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Cost Reporting: Alternatives in Today's Systems Environment

Cost reporting is not as straightforward as when contractors first began automating the job cost function nearly 30 years ago. Today, contractors have numerous tools and tactics available, each with varying benefits and drawbacks to different users, to ensure the parties who need cost information and controls have timely and flexible access to them.

For purposes of this discussion, job cost can be defined as all activities centered around entering, approving, posting, tracking, and reporting cost on a given project. This includes but is not limited to budgets, change orders, committed cost, forecasting, productivity reporting, unit cost, and historical cost management.

Fragmented Evolution of Technology

Traditionally, contractors only had job cost applications in their accounting ERP system to help with substantial cost management functions. When PMs used to request monthly reports from accounting, costs may have been inaccurate or late. Further, PMs couldn't access the data online, but instead had to request a printed report. During that early period, PMs would receive a static monthly report from accounting and often had difficulty checking the status of their job. They sometimes added their forecasts on the report and then sent it back to accounting for entry.

PMs eventually developed cost reports in Excel specifically for customers or owners that omitted some cost elements like change order data; these reports would contain less objective but still important data from the PM that accounting often didn't see (e.g., pending change order values). However, this subjective input varied among PMs, leaving accounting and senior management uncertain as to how the jobs would finish. Accounting then had to piece together WIP schedules in a separate Excel spreadsheet, which the finance department would use in conjunction with financial statements.

The next generation of systems were project management solutions, which grew from having basic cost and budget capabilities to functions for forecasting and change order management. This enabled PMs to easily prepare month-end

reports for owners that contained objective supported cost data as well as the more subjective data from PMs.

Similarly, field employees used to struggle with outdated productivity reports and would only see how they were performing long after they could do something about it. However, time card capture systems and field reporting components of estimating solutions emerged and allowed for daily reporting of hours, units, and equipment as well as instant comparisons to budgeted values for productivity.

Estimators needed job cost reporting for timely feedback on their performance from the field (e.g., were their productivity rates correct?). But this was not always easily achieved if estimates were adjusted before they were entered into the job cost system as a budget. Many contractors kept a ledger book with historical unit costs to use in future estimates.

As you can see, the evolution of technology improvements did not happen smoothly or in harmony, leaving many contractors with different levels of disconnected solutions and some still relying on spreadsheets for specialized reporting.

With cost reporting and control more important than ever and many people needing access, it is important that contractors understand the pros and cons of each approach and develop a long-term, comprehensive strategy that encompasses all parties – field staff, estimating, customers, PMs, and accounting staff.

Integrated Project Management Solutions

Arguably, the first offline (i.e., not in an ERP system) cost management capability existed in standalone project management solutions. These tools featured rudimentary tables for storing budgets, commitments, actual costs, and sometimes forecasted cost to allow PMs the flexibility to provide a cost summary specifically for the owner. The reconciliation with accounting's version of cost typically occurred later the following month.

With these solutions, PMs could work mostly within a single system. However, early versions lacked units and man-hour

tracking, and were not suitable for contractors that self-performed a portion of their work. Since then, developers have built in more sophisticated capabilities and a better audit trail to eliminate some of the prior issues. Many now have integration capabilities that make the transfer from the ERP system more automated and transparent.

Job Cost Systems for Project & Change Order Management

Although construction ERP vendors have established effective cost management software solutions, their products have historically offered less in the way of true project management and field capture support. On the other hand, developers of third-party project management and field capture systems have built a number of job costing capabilities (e.g., improved job costing, change order management, budgeting, WIP schedules).

To narrow the competition with these third-party solutions, ERP vendors have recently provided more robust functionalities (e.g., project management and field capture) to support the needs of accountants, estimators, PMs, and field personnel.

A contractor has several advantages in implementing cost management, project management, and field capture systems native to their ERP solutions. Integration is typically improved, fewer interfaces need to be maintained, and there is only one vendor with which to work.

Since the ERP vendor controls and maintains all of the integration points, software updates are simplified (which is not always the case when using third-party solutions). Interfaces may not function properly when a third-party vendor rolls out an update; in the worst case scenario, vendors may even blame one another while the contractor is left holding the bag.

Although integration is typically improved when utilizing modules from the same ERP umbrella, be aware that there can be situations in which the ERP vendors have not adequately addressed integration requirements among their own modules, which can occur if a vendor has purchased a third-party application. Be sure to research such potential issues when evaluating and selecting new software.

For companies that rely heavily on committed cost, tracking and reporting that information is critical. This data traditionally comes from purchase orders (POs) and subcontracts that are issued from ERP and reported in job cost. The advantage is that the data stays in ERP and will eventually be used by

accounting staff to process invoices. However, the PO and subcontract functions could also be performed in a PM solution, which could then update committed cost in that version of cost reporting. Any change orders processed would also update committed cost. But ultimately, the commitment has to be moved to the ERP for use by accounting.

Field Capture Systems for Performance

When a significant amount of labor is involved, foremen, superintendents, and PMs typically want to know how each of their jobs and related activities are performing daily, which requires timely and accurate field reporting. Not too long ago, this was next to impossible given the manual nature of the process. Fortunately, construction software has come a long way in terms of productivity and field reporting.

Today, field reporting tools can be found mostly in third-party applications that integrate with a company's ERP system. Most are intuitive, easy-to-use, and designed for today's mobile technology, allowing field personnel to efficiently report daily progress from the jobsite (e.g., labor hours, equipment hours, material receipts, units installed, daily logs, photos). Inputs are then validated against the job's cost codes, employees, and equipment, which dramatically reduces errors.

This approach gives field personnel instant visibility as to how productivity compares to expectations so they can take corrective action if needed. While these tools provide the unit and hour data that feed job costing and payroll, they typically don't provide the actual cost. (This is not usually necessary for field personnel, who tend to think in terms of managing units and hours to the budget and schedule.)

To be effective, these field reporting tools must be integrated with the company's ERP system to support job costing, payroll, and equipment management. Often, the proposed updates from the field reporting system will be reviewed and approved by accounting and/or a PM before being posted in the ERP system. And, timely and accurate inputs are key: Strict discipline and accountability around the systems is essential to ensure that the information remains valuable.

The disadvantages to this approach are straightforward: Another system to administer, another vendor to manage, and another interface to maintain. While these are not minor issues, many contractors find that the advantages of these systems often outweigh the disadvantages. ERP vendors will likely offer this functionality native to their ERP suites in the future, which will mitigate these issues.

Cost History Databases & Cost Code Issues

Despite the fact that they originate a project's budget, estimators are often overlooked when it comes to sharing actual cost information back. It is vital for your estimators to use accurate productivity and cost information when bidding new work. Although most cost accounting systems have this feature, operational challenges still exist.
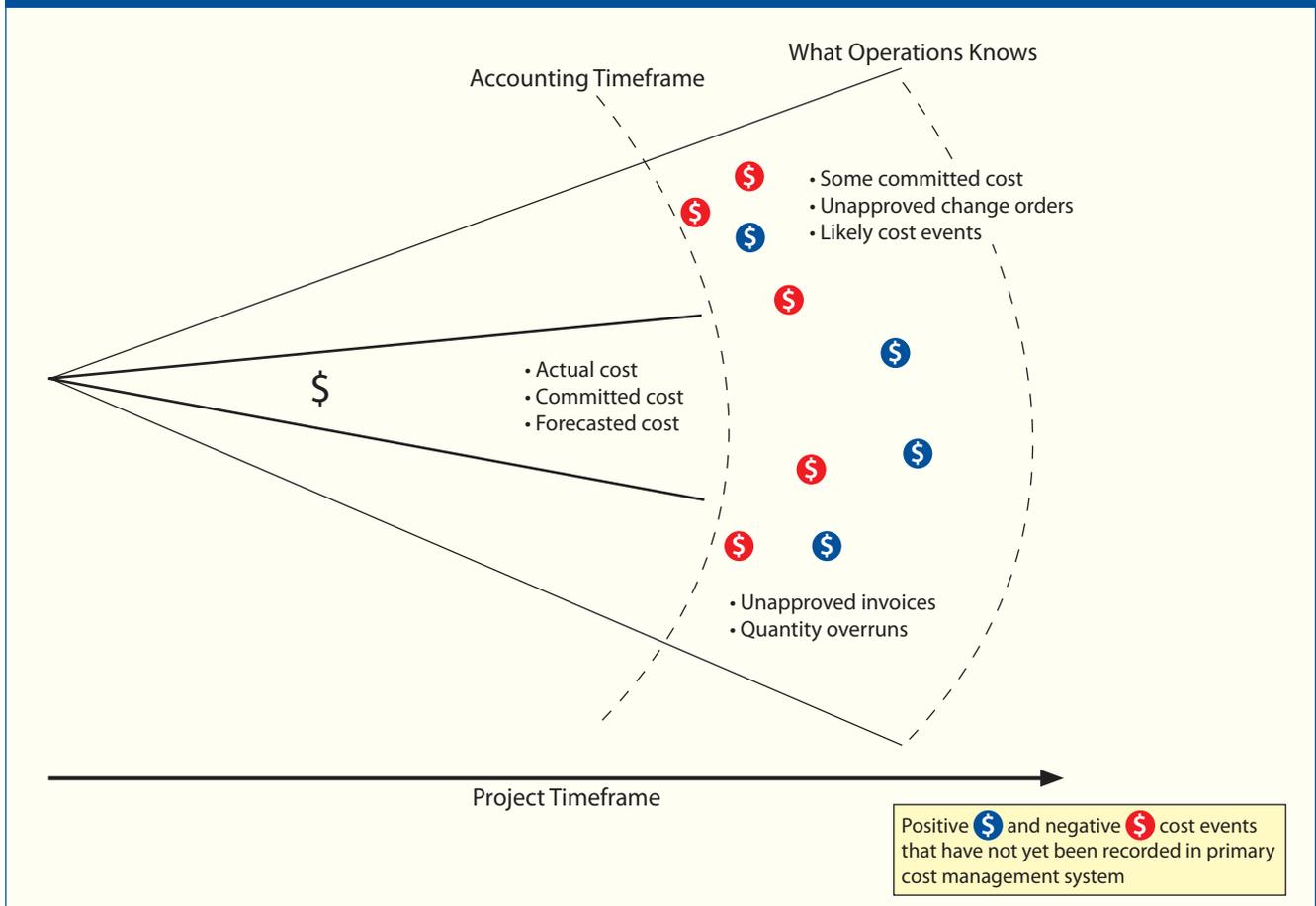
For instance, many PMs prefer to cost the job consistent with how they want to build it, which is often less detailed than what the estimator used in the original bid. This can interrupt the audit trail from estimating to job cost and may never be reconciled. The job cost might align with the budget, but not with the original estimate. Accuracy may also be compromised in the field if hours are shifted to make the project appear on track; this will only serve to mask problems in the budget.

Some contractors also have difficulty standardizing cost codes, often with so many that it can be confusing as to which activities should be charged where. Also, costs that are coded in order to meet billing requirements further contaminates the cost history.

Many contractors have overcome this challenge by developing two sets of cost codes – one for estimating and one for costing – and then establishing a relationship between them (sometimes called mapping).

Let's use the example of a sidewalk phase that is estimated with five codes (e.g., excavate, form, pour, finish, strip). The costing is done to a single code called sidewalk. As long as the field activities and material are coded correctly and the costs and units are coming in close to budget, the field doesn't need more detailed tracking.

Impact of **Cost Events & Timing on Cost Reporting**

Accounting Timeframe

What Operations Knows

- Some committed cost
- Unapproved change orders
- Likely cost events

- Actual cost
- Committed cost
- Forecasted cost

- Unapproved invoices
- Quantity overruns

Project Timeframe

Positive $ and negative $ cost events that have not yet been recorded in primary cost management system

However, if the cost of that activity is frequently over or under budget, a company may need to temporarily code to a greater level of detail to determine where the variance(s) occurs.

Once accurate historical cost and productivity is available in job cost, it can be repurposed within estimating or even conceptual budgeting solutions. These solutions use cost history to allow estimating or preconstruction teams to budget future work based on broad values. The more accurate the cost history, the more accurate and valuable the budgets.

Cash Flow Forecasts

Cash flow information is particularly important for the project owner and CFO/controller. A project owner wants to know not only how much the facility is going to cost, but also when that cost is going to occur. Having a sense of a project's budget is just as important as the proposed timing.

Scheduling software works best for this need, since most project cost solutions fall short of reporting the costs to complete by month. Scheduling solutions offer periodic reporting and can therefore easily report timing of cost. As a downside, this is one more system for PMs or cost engineers to maintain.

The CFO or controller will also want to see all of the periodic project cost forecasts to determine likely cash flow and working capital demands of each project. Some jobs will provide working capital while others will consume it. Once all ERP software developers provide for periodic forecasting within their systems (some already do), contractors will be able to provide owner reporting and cash reporting without relying on a separate solution.

Consider Unknown Events

In addition to streamlining your cost reporting process, you should also consider what is included in job cost and when. The accounting department tends to want costs booked when they are real or reliable.

But what about other cost events that provide another dimension of cost reporting that would provide valuable information to others? Good cost reporting systems allow for both views of the project – a conservative look as well as a forecasted look of where the job could end up.

Exhibit 1 on the previous page illustrates the impact of cost events and timing on a job.

Conclusion

Getting job cost right is critical to a contractor's success. It is a larger and more complex function than many companies realize, often because the functions are buried within different systems and departments.

Bringing the data and processes to the surface across the project life cycle and examining how the processes get done, by whom, in which systems, and how well is a good first step. If many of these processes are still being calculated via spreadsheets, consider evaluating your current system or looking for an alternative. A single solution for "job cost" is unlikely as the different requirements are better suited to different systems; therefore, a coordinated and integrated approach is critical. It's best to match the tool to the job and not try to adapt one to another.

Working toward more robust solutions for cost management will help your company obtain a fully integrated cost management capability that spans the life of the job – from estimating, budgeting, commitments, and actual costing to productivity and unit cost to forecasting change orders and closeout to estimating future bids – all without spreadsheets. ∎

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