SYSTEMIC AUDIT AND SUBSTANTIVE EVALUATION IN THE BUILT ENVIRONMENT

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ABSTRACT

The disciplines and functions of performance auditing and program evaluation have evolved over the past half-century as part of an ongoing global evolution. Traditional audit functions are systems-based, focused on financial accountability and fiscal regularity. More recently, concerns about fraud and waste have raised questions about efficiency, economy, and effectiveness of organizations, integrity of systems, and accountability. Auditors began to take a legalistic inspection approach, stopping poor or illegal practices, and reviewing operations in terms of whether rules were observed and enforced. These adaptations resulted in various efforts at performance measurement and improvement, including: benchmarking, balanced scorecards, output measurement, and total quality management. Organizational paralysis was often the result, with middle managers focusing on high marks on the performance scorecard instead of the success of the business.

In response to these challenges, the "new" performance audit philosophy is based on the concept of business entities as adaptive organisms. While there remains a focus on control and accountability, there is renewed global movement toward performance evaluation. The accountability sphere has been broadened to include procedural (internal control), compliance (contractual and statutory), professional (peer), and political (stakeholder) accountability. The systemic audit component continues to provide assurance through data validation, while the substantive evaluation component assesses how well the program is working and applies best practices to improve operations.

This technical paper advocates for performance auditing in the construction project management environment, where traditional control-based systems are less effective because the built environment continuously evolves.

Keywords: construction audit, performance assessment, expenditure review, contract audit, project controls best practices

INTRODUCTION

Capital expenditures characteristically receive high visibility on financial statements. In today's era of cost-consciousness, the industry is experiencing an increase in corporate awareness of expenditures, and calls for greater accountability and expenditure controls.

The capital expenditure arena is contentious from the start. "The nature of the typical construction project is such that the parties to various contracts progress from project inception to completion while at the same time endeavoring to satisfy their own (often competing) objectives. The result is an industry and situation characterized by high potential for conflict; history indicates that only the most rare of projects is completed without changes or claims." (Nalewaik, 2010) Even if a project is complete on time and on budget, and achieves quality expectations, measuring the success or failure of a construction project is a complex process, largely because the definition of success varies from stakeholder to stakeholder.

In such an inherently risky environment, audits should be an integral part of every construction project, enabled by "right to audit" contract language that can provide restricted or unrestricted rights to review operations, contracts, projects, programs, and expenditures during the time period of the contract and beyond. However, just as no two construction projects or snowflakes are exactly alike, the scope and objective of construction audits vary considerably by entity and situation. In the built environment, a systemic audit component can provide expenditure assurance through data validation, while a substantive evaluation component can assess how well the program is working and apply best practices to underperforming activities. Different approaches to construction audit, and their benefits, are discussed herein.

HISTORY

Traditionally, public sector audit has been systems-based, focused on financial accountability and fiscal regularity. The need for accurate accounting of Federal expenditures in the United States was institutionalized by the Accounting and Auditing Act of 1950, which required internal audit functions to be established in Federal agencies. The accounting was considered to be satisfactory if it demonstrated that transactions were legal, formally authorized, and reported accurately. "Financial audits include financial statement and finance-related audits. A financial statement audit is an examination of a company's financial statements and records, in order to provide reasonable assurance that the data is accurate and complete, and is presented according to generally accepted accounting principles (GAAP)." (Nalewaik, 2007) Indeed, the financial audit component remains an important factor in the review of capital expenditures, applying fixed standards and methodologies and involving attestation of financial statements and reviews of financial controls.

To further complicate matters, some fifty years later the Federal Public Company Accounting Reform and Investor Protection Act of 2002 (the Sarbanes-Oxley Act) was enacted to protect shareholders and public interest. "In addition to other requirements, certain sections of the act require all regulated companies to establish an audit committee, to document internal controls and evaluate their effectiveness, and to certify that financial statements fairly reflect the company's financial situation and operations for the period presented." (Nalewaik, 2007) Because capital expenditures represent substantial investment, often appear on the balance sheet as "assets", and represent potential control risks, the Sarbanes-Oxley Act has pushed

some responsibility for expenditure control downward from the financial and internal audit departments, to construction project management and project controls. "Capital assets, construction in progress, bond issuances, leases, depreciation and capitalized interest may be reflected in several places in the financial statement, including the aforementioned balance sheet, income statement, cash flow statements, and notes to the financial statement." (Nalewaik, 2007) Although originally written for regulated companies, this act has had a trickle-over effect to the public sector.

Outside the realm of pure financial auditing, the past thirty years illustrate an ongoing global shift in government administrative culture away from pure reviews of revenues, expenditures, and controls, toward a post-positivist, quality-oriented stance, in which the disciplines and functions of performance auditing and program evaluation developed to supplement the financial audit. "The moves by the United States General Accounting Office (GAO, now known as the Government Accountability Office) into programme evaluation or efficiency auditing in the late 1960's and early 1970's reflected the view of the Comptroller-General as to what information the legislature needed to exercise appropriate oversight. … In general, this extension of the audit mandate reflects a view that full accountability to the legislature requires more than just financial and compliance accountability." (Shand & Anand, 1996) A few years later, the Inspector-General Act of 1978 was yet another response to widespread public concerns about fraud, waste, and abuse, intended to promote the assessment of efficiency, economy, effectiveness, and integrity. Government entities began to establish strict and detailed policies and procedures for performing day-to-day activities, and the role of the external auditor evolved to focus on compliance. "The presumption was that adherence to these procedures would produce the desired level of performance. … Audits often resulted in recommendations for more controls to ensure compliance with established guidelines." (Trodden, 1996) The tide continued to shift and, while entities sustained the practice of auditing for financial accountability, there grew ever-greater focus on accountability to the public. Continuing the evolution, in the United States during the Reagan and Bush administrations of the 1980's and 1990's, auditors focused on the legalistic inspection approach of stopping poor or illegal practices, and reviewed operations in terms of whether rules were observed and enforced.

However, the never-ending flood of controls, policies and procedures did not yield the expected improvement in performance. "For a century, public administration has built rules and regulations of increasing complexity and formalism, presumably to assure equity and to avoid corruption. Unfortunately experience, at least at all levels of government in the United States, has demonstrated that corruption can adapt to complex rules and procedures but competence cannot." (Walsh, 1996) Clearly, a new solution was needed.

The Government Performance and Results Act (GPRA), passed in 1993, endeavored to link budget inputs with performance outcomes. Additional philosophical shifts during the 1990's resulted in a number of efforts at performance measurement[1], including (among others): benchmarking, balanced scorecards, output measurement, statistical process control, spiral analysis, total quality management (TQM), and six sigma. Although what was measured was likely to be acted upon, organizational paralysis was more often the result, with middle managers focusing on the narrow objectives and specific measures of success that would yield some personal or departmental benefit (such as bonuses, raises, promotions, or the

[1] Countless studies have been conducted and technical papers published, regarding appropriate "critical success factors" to be used in establishing performance criteria for construction projects.

longevity of their particular sector) instead of the broader performance of the program. This likely occurred because performance measurement quantified results against pre-established goals, but did not necessarily provide a means by which improvement could be effected.

This is the realm of performance assessment, which creates a vehicle for continuous improvement. In this early 21st century, new approaches to organizational performance assessment are based on the concept of public sector entities as adaptive organisms. While for statutory reasons there remains a component of focus on control and accountability, there is a renewal of the common global movement toward performance evaluation. Whereas efforts at establishing accountability focus on the use and abuse of resources and authority within a well-defined statutory box, questions about performance focus on progress, continuous improvement, and evolution. Where the traditional accountant asks, "Were things done the right way?" and verifies the data and reporting, those focusing on performance ask, "Was the right thing done in this specific situation?" and question whether the rules serve their intended purpose, determining whether the rules are appropriate, inadequate, or superfluous. The accountability sphere in the public sector has also been broadened to include procedural (internal control), compliance (contractual and statutory), professional (peer best practices), and political (stakeholder) accountability.

GUIDANCE AND STANDARDS

When conducting an audit, the auditor's role is to ensure that the findings are factual and accurate; in a financial statement audit, as mentioned above, that the data is fairly presented and the statements prepared in accordance with generally accepted accounting principles. "Most state legislative audit staffs follow the general guidelines set down in the GAO's [Government Accountability Office] 1972 'Yellow Book', Standards for Audit of Governmental Organizations, Programs, Activities, and Functions. The Yellow Book covers standards for audit work such as staff qualifications, planning, supervision, evidence, reporting, and review." (Craft & Brown, 1980) In addition, these generally accepted government auditing standards (GAGAS), provide a framework for conducting audits and attestation engagements with an assumed level of professional competence, ethics and integrity, objectivity, quality control, and independence. "Laws, regulations, contracts, grant agreements, or policies frequently require audits in accordance with GAGAS. For attestation engagements, GAGAS incorporate the AICPA [American Institute of CPAs] general standard on criteria, and the field work and reporting standards and the related Statements on Standards for Attestation Engagements (SSAE) unless specifically excluded or modified by GAGAS." (GAO, July 2007) Public organisations turn naturally to the internal audit group to write the request for qualifications (RFQ) or request for proposal (RFP) when advertising the audit opportunity and seeking auditors. Because it is assumed that they know the standards, a Certified Public Accountant (CPA) is often an audit team prerequisite. Because single-audit[2] or "Yellow Book" is the language best-understood and most familiar in the audit universe, and due to the GAGAS requirements, many public RFQs and RFPs also specify these as requirements, regardless of their appropriateness.

[2] The Single Audit Act of 1984 and the United States (Federal) Office of Management & Budget (OMB) Circular A-133 ("Audits of State, Local Governments, and Non-Profit Organizations") provide details of financial audit requirements for ensuring that Federal funds are properly expended. The term "single audit" refers to the option for the audited entity to conduct one broadly-based annual audit in lieu of a collection of audits of individual programs.

Consulting standards may be applied instead of attestation standards, depending on the engagement. The AICPA acknowledges the differences between attestation engagements and consulting services, stating that "…consulting services differ fundamentally from the CPA's function of attesting to the assertions of other parties. In an attest service, the practitioner expresses a conclusion about the reliability of a written assertion that is the responsibility of another party, the asserter. In a consulting service, the practitioner develops the findings, conclusions, and recommendations presented. The nature and scope of work is determined solely by the agreement between the practitioner and the client. Generally, the work is performed only for the use and benefit of the client." (Auditing Standards Board, 2004) In general, the expected standards of care remain the same as for attestation, and the consulting standards are applied where the auditor is providing advisory services.

"There are still no comprehensive standards for performance reporting and auditing" (Holmquist & Barklund-Larsson, 1996), comparable to those used for compliance auditing (the "Yellow Book"). Here, the concept of 'comprehensive' is key. GAGAS does include performance audit standards, but they do not differ substantially from the rest of GAGAS, containing guidance on such audit elements as: significance & risk, field work, planning & scoping, supervision, and documentation. This gap has been noted by the industry; the GAO allows auditors conducting performance audits to use other professional standards, such as the International Standards for the Professional Practice of Internal Auditing (published by the Institute of Internal Auditors); Guiding Principles for Evaluators (published by the American Evaluation Association); Program Evaluation Standards (published by the Joint Committee on Standards for Education Evaluation); and Standards for Educational and Psychological Testing (published by the American Psychological Association). (GAO, July 2007) However, even the GAO's concession to the use of alternate standards requires the auditors to use those in conjunction with GAGAS, and proffers the opinion that performance audits conducted without applying GAGAS are not performance audits but non-audit services. This has led to additional concerns; "…some of the controversy surrounding the revision and adoption of GAGAS has largely concerned evaluation researchers' fears that these standards are too closely related to financial auditing practice and are, therefore, inapplicable to many program evaluation situations." (Davis, 1990) Until a comprehensive and appropriate standard is developed, the realm of performance auditing will likely remain trapped in a mire of insufficient guidelines, and both auditor and auditee will need to work together to determine the appropriate scope and methodologies for each engagement.

TYPES OF CONSTRUCTION AUDIT

Traditional control-based systems can be effective in situations where tasks are repetitive and the processes are predictable. However, the construction environment is considerably less stable than the typical project-based environment or governmental organization, such that it is not feasible to create detailed procedures and controls to cover all possible eventualities. The majority of construction audits involve the ex post process of collecting data at a single point in time, yet performance is not a discrete event and the built environment continuously evolves throughout its lifecycle, which results in audit findings becoming outdated almost as soon as (and sometimes before) they are issued. Without a real-time evaluative / audit role, opportunities for improvement would otherwise have to wait for the next annual audit cycle rather than effecting change in real time, and improvements achieved would not be visible until the issuance of the next audit report. Although many audits are conducted on a periodic (often annual) basis, the entity may see a benefit from continuous auditing.

The quality and quantity of audit findings will most often be directly proportional to the level of sophistication of the construction program; as controls and management practices are refined over time, the auditor may report fewer findings. Indeed, as subsequent audits result in fewer best-practice improvement opportunities, the entity may decide to reduce the scope of assessment and expenditure testing, perhaps focusing solely on areas of concern.

Predictably, costs questioned during an audit can be easily measurable and quantified, whereas other findings may be more qualitative in nature. The financial consequences of the evaluative (qualitative) findings are difficult to assess but nonetheless of value. The Owner or project culture that is most likely to see significance in qualitative findings will characteristically have strong executive support, desire to challenge the status quo and be identified as a change agent, demonstrate willingness to address and be held accountable for tough problems, and promote an environment that places a premium on continuous improvement. In these environments, a blend of traditional systemic and continuous substantive evaluation is necessary.

Performance Audit

The substantive evaluation component (the performance audit) provides an independent assessment of performance, with the purpose of determining how well pre-defined goals and objectives are being achieved. "Performance auditing is a systematic, objective assessment of the accomplishments or processes of a government program or activity for the purpose of determining its effectiveness, economy, or efficiency." (Waring & Morgan, 2007) This type of operational auditing is also known as management-oriented auditing, in which the external auditor is a valuable part of a team charged with assisting an organization achieve its objectives.

The "three e's" associated with performance auditing sound similar, but are distinctly different.

- A typical definition of "economy" (Little, Fowler, & Coulson, 1973) may emphasize the element of economic conservation or thriftiness, but in a performance audit the auditor's attention is devoted to demonstrating prudence in the use of funds. One representative activity in construction is value engineering.
- The standard definition of "efficiency", however, is in this instance quite accurate, focusing on producing a result while minimizing waste, and using all available resources (not just funds, but also technology, staffing, and more) productively.
- The concept of "effectiveness" can be difficult to define without reference to the other two, but there is a subtle distinction. Even with the application of economy and efficiency, results may be ineffective. The emphasis here is on whether or not the desired result was achieved; however, as mentioned previously, the "success" of any construction program is a highly subjective topic, and definitions will vary diversely depending on which stakeholder is polled.

A performance audit for a publicly-funded construction program will typically combine 1) a compliance [systemic] review of a statistically significant sampling of expenditures, and 2) an [substantive] examination of the effectiveness of program management as practiced, with 3) a financial audit conducted separately. In addition, as with traditional performance audits of organizations, "…there are cross-cutting performance aspects that apply … such as ethics, integrity, and equity; and continuous improvement." (Waring & Morgan, 2007) Thus, the audit may include some form of expenditure review (limited or broad in scope), and also

evaluate other aspects of the program including planning and management processes, contract compliance, and adherence to laws and funding requirements. Again, the list of subject areas addressed when reviewing management functions can be exhaustive, and may include any department or function within the organization.

Clearly, the performance audit methodology can be complex and situational. "Performance audits deal with a multitude of topics and perspectives covering the entire government sector, and it would not be possible to develop detailed standards and procedures that work equally well in all these situations…they operate from a quite different knowledge base to that of traditional auditing. It is not a checklist-based form of auditing." (INTOSAI, 2004) Indeed, the successful and valuable performance audit should combine traditional auditing skill-sets (such as review of expenditures, and testing of preventive and detective controls) with in-depth industry knowledge and social sciences techniques (including interviewing, investigative efforts, and evaluation research methods). However, not all auditors are trained in the softer techniques of data gathering that are well established in the fields of qualitative evaluation.

In situations where it is not feasible to test the entire population of expenditures, the auditor may instead select and test a sample (a smaller population). Sampling theory holds that the findings discovered in testing the few can be assumed to hold true for the whole - "…a demonstrated quality of a representative sample can be extrapolated to the population" (Sawyer, Dittenhofer, & Scheiner, 2003) - and that the same results would have been achieved had one hundred percent of the expenditures been tested. This technique has been proven over many decades of financial accountancy. However, in order for the findings to be relevant, the sample itself needs to be well understood in the context of the circumstances and program. Outliers need to be explained, and findings evaluated for materiality (significance, relevance and value of impact)[3]. Sampling methodologies vary from audit to audit, and can be divided into two main categories –random (statistical) sampling, and judgmental (non-statistical) sampling. In general, it is accepted practice that a larger sample will more accurately represent (be representative of) the broader controls environment, providing greater confidence and reduce audit risk in the results. The sample could be large either in terms of quantity of items (such as payment applications) sampled, or sum total of the expenditures sampled as a percentage of the total expended to date.

It is valid here to question whether statistical sampling is truly effective in the realm of performance auditing, especially for very large programs whose scope include multiple projects and many design, engineering, consultant, and construction contracts. True, the technique of statistical sampling will likely surface routine procedural and controls issues, such as: duplicate payments; whether or not an invoice was reviewed appropriately and approved for payment; rates were charged in accordance with the contract; math was correct; or the expenditure was captured in both the project management software and in the financial system.

[3] An extreme example of an immaterial finding would be a rounding error of two cents on an invoice of several thousand dollars.

However, in the world of construction, there is a history and relationship from period to period that is reflected in the contractor's payment applications. The schedule of values (SOV) and related reporting evolve on a monthly basis in response to project conditions, including both expenditures and change orders, and those SOV changes will be invisible to the auditor if the expenditures are selected and tested singly, out of context, and out of sequence. Thus, the traditional method of testing may actually prevent the auditor from appropriately questioning expenditures, in effect reducing the number of questioned costs and thus the effectiveness of the entire audit.

Examples of high-dollar-value errors that might not surface in random testing of expenditures across a capital mega-program include (but are not limited to):

- Missing deductive (negative) change orders
- Unreasonable inflated charges, especially in change orders
- Excessive hours spent for design, engineering, or installation
- Unexplained variations in the schedule of values
- Charges for materials or equipment purchased but not used
- Differences between material quantities installed and quantities invoiced
- Expenditure totals for rented equipment that exceed the purchase price of the item
- Equipment or personnel hours charged to two projects at the same time
- Owner-purchased or donated equipment not captured in the project reporting
- Issues with information systems used to manage the project

Proposition 39 Performance Audits

Traditional auditors might be lacking even more than just the evaluation skills noted above; many lack the appropriate industry expertise, and some may even have made a grave error in determining which audit procedures to apply. In a very specific instance in the State of California affecting K-12 school districts and community colleges using public funds (General Obligation Bonds) for construction, Proposition 39 requires that the public entity must conduct both an annual independent financial audit and an annual independent performance audit of the bond fund usage. Specifically, the audit should be conducted "…to ensure…voters will be given a list of specific projects their bond money will be used for; to require an annual, independent financial audit of the proceeds from the sale of the school facilities bonds until all of the proceeds have been expended for the specified school facilities projects; and to ensure that the proceeds from the sale of school facilities bonds are used for specified school facilities projects only, and not for teacher and administrator salaries and other school operating expenses, by requiring an annual, independent performance audit to ensure that the funds have been expended on specific projects only." (The Office of the Secretary of State of California, 2000)

Reading the language of the proposition, at first glance this looks like the ideal situation for an agreed-upon procedures[4] engagement, limiting the scope of the audit to only a comparison of bond fund expenditures against the project list specified in the bond. Indeed, this was the approach taken by many a school district and community college district, and their chosen audit firms. Yet, reading even more closely, the proposition language clearly expects that a performance audit will be conducted. Herein lies the contradiction and the ambiguity, which

[4] In an agreed-upon procedures (AUP) engagement, the objective is to conduct clearly delineated audit procedures on a limited subject matter. The auditor does not perform an examination or a review, and merely describes the procedures and reports the results without expressing any opinion about the findings.

leads one to question how a limited-scope agreed-upon procedures audit can adequately assess the effectiveness, economy, or efficiency of an entire bond-funded construction program.

Within the past year, the stakeholder and taxpaying community has focused intensely on this, along with the State of California Controller's Office and the Little Hoover Commission (LHC)[5]. In a letter issued to the California Board of Accountancy in November 2009, the California League of Bond Oversight Committees (CALBOC) challenged the status quo, stating that "…[the] AICPA expects a performance audit to offer much more than a review of the agreed upon procedures. Most, if not all, licensees of the board, engaged in the practice of public accountancy, lack the staff and expertise to measure the efficiency, effectiveness and economy of a facilities program. A typical CPA firm does not have experience and expertise in managing a school facilities program. We contend that one cannot judge and evaluate the performance of processes and systems in which one is not experienced. The California State Controller's Office has concluded that an "agreed upon procedures review" does not constitute a performance audit. (CALBOC, 2009) It can be foreseen that Districts currently conducting an "agreed upon procedure" review will soon find that the tide has turned, as the State Controller's Office and LHC consider their audits to be insufficient as required by the State constitution. Quoting the LHC's findings, CALBOC has taken the stance that "… these inadequate "audits" are causing the school districts to lose opportunities to save millions in taxpayers' money. A number of licensees of the Board of Accountancy, therefore, are complicit in violating Proposition 39 by continuing to offer "agreed upon procedures" and presenting them and/or allowing them to be presented as performance audits." (CALBOC, 2009) The State Controller's Office has recommended that the State more clearly define the purpose and objectives of required audits, (Little Hoover Commission, June 2009) and the State Governor has issued an executive order demanding accountability and transparency from agencies administering publicly-funded programs, proclaiming "Accountability consists both of ensuring that bond expenditures contribute to long-lasting, meaningful improvements to critical infrastructure, and providing the public with readily accessible information about how the bonds they approved and are paying for are being spent." (Schwarzenegger, 2007) Assuming a particularly aggressive stance, CALBOC has also demanded that firms conducting agreed-upon procedures be investigated for unethical and unprofessional conduct and subject to appropriate sanctions and penalties, and that the California Board of Accountancy be advised of current issues. Although it appears to be an extreme reaction, this may in actuality be very appropriate, considering that a firm may be in violation of GAGAS if they conduct a performance audit of a construction program and do not have team members who have specialized knowledge and demonstrated expertise in the technical subject matter.

[5] "The Little Hoover Commission, formally known as the Milton Marks "Little Hoover" Commission on California State Government Organization and Economy, is an independent state oversight agency that was created in 1962. The Commission's mission is to investigate state government operations and – through reports, recommendations and legislative proposals – promote efficiency, economy and improved service. … Unlike fiscal or performance audits, the Commission's studies look beyond whether programs comply with existing requirements, instead exploring how programs could and should function in today's world. The Commission produces in-depth, well-documented reports that serve as a factual basis for crafting effective reform legislation. Based on its reports, the Commission follows through with legislation to implement its recommendations, building coalitions, testifying at hearings and providing technical support to policy makers." (The Little Hoover Commission, 2010)

Expenditure Audit

The systemic audit component is typically effected through expenditure audit, which can take many forms including contract audit, review of expenditures on projects or programs, and specialty audits of such items as change orders, overtime charges, payment applications, labor burden, reimbursable expenses, and more. The objective of the audit may be to satisfy external or internal audit requirements, or the investigation may be prompted by events, rumors, or allegations.

Expenditures may be reviewed in their entirety, or in part (by testing a statistically relevant portion). Here, as discussed earlier, the same statistical testing issues apply. However, by reviewing a greater population of expenditures in context and possibly in sequence or batches, it is more likely that in conducting a detailed expenditure audit the auditor will gain a greater understanding of the history and relationship from period to period that is reflected in the invoices or payment applications. This may in effect increase the number of questioned costs and thus the overall effectiveness of the audit.

Contract Audit

The most detailed of the expenditure audits may well be the contract audit, because the construction contract is the single most powerful and legally binding document of the project. "Among other things, it defines the key parties to the contract, delineates their rights and obligations, establishes the methodology for contract administration, sets the payment terms, and clarifies allowable/unallowable expenditures." (Nalewaik, 2010) In addition, the contract and addenda establish project expectations by providing detail about the means and methods of the project itself, explaining "…how work will be accomplished, the roles and responsibilities of the parties, the methods to handle change, and how to resolve disputes." (Krebs, 2000) The language within the contract can be used to determine the viability of applications for payment, potential change orders, and claims.

In a contract audit, the auditor will typically validate that approvals were received prior to expenditure, review the use of allowances and contingency, ensure that supporting documentation was provided to justify expenditures, and review cost charges against both funding source requirements and contract language. The level of review and type of findings will vary according to the type of contract (such as guaranteed maximum price, time & materials, lump sum, etc). For certain types of contract, the scope of the audit can be seemingly without limit, as every dollar spent can be traced to many levels and sub-levels of supporting documentation.

Interestingly, one study has demonstrated that capital project owners and auditors have not utilized this important tool to maximum effect and contract audits are, surprisingly, a less than common occurrence in the construction industry, despite overwhelming evidence of their value.

Of 61 study participants, only 63 percent conducted audits of their capital programs, those who did conduct contract audits reviewed fewer than half of their construction contracts, and only one respondent included audit-trained engineers as part of the audit team. "The auditors participating in the study reported finding significant overcharges during their audits. Twenty-eight percent found significant overcharges on I-24 percent of their audits; 38 percent did so on 25-49 percent of audits; and 17 percent did on 50-99 percent of audits. Only seven

percent indicated finding significant overcharges on all of their audits. Interestingly, all of the auditors who reported finding overcharges on every audit included an audit of the contractor's own records in their audit scope." (Cashell, Aldhizer, & Eichmann, 1999) As discussed above, it is natural for organisations to turn to their internal audit group to scope the engagement and specify the standards. Although some large public megaprograms have included contract audit in rigorous continuous review of expenditures, some owners new to capital construction (whose core business is not construction and who are for the first time in a long while adding, retrofitting, or expanding facilities) might not be fully aware of the benefits of contract audit.

Other audits

Many other types of audit can be conducted in the built environment. In fact, in the categories discussed above, one may find when observing the actual activities of public sector agencies that the majority of construction audits are hybrids. Some technical audit scopes may focus less on expenditures and more on issues encountered during the project or contract (sometimes known as a project audit). This may include forensic assessment and review of installed materials and equipment to ensure that the project was delivered in accordance with expectations, closeout achieved (both occupancy and formal closeout), the contract specifications were met, and/or the quantities invoiced matched those installed. These may or may not include expenditure testing.

Investigations of this type require the use of team members who have an engineering background and very specific skillsets. The AICPA has provided for this eventuality, through Pronouncement SAS 73 (Using the Work of a Specialist), a less commonly used section of the generally accepted auditing standards that allows auditors to seek the assistance of third party experts. "The auditor's education and experience enable him or her to be knowledgeable about business matters in general, but the auditor is not expected to have the expertise of a person trained for or qualified to engage in the practice of another profession or occupation." (Auditing Standards Board, 1994) Indeed, by invoking SAS 73 and teaming with specialists who have experience in both audit and construction, a number of CPA firms could generate a more relevant workproduct, and identify more findings of value to the client.

CONCLUSION

Because capital expenditures are highly visible on financial statements and today's economic environment is inspiring an era of extreme cost-consciousness, there is a renewed global focus on corporate awareness of expenditures, and calls for greater accountability and expenditure controls. Audits of capital programs fill this need. However, the scope and objective of construction audits vary considerably by entity and situation.

An independent assessment of performance can be commissioned to determine how well pre-defined goals and objectives are being achieved, with a focus on the effectiveness, economy, or efficiency of the construction program or project. This type of engagement may combine traditional auditing skill-sets (such as review of expenditures, and testing of preventive and detective controls) with in-depth industry knowledge and social sciences techniques (including interviewing, investigative efforts, and evaluation research methods).

Expenditure audits typically review incurred costs in greater detail, and may have a specific focus such as the construction contract, consultant contracts, change orders, overtime charges, payment applications, labor burden, reimbursable expenses, and more.

Many other types of audit can be accomplished in the built environment. Some technical audit scopes may focus less on expenditures and more on issues encountered during the project or contract. These may or may not include expenditure testing.

By embracing a combination of systemic audit and substantive evaluation, and making a commitment to using the audit recommendations to effect change, an entity can adopt an action-oriented philosophy. Not just reactively adapting to change in the environment, these entities are leading their peers by becoming learning organizations, discarding poor-performing management practices and anticipating the future. These owners are at the forefront of a global wave of public entities and Fortune 500 companies that are using performance assessment and expenditure audits in new ways to affect progress, continuous improvement, and evolution.

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