



## Project performance audit: enhanced protocols for triple bottom line results

Citation:

Nalewaik, Alexia and Mills, Anthony 2015, Project performance audit: enhanced protocols for triple bottom line results, *Procedia- Social and Behavioral Sciences*, vol. 194, pp. 134-145.

DOI: [10.1016/j.sbspro.2015.06.185](https://doi.org/10.1016/j.sbspro.2015.06.185)

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28th IPMA World Congress, IPMA 2014, 29 September – 1 October 2014, Rotterdam, The Netherlands

## Project Performance Audit: Enhanced Protocols for Triple Bottom Line Results

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### Abstract

This research presents a model for project performance review. The objective of the research, which was development of the model, originated in response to demand from Owners and Practitioners; it fills an extant gap in both research and practice. While performance audits and metrics have been conducted in government for decades, the application to projects is fairly new.

The research evolved from a doctoral study of 700 construction projects. The doctoral study extracted factor data from audit reports, and objectively and empirically compared the effects of different factors on audit results. Subsequent published analyses reviewed the scope of the project audits, evaluated existing project assessment methods to identify essential elements for project review, and studied stakeholder interviews to extract their primary concerns and definitions of success.

The model is the result of two decades of project management & controls expertise, extensive literature review, research, and leading practices gathered from around the globe on project performance assessment and audit. Although the case studies and interviews were from construction projects in the United States, the tools may be applied to projects in any industry, worldwide.

Even though audit is a common mechanism for both external and internal project oversight, existing performance audit standards and guidance are not just insufficient but nearly non-existent. Published literature, research, professional associations, and oversight bodies exist in the evaluation and financial audit fields, but not in the domain of performance audit. As such, practitioner approaches to scope and methodology are highly variable. This variability, which includes issues of audit sampling and review rigor, team composition, industry knowledge, audit scope, quality and availability of data, and other factors, has been proven to impact audit results. Economy, efficiency, effectiveness, and risk - concepts integral to the very definition performance audit - are rarely assessed in practice, a gap which could be considered by stakeholders to be a deficiency in the audit process,

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essentially a failure to deliver the depth and breadth of review promised or implied. Further, while traditional audit methods of testing procedural compliance can be effective in organizations where activities are repetitive and predictable, many projects are considerably more complicated, the project organization is temporary, and processes continuously evolve in response to changing circumstances and risk. Standard audit techniques applied in such situations are ineffective.

This model focuses on giving stakeholders confidence in project delivery. It enables qualitative and quantitative findings, is flexible and modular, and can be applied in any industry, sector, and country, while satisfying regulatory requirements.

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Peer-review under responsibility of Scientific Committee of IPMA 2014.

*Keywords:* Project performance; QA/QC; audit; assurance

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## 1. Introduction

This paper presents a model for project performance audit, and is the result of both research and over two decades of practical experience in project management. It builds upon a decade of audit experience and over a dozen previously published works on the topics of project performance, audit, assessment, evaluation, and quality assurance. The objective of the research, this project performance audit model, was developed in response to escalating demand from Owners and Practitioners for a flexible project performance audit methodology they could apply on their own projects and engagements.

The discipline of performance review has evolved over the past 50 years, growing well beyond its origins in financial audit and internal controls to become a respected mechanism for continuous improvement and organizational effectiveness. Although performance audits have been conducted in the government sector for decades to improve departments and initiatives, the specific application of performance audit to projects is fairly new. Performance audit scope is typically designed to focus on the achievement of goals, opportunities for improvement, and accountability for results.

The motivation for developing this model is that current approaches to and scope of project performance audits vary wildly and are often developed in-house by project owners for their own use or created for owners by management consultants. The rough draft of the model was developed specifically in response to publicly funded construction projects for which performance audit was mandated by law; the current format of the model provides customization, flexibility, and adaptability to other industries. The methodology is designed to fill the gap where there is no published guidance on how to conduct and scope a performance audit.

The term ‘performance audit’ has been co-opted by auditors and accountants, focusing on compliance instead of the performance of the project. The project performance audit model presented in this research paper focuses on how projects can be evaluated, improvement opportunities identified, and leading management practices put in place, to give stakeholders confidence in the control and delivery of their projects. The model enables quantitative findings, through the systemic audit component of data validation, while qualitative recommendations are the result of substantive evaluation that considers the achievement of goals and management of risk. Because it is not feasible to develop standards and procedures to work equally well across all industries and project types, and performance audit (unlike compliance audit) is not a checklist-based form of auditing, this methodology is specifically designed to be modular and flexible, adaptable to industry, geography, timeframe, and situation, while satisfying regulatory constraints and requirements for audit, meeting stakeholder expectations regarding rigor and depth, and facilitating customized investigation of risk, risk tolerance, definitions of success, and economy, efficiency, & effectiveness.

## 2. Literature Review

Literature review, to understand not just the mechanism and objective of project performance audit but also the environment in which it is intended to be implemented, was conducted and published on the following topics: project stakeholders (Nalewaik A. , Stakeholder Expectations Regarding Public Project Oversight, 2011), project governance (Nalewaik A. , Governance of Public Capital Projects, 2011), accountability, project assurance (Nalewaik A. , The Need for Assurance in Project Management, 2011), project organization, operational audit, history of audit (Nalewaik A. , Systemic Audit and Substantive Evaluation in the Built Environment, 2010), auditor ethics & independence, internal and external audit (Nalewaik A. A., 2007), existing audit standards (Nalewaik A. , The Inadequacy of Publicly-Funded Construction Audits, 2011) & frameworks (such as COSO, GAGAS, INTOSAI, ECA, and ISO), methods of project measurement & metrics, alternate approaches to project evaluation (such as stage gate & value for money reviews), project complexity, project risk assessment (Nalewaik & Mills, The Path to Assurance: An Analysis of Project Performance Methodologies, 2014), and common practices in project management & project controls (Nalewaik A. , Insight into Capital Project Effectiveness, 2011).

The literature review began with classic writings on the history, evolution, and applications of performance audit (Waring & Morgan, 2007; Penno, 1990; Shand & Anand, 1996; Newcomer, 1994). The literature also provided insight into the typical auditor's skill-set (accounting and financial analysis), and the dominance of accounting-, controls-, and systems- focus (Glynn & Murphy, 1996) in audit scope.

Audit techniques as applied in project management were reviewed, including AACE's Total Cost Management Framework (Technical Board, 2006), PMI's PMBOK (Project Management Institute, 2004), IPMA's Certifications (IPMA, 2006), ISO certification (International Standards Office, 2011), value for money and stage gate reviews (Nalewaik & Mills, The Path to Assurance: An Analysis of Project Performance Methodologies, 2014), PRINCE2 (Office of Government Commerce, 2007), program evaluation (Goldenberg, 1983), and project quality assurance (Bowman, 1994). Although 'risk' was identified as being important to stakeholders (Chapman, 2003), there was little formal research available regarding the intersection between risk, governance, and internal controls (Rikhardsson, Best, Green, & Rosemann, 2006). Framing the context in which performance audit could be applied to projects required a deeper understanding of project governance (Stretton, 2010) and stakeholder dynamics (Beach, Brown, & Keast, 2010). The differences between accounting and accountability (Newcomer, 1994) were studied, along with the three concepts of economy, efficiency, and effectiveness with which performance audit is fundamentally affiliated. The process of project governance was shown to include accountability and stewardship (Stretton, 2010), where accountability that provides justification to stakeholders for actions and omissions, and auditing was accepted as a mechanism for validating accountability (Rasche & Esser, 2006).

A review of existing audit standards and frameworks (Nalewaik A. , Systemic Audit and Substantive Evaluation in the Built Environment, 2010) demonstrated that current audit standards created a framework for audit engagement oversight (not necessarily the audit itself), adding levels of managerial administration in order to improve report and work-paper quality while assessing engagement risk and protecting the audit firm (Brown & Craft, 1980; Davis, 1980; Holmquist & Barklund-Larsson, 1996). Yet, none of the existing standards addressed in depth such issues as auditor skills, type of sampling, project (different from engagement) risk, audit scope, or testing specific to the entity being audited. The gap has already been noted by the industry; "controversy largely concerned evaluation researchers' fears that standards are too closely related to financial auditing practice and are, therefore, inapplicable to many program evaluation situations" (Davis, 1980). The authors acknowledge that major accounting institutions take extreme offence at these statements, and encourage dissenters to read the thorough analysis (and supporting literature) which concluded, "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 methodology for each engagement" (Nalewaik A. , Systemic Audit and Substantive Evaluation in the Built Environment, 2010). This performance model strives to enable precisely that guidance, regarding scope and methodology.

Subsequent to the 2012 doctoral study (Nalewaik A. , Factors Affecting Capital Program Performance Audit Findings, 2013), a new performance audit standard was published in March 2013 by the European Court of Auditors (CEAD AMS Unit, 2013). Although the new standard did focus primarily on engagement process (as with all audit standards), it was the first of its kind to explicitly identify evaluation elements that should be part of audit scope and methodology. The new standard was based on the INTOSAI performance audit manual (INTOSAI Auditing Standards Committee, 2004), with several important distinctions: it specifically differentiated between performance and financial/compliance auditing, recognized the discipline of performance audit as rooted in evaluation methods, focused not on finance and expenditures but on organizational maturity, and enabled both flexible methodology and scope. The ECA standard also addressed ways to evaluate economy, efficiency and effectiveness, noting they may be measured directly (using inputs, outputs, results, and impacts) or indirectly (assessing policies and procedures, and controls). The standard also strongly recommended identification of risk as a first step toward developing audit questions. The ECA standard was a very important leap forward in the development of a meaningful and flexible performance audit standard that truly satisfies the implied mandate of performance audit, e.g. an objective assessment of performance to provide assurance regarding economy, efficiency, and effectiveness and the achievement of project and organizational goals.

### 3. What is a Performance Audit?

“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) in achieving project and/or organizational goals. The review is typically conducted by an external (third-party, independent) auditor, who is charged with providing assurance to stakeholders regarding the current project status, risks, existing good practices, and opportunities for improvement (Nalewaik A. A., 2007).

Fundamentally, and in all definitions of performance auditing, the “three E’s” are specifically mentioned (Nalewaik A. , Systemic Audit and Substantive Evaluation in the Built Environment, 2010):

- A typical definition of “economy” focuses on economic conservation or thriftiness. In a performance audit, the auditor’s attention is devoted to demonstrating prudence in the use of funds.
- The definition of “efficiency”, however, emphasizes measuring the production of some desired result or goal (output) while minimizing waste of resources used (input), thus using any available resources (funds, technology, staff, materials, equipment, and more) as constructively as possible.
- The concept of “effectiveness” relies, to some degree, on the other two, with a subtle distinction. The emphasis is on whether or not the desired result was achieved; this depends heavily on stakeholder definitions of success, which may be subjective and even conflicting.

In addition, “...there are cross-cutting performance aspects that apply...such as ethics, integrity, and equity; and continuous improvement” (Waring & Morgan, 2007). The project and organizational environment in which the performance audit is conducted can be complex, complicated, political, and situational. Here, traditional auditing skill-sets (such as review of expenditures, and testing of both compliance with and effectiveness of preventive and detective controls) can be combined with in-depth industry knowledge and social sciences techniques (such as interviewing, investigation, and evaluation methods), with potential significant return on investment (audit findings and the organizational improvements resulting from their resolution).

To illustrate the difference between traditional audit and performance audit, the concept of accountability can be used. A traditional view of satisfactory accounting requires evidence that transactions have been formally authorized and processed in accordance with established procedures. In contrast, the performance perspective considers whether authority and money have been used appropriately, efficiently, and effectively. This new approach, known as assurance, recognizes that transactions may have been formally authorized, yet still have been knowingly and even intentionally unnecessary or excessive (Nalewaik A. , The Need for Assurance in Project Management, 2011).

Critical questioning of expenditures, risk, decision-making, and controls becomes a necessary part of accountability to stakeholders.

Throughout this paper, terms used interchangeably with ‘performance audit’ include ‘project QA/QC review’ and ‘project validation’. The term ‘project’ refers to the project or program being audited, and ‘engagement’ refers to the audit effort itself.

#### **4. The Project QA/QC Model**

This model is specifically designed to address the issues identified above. In addition, it deliberately codifies elements into modules, enabling a flexible and modular approach to defining scope that is reasonable for both the project and the owner at that particular point in time, while complying with extant regulatory requirements and mandatory audit standards.

The model presented in this paper is the result of a doctoral study of 700 construction projects, which extracted factor data from audit reports, and objectively and empirically compared the effects of different factors on audit results, also identifying the various types of scope for that particular sampling of project audits (Nalewaik A. , Factors Affecting Capital Program Performance Audit Findings, 2013). Other research compared existing project assessment methods and scopes to identify recurring, essential elements for project review (Nalewaik & Mills, The Path to Assurance: An Analysis of Project Performance Methodologies, 2014), and studied stakeholder interviews to extract their primary concerns and definitions of success (Nalewaik A. , Stakeholder Expectations Regarding Public Project Oversight, 2011).

Based on the ISO 19011 guidelines for audit of management systems (International Standards Office, 2011), the model presented here can readily accommodate other guidelines [such as GAGAS (U.S. Government Accountability Office, 2007) or other required standards], as needed. Key tenets of the ISO guidelines include:

- Trust
- Integrity
- Confidentiality
- Discretion
- Ethical conduct
- Fair presentation
- Due professional care
- Independence
- Evidence-based approach
- Continuous improvement of audit program
- Recordkeeping
- Follow-up & resolution

The approach is adaptable to projects, programs, and portfolios of any size, and many different industries, such as: construction, manufacturing, information technology, and major events. The model acknowledges there might not be a need to utilize all eight modules on the project at a given time, while providing flexibility to add modules and revisit modules at a later date, as needed. The approach is not a highly prescriptive template or checklist; it is flexible and responsive to the dynamics, uniqueness, and risks of the project and organization. The audit scope can be fine-tuned to address the specific needs of the project, and audit resources directed to areas that can benefit the most. The model is intended to be tailored to the specific needs of the project at key milestones in the project lifecycle; the process is iterative, and should be repeated (and re-scoped) at the next project milestone. This deep and targeted review provides both internal and external stakeholders with increased confidence in the forward progress and positive achievements (success) of their project. This is assurance.

Further, the model is designed to facilitate continuous improvement of the owner or project organization, support a learning culture, provide assurance to stakeholders, strengthen controls, enable transparency in reporting, contribute to good governance, and empower critical questioning. Key elements considered in the development of the model include: Total Cost Management (Technical Board, 2006), the three E's (previously defined), inputs, outputs, impacts, risk, success, stakeholders, project lifecycle, accuracy in status reporting, and the best interests of the organization.

QA/QC Modules	1. Project Planning: Matching objectives with long-term strategy
	2. Stakeholder Identification: Defining success
	3. Risk Assessment: Optimizing opportunities
	4. Compliance: Responding to internal and external requirements
	5. Resource Analysis: Focusing on economy and efficiency
	6. Management Controls: Improving effectiveness
	7. Post-Project Concerns: Customer satisfaction and future planning
	8. Special Issues: Targeted review of specific concerns and risks

Fig. 1. List of Project Performance Audit Modules

An overview of the eight modules of the project performance and QA/QC model is provided below.

#### 4.1. Module 1 – Project Planning

The problems of projects often begin when the project is still very conceptual, when returns on investment are calculated and budgets developed. It can seem that “it is not the best projects that get implemented, but the projects that look best on paper...the projects with the largest cost underestimates and benefit overestimates” (Flyvbjerg, December 2005). Especially political projects may be doomed from the start, with cost overruns and budget busts inevitable, due to the nature of project approval and the inevitable gap between project needs and available funding. Money is a finite resource; there may be more than one project competing for selection.

This module is intended to review the project initiation and approval process. This includes identification of project objectives and their match with long-term organizational strategic objectives; financing model; financial calculations (such as return on investment (ROI), operating costs, cash flow, and value for money); development of scope, specifications, and requirements; asset planning; contracting and procurement mechanisms; and the project organization structure and team (Technical Board, 2006). The objective is to provide assurance that the project is designed for success.

#### 4.2. Module 2 – Stakeholder Identification

The definition of success depends very much on the stakeholders involved in the project and organization. Indeed, where there is a multitude of internal, external, direct, and indirect stakeholders, a project may have different, sometimes conflicting, definitions of success. From the point of view of multiple and diverse groups of stakeholders, a project can conceivably be both a success and a failure at the same time. Failing to understand stakeholders could even mean certain failure of the project. Multiple levels of stakeholders and their influence create a network of interdependencies and obligations within the project hierarchy.

This module is intended to consider stakeholders (individuals, groups of individuals, and companies) and their levels of interest and influence at different timeframes (key milestones) of the project. It includes stakeholder identification, their definitions of success and concepts of value (Nalewaik & Mills, *The Path to Assurance: An Analysis of Project Performance Methodologies*, 2014), their own motivations of profit, power, and achievement, and their level of tolerance for risk and change (Nalewaik A. , *Stakeholder Expectations Regarding Public Project Oversight*, 2011). Essentially, it means the project team should know their intended audience, and address them accordingly.

The list of stakeholders can be seemingly infinite, including: employees, companies, contractors, vendors and suppliers, consultants, neighbors, governing bodies, creditors/investors, partners, clients/end users, elected officials, public government, regulatory agencies, general public, industry groups, unions, special interest groups, neighbors, and even future generations. Some will have more influence than others; the list of stakeholders should be narrowed down to those who have the greatest ability to positively or negatively impact the project.

Once these stakeholders have been identified, measures of effectiveness can be developed against which impact can be evaluated, and mitigation put in place for potential conflicts between stakeholders. A communication plan can also be developed, specific to each stakeholder group.

#### *4.3. Module 3 – Risk Assessment*

Except in the most rare of circumstances, audits are limited by constraints of politics, cost, and time. By assessing the risks associated with the project, and understanding the risk appetite and concerns of key stakeholders, resources of both the audit and project teams can be focused on those elements of the project which are of most concern, are critical to performance, and/or will yield the best returns (Lane, 1983). Research conducted by the author indicates that risk identification, management, and assessment are rarely addressed in project performance audits, state gate reviews, value for money reviews, and project health checks (Nalewaik & Mills, *The Path to Assurance: An Analysis of Project Performance Methodologies*, 2014).

Risks experienced by a project fall into several categories: technical, financial/economic/political, statutory, organizational & contractual, and other risks (Nalewaik A. A., 2007). Failing to address these risks may mean unnecessarily sacrificing schedule float and project contingency, costing the project both money and time, if not completion and/or success.

This module is intended to identify risks, and prioritize them based on probability and impact. The risks may be project-specific, or related to the organization (applying COSO and enterprise risk management processes). Key stakeholders may be engaged for open discourse on risk; interview or workshop focus may be conducted at the macro-level or micro-level. Risk assessment helps “identify the precise ways in which an existing programme is liable to break down” (Barzelay, 1996), and implement an appropriate process for management of such circumstances. A risk management plan will include assignment of top risks to ‘risk owners’, identification of triggers, and development of action plans to take effect should the trigger(s) occur. This process will enable the project team to use the Deming PDCA (plan-do-check-assess) cycle of periodic risk review to constantly evaluate the situation, warn management and stakeholders in a timely manner, and take action as appropriate.

#### *4.4. Module 4 - Compliance*

There may be a legislative or regulatory requirement for evaluation of compliance, or stakeholder concerns about compliance with internal policies. In the case of legal requirements, compliance is absolutely mandatory; failure to comply with a required audit could stop the project, and incur liabilities such as fines or jail service for accountable parties (example: board members). In the instance of project-specific policies, noncompliance may serve to identify opportunities for improvements or streamlining of procedures. Noncompliance, in the latter instance, is not necessarily a bad thing.

This module is intended to satisfy requirements for review of compliance (with laws, regulations, funding source requirements, etc.), and also provide an opportunity for review of compliance with project-specific policies (such as corporate policies, internal controls, contract language, and project management policies and procedures) (Nalewaik A. , *Systemic Audit and Substantive Evaluation in the Built Environment*, 2010).

#### *4.5. Module 5 – Resource Analysis*

Unique to this model is the concept of broadening the very perception of what can be assessed (Nalewaik A., *The Need for Assurance in Project Management*, 2011). The focus is no longer purely on project management, internal controls, or expenditures. Review of specific high-risk aspects of the program will require the skill-sets of a hybrid audit team, whose members comprise specialists (such as engineers, systems analysts, quantity surveyors, financial analysts, fraud experts, and more). Any and every activity that consumes project resources or represents a material risk has the potential to be evaluated, and the methods of evaluation (quantitative or qualitative) will need to be tailored to the type of risk.

This is not “check-box auditing”. The assurance model borrows methodologies from such tried-and-true business and project methodologies as peer review, threat assessment, gap analysis, and value engineering. The critical questioning aspect of the approach involves evaluating why things are done a certain way, with the ultimate objective of reducing risk, increasing value to stakeholders, and assuring performance.

This module is key to evaluation of economy and efficiency, input and output, with its focus on the best and most appropriate use of resources. The first step involves identification of resources to be assessed. Typical resources reviewed include cost, schedule, people, departments, materials, equipment, IT systems, tools, and more. Overlaps, overburdening, and gaps in available resources may be identified, creating opportunities for reallocation and streamlining of resources.

#### *4.6. Module 6 – Management Controls*

This module is, arguably, the largest of the lot and the heart & soul of the evaluation process. It reviews project management and related processes, with an eye on not just best (common) practices but also leading practices, as appropriate for the project.

Total Cost Management and quality assurance tend to draw focus, although other areas of review (depending on the priorities of the organization and project) may include: environmental sustainability, change management, procurement and contracting, project controls, accounting, safety, product quality, document control, commissioning, and data management. It may be easiest to break the review into components as defined by department or organizational structure, and then prioritize per the risk assessment or results of the compliance review. Another approach is to structure the review according to the requirements at certain milestones in the project lifecycle (initiation, planning, execution, controlling, closeout). An excellent resource for identifying disciplines, departments, and lifecycle elements is the AACE Total Cost Management Framework (Technical Board, 2006); the flowcharts and recommended reading are indispensable.

Softer elements of project management may also be reviewed at this point. These include: lessons learned, decision-making processes, levels of authority, ethics and conflicts of interest, approaches to innovation, training, and empowerment. This is also a good opportunity to review communication and reporting, both internal and external, for appropriateness of content and transparency, usefulness, timeliness, and accuracy.

#### *4.7. Module 7 – Post-Project Concerns*

Projects do not exist in a vacuum; they are created for a reason, and the products of the project live on beyond the lifecycle of the project. Indeed, the project products have a lifecycle of their own.

This module is intended to address the elements of the project that remain beyond the confines of the project proper. This includes maintenance and operations of the project product, asset management, capitalization & depreciation, funds accounting, customer satisfaction, future market conditions, lessons learned, and post-project review for product performance against targeted benchmarks.

#### *4.8. Module 8 – Special Issues*

This module is a catch-all for any other concerns that require consideration. These could include such issues as forensic review, expenditure audit, and evaluation of specific systems or departments. It should include status of resolution of previously identified audit issues.

The scope of work is not intended for items that would typically be conducted as a separate specialized engagement, such as financial audit, LEED / BREEAM certification, value engineering, technical and engineering reviews, inspector general investigation, Monte-Carlo style risk modeling, claims analysis, and the like.

### **5. Challenges**

Any project performance audit model will face certain challenges, which are prevalent in practice. First is the problem of measurement, which most often utilizes lagging measures instead of leading measures or forecasting. Second is the difficulty of defining and measuring the three E's specifically for the project or program, the problem of measuring the three E's when the auditor suffers from lack of visibility into the project decision-making process and circumstances. Third, there is the problem of the engagement team – meaning a tendency to focus on compliance, and pervasive use of 'best practices' checklists, in lieu of depth of industry and technical knowledge (Nalewaik A. , *Factors Affecting Capital Program Performance Audit Findings*, 2013).

The fourth and fifth challenges, however, are the biggest. Fourth is the cost of the audit; stakeholders must see the value in conducting an audit that is appropriately broadly scoped, else the audit will be reduced to merely satisfying regulatory requirements. And fifth, last but not least, is a concern that the entire effort of performance auditing and continuous improvement is the chase of a Utopian ideal that is rarely achievable in practice, which will mean nothing if audit findings are not resolved.

### **6. Impact**

This project performance audit model is designed to overcome several issues currently experienced in industry: a) annual audits of the same entity (performed in different years by different auditors with different methodologies) do not consistently and effectively address the audit mandate (Nalewaik A. , *Factors Affecting Capital Program Performance Audit Findings*, 2013), and b) there sometimes occurs a difference between audit scope and stakeholders' anticipations of the audit function (this is known as an 'audit expectations gap').

It is anticipated that, in addition to addressing the aforementioned issues, the model can aid in education of both auditors and clients, resulting in improvement in procurement and scoping of project performance audit, and achievement by auditors of more than the minimum standard of client care.

The figure below describes four general phases of the project lifecycle, and the modules project performance audit model that are most relevant during each phase.

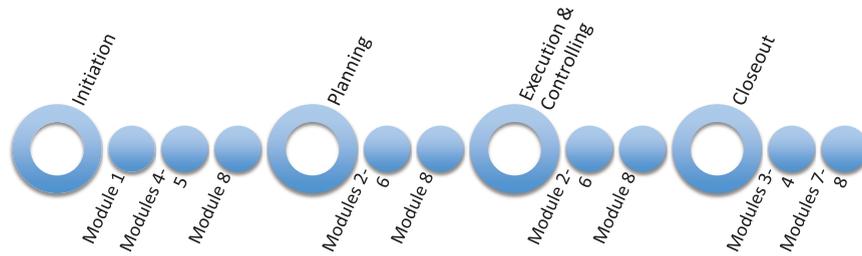


Fig. 2. Module Relevance to Project Lifecycle Phases.

The authors advocate for industry-experienced cost engineers, quantity surveyors, and project managers to assume responsibility for project audit, for universities to include audit and performance evaluation as part of project management core curriculum, and for the development of professional associations, standards, and published journals devoted to the topic (Nalewaik A. , Factors Affecting Capital Program Performance Audit Findings, 2013). This has the potential to create career opportunities for students in these disciplines, and better the professions, as these skills also positively impact daily project and program management activities (such as payment application review, evaluation of change orders, schedule management, claims substantiation, and risk management) while improving accuracy and transparency in reporting, credibility, trust, ethics, and accountability.

## 7. Conclusion

This model for project performance audit was developed in response to escalating demand from Owners and Practitioners for a flexible project performance audit. It fills a noted gap in existing literature and guidance, and is based on both published research and practical experience.

The methodology codifies elements of the audit into modules, enabling a customizable approach to defining scope that is reasonable for both the project and the owner at particular points in time, while complying with extant regulatory requirements for audit and enabling the use of mandatory audit standards. The model acknowledges there might not be a need to utilize all eight modules on the project at a given time, while providing flexibility to add and revisit modules at a later date, as needed. The approach is responsive to the dynamics, uniqueness, and risks of the project and organization; it is specifically designed to be responsive to the expectations of stakeholders. The model is intended to be tailored to the specific needs of the project at key milestones in the project lifecycle, and is designed to be iterative. The approach is adaptable to projects, programs, and portfolios of any size, and many different industries, such as: construction, manufacturing, information technology, and major events.

The project performance audit model presented in this research paper focuses on periodic evaluation of project status and behaviors, intended to provide stakeholders with assurance regarding the control and delivery of their projects. It is not a checklist, and it is not prescriptive. The model enables both quantitative and qualitative findings, focused on continuous improvement of the organization. It is adaptable to both industry and situation, meeting stakeholder expectations regarding rigor & depth, and including customized investigation of both risk and the traditional “three E’s” of performance audit (economy, efficiency, & effectiveness). Key elements considered in the development of the model include: Total Cost Management, the three E’s, inputs, outputs, impacts, risk, success, stakeholders, project lifecycle, accuracy in status reporting, and the best interests of the organization.

Anticipated outcomes from use of this methodology include support of learning culture in both the Owner organization and project team, strengthened internal and project controls, transparency in reporting to stakeholders, enhancement of good governance, and empowered critical questioning without retribution. It is a continuous improvement tool that can be used by Owners and practitioners alike to identify areas and risks requiring attention.

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