AACE INTERNATIONAL RECOMMENDED PRACTICE

77R-15

QUALITY ASSURANCE/QUALITY CONTROL FOR RISK MANAGEMENT

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QUALITY ASSURANCE/QUALITY CONTROL FOR RISK MANAGEMENT
TCM Framework: 7.6 – Risk Management

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INTRODUCTION

SCOPE

This recommended practice (RP) of AACE International shall define the expectations, requirements, and practices for developing a risk management (RM) quality program. This RP will identify the quality assurance (QA) process, quality control (QC) process, and related risk management auditing methods for a capital asset portfolio, program or project management organization. The RP expands on TCM[2] sections 11.4, *Quality and Quality Management* and 11.5, *Value Management and Value Improving Practices (VIPs)* as applicable to the *Risk Management* process as described in TCM section 7.6. It includes practices for planning how to develop and implement a quality assurance and quality control platform and a proper auditing program for risk management within a project, a program, or a portfolio. Emphasis will be on a continuous improvement suite of tools aligned with quality management principles applied to the risk management process and considers the cost of quality. This RP is not about governance, risk management and/or compliance for an overall TCM process or management of an enterprise as a whole. It only applies to the risk management process or program within that framework.

The process of risk management interfaces with investment decision making (TCM section 3.3) in consideration of risk prior to initiation of projects, and change management (TCM section 10.3) in which risk cost and time allowances (e.g. contingency and reserves) are assessed and managed during program or project execution. While this RP does not cover those processes per se, a user should ensure that the quality program interfaces appropriately with them.

PURPOSE

This RP is intended to provide guidelines (i.e. not a standard) for developing and using a quality assurance and quality control program applicable to risk management.

This recommend practice is intended to be a model that can be used as a basis for planning quality improvement programs for risk management; to help risk, project, and asset program managers discern whether their risk management program is working; and identify where performance improvements are required. It will provide a foundation for not just addressing the overall risk management QA/QC program but specifically developing QA/QC ideas for risk treatment plans as described in RP 63R-11, *Risk Treatment*[4]. Ideally, the risk management process provides an opportunity for all stakeholders and contracting parties to work together and manage risk (i.e. threats or opportunities) in a way that increases the probability of success of the portfolio, program or project. The implementation of all or part of this RP will depend on the size and complexity of the program or project but the basic processes described should be used in all cases.

BACKGROUND

The Sarbanes-Oxley (SOX) Act of 2002 in the United States, and similar laws in other countries, resulted in a significant increase in financial governance required of public companies. These regulations focus on the accuracy and completeness of financial reporting. This directly affects the TCM process which is largely focused on improving the financial success of capital investment portfolios, programs and projects (among other measures of success). To the extent that uncertainty (i.e. risk) in capital asset and project management affects the accuracy of company financial reporting, risk management's performance and hence governance is crucial. Return-on-capital

and similar metrics are key performance metrics for most public companies and governments have similar goals to optimize the value obtained from investment of company or government revenues.

The starting point for a risk management quality process is to understand and implement a TCM process upon which it will be applied. As stated in TCM 11.4.1:

"There are many definitions and perceptions of what quality and quality management are. In simple terms, quality in TCM is conformance of an asset (product, service, process, etc.) with requirements and expectations. Quality management is what an enterprise does to ensure that its assets meet these requirements and expectations. In TCM, quality management is not a separate process; TCM, including strategic asset management and project control, are quality processes. The TCM processes, as discussed in Section 2.1.2, are based on the plan, do, check, act (PDCA) model; this model is a time honored quality management approach sometimes called the Deming or Shewhart cycle."

TCM is aligned with the International Organization of Standardization's (ISO) eight principles that guide quality management practice[10]. These principles and how TCM (11.4.1) and this RP address the principles are shown in Table 1:

ISO Principles	TCM and RP Approach to the Principles
Customer focus.	TCM and risk management elicit and identify stakeholder risk expectations, requirements, and how they define success in order to determine how the QA/QC program will address them.
Leadership.	TCM and risk management assure that the risk program addresses corporate strategic objectives, the risk management's objectives are communicated, and buy-in and support are obtained.
Involvement of people.	TCM and risk management address stakeholder management, resource management and team development through the use of risk management organization charts, QA/QC RASCI tables, communication matrices and similar tools.
Process approach.	TCM, including its risk management process (7.6), provide a framework for governance that can be used to assure alignment with the company's current quality control/assurance program.
System approach to management.	The TCM and risk management process maps address management as an integrated, quality management system (e.g. integration of risk management and project control, etc.).
Continuous improvement.	TCM and risk management processes include measurement and assessment of performance, benchmarking of processes and practices, corrective actions, and feedback loop to improve future practice and outcomes, i.e. a quality management program.
Factual approach to decision making.	TCM and risk management are predicated on decision analysis that is supported by objective data obtained through performance measurement and empirical data management as appropriate. In consideration of uncertainty where subjectiveness is applied or evident in risk management, it is noted and treated as such (e.g. recognizing bias, uncertainty, etc.).
Mutually beneficial supplier relationships.	TCM and risk management are integrated processes that include suppliers among the stakeholders whose expectations and requirements are addressed.

Table 1 – ISO Quality Management Principles and their Alignment with the TCM Framework

RECOMMENDED PRACTICE

As a guideline, each organization should build upon this RP to develop and manage its own risk management quality program.

Some examples of enterprise quality management initiatives that align with a risk management quality program include:
- Total quality management (TQM)
- Six Sigma
- Stage or phase-gate project systems

In all cases, these are built on a managed integrated processes and systems. The intent of this RP is to focus on the risk management process as defined in section 7.6 of the *TCM Framework* and assuring, auditing and controlling the quality of its four main steps: plan, assess, treat and control. To do this, the RP provides some guideline matrices or checklists that can be used to evaluate the content of a risk program's quality management. In essence, quality is about meeting requirements. Scorecards or similar measurements of the how well those requirements have been met are a necessary element of assuring, auditing and controlling quality.

Per TCM Framework section 7.6, the goal of risk management is to "increase the probability that a planned asset, project or portfolio achieves its objectives." The quality of a risk management program ultimately is defined by how well it meets this goal. Demonstrating that this goal has been achieved is difficult, since the success of an outcome without risk management is unknown. However, one can readily monitor success over time for a portfolio by measuring improvement trends in such things as accuracy in a cost and schedule goal. This is not to confuse accuracy with quality (e.g. the accuracy of an estimate for a risky project will always be less than that for a non-risky project regardless of the quality of the estimating process) but the takeaway is that success of risk management is measurable.

GENERAL REQUIREMENTS OF A RISK MANAGEMENT QUALITY PROGRAM

Key Quality Program Concepts: Assurance, Control and Governance

The following are key concepts and terminology relative to a quality management program for risk management:
- Governance – In the TCM Framework, assuring the alignment of the portfolio, program or project risk management process objectives with the strategy of the overall enterprise. To paraphrase one author, it is the rules, laws and processes to guide the successful management of a portfolio, program or project.

- Quality – Conformance to established requirements (not a degree of goodness). (10S-90[1])
  - Quality is the characteristics of a product that allow it to meet the expectations of the project.
  - Quality is all about fulfilling requirements.

- Quality control – Inspection, test, evaluation or other necessary action to verify that a product, process, or service conforms to established requirements and specifications. (10S-90)

- Quality assurance – All those planned or systematic actions necessary to provide adequate confidence that a product, process, or service will conform to established requirements. (10S-90)

- Quality audit – A formal, independent examination with intent to verify conformance with the acceptance criteria. An audit does not include surveillance or inspection for the purpose of process control or product acceptance. (10S-90)

Elements of Quality Measurement and Audit

Given that the objective or requirement of risk management in TCM is to increase the probability of achieving objectives, and quality is conformance to requirements, both precision and accuracy are important to quality measures. Audits are generally more qualitative in nature. The following are key concepts related to measurements and audits in a quality program for risk management:

- Measures − Quantification of any attribute of a process or deliverable.

- Metrics − Qualitative (e.g. more or less) or quantitative (e.g. numerical value) measures indicative of quality; i.e. a measure of conformance to a requirement, objective or baseline.

- Key performance indicators − Selected (i.e. key) metrics considered to be reliably indicative of performance relative to strategic objectives.

- Precision − Consistency of repeated measured values regardless of the values nearness to the true value.

- Accuracy − Nearness of measured values to the true values.

- Variances:
  - Random variations might be normal (i.e. noise), depending on the processes used but the variance has no discernible trend and when significant are generally unexpected; in the worst case, this can indicate a process that is out of control.
  - Known or predictable variances are those known to exist in the process because of particular characteristics of the process or its outputs. These are generally unique to a particular application. They may display a "trend" (e.g. increase or decrease over time) that indicates improving or deteriorating performance.
  - Variances that are always present in the process across all applications. The process itself will have inherent variability that is perhaps caused by human mistakes, machine variations or malfunctions, the environment, and so on. Variances that do not fall within the acceptable range usually require process improvement. Decisions to change the process always require management approval as part of governance.

- Quality audit: a structured, independent review to determine whether process activities and deliverables comply with enterprise, program and project requirements, policies, standards, processes, and procedures as applicable. The objectives of a quality audit are:
  - Identify the enterprise, program and project requirements, policies, standards, processes, and procedures against which the activities and deliverables are being measured.
  - Identify all the gaps/shortcomings.
  - Identify any overlaps/duplication of effort.
  - Identify all the good/best practices being implemented.
  - Share the good practices introduced or implemented in similar programs or projects in the organization and/ or industry.
  - Proactively offer assistance in a positive manner to improve implementation of processes to help the team meet its goals.
  - Highlight contributions of each audit in the lessons learned repository of the organization.

The subsequent effort to correct any deficiencies should result in a reduced cost of quality and an increase in sponsor or customer acceptance of the products of the process. Quality audits may be scheduled or random and may be conducted by internal or external auditors. Quality audits can confirm the implementation of approved

change requests including corrective actions, defect repairs, and preventive actions. Experienced specialists generally perform quality audits; the specialist's job is to produce an independent evaluation of the quality process. Some organizations are large enough to have their own quality assurance departments or quality assurance teams; others might have to hire contract personnel to perform this function. Internal quality assurance teams report results to the program, project team, and management team of the organization as appropriate. External quality assurance teams report results to the customer, i.e. the entity that hired them.

Quality assurance and control focus on consistent (predictable variance) performance of a process or practice, i.e. improving precision in measures. However, over time, continuous improvement of the process also seeks to improve the accuracy of its outcomes given the inherent risk situation. Keep in mind that accuracy itself is not a measure of quality; it is largely an artifact of risk (i.e. the fact that one project has more risk and a wider accuracy range than another project does not mean that the riskier project's management or deliverables are of lesser quality).

Risks in Risk Management Quality Programs

Governance of risk management must consider the enterprise's appetite for risks and expectations for innovation and dynamic capturing of opportunities. A potential risk of excessive governance and QA/QC is that these sub-processes can contribute to bureaucracy (e.g. measurement for measurement's sake) and paralysis (e.g. failure to act for fear of deviation in metrics). In establishing a quality program, its flexibility to deal with evolving organizational and process maturity, changing environments, events and so on should be considered. Similarly, the cost of quality must be considered, i.e. at some point the cost of quality management may exceed its benefit.

ELEMENTS OF A QUALITY PROGRAM

In TCM, quality is the conformance to and improvement of internal processes and procedures in order to meet stakeholder requirements and thus the focus is internal to the enterprise and its portfolio, program and project management.

The plan, do, check, act (PDCA) cycle as shown in Figure 1 is the framework for TCM because it is:
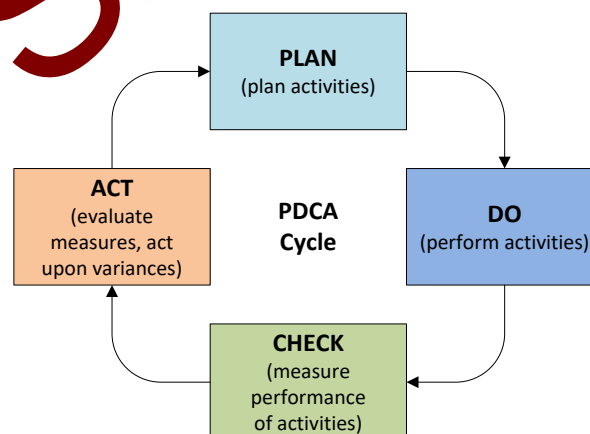1. Time-proven and widely accepted as a valid management model
2. Quality driven

Figure 1 – The Plan, Do, Check, Act Cycle for Improvement

For the risk management process as described in TCM Section 7.6, and summarized in Figure 2, the PDCA process is reflected in four steps - plan, assess, treat and control. While each enterprise, program and project will develop its