Cost Reporting

Fact

or

Fiction

the Estimate Foundation

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Someone at some time wondered how to estimate the cost of building something. That first estimator had probably done or seen the construction and extrapolated to the cost of the next project. If his purse was on the line, and it probably was, he wanted to know how the project was progressing and whether he would have the money to complete it. This could have been the birth of cost reporting.

In theory, cost reporting, the process of tracking costs as they are incurred and measuring them by a logical unit, such as a cubic yard, linear foot, etc., is used to track the progress of a project and to aid in controlling the project. If labor costs/unit are too high, what can we do next week to lower them? Correctly derived and timely reported, this kind of data is invaluable.

The almost accidental outgrowth of that effort is the accumulation of information which can be useful in the estimating process. We say “can” because it may not be useful, indeed it may be harmful, as we will see below.

The idea behind most cost reporting systems is this: as costs are incurred on the job, they are charged to the applicable cost code as they are processed in the accounting cycle and many of them, particularly labor costs, are totaled by category, then divided by the quantity produced in the time period under consideration to derive a quantity unit cost. Some cost reporting systems also produce a productivity per unit placed. Payrolls are usually made weekly, units produced are usually gathered weekly, and so the labor cost report is usually produced weekly.

Material costs are reported in the same fashion in some reporting systems, although many systems do not generate unit prices per item of material in place. The timing of material costs, usually monthly based on invoices, makes the production of the cost reports for material expenses usually fall on a monthly cycle.

Subcontractor costs are usually reported on a monthly basis as well, following the subcontractor billing cycle, and are usually only measured in the aggregate as a percentage of the total value of the subcontract.

In the usual situation, a contractor’s labor has the most risk involved with it, so it is labor which gets the lion’s share of attention when reviewing cost reports for purposes of job control.

Field personnel fill out time cards or sheets daily, showing the number of hours worked that day by the employee involved. They will usually have a chart of accounts and will distribute the employee’s time over some items in the chart of accounts. When the time cards are sent to the office for preparation of weekly payroll checks, the time is entered into the accounting system according to code. When the payroll is processed, all costs associated with the code for that week are tallied.

Field personnel are also expected to determine how many units and of what categories were put into place during the week. The method used for determining production varies widely, varying from a “feel” to a detailed breakdown of units by project area so that the total quantity for the area can be easily looked up. The estimate of production may still be an approximation, but the approximation will contain less subjectivity than that where no such breakdown is apparent. This production report, however arrived at, is usually turned in to the accounting department with the payroll. By entering the production into the accounting system, it can be correlated with cost by cost code to produce the unit cost for that week.

Note here that there is an element of judgment in both the reporting of time to labor categories and in reporting the production to those categories. This double dose of judgment may not impact the attempt to use the costs thereby derived to control the job, but they may be very deceptive when it comes to using them for estimating purposes. Wide variations in the weekly costs may be seen because of variations of production reporting and also because of the status of the item in question. When an operation is first begun, its unit costs are predictably, because of the learning curve, higher than the average for the entire activity. When it is winding down, again it may well be higher than average because of shut down costs, removal of material and equipment, etc.

This should indicate to the estimator who is reviewing company labor cost records that the best time to use a certain unit achieved is when all of the production of that unit has been exhausted. Thus both the learning curve and shut down costs are factored into the unit price or productivity of the item.

We have emphasized productivity reporting rather than unit price reporting because productivities have significance over years while unit prices probably will not. Inflation has the effect of rendering unit prices virtually useless over time.

While productivity is useful over time, it still must be used judiciously used. Where it is most useful for estimating is when the estimator is familiar with the job from which the report comes. It is not unusual to remember a great deal about a project one estimated, even one which is years old, when one reviews its (last) labor cost report.

In addition to the productivity itself, the estimator must keep in mind the probable crew composition which went into making the productivity. The mix of craftsmen by trade or journeymen to apprentices can have a direct impact upon productivity and an even more dramatic impact on unit cost. Suppose the productivity you look at is 10 square feet per man hour with a crew of two carpenters and one laborer. If the carpenters make $15.00 per hour and the laborer $10.00, the crew cost per hour will be $40.00. If the crew places 30 square feet in that hour the resulting unit price is $40/30 sf = $1.33. Suppose instead that you assume the same productivity but achieved with a crew of one carpenter and two laborers. The crew hourly cost is now $35 and the unit cost is $35/30 or $1.17.

While it is difficult to determine with accuracy the crew composition on a historical project, the estimator may generally know what his company uses and feel confident using a similar composition on the job at hand.

While labor cost reports, if reporting productivity as well as unit price, may remain valuable for years to the estimator, the material and subcontractor portions of a cost reporting system are usually not as valuable, and that for the reason mentioned above for unit pricing of labor, the rendering of the information useless by inflation.

This means that the estimator must determine material and sub prices anew with each bid. Although there are some items which an estimator, by virtue of almost constant exposure to them, may be able to recite instantaneously, many must be checked for each estimate. This fact makes it important for the estimator to solicit material suppliers as well as subcontractors when bidding a job. Updated material prices may then be used in the estimate.

We alluded above to the elements of judgment which go into making up time cards and productivity reports. These are inevitable and can only be minimized. One way to minimize errors of both time and production reporting is to refrain from making the code of accounts too complex. Another is to provide field staff with an estimate broken down into areas which are clearly identifiable and can be used as benchmarks when reporting production. Another is to compensate those responsible for filling out time and production reports for the after hours they will need to do it properly.

In spite of such precautions, however, cost reporting is fraught with the possibility of reporting error. The usual cause for this error is manipulation of the reporting process to satisfy short term goals as opposed to long term accuracy. If there is an overrun in one category and an underrun in another, the natural tendency is to code time to the underrunning item so as to make the report “look good.” In other words, the field staff believes that it will not be praised for the underrun so much as blamed for the overrun.

To the extent that this attitude is based on fact is to the extent that company management subverts both fundamental purposes of cost reporting, job control and estimating. The errors induced by incorrect reporting may serve to take the heat off field personnel during this job, but they serve to frustrate the goal of accurate estimating by engendering the same errors in the next estimate. And to the extent that incorrect reporting masks a troublesome job activity, it also masks the possibility of taking steps to fix the activity and so perhaps costs the project unneeded additional money.

Suffice it to say that a cost reporting system is, properly administered, both the foundation of the estimate and of job control. Improperly administered, it is perhaps worse than no system at all.