White Paper

Costing Systems Considerations
Recovering Overhead Costs

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Costing Systems Considerations:

Developing a complete understanding of your costs is critical as you endeavor to grow your business. Answering the basic question "Will we make money?" can grow very complicated when the understanding of costs is inadequate.

The costs for any product or service are usually broken into three categories.

> ***Direct Costs*** – the actual price paid for the goods and labor used to build the product or supply the service you are selling. Direct costs include labor, material, and purchased parts and services.
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> ***Variable Overhead Costs*** – the costs incurred as a direct result of, or that can be directly attributed to, delivering a particular good or service. For example, the cost of unemployment or health insurance is a direct result of having employees and thus is a variable overhead cost.
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> ***Fixed Overhead Costs*** – costs incurred as a result of being in business. Items such as property taxes, electricity for lights and gas for heating the building are generally considered fixed overhead. Incremental sales don't change the cost incurred. Of course, explosive growth can result in new fixed cost being incurred.

It is important to correctly identify costs to gain a true understanding of the impact of new contracts or new opportunities. Direct costs are highly visible and therefore more or less obvious and are usually adequately addressed. Overhead costs, however, are not obvious and are frequently handled poorly.

Fixed Overhead Costs: Three Common Approaches

1. **Ignoring fixed overhead costs** will only work for small, low overhead enterprises or in very high margin businesses. Many home based businesses can be successful even when ignoring fixed overhead costs. But even moderate growth will result in increasing overhead cost and the model will fail.

   High margin businesses may be successful for a short time using this model, but eventually rising competition will erode margins. Ignoring these costs will not reduce or eliminate the expenses, but it will reduce or eliminate your profits.

2. **Apply a large gross margin to the cost of goods sold.** This "rule of thumb" approach applies a gross margin based on industry standards or on general company experience. The underlying belief is that the high

margins will cover overhead and leave surpluses for profitability. While simple, such approaches will not be adequate in competitive environments.

3. **ALLOCATE COST BY CATEGORY AND APPLY BURDEN RATES.** "Burden Rates" are calculated by categorizing and totaling overhead costs of operations over a time period, then estimating the direct labor costs over the same period and calculating a ratio of one to the other.

Many small businesses will mix all overhead costs into a single category and use them to develop a "Shop Rate". While the utility of this practice is easy to understand, it is one of the least precise methods of applying overhead costs and will result in low understanding of the actual impact of new business opportunities.

We support Activity Based Costing (ABC) methods. All costs are identified and assigned to particular machines or work cells. This results in estimates that are neither overstating nor understating actual costs in a variety of business conditions. To be clear, we will refer to rates calculated with the ABC approach as activity rates.

GETTING STARTED WITH ABC:

1. **IDENTIFY COST CENTERS:**

   Cost centers are those activities in your operation which produce the products or services that you sell. Often products are processed on a variety of machines and equipment, and each of these can be considered a cost center.

   In operations which have implemented cellular manufacturing techniques, the "work cell", not the individual machine becomes the cost center.

   Traditionally, we would group similar machines together as a cost center. For example in a metal fabrication operation it would be common to find only four or five costs centers such as Press Room, Weld Shop, Paint Shop, Final Assembly and Ship and Pack. However, the large variety of people skills and machine capabilities within these cost centers makes the resulting burden rate nearly useless for managing costs.

   When identifying cost centers, take the time to understand which operations are performing within the same cost framework, and only then group them into a "cost center".

2. **<u>IDENTIFY COST DRIVERS AND TRACE COSTS TO THE COST CENTERS</u>**

   There are various factors, or drivers, of cost for each cost center or groups of cost centers. Some of these costs traditionally are applied to a general category such as depreciation, maintenance, supervision, or support. But we know that certain operations or machines incur these costs at higher rates than others.

   For example, computer controlled equipment has to be programmed by either an engineer or by a specially trained operator. These resources should be paid for by the operations which use them. Their expenses are not part of a general cost of running the factory; rather they are specific costs traceable to a particular machine or work cell.

3. **<u>ASSIGN COSTS TO THE COST CENTERS:</u>**

   Some of the expenses assignable to a particular work cell should be assigned by looking back at historical records. But in many cases where the cost accounting model has been very general, this will be of only marginal benefit. It can be as difficult to separate costs once they been incurred and charged as it is to separate the ingredients of a cake once it has been baked.

   But tools and equipment are mechanical, man-made devices with known resource requirements. A given 25 HP motor will always consume the same amount of electricity when working. And we know how to calculate it.

   Generally speaking, all the costs incurred by an operation should be assigned to a cost center. The more accurately these costs are assigned to cost centers, the better your understanding of your true cost picture.

4. **<u>ESTIMATE THE LABOR HOURS TO BE CONSUMED BY EACH OF THE COST CENTERS AND CALCULATE THE ACTIVITY RATES</u>**

   A large component of activity rates (dollars per hour) is a direct function of either direct labor hours or of machine utilization hours. If "fixed overhead costs" of $100,000 are to be recovered on ***estimated*** annual labor usage of 200,000 person hours, the applicable fixed portion of the estimated activity rate is $0.50 / hour.

   If ***actual*** labor usage instead is only 100,000 person hours then the activity rate needed to fully cover "fixed overhead costs" should have been $1.00 / hour. In most situations it is nearly impossible to accurately forecast labor hours long term; therefore you should consider revisiting your estimates more often – it is easier to see 3 months into the future than it is to see 12 months in advance.

CONCLUSIONS:

To better insure long term success, businesses must adequately understand and control all their costs. Key to accomplishing this is to implement a simple version of Activity Based Costing and utilize it in cost estimating.

These activity rates should be viewed as dynamic not static. In the constantly changing environment of business today, frequent updating in light of actual experience and current cost conditions is required. We recommend that activity rates used for estimating be recalculated at least quarterly, using forecasts and current results.

LET US HELP!

We are cost estimating and manufacturing experts who have taken our years of experience in engineering, operations management, and cost estimating and developed unique tools to standardize cost estimating systems and processes that are easy to implement and use. Most companies find that they are up and running with our tools in a couple of weeks. But best of all, our tools while powerful, are flexible and can be set up to work the way you want.

If you need help, we're here for you. Our team can train your staff, or help you calculate and apply these rates in your quoting. Let us assist you in getting started today.