders or the number of batches in which the order is delivered to the customer. ABC estimates will reflect the difference in product-level training costs; traditional costing estimates will not.

The same type of situation exists if the sales representative agrees to special package labeling design for the customer. While the cost of packaging and labeling itself will be included in the manufacturing cost, the cost of designing that packaging and labeling typically will not be provided with 20 hours of customer training. In addition, the customer is to be provided with 40 hours of customer training.

Sales commissions = US$96,000 \times 0.05 = US$4800.
be. Again, because the amount of time spent on design does not vary with the number of units or batches in the job, traditional cost analysis will not provide cost figures that distinguish between a job requiring no special packaging and labeling design and one in which GMI must perform those services for the customer.

4.3. An example

An example illustrates these points. Tables 3 and 4 display performance measures computed using traditional costing and ABC for Job #IM939 assuming two sets of terms. Under “Terms 1,” the customer’s order is to be produced and delivered in two batches and the customer is to be provided with 20 hours of customer training. Under “Terms 2,” the same number of units is to be produced and delivered in eight batches. In addition, the customer’s employees will receive 40 hours of training. To permit comparison, the agreed upon price with both sets of terms is US$96,000. Sales representatives at GMI are paid commissions at the rate of 5% of dollar sales.

As shown in Table 3, when using traditional costing, the manufacturing cost and hence gross profit of Job #IM939 is the same whether the job is produced in two batches or eight batches. This occurs because the only thing affecting the overhead assigned to the unit is the amount of DLHs used to produce the product. DLHs will not change with the increase in batches. (While some labor is associated with setting up machines, this is indirect labor, not direct labor.)

As shown in Table 4, the cost computed using ABC is higher when produced in eight batches than when produced in two batches because ABC recognizes that costs increase with cost drivers for batch-level activities. Therefore, ABC gross profit is lower when the job is produced in eight batches.

As shown in Table 3, the margin on this order is also the same for both sets of terms using traditional costing. This, of course, occurs because traditional costing does not provide estimates of the costs of activities such as machine setups, deliveries, and customer training that does not vary at the unit-level.

If GMI uses ABC, their accountants will develop estimates of the cost of the various nonmanufacturing activities. The accountants estimate that the cost of delivering an order is US$350/order and the cost of customer employee training is US$30/hours. As shown in Table 4, when ABC is used, the performance measure for the order is significantly lower if the sales representative agrees to “Terms 2” than if he or she agrees to “Terms 1.”

5. Evaluating a sales representative’s efficiency

With increasing focus placed on cost reduction and productivity enhancements, an area often overlooked is the marketing function. Marketing is generally evaluated in terms of effectiveness instead of efficiency. However, since sales representatives are using scarce resources to carry out their tasks, it is important to allocate those resources to the most efficient sales representatives within the firm. ABC can help marketing managers evaluate the use of resources by individual sales representatives by providing estimates of the cost of that resource usage, which in turn can lead to enhanced performance analysis.

The traditional focus in sales representative performance evaluation has been sales volume or gross profit. However, looking at a singular output (sales volume or gross profit), without analyzing the cost of the inputs to achieve those sales/profits, “undercosts” the resources used by the sales representative.

Table 5

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost driver</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calling customers</td>
<td>Number of calls</td>
<td>US$3.25/call</td>
</tr>
<tr>
<td>Making sales presentations</td>
<td>Number of presentations</td>
<td>US$2100/presentation</td>
</tr>
<tr>
<td>Preparing reports</td>
<td>Hours spent preparing reports</td>
<td>US$20/hours</td>
</tr>
<tr>
<td>Sending information</td>
<td>Number of packets sent</td>
<td>US$10/packet sent</td>
</tr>
</tbody>
</table>
The most significant weakness in traditional evaluation methods is that the cost of a sales representative’s engaging in nonstandard selling activities is often excluded from his or her performance review. This is a problem because behavior tends to maximize whatever criterion is established as a performance standard. Specifically, when a sales representative is evaluated based on singular outputs such as sales volume or gross profit, they may engage in activities to achieve the end result without regard to the actual cost of those activities and the resulting erosion of profitability to the firm. Using ABC figures in evaluating individual sales representative performance provides measures that include costs reflecting these activities.

ABC provides figures showing that, although a sales representative is thought to be extremely effective, perhaps by being responsive to a customer’s particular needs, that effectiveness may come at a price. In an effort to deliver customized service, the representative may be ignoring the cost associated with the uniqueness of that service. If these results are communicated to the representatives, they may voluntarily curtail costly activities that do not translate into a corresponding increase in revenue.

As with manufacturing costs, using ABC to determine the cost of marketing activities requires the identification of a firm’s cost per unit of the cost driver. Some possible marketing cost drivers include: number of sales calls made, number of presentations made, number of demonstrations made, number of new orders, number of miles traveled, number of planning hours, number of reports generated, number of trade show hours, amount of entertainment expenditures, number of information mailings prepared and sent, and number of special bids submitted.

At GMI, four marketing activities have been identified: calling customers, making sales presentations, preparing reports, and sending information. Table 5 displays cost driver and the cost per unit of cost driver for each activity.

GMI wishes to evaluate the performance of two sales representatives, A and B. Each sales representative had sales of US$500,000 with a gross profit of US$250,000. The traditional methods of performance evaluation would lead the manager to believe that the two representatives are equally profitable to the firm.

In achieving the US$500,000 in sales, Sales Representative A made 9000 phone calls, did 30 presentations, spent 250 hours generating reports, and sent 700 packets. Sales Representative B made 7000 phone calls, did 25 presentations, spent 400 hours generating reports, and sent 450 packets.

As shown in Table 6, when the amount of activities consumed to generate the sales are considered, the performances no longer appear equal.

6. Summary

ABC offers a way to improve performance evaluation for the firm wishing to focus on profit growth. Although basing performance evaluation on measures such as gross profit is an improvement over sales volume measures, it still fails to capture the impact on firm profit of a number of aspects of marketing performance.

When negotiating a sale, a sales representative may agree to terms that increase company costs without consequence to his or her own compensation. These terms might include having orders produced and delivered in a large number of batches, having orders delivered to multiple locations, having the product produced using parts unique to the customer, and providing numerous hours of customer training. Traditional costing methods do not provide estimates of the increase in cost arising from the activities necessary to satisfy these terms. Therefore, sales representatives are not discouraged from costly behavior.

Additionally, in closing a sale, a sales representative may use large quantities of firm resources. Again, traditional costing methods may not provide estimates of the costs of these resources.

Because it recognizes that some costs vary in response to changes in other than unit-level volume, ABC does provide estimates of these costs. Specifically, ABC recognizes that the amount of some costs depend on number of batches. For example, each time an order is delivered, certain activities are undertaken, such as loading trucks, moving goods to the customer, and unloading goods. The amount of cost incurred to undertake these activities depends on the number of deliveries made, not the number of units in each delivery. Activities of this type are referred to as batch-level activities and the costs incurred to perform them are referred to as batch-level costs. Likewise, some costs benefit all units of a type. For example, training a customer’s employees to use a new piece of equipment will take the same amount of time...
whether one unit or 100 units of the equipment is being sold to the customer. Activities like customer training are referred to as product-level activities.

Finally, when a sales representative makes a sales call, attends a trade show, or prepares a special bid, she or he is using resources that may not vary with the size of a potential sale. ABC also permits one to estimate the costs of these activities, while traditional costing does not.

Marketing management may wish to include costs of various activities necessary to meet the requirements of an order and costs incurred because of activities performed by the sales representative to obtain an order in performance evaluation. Doing so will tend to increase the sales representatives’ awareness of and sensitivity to the impact of his or her decisions on firm cost and profitability.

References


John C. Lere is Professor of Accounting at St. Cloud State University in St. Cloud, MN.

Victoria Dickinson is a doctoral student at the University of Wisconsin-Madison and formerly an Instructor in Accounting at St. Cloud State University in St. Cloud, MN.