

RISK 2023 ABSTRACT

for <Project Risk, Contingency and PMO> Theme

Presentation Title:

**Include Past Project Performance in your QRAs
or be overtaken by AI soon!**

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Abstract:

Current methods of Quantitative Risk Analysis (QRA) based on Monte Carlo Simulation (MCS), used to quantify contingencies are:

- Cost Risk Analysis (CRA),
- Schedule Risk Analysis (SRA),
- Integrated Cost & Schedule Risk Analysis (ICSRA)

All are bottom-up analyses where uncertainty ranges (inherent risk, probability 100%) are applied directly or using risk factors, to groups of estimate line items (CRA) or activities (SRA), while Risk Events (probability <100%) are applied to the model.

All depend for their accuracy in forecasting contingencies on the validity of the impact ranges assigned to the groups of activities or cost line items.

None of these methods explicitly use past project performance, one of the 9 Principles described in AACE International's Recommended Practice 40R-08 "Contingency Estimating – General Principles".

Recent developments are challenging the continued use of these bottom-up MCS analytical methods.

1. Independent Project Analysis, Inc (IPA) has benchmarked thousands of projects using their parametric methods and recently announced the launch of IPA-ICSRA, incorporating benchmarking against past projects in assessing client projects¹.

¹ Munshi, A., "Cost and Schedule Risk Analysis: Current State and Opportunities", IPA, 4May22, retrieved from <https://www.ipaglobal.com/news/article/cost-and-schedule-risk-analysis-current-state-and-opportunities/> 5Jul22.

2. The use of Artificial Intelligence (AI) for Schedule Risk Analyses, notably by nPlan, based on thousands of completed project schedules. These enable nPlan to identify to project owners inaccuracies and optimise the schedule including highlighting critical potential risk events. A recent presentation by nPlan hosted by AACE International highlighted the extent of AI inclusion and its claimed power in improving project schedule outcomes².

This presentation highlights the risks of continued use of MCS methods based on expert opinion only and points to the value of including past project performance using parametric modelling of Systemic risk. It suggests the adoption of AACE RP 117R-21³ to restore credibility to CPM-based ICSRAs and SRAs by producing P+IRAs and P+SRAs.

² "FROM QSRA TO AI-SRA - The future of project controls is here", Whitepaper from nPlan made available following Zoom presentation on 4Apr23 hosted by AACE International. Contact sales@nplan.io.

³ Cropley, CH et al, "Recommended Practice 117R-21: Integrated Cost and Schedule Risk Analysis and Contingency Determination Using Combined Parametric Modelling and Monte Carlo Simulation of a CPM Model" AACE, 15Aug22

Speaker brief profile–



Colin Cropley, BE (Chem), PMP, Certified PRINCE2 Practitioner, Managing Director of Risk integration Management Pty Ltd (RIMPL), has over forty years' experience of project management, project controls and risk management. He has experience in project and risk management consulting, software development, training and lecturing, in sectors including infrastructure, oil & gas, minerals processing, IT, power and defence. He has conducted risk management processes, schedule and cost risk analyses and training for companies including APA Group, BHP Billiton, BP Australia, Downer EDI, Leighton Contractors, Oman LNG, Origin Energy, Santos, Tenix Defence, Thiess and Woodside Petroleum.

Colin is a chemical engineering graduate of the University of Melbourne and was chairman of the Victorian Primavera Users Group from 1997 to 2009.

He has guest-lectured in project management at universities between 1991 and 2018 and has delivered presentations at many project management and controls-related conferences, including AACE International's Annual Meetings, the International Cost Engineering Council's World Congress, PMI's PMOz & PMICoS. He is a member of AACE International, the Australian Cost Engineering Society and the Australian Risk Engineering Society (both Technical Societies of Engineers Australia). In 2016, Colin contributed a chapter titled "The Case for Truly Integrated Cost and Schedule Risk Analysis" to a book "Handbook of Research on Leveraging Risk and Uncertainties for Effective Project Management". In June 2019 he delivered a peer-reviewed paper to the AACE Conference & Expo in New Orleans on the subject "Combining Parametric and CPM-based Integrated Cost-Schedule Risk Analysis". He was Primary Contributor (Author) of AACE® International Recommended Practice No. 117R-21 "Integrated Cost and Schedule Risk Analysis and Contingency Determination Using Combined Parametric Modelling and Monte Carlo Simulation of a CPM Model", published 15Aug22.