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Challenges Reporting Project Costs and Risks to Owner Decisionmakers

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ABSTRACT— Owners rely on project reports in order to make decisions. However, reporting is often inadequate for this purpose. For example, there may be too much or too little information, which confuses the Board or executives. Data may be misrepresented, incomplete, unrecognized, not validated, or simply inaccurate. Owner oversight of projects requires accurate, timely, and relevant status reporting, yet all too often it is not provided. This paper identifies common pitfalls in project reporting, discusses the differences between accounting and project management software capabilities, and provides guidelines for developing periodic, consistent, useful reports to upper management.

Keywords: Accounting, owner issues, project management and project reporting

Before any construction project becomes a project, it begins as a concept. Whether it exists because of a need to expand capacity, diversify, grow geographically, replace aging facilities, or one of many other justifications, that concept is subject to evaluation at some high level of management. That management team may be an executive committee, board of directors, or other grouping of decision makers and stakeholders. The management team assesses the viability of the concept, makes the go/no go decision, approves funding, and paves the way for that concept to become a reality. “Corporations are forced to make choices when appropriating funds for approved projects. To obtain approval, every project initiative that is presented must make a business case or demonstrate a tangible benefit to the organization. In the typical corporate scenario, there are many projects worthy of investment and approval, but with a finite availability of money, only selected ones can be

funded within a given planning and budgetary cycle [13].” It is in the owner’s best interest to have reliable data upon which a project budget can be established.

As the project proceeds through its lifecycle, executive decision makers need to receive information that is meaningful to them, appropriately actionable at their level, and sufficiently timely to enable them to guide the project. Not all stakeholders and decision makers are well versed in project controls; their needs in project reporting for top-level oversight are quite different when compared to the expectations of those close to the project. “There are many project participants—either direct stakeholders or beneficiaries as well as others having oversight roles at corporate, non-project levels who better relate to and more easily understand cost as a measure and yardstick for performance. Theirs is the world of return on investment, the bottom line, or time to payback indices; the concepts of earned value, Schedule Performance Indicator (SPI), or Cost Performance Indicator (CPI) are lost on them [13].” If there is a multitude of decision makers and stakeholders, the situation becomes even more complicated. “Finding a format that communicates complex information well to multiple levels of management presents...a challenge [2].” The stakeholders themselves are a product of their experiences and their external and internal environments, one of which is the context within which the project must be satisfactorily completed.

The Difference between Cost Accounting and Cost Management

What do these stakeholders and decision makers expect from project status reports? In many instances, “...conventional reporting systems provide executives with reactionary information related to crisis situations, rather than providing proactive data.” [12] In such a situation, the data provided is typically focused on what has been spent at that particular point in time. Additional information, such as forecasting of final costs, and detailed cost data for high-risk areas, is needed to satisfy the project controls mission, and enable instead “... management by exception, which requires the identification and isolation of important and critical information for a given situation, and channeling it to the proper person for immediate consideration, decision, and action [12].” Early reporting of exceptions and potential exceptions/risks is critical to decision makers. The fundamental difference between cost accounting (or financial accounting) and cost management (or project controls), then, is in the packaging and treatment of project cost data.

Financial accounting “... is concerned with receipts and expenditures, is based on accepted accounting practices and principles and must satisfy taxation, regulation and other legal requirements. The data is organized according to the accounting chart of accounts to support the operations and capitalization efforts of the company. The result is a common budget vs. actual expenditure comparison with equal effort given to even the smallest booking [7].” What financial accounting lacks is budget and commitment data, and the ability to call attention to or divert attention from line items within the cost report, because with rare exceptions financial accounting simply categorizes the data. The typical accounting software package does not use project data for “...forecasting/profiling/trending; contingency planning; cash flow curves; what-if scenarios; quantity tracking; earned value/progress analysis. None of these items are typically addressed by the cost accounting

solution [7].” In organizations where no additional project controls systems have been implemented, project managers must gather data from reports generated by accounting, and then repackage it with more information from other sources to provide cost management insight in the form of a cost report.

An additional challenge with financial accounting for projects results from a tendency in accounting to focus on fiscal year expenditures and summarize expenditures by fiscal year. Construction projects often span several fiscal years, whereas accounting software may be configured to budget and report only on a fiscal year basis. This not only makes it difficult to summarize totals to date for projects with a duration of greater than 12 months, but also complicates fiscal analysis of those projects. “Financial statements summarize the operations of companies but do not express project managers’ lines of thought nor do they show commitments, contingency, and forecasts. Specific areas of concern do not stand out. It is therefore impossible to manage projects only with these standard reports [11].” When undertaking a project that is expected to span fiscal years, the project team must ensure the finance department has the tools needed to track the project throughout its duration. This might require a software reconfiguration to maintain budgets and commitments across multiple years. The team must also work closely with finance at fiscal yearend to capture expenditures in the appropriate year, conduct reconciliation, and ensure transfer of data as needed to provide continuation of accurate reporting in the coming year.

In contrast, “...cost control supports the project’s attempts to minimize cost. Its intent is to provide data for analysis and assessment of potential risks and their impact in order to predict outcomes, minimize risk and exposure, and provide accurate, timely information to the project team, in order to ensure project success. It is concerned with what specifics should cost and what they do cost. Cost control, unlike cost accounting, does not give equal emphasis to all components of a project. Instead, it draws the project’s attention to areas of greatest risk that can cause the project to overrun or go wrong [7].” Like accounting, project controls continue throughout the lifecycle of the project, but the controls serve a particular purpose for each project phase and react to the ever changing list of risks in that phase. At project conception, project controls provides the estimating function that sets the budget and timeline, the cost and schedule goals, of the project. Upon commencement, controls systems are implemented to guide the project towards those goals. During the construction phase, project controls seeks to manage cost by preventing claims, overexpenditures, and change orders. And, at closeout, project controls serves a cost recovery function through audit, asset allocation, and litigation support.

Pitfalls of Cost Accounting Systems

Accounting systems are implemented to ensure accurate financial reporting for financial statement purposes. These systems often do not have the capability to provide all the information necessary for project reporting. For example, good project reporting requires accurate information about commitments. Commitments may be further broken down into the categories of projected, pending and approved commitments. Many accounting systems do not record such detailed information about commitments, which makes it necessary for the team to use a separate project management system to track commitments. Lacking

adequate systems, the accounting team may implement workarounds with extra steps and special processes, in an attempt to approximate cost management and reporting while using an accounting system that was never intended for such a purpose.

Increasingly, companies are replacing stand-alone accounting software with Enterprise Resource Planning Systems (ERPs). “ERPs...are information management systems that take a holistic approach to the business of finance and operations. These systems were developed to run a company’s business operations and typically include accounts payable, accounts receivable, general ledger, inventory, human resources, time writing, and procurement modules [7].” The use of ERPs as a system for managing a construction project and providing cost controls can be problematic, especially in the area of procurement. Procurement methods for construction projects may vary considerably from established procurement procedures for the owner’s day-to-day business operations, requiring additional authorizations by project personnel, retention, and specific controls for professional services and payment applications based on percent complete. Some ERP systems do have available add-on modules for project costing and asset management, which may be used for construction projects. However, the add-on modules can pose some challenges in providing necessary detail or mapping to other systems, especially when adapting the software to simultaneously suit multiple purposes (such as construction projects, information technology projects, and other corporate initiatives, each of which have their own unique set of administrative policies and procedures).

It is critical to have a clear understanding of how the contractor’s cost accounting system is set up, prior to negotiation of contract terms, to ensure that reporting expectations can be supported by the contractor’s accounting system. A common problem associated with reporting for cost type construction contracts occurs when the accounting structure utilized by the general contractor does not enable the accumulation of cost information and reporting in the manner required by the contract. The problems encountered are similar to those found in the US federal government’s cost accounting standards (CAS), standards which apply to major government contracts, but not to non-governmental contracts. The problem areas include inconsistencies in estimating, accumulating and reporting costs (CAS 401). Failure to comply with the CAS standards carries stiff penalties.

Often, the person responsible for negotiating the general contractor’s construction contract does not give adequate consideration to limitations in the cost accounting system. For example, a guaranteed maximum price (GMP) cost type contract may include a very detailed schedule of values (SOV). This SOV likely resulted from the contractor’s efforts to provide detailed pricing data during contract negotiations. However, the contractor’s actual chart of accounts for accumulation of cost may provide much less detail, making it impossible to accumulate and report costs at the level of detail specified in the contract. This becomes a particular problem in instances when certain line items in the SOV are to be handled on a lump sum basis and other line items are to be handled on an incurred-cost basis. The incorrect accumulation of costs between lump sum and cost type line items may result in significant violations with contract terms. A similar situation exists with allowances. As work progresses, the contract GMP should be adjusted for differences between the stated

allowance amounts and the actual costs incurred. If the accounting system is not designed to accumulate costs at the level of detail necessary to determine the adjustments necessary for allowances, a contract violation may occur.

Systems Reconciliation Issues

When assembling a project status report, where does the information come from? Often it is a combination of data from financial accounting and project controls. It is worth noting that "...cost management cannot be performed without having an adequate cost accounting process in place [13]." There is a need for push & pull of information between accounting and project controls systems.

A project team will use spreadsheets and specialized software to track and control schedule and cost, at a minimum, and may take advantage of expanded software functionality such as estimating, bidding, management of requests for information (RFIs) and change orders, and document controls (the functions performed by project controls software vary according to the software package). The resulting project data may be used not only for decisionmaking at the time of report generation, but also later in the event of claims and litigation. For the purposes of this discussion, we will focus on the integration of cost management capabilities such as budget management and job cost accounting.

If data (such as project approval, requisitions, purchase orders, receiving and payment processes) resides in more than one system and the interfaces between the accounting and project controls systems are not automated, duplicate entry will be required. Duplicate entries contribute to process inefficiencies and errors, problems that may be resolved by automating the interface between software packages.

Real-time reporting of project data requires faith that the data is correct, confidence that is realized by validation of the systems. One way of validating the data is to conduct an initial reconciliation between the project management software and financial system. The information logic in the two systems needs to be mapped to enable an apples-to-apples comparison. If there is an electronic data interchange failure, the two software packages or systems will be unable to reconcile. "To be able to produce some meaningful reports showing relationships between tasks or activities between different trades and/or levels, areas of building, etc., one has to be able to connect the related database files with one another through either linking fields or codes [1]." Once this mapping is achieved, reports from the two systems can be run and compared, with discrepancies identified and corrected on a periodic basis. "The two sets of books [should be] reconciled regularly to eliminate errors and omissions. As long as there is an established procedure and the invoices properly coded, figures can be compared and analyzed [11]."

One source of discrepancy between the two systems may be due to delays in entering data. Often, the project controls system contains information regarding anticipated commitments, change orders in progress, or invoices received but not yet approved and paid, whereas the accounting system tracks only completed transactions regarding contracts/purchase orders, and payment applications. In a project, "...there are two important requirements of the

report function; the need for timeliness and the importance of accuracy [6].” When one system contains more information than the other, the system fails both the timeliness and the accuracy (or completeness) test, and an interface needs to be constructed to take this information into account for the project status report.

Pitfalls in Project Reporting

There are a number of additional challenges faced when attempting to generate a useful and comprehensible project status report.

The true status of a project may be misrepresented, intentionally or unintentionally. Unintentional causes include the aforementioned delay in data input, errors, or miscategorization of data. Similarly, the work breakdown structure (WBS) or code of accounts might not provide enough detail, effectively hiding areas of risk while creating a false sense of security by providing some information. And bias is not as uncommon as one might hope - project managers may withhold information for a period of time, in order to present a rosier picture of the project to senior executives.

Good information received too late, likewise, serves no useful purpose. Delays in data input are mentioned above; however, “...another aspect of timing is the lag time between the end of the reporting period and the preparation of the reports. The lag time should be as short as possible [9].” Lag may be caused by efforts to validate data, or other challenges faced in gathering data and generating the report. “The level of efficiency is important in terms of using software in project management, especially for large developments...there is pressure to get things done quickly and easily [4].” For teams accustomed to monthly reports generated with punctuality, any irregularity in the timing of report generation will hamper communication and the continuation of any work that relies upon timely issuance of the report.

A project dashboard report may developed, which contains more comprehensive project information in the form of a snapshot in time. The dashboard report may include information on schedule and significant areas of concern, possible with comparisons to concurrent projects. In order to produce this report, data must be gathered from many sources. When considering the available data, “...there is an ever-present requirement for the joining of many parts into a systematic whole. Without the integrative function, often nothing would be done with the concepts originating in the analytical functions [5].” Just as reconciliation between cost systems poses a challenge, the assembly of data from different systems also poses a challenge in accuracy and timeliness of reporting. “Special or customized reports are more complicated to produce and involve logical data integrity among different sources [1].” Automation of the process may streamline the team’s efforts to gather data from multiple sources to generate the cost report.

Just as providing too little detail hides areas of risk, providing too much information can also be problematic, confusing the recipient of the report, and effectively hiding risk by drowning the reader in details.

“There are numerous reports that contain pertinent and useful information that are produced and frequently updated. However, many of the individuals on the report distribution list do not know how to interpret the report, thus the usefulness of the report is diminished. This indicates that a lack of communication exists, which complicates the issue of what cost and scheduling personnel are able to generate versus what managers find useful and results in a situation called ‘information overload’. ... An example of information overload is when a manager desires a simple one-page summary that shows the status of a project, and in response to the manager’s request cost and scheduling personnel provide the manager with volumes of paper that contain the status of every activity that has transpired during the last two years. Therefore the real challenge is to produce reports that are useful to managers and at the same time address specific project objectives [12].”

If the recipient of the report is not well versed in construction, the impact is compounded because the recipient might not understand the report and thus cannot use the data (or may misuse the data) when making a decision. “... Lack of understanding in monitoring progress coupled with poor quality, poor content and clarity of progress reports equates to poor communication no matter whether ...software is adopted or not [4].”

Finally, the presentation format itself can pose a problem. If there is a lack of consistency, in that the presentation format changes each time, this can be confusing to executives, who then need to read the report carefully in order to ferret out the information that is useful to them. This is further compounded when management is tasked with reviewing the status of multiple projects, or the project team attempts to create a one-size-fits-all report. “The difficulties inherent in providing useful and meaningful project reporting are increased by both the number and magnitude of the project and the number of players involved [2].” This challenge can be solved by creating a standardized report for all projects, customized to its audience. Without this, comparisons between projects would be impossible, and would preclude the use of historical information for planning purposes.

Moving Toward a Solution

Project teams find themselves in a situation whereby they must create a report that is tailored to its audience so as to be concise, comprehensible, consistent, and to provide the information needed for management to make decisions and take action. “[The project controls] mission – real-time due diligence – [results in its] most essential product...timely, high-quality, unembellished information and recommendations to support informed business decisions.” [8] However, the reporting function [must also be dynamic, and responsive to changing project conditions, in order to support information sharing and informed decision making.

In order to create the report, the following questions must be posed [12]:

- Who will be the primary users of the report?
- What level of familiarity do the end-users of the report have with construction project controls?

- What are the expectations of the end-users of the report, with respect to report content?
- What decisions are expected to be made based on the report?
- What are the sources on which the report will be based?
- What sort of accuracy is achievable, given the information available?
- How is adequacy of reporting determined?
- Can the available data achieve the expected adequacy of reporting?
- How frequently will the report be produced? And,
- What defines a successful project?

Of the questions posed above, the last is the most important and likely the subject of much debate between stakeholders. “The ideas and expectations of a successful project are often subjective, implicit and contradictory [3].” Ideally, during the planning stages of the project, the stakeholders will participate in a facilitated discussion to prioritize project cost, schedule, quality, safety, and other goals, thus defining project success.

Once the elements of a ‘successful project’ have been defined, the project manager in association with the project controls group can use the questions above to develop a report that satisfies the needs of the project stakeholders and decisionmakers. The level of report detail will vary directly with the stakeholder level of involvement, and may require the development of several reports targeted to specific stakeholder groups.

Throughout the lifecycle of any construction project, stakeholders and management use project data to assess the status of the project and make decisions. It is the duty of the project team to provide these executives with expenditure data and forecasts that enable them to focus on high risk areas, instead of merely reacting to crisis situations. The goal is to isolate critical project data, and promptly direct that information to the appropriate individuals for immediate action. Issue management should enable upper management to focus on current risks and take appropriate strategic steps, instead of delaying the receipt of otherwise good information until time and circumstances narrow the authority and ability of the decision makers to effect change.

In order to satisfy that need, the project team typically uses data from multiple sources, including information provided by financial accounting and project controls. However, challenges occur in project status reporting, because the data generated by accounting systems needs to be manipulated, mapped, and validated before using it in conjunction with data from other sources. Care must be taken to ensure limitations in the cost accounting system do not preclude reporting at the expected level of detail. Additional steps must be taken to ensure the true status of the project is represented with timeliness, consistency, and clarity. When developing a useful and meaningful project status report format, the project team must consider the report’s intended audience—the information provided must be appropriate for and easily understood by the recipients.

With forethought and diligence applied at the start of the project in the development of an acceptable report format, stakeholders will thus be enabled to make decisions throughout the lifecycle of the project.

REFERENCES

1. Baram, G. E.. *Construction Claims - Documenting the Facts*. **AACE International Transactions**. Morgantown, WV: AACEI (1992).
2. Christiansen, J. C.. *Executive Reporting System*. **AACE International Transactions**. Morgantown, WV: AACEI (1997).
3. de Ridder, H. A., and R. Vrijhoef.. *The "Living Building" Concept: Dynamic Control of Whole Life Value and Costs of Built Services*. The Queensland University of Technology Research Week International Conference. Brisbane, Australia: Queensland University of Technology (2005).
4. Hegarty, P., McLoughlin, J., Chen, Z., and M. Sarshar.. *A Study of Programming and Progressing Methods Used On Large Developments in the North West of England*. The Construction and Building Research Conference of the Royal Institution of Chartered Surveyors (COBRA). London, United Kingdom: RICS (2008).
5. John, G. A., Wardle, I., and D. Fairhurst, D.. *Enhancing the Decisionmaking Process of Project Managers in the Built Environment: An Integrated Approach*. The Construction and Building Research Conference of the Royal Institution of Chartered Surveyors (COBRA). London, United Kingdom: RICS (2008).
6. Kimmons, R. L.. *What Management Expects of Cost Engineers*. **AACE International Transactions**. Morgantown, WV: AACE International (1987).
7. Kohl, B., and R.J. Wulke. *Supplementing Accounting Systems for Project Cost Management*. (M. Gelhausen, Ed.) **Cost Engineering Journal** , 46 (8), 11-13 (2004).
8. Michalak, C. F.. *The Business Impact of Outsourced Project Control*. **AACE International Transactions**. Morgantown, WV: AACE International (2001).
9. Orczyk, J. J.. *Management Reporting*. **AACE International Transactions**. Morgantown, WV: AACE International (1991).
10. Piekarski, J. A.. *Advanced Managerial Costing in Industry*. **AACE International Transactions**. Morgantown, WV: AACE International (1994).
11. Pressoir, S.. *Cost Control and Project Accounting are Getting Married*. **AACE International Transactions**. Morgantown, WV: AACE International (1988).
12. Rahbar, F.F., and J.K. Yates.. *Executive Summary Status Report*. **AACE International Transactions**. Morgantown, WV: AACE International (1990).
13. Tichacek, R. L.. *Effective Cost Management - Back to Basics*. **AACE International Transactions**. Morgantown, WV: AACE International (2005).

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