

AACE
INTERNATIONAL
RECOMMENDED
PRACTICE

40R-08

**CONTINGENCY ESTIMATING -
GENERAL PRINCIPLES**

SAMPLE

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AAACE® International Recommended Practice No. 40R-08

CONTINGENCY ESTIMATING – GENERAL PRINCIPLES

TCM Framework: 7.6 – Risk Management

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Note: As AAACE International Recommended Practices evolve over time, please refer to www.aacei.org for the latest provisions.

SAMPLE

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Disclaimer: The opinions expressed by the authors and contributors to this recommended practice are their own and do not necessarily reflect those of their employers, unless otherwise stated.

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INTRODUCTION

Scope

This Recommended Practice (RP) of AACE International defines the expectations, requirements, and general principles of practice for estimating contingency, reserves and similar risk funds (as defined in RP 10S-90) and time allowances for project cost and schedule as part of the overall risk management process (as defined in TCM Framework Section 7.6). The RP provides a categorization framework and provides a foundation for, but does not define specific contingency estimating methods that will be covered by other RPs.

This RP does not address the general risk management “quantification” steps as might be used for screening or ranking risks in terms of their probability or impact. While the quantification methods of contingency estimating may be similar to those used for screening, the application often differs.

Purpose

This RP is intended to provide guidelines (i.e., not a standard) for contingency estimating that most practitioners would consider to be good practices that can be relied on and that they would recommend be considered for use where applicable. There is a broad range of contingency estimating methodologies; this RP will help guide practitioners in developing or selecting appropriate methods for their situation.

Background

This RP is new. It is based on discussions of the AACE Decision and Risk Management committee. There is no one best way to quantify risks or to estimate contingency; each method has its advocates. However, there is general agreement that any recommended practice should be in accordance with first principles of decision and risk management as described here.

RECOMMENDED PRACTICE

Contingency versus Risk Impact

This RP covers more than just the estimation of traditional “contingency” for cost or schedule. It also refers to the estimation of risk values in general (excluding escalation, currency, and other primarily monetary or financial risks). For example, management may want to know not only what traditional contingency to include in a project cost control budget or float to include in a schedule, but what reserves or insurance it may want to establish for catastrophic risks for the project or its capital portfolio as a whole, what ranges of impacts to consider in business case sensitivity analysis, and so on. From here forward, we will refer to the product of the estimation as quantitative risk impact.

General Principles of Estimating Quantitative Risk Impact

Any methodology developed or selected for quantifying risk impact should address these general principles:

- Meet client objectives, expectations and requirements
- Part of and facilitates an effective decision or risk management process (e.g., TCM)
- Fit-for-use

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- Starts with identifying the risk drivers with input from all appropriate parties
- Methods clearly link risk drivers and cost/schedule outcomes
- Avoids iatrogenic (self-inflicted) risks
- Employs empiricism
- Employs experience/competency
- Provides probabilistic estimating results in a way that supports effective decision making and risk management

These principles are further described below.

Objectives, Expectations and Requirements

Management (or other customer of the estimate) may require traditional contingency or float values, reserves, ranges, and other information. They may also have constraints in terms of time and resource availability, and so on, or they may need quantification methods to be enhanced or validated before beginning the effort. It may also be advantageous to integrate the effort with other practices (e.g., value engineering). Therefore, a first principle is that the client's objectives, expectations and requirements must be determined.

This determination includes agreeing on the meaning of the terms "risk" and "contingency"¹; definitions may vary somewhat among organizations and applications (e.g., does risk include both opportunities and threats?). During this discussion, the client's level of risk tolerance should be gauged. For example, is it the client's desire that the budget or schedule represent the most likely result, or a more conservative or aggressive outcome?

Decision or Risk Management Process

Estimating quantitative risk impacts is not an end in itself; it should be part of some process. Therefore, the practitioner must identify the decision or risk management process that the estimating practices are supporting, and make sure that the estimating practices and their outcomes facilitate that process (TCM being a generic model for such a process). If there is no such process in place, the practitioner should recommend that one be established as appropriate for the objectives and requirements of the customer.

Fit-for-Use

In addition to considering the general requirements of the client and the process, the practitioner must also consider any other significant contextual characteristics that may or may not affect the estimating practices selected and how they are managed and/or performed. These include, but are not limited to the following:

- Portfolio, Program, or Project Type: Scope, size, complexity, level of technology
- Risk Type: Strategic versus tactical, systemic versus project-specific.
- Project Phase: Estimate/Schedule Class
- Base Estimate/Schedule Methodologies: Methods, tools, and data used to develop the estimate or schedule (without risk cost/time included)
- Skills and Knowledge: Of both the practitioner and other participants

Identifying Risk Drivers

The risk management process starts with identifying risks, and therefore, any risk estimating method must begin likewise (e.g., do not quantify ranges on a cost or activity, without first determining what is driving the range). This process needs to consider both inherent estimate uncertainty (as a result of level of definition available, methodologies employed and other systemic risks) and risk events (including both project specific and external risks that may impact the project).

[1] These terms are defined in AACE's terminology RP 10S-90 in which the "risk" definition is based on the following reference: "AACE International's Risk Management Dictionary", AACE International Risk Management Committee, Cost Engineering, Vol. 37, No. 10, AACE International, Morgantown, WV, 1995