NAC Executive Insights

Ensuring Project Quality

Key Points

- Project quality management consists of three primary components: quality planning, quality assurance, and quality control.
- The ability to understand why something is occurring can provide valuable insight on how to course correct and adjust.
- All members of the project team are fulfilling some aspect of the quality plan.
- All projects should follow a quality process to ensure the outcomes of the project meet the needs of the client and the performing organization.

Educate the Team

The entire project team should be trained on the basics of quality management, instilling a deep understanding of the why the quality management system is important and necessary. Education of the tam should include the tools to be used, which include “beyond inspection,” corrective action, human performance tools, and audit procedures.

Good Intentions – A Story

This story begins with an organization that was built upon the belief that a formal process for making and documenting decisions should be an essential tool for every project manager. Early in the procedure development and practice, a structured decision-making process was built into the project management culture. The most senior leaders of the organization used the tool to document every important and strategic decision.

This formal process was especially useful in the area of scope changes that deviated from the original base-line documents, so much that a standard change request was no longer adequate. Instead, a review of what went wrong was documented and acted upon as well. It became clear as time progressed and as the organization became more diverse in type and physical location of work, however, that some project managers were using the decision tool for an unintended purpose. They were using it in an after-the-fact documentation method to bypass or avoid what they

believed to be unnecessary or non-value-added project management procedures. This certainly was not the intended use of the decision-making process.

Remember: continuous improvement is also part of the quality process. Was it their fault? Probably not. They were never told for what or how the decision-making process was intended be used. A quality assurance performance review then was initiated. It became a standard practice for the organization to determine the status and effectiveness of the decision-making process. The analysis and findings of the review immediately helped to outline a plan of corrective action. The learning of the organization was sharpened and the decision-making process was reset to its original intention.

Create a Quality Team and Procedures. Create the Quality Plan.

The Quality Team should be comprised of seasoned professionals in both the technical work and the implementation of quality plans and procedures. The Quality Plan outlines how the quality organization will be situated in the organization, and how the work will be performed, reviewed, and reported with recommendations, corrective actions, and lessons learned. The plan also outlines how to monitor and control performance with an intention to find issues before work has been completed.

The Quality Plan identifies the quality requirements and standards for the work. It outlines the "quality thinking" required for the work and how to be successful. It presents the scope of work from a quality perspective and how it is to be accomplished. High-level milestones, deliverables, and success criteria are provided and described in terms of verification. Lastly, the plan outlines the detailed scope requirements and verification methods.

Project Quality Plan Contents

The Quality Plan should contain the following elements:

- Standards, specifications, company procedures, and references
- Checks and verifications to demonstrate the work complies with stated requirements
- Applicable acceptance activities to measure against
- Roles as to who will perform the verification activities
- A process to communicate and escalate any identification issues and resolution methods
- Checks and reviews to verify compliance with the plan

All stakeholders need to provide their expectations of quality. Quality metrics, checklists, and improvement expectations are all important and evident in this activity. The Quality Plan should be reviewed by the stakeholders.

Develop a Schedule for Audit Control and Inspection

The schedule describes planned audits, surveillances, and inspection. The Quality Plan should be the primary input for scope of the plan, but also will lean on scoping documents, risk plans, procurement plans, schedules, costs documents, communication, and staffing plans. Rule of thumb guidance is that 30 percent of the time will be for unplanned activities. If, however, the unscheduled work does not arise, then planned work should be pulled ahead. Outside the organization, skilled staff are a great augmentation source of resources. Of course, the quality leadership is included in change and corrective action discussions.

How does one determine what quality assurance and quality control reviews should be made? There are an endless number of things that could be audited, surveilled, or reviewed on a project. In an effort to focus time efficiently and effectively, here are a few suggested areas to look at:

- Start with a risk register and focus on the highest risk items.
- See if a specific area of the project is especially concerning due to resource limitations or technical concerns.
- Examine the project schedule. Critical path and near critical path activities should generate a higher level of concern for completing the project successfully.
- Finally, large contracts with large impacts on cost and schedule should be added to the list.

Work with auditors to prioritize and plan a strategy to ensure achieving problem avoidance.

Quality Assurance and Quality Control Performance Reviews

Quality assurance (QA) and quality control (QC) review efforts help to determine if the standards and specifications of the work are being implemented as planned. This activity will identify best practices in implementation, determine gaps in performance, and provide suggestions for improvement and continuous learning. In this work the quality metrics will be verified and determined if they are being achieved or trending in a manner expected.

Quality assurance is the term used to establish the overall framework or environment needed for a successful outcome. The QA program is aimed at preventing nonconformities and defects. If the defect occurs, something in the Quality Assurance program failed. If failure arises, questions should be asked:

- Are the appropriate procedures in place and do we need others?
- Are the team members properly trained and do they understand their role?
- Are additional metrics required?
- Are the proper specification standards in place?
- Is there a functioning escalation process in place with management oversite and communications?
- If the issues arise, how are they documented and resolved?

No project is perfect, either in design or implementation. Therefore, the project team will need an adequate framework, one that can help avoid issues before they occur.

The importance of quality assurance extends past the immediate vicinity of the project implementation site. It applies to vendor and supplier locations offsite as well. Process issues at a remote supplier location that manufactures project parts and materials can have a negative impact on overall project quality. These defects can be the hardest to detect.

How to tell when a deviation is rising? A continual auditing of controlling processes should be accomplished throughout the project. The higher impact activities are audited for specific outcomes. Self-assess performance to verify project controls are established and functional.

Quality Control

Quality control (QC) is the effort to make defects apparent and then work to correct them. QC activities do not prevent defects from occurring, but are meant to identify defects as early as possible and resolve them to limit rework. Periodic monitoring of performance indicators and metrics against pre-established threshold limits can reveal defects. Other QC tools include material inspections and verification, business and technical verification checks, torque values, mechanical alignment verification, data conversion verification, and operation startup checks.

The Quality Inspection Report should contain the following:

- Organizational role name
- Assessor identification
- Type of assessment
- Scope of the assessment
- Metrics reviewed
- Extent of inspection and review
- Analysis and validation
- Findings of deficiencies and recommendations
- Decision documents
- Overall effectiveness

Independent Review

The project team may be capable of self-performing verification activities. It also may have, however, conflicting priorities. The team's performance goals, for example, could be linked to compensation. Pressure will come from others, including supervisors and peers, to move on.

Independent reviews are invaluable. Have others check the work. Institutionalizing an independent review function is fundamental to a robust quality program.

The audit is as important to the overall quality program as any element in the plan. Review of the results of any and all parts to the plan and program is essential to successful outcomes.

About the Author

Ron May was elected to the National Academy of Construction in 2020. He is a retired executor from DTE Energy. He remains involved with the engineering advisory board for Oakland University and serves as an Executive in Residence at the University of Michigan Ross Business School Center for Positive Organizations. Ron is an innovator, change agent, teacher, mentor, and leader in technology and business with extraordinary contributions to lifelong education and knowledge sharing.