Basic Views of Cost¹

OVERVIEW

One of the most fundamental concepts in our daily lives is the notion of cost. We feel we know what it means to such a degree that we consider cost to be an objective trait of an activity or a physical object. That is, it seems like that, given a single set of facts, there should be no disagreement among reasonable people about what the cost of an item or activity was. However, this is not necessarily the case. Cost is just a concept. It is not an inherent characteristic.

One of the most fundamental questions in any organization is "what did it cost?" This can lead to potential problems because, although we can uniquely determine a stapler's color or its precise weight, if we manufacture it we cannot strictly determine its cost. At least we cannot do so with the same precision and veracity as we can with color and weight. Answering the apparently simple question "what did it cost?" often requires a rather lengthy and complex series of decisions and assumptions. To make matters worse for the manager, these decisions have typically been made by an accounting system designed for financial reporting, not for managerial decision making.

The purpose of this note is to explore some of the circumstances where decision-making requires managers to use costs differently from the way the cost accounting system provides them. You need to be aware of the fact that, in technical accounting terms, costs, expenses, and cash flows have different meanings. Our goal here is to understand the implications of different cost perspectives when making business decisions. In order to reach that objective, however, we need to begin by examining how financial accounting systems define costs.

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What Cost Accounting Does

The primary job of a cost accounting system is to collect costs from throughout an organization and connect them to categories on the income statement and balance sheet. Most of the work of a cost accounting system is reasonably straightforward. It involves classification of costs into various balance sheet or income statement categories. Part of that process, for example, includes calculation of depreciation of non-current assets. The complicated part comes when the cost accounting system needs to determine the cost of a specific item in inventory (or sold from inventory) or the cost of a specific service job performed for a customer. For that reason, cost accounting systems are generally thought of as being related to production activity. However, all of the costs incurred during a year are collected by the system and classified into appropriate categories in order to produce the company’s financial statements.

Cost Terms and Definitions

Cost accounting systems determine costs after the fact. That is, they collect the costs associated with, for example, all of the manufacturing activity during the year in a single factory. These costs are then matched in a variety of ways to the different goods that were produced as part of that activity. Some of these costs are easy to trace to specific goods. Others can never be matched precisely and are simply averaged in some way over the goods produced.

The easy-to-trace costs are called direct costs. By tradition, direct costs include direct materials (i.e., those materials that make up the final product) and direct labor (the cost of the labor time of the people who actually did the production, as opposed to supervisors, material handlers, inspectors, and so on). Occasionally, direct material cost plus direct labor cost is given the collective name prime cost.

Cost accounting systems usually categorize production costs into three major cost components. Two of them, as stated above, are direct material cost and direct labor cost. The last major component of cost in a production cost accounting system is overhead or burden. Overhead costs are all the costs in
the factory other than direct material cost and direct labor cost. Overhead costs include, therefore, salaries of factory supervisors and managers, wages of support workers like data entry clerks and fork lift operators, depreciation on factory equipment, factory utility costs like heat and electricity, and even property taxes on the factory.

Technically, some overhead costs are direct costs. For example, although the electric bill does not directly reflect the cost of manufacturing one unit, if we placed a meter on each machine, we could record exactly how much of the consumed power was used by a single manufacturing step for a single item. However, this would never be done in practice because it would be too cumbersome and the cost of collecting the data would be too huge. In practice, all of these overhead costs are matched to products using some formula approach. This method is known as cost allocation.

Cost allocation is, to a great extent, the most troublesome aspect of cost accounting. The objective is to associate shared or common costs with production output through some quantifiable relationship. For example, a cost accounting system tries to address the question of how large a share of the costs incurred for building depreciation “go with” the production of each pair of jeans made in a clothing factory. Often, the best cause-effect relationship we can find for such allocation is still quite poor.

The Financial Statement View: Product versus Period Costs

Manufacturing cost accounting systems are concerned with product costs. Under Generally Accepted Accounting Principles (GAAP), these costs include all and only the costs related to producing goods. In essence, they are all costs incurred in and for the factory. Product costs are shown on the balance sheet as inventories and are expensed on the income statement as cost of goods sold. Period costs, on the other hand, are never shown directly on the balance sheet. They are actually expenses incurred during the period. They are all non-factory costs that qualify as expenses. For example, they purchase of a new office computer would be considered an investment, not a period cost, but the
depreciation on that computer would be a period cost. Other period costs include marketing and promotion costs, research and development costs, distribution expenses, sales commissions, general administration salaries, and so on.

Product costs do not show up directly on the income statement. Once all of the costs of production have been assigned to products made during the year, the financial accounting system considers them costs of inventory, an asset.

**Cost of Goods Sold (COGS)**, an expense, shows up on the income statement. It is the cost that the cost accounting system assigned to those items that were sold during the year. Thus, it could include costs expended in the current year, in prior years, or some combination. COGS is typically also computed via a formula based on the company's decision to use “FIFO,” “LIFO,” or some other assumption for how goods left inventory.

The clarity of such classifications is sometimes less sharp than we would prefer it to be. For example, what is the appropriate classification of the wages of a clerk who records sales orders and initiates production against those sales orders? Strictly speaking, the first task is a period cost and the second task is a product cost. However, it is the unusual cost accounting system that will make such a detailed distinction.

Some costs incurred during the year are specifically spent to buy or create other assets, like buildings, vehicles, patents, and so on. The depreciation on these assets and any other costs for all activities other than production are period costs. They show up on the income statement directly. Cost accounting for services is primarily concerned with period costs only. There may be some direct materials in a service, like the oil and filter when you have your car serviced. However, the direct labor cost of the mechanic working on your car is a period expense since no asset is made. The service is consumed as it is produced.

In summary, the financial reporting view of costs is all about assets and expenses. It is focused on classification of costs into those two broad categories. It involves particular definitions and is oriented toward the past — costs that were recorded in the books. However, managing is oriented toward the future — how to make results better. While past results may provide some idea of the
trajectory of future results, managing means changing that trajectory as appropriate. Thus, costs also need to be considered in terms related to the effects of taking (or not taking) actions.

**Time-based View of Costs**

The fundamentals of one way to look at the effect on costs of taking actions are already captured in many cost accounting systems. In order to assemble financial statements for quarterly results or shorter periods, many cost accounting systems estimate costs for the year and allocate them to the shorter periods. These estimates are given names like normal or standard costs. A budget is a statement comprised entirely of such costs. After-the-fact recorded costs are called actual costs.

A standard cost may provide a manager with some mini-estimate of the cost that would show up on the financial statements as the result of a taking a particular action. However, it will not show the “cost” of not taking an action. The economic concept of opportunity cost captures that idea. Since an opportunity cost is the benefit given up by not doing something, it never shows up on a financial statement. Nonetheless, predicting which of several alternative actions provides the most benefit to the firm is of primary importance to a manager.

**The Controllable Cost View**

Another ingredient in decision making is an understanding of which costs can be affected by future actions. Some costs may show up on next year’s income statement regardless of what a manager does. For example, a sales division manager may not be able to do anything about the depreciation on her sales office building and equipment. These costs were actually determined in the past when the money was spent to buy the assets and the depreciation policy was established. The only way to make the expense go away is to make the assets go away. Such costs are called sunk costs. They are the inevitable technical result of actions taken in the past.

Sometimes, money has not yet been spent, but the expenditure has been agreed to. Such costs are called non-controllable costs. Such costs are primarily uncontrollable because the manager looking at them does not have the
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authority to change them. However, this can be a self-fulfilling prophesy. You may have contracted to pay a certain amount per “hit” at an internet site. However, thinking of that amount as non-controllable may lead you to ignore the potential to renegotiate under certain circumstances. Under that option, the costs might be considered controllable.

The Supply (Value) Chain View

If your objective is to figure out how to change the relationship between spending and earning, it is clearly beneficial to know how much is spent where in the organization to create how much benefit. That is, for each major step in the company’s money-making process, how much is spent and what is the result. Under this view, there is important value-creating, strategic work to be done in the organization. The way that work is done is through activities. The manager needs to assess whether each activity actually does strategic work, how much benefit is created by the activity, and how much cost the activity consumes. Such information allows managers to successfully re-engineer and redesign processes.

Cost Behavior View: Fixed and Variable Costs

The distinction between fixed cost and variable cost, is not critical to cost accounting. In fact, cost accounting systems often ignore this pair of definitions. Perhaps this is because cost accounting systems take a long-term view of costs. As we know from economics, all costs are variable in the long term. In that case, the distinction does not exist. However, practically speaking, all decisions have some short-term aspect to them. All predictions of future costs have very real fixed and variable cost dimensions. For most managers, the fixed-variable distinction provides a quick way of projecting financial results and, in the process, uncovering problem areas.

From the traditional definition, total fixed cost is fixed in relationship to variations in the volume of production and/or sales. That is, no matter how many units we manufacture and sell, no matter how many oil changes the service shop does, total fixed cost will always be the same. Conversely, total variable cost rises and falls in direct proportion to increases and decreases in the volume of
production and sales. No matter how many units we produce, total variable cost will be the number of units produced multiplied by a constant.

Let us examine an example. Assume our company manufactures something very simple, like the plastic outer shells of computer monitors. Let us say that the variable cost of each shell is $10 per unit. The total fixed cost for our injection molding machine is $500 of depreciation per month. If we make ten units this month, the total variable cost for the month is $100 ($10 x 10 units) and total fixed cost for the month is $500. If we make 100 units this month, then total variable cost for the month is $1,000 ($10 x 100 units), but total fixed cost for the month is still $500. Produce 1,000 units in a month and total variable cost goes up to $10,000 ($10 x 1,000), but total fixed cost still remains at $500.

The distinction between fixed and variable costs would be an easy one, except for the fact that this definition only holds in relationship to production and/or sales volume. **Fixed costs can and do change**, but they do not change simply because production or sales volume changes. For example, one kind of fixed cost is annual depreciation of factory machinery. If a new machine is purchased, total annual depreciation will increase. If an old machine becomes fully depreciated, total annual depreciation will decrease. In both cases, fixed costs change from one year to the next. However, in neither case did the change occur simply because production or sales volume went up or down. Thus, the critical issue in determining what is a fixed cost and what is a variable cost is: does cost for that category vary in direct proportion to production and sales volume? Does the total cost go up if we make one more unit and go down if we make one less unit? If so, it is a variable cost. If not, it is a fixed cost. If the total cost changes in the right direction, but to a lesser extent, it is a **mixed cost**, made up of both fixed part and a variable part.

There is another dimension of the definitions of fixed and variable costs that is at odds with cost accounting and cost numbers produced by cost accounting systems. While cost accounting carefully separates product (factory) costs from period (office) costs, the general definition of fixed cost and variable cost includes both product and period costs. Some period costs are fixed each
period, like management salaries. Some period costs vary with the level of sales, like distribution costs or sales commissions. The fixed and variable distinction is not limited to the factory. Thus, the fixed-variable distinction provides an entirely different way to build a projected income statement, called a **contribution margin income statement**.

**Contribution margin** is the difference between revenues and variable costs. If all costs are classified as either fixed or variable, then net income on a contribution basis is: Revenues – Total Variable Cost – Total Fixed Cost. This version of net income will differ slightly from the financial reporting view due to the fact that it ignores the product vs. period distinction (that is, it ignores inventory level changes). It only considers this period’s costs. Here is an illustration of such an income statement:

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL SALES</td>
<td>$830,000</td>
</tr>
<tr>
<td>- TOTAL VARIABLE COSTS</td>
<td>(400,000)</td>
</tr>
<tr>
<td>CONTRIBUTION MARGIN</td>
<td>$430,000</td>
</tr>
<tr>
<td>- TOTAL FIXED COSTS</td>
<td>(305,000)</td>
</tr>
<tr>
<td>NET INCOME</td>
<td>$125,000</td>
</tr>
</tbody>
</table>

**Summary**

Every manager should certainly have an idea of how actions will affect future reported income. However, the best way of making such a prediction is by first understanding the cause-effect relationships between actions and outcomes and only then translating plans into projected financial reports. This note has presented an overview of some of the perspectives a manager can apply to developing that cause-effect relationship. While there are technical details and formulas for calculating these costs, there are no formulas for managerial analysis of the implications. Applying the concepts in this note in combination should provide you with improved insight into an organization’s cost structure, but it will take careful thought to allow you to make more effective decisions.