

66th AACE International Conference & Expo 2022

San Antonio, Texas, USA
26-28 June 2022

Volume 1 of 2

ISBN: 978-1-7138-5755-6

Printed from e-media with permission by:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571



Some format issues inherent in the e-media version may also appear in this print version.

Copyright© (2022) by AACE International
All rights reserved.

Printed with permission by Curran Associates, Inc. (2022)

For permission requests, please contact AACE International at the address below.

AACE International
1265 Suncrest Towne Centre Drive
Morgantown, WV 26505-1876
USA

Phone: +1.304-296-8444
Fax: 1.304.291.5728

info@aacei.org

Additional copies of this publication are available from:

Curran Associates, Inc.
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: 845-758-0400
Fax: 845-758-2633
Email: curran@proceedings.com
Web: www.proceedings.com

TABLE OF CONTENTS

VOLUME 1

CLAIMS AND DISPUTE RESOLUTION (CDR)

CDR-3790: Delay Claim Entitlement Under FIDIC Contracts	1
<i>Tong Zhao, Shannon Foster</i>	
CDR-3828: Complex Project Forensic Delay Analysis: Applying Multiple, Overlapping TIAs to Schedule Updates Through the Project Duration	14
<i>Becky Smith</i>	
CDR-3829: Analyzing Delay When Owner-Provided Work Quantities Are Wrong	34
<i>William C. Schwartzkopf, Tara L. Hannebaum</i>	
CDR-3852: Validating Schedules to Conduct a Reliable Forensic Schedule Analysis	60
<i>Jessica Lunte, Katherine Hull, Bassel Safa</i>	
CDR-3868: Recommendations in Dealing with Disruptions and Loss of Productivity during Global Events (e.g. COVID-19 Pandemic)	78
<i>Khaled M. Aziza, Ahmed El Kharbotly, Hatem Ibrahim</i>	
CDR-3870: Progress is Best Measured One “Half-Step” At A Time.....	92
<i>Christopher J. Brasco, Matthew D. Baker, Dakus Gunn, Glen B. Grant</i>	
CDR-3873: Identification of Concurrency Through Literal Theory or Functional Theory, Freedom in Selection, or Dictated by Project Considerations?	103
<i>Saeid Khademagha</i>	
CDR-3874: Termination for Convenience – What Is It? How Does It Work? What to Do?	121
<i>James G. Zack Jr.</i>	
CDR-3877: Overtime and Loss of Productivity Claims	138
<i>Hatem Ibrahim, Tong Zhao</i>	
CDR-3895: Making Changes to the Schedule When Performing MIPs 3.3 and 3.4	150
<i>Mark F. Nagata, Michael P. Ryan</i>	
CDR-3896: Strategies for Testifying Experts to Handle Attorney Challenges	164
<i>Christopher W. Carson, Stephen P. Warhoe, Greg Holness, Gary C. Chiumento</i>	
CDR-3921: Schedule Analysis without Schedules?! – Applying Earned Value Analysis in the Absence of Progress Updates	186
<i>Rachel Domingo, Aaron Fackler</i>	
CDR-3924: Project Documentation: Supporting Your Position.....	210
<i>Christopher P. Caddell, Sydney G. Overman</i>	
CDR-3949: How to Discretely Identify Delay and Disruption	224
<i>Anthony J. Gonzales, Bassel Safa</i>	

COST AND SCHEDULE CONTROL (CSC)

CSC-3786: Improving Owner’s Cost Controls and Cost Optimization Practices Increase Profitability at NOC in the Covid Era	246
<i>Johnson O. Awoyomi</i>	
CSC-3787: Schedule Delays: Why They Happen & How to Avoid Them	258
<i>Vijaykumar A. Damle</i>	
CSC-3791: Extra! Extra! Read All About It! The Schedule Narrative Tool	288
<i>Joseph V. Caldarera</i>	
CSC-3831: Advancing Project Management with Multi-Dimensional Project Controls and Digital Twin	311
<i>Bahadir V. Barbarosoglu, Ben Milner</i>	
CSC-3837: Advanced Work Packaging (AWP): An Introduction and Project Controls Guide for Implementation.....	326
<i>Ferdinand R. Karbowski Jr.</i>	
CSC-3867: Leverage Innovative Technologies and Standardized Coding System for Real-Time Project Cost Control	346
<i>Jing Xu</i>	
CSC-3869: Alternative KPIs in the Absence of Cost or Resource-Loading	357
<i>Morvarid Majlessi-Kupai, Mohamed A. Elshazly</i>	

DATA SCIENCE AND ADVANCED ANALYTICS (DSAA)

DSAA-3798: Implementation of a Project Data Warehouse	369
<i>Eric Vyskocil</i>	
DSAA-3814: Data Collection and Visualization for an Improved Analysis of Historical Project Data	391
<i>Helge Schlott, Luis A. Garcia Loera</i>	
DSAA-3816: Data Model for Advanced Data Analytics	413
<i>Subhash Tuladhar</i>	
DSAA-3862: Machine Learning: Classification and Clustering Strategies for Work Breakdown Structures.....	425
<i>Maura Lapoff</i>	
DSAA-3890: Raising the Bar on Data Collection Strategies as it Relates to Claims	458
<i>Michael A. French, Ajay Raman</i>	

ESTIMATING (EST)

EST-3792: Revamping an Organization’s Estimating Process	479
<i>Waymon Lofton</i>	
EST-3823: Cost and Throughput Analysis for the NASA Ames Arc Jet Modernization Program	504
<i>Jennifer Scheel, Christian B. Smart</i>	

EST-3845: Application of Parametric Models for Cost and Carbon (CO2) Footprint Estimating in Infrastructure Projects	521
<i>Apostolos Chatzisyneon, Justice Sechele, Andrew Langridge, Arnaldo M. Angelini, Manolis Georgioudakis</i>	
EST-3855: False Estimate Accuracy	534
<i>Dave Kyle</i>	
EST-3860: Cost Growth in Early Stage NNSA Construction Projects: Root Cause Analysis	546
<i>Christopher J. Massey, Tyler Hoss, Jennifer Vandervort, Jeffrey E. Beck</i>	

EARNED VALUE MANAGEMENT (EVM)

EVM-3806: Taming Your Organization for Earned Value Management System (EVMS)	569
<i>Abbas Saifi</i>	

GLOBAL PROJECTS (INT)

INT-3898: Construction Management Fee Model for Theme Park Project in China	590
<i>Lan Zhang, Jie Xu, Jianfan Chen</i>	
INT-3899: Procurement Strategy for a Theme Park Project under China's Public Tendering Law	610
<i>Lan Zhang, Zhitao Fan, James Q.S. Zhang</i>	

OWNER ISSUES (OWN)

OWN-3820: The Importance of Owner/Contractor Transparency Across All Contract Types.....	624
<i>Stephen L. Cabano</i>	
OWN-3821: Benefits of Outsourcing the Estimating Function.....	638
<i>James K. Cravens</i>	
OWN-3925: A Case Study in Saudi Arabia: Completion of Major Pipeline Project within Budget and Schedule Utilizing Multiple Contractors	651
<i>Hassan A. Mansour, Mohanna A. Herzalla, Arindam Neogi, Tanveer N. Ahmed</i>	

PROJECT MANAGEMENT (PM)

PM-3783: Optimization of Effort and Workforces in Project Organizations	663
<i>Alex James</i>	

VOLUME 2

PM-3796: An Adaptable and Comprehensive Project Assessment Tool	697
<i>Dan Melamed, Bryan A. Skokan, Wei Liu, Jake Lefman, Rodney Lehman</i>	
PM-3817: Governing for Success: Effective Project Governance for Megaprojects	723
<i>Ahmed Ewida</i>	
PM-3827: Megaproject Success Factors	751
<i>Noorussaadah Bt Yahya, Ir. Mashitah Jais</i>	

PM-3830: A Standard WBS Proposition for Fixed Platforms Decommissioning in Brazil	763
<i>Leonardo Muller, Cocis Alexandre dos Santos Balbino, Alberto Carlos Caldeira Costa Coelho</i>	
PM-3865: Using Linear Programming to Create Optimal Budget Scenarios.....	792
<i>Cadence Doyle</i>	
PM-3876: Bridge Over Troubled Waters: Challenges of Mid-Stream Project Management	808
<i>Daniel Sokoloski, Praduman Maraj</i>	
PM-3915: Construction Project Management Technology: Point Solutions vs. Integrated Platform Solutions.....	830
<i>Natalie Takacs</i>	

PLANNING AND SCHEDULING (PS)

PS-3794: The Art of Scheduling	839
<i>Sylvia M. Donado</i>	
PS-3804: The Top Ten Worst Situations With Proven Project Controls Solutions.....	857
<i>Christopher W. Carson, Glen R. Palmer</i>	
PS-3805: Scheduling: Do You Have All the Puzzle Pieces?.....	887
<i>Sylvia M. Donado, John M. Holincheck</i>	
PS-3835: Critical Path Method (CPM) and Project Production Planning (PP): Complimentary or Exclusionary?	904
<i>Richard H. Stack Jr., Albert P. (Mac) McMillan</i>	
PS-3850: Utilizing Agile Work Methods in the Schedule Development Process	925
<i>Abbas Shakourifar</i>	
PS-3854: Planning and Building a New Arena Under an Existing Roof.....	935
<i>Zachary A. Hallstrom</i>	
PS-3856: Applying Multiple Calendars in a Projects Schedule – Peace of Mind, or Source of Concern?.....	950
<i>Saeid Khademagha</i>	

DECISION AND RISK MANAGEMENT (RISK)

RISK-3799: An Advanced Risk Analysis using the Von Neumann and Morgenstern (VNM) Utility Function.....	971
<i>Brahim Seddik</i>	
RISK-3803: Implementing Qualitative Project Risk Management	1020
<i>Jessica M. Colbert, Kimberly D. Forbes</i>	
RISK-3812: Choosing Between Strategic Alternatives Using Risk Analysis in Decision Modelling of Project Alternatives.....	1036
<i>David T. Hulett, Keith D. Hornbacher</i>	
RISK-3822: Principles for Quantitative Project Risk Management	1054
<i>James E. Arrow, David T. Hulett</i>	

RISK-3824: Calibration Assessments: Validation of Subjective Probabilities and Impact Ranges in Risk Analysis.....	1087
<i>Francisco Cruz Moreno</i>	
RISK-3826: Doing More with Less: A Data-Driven Approach to Resource Management.....	1104
<i>Corey Edson, Samantha O'Donnell, Yue Ou, Kimberly Civil, Eric Dembert, Avi Schwartz</i>	
RISK-3834: Cost Contingency as the Standard Deviation of the Cost Estimate: An Extension.....	1120
<i>Geoffrey S. Rothwell</i>	
RISK-3847: The Development of Corrected and Summarized Schedules to Support Monte Carlo Simulation	1129
<i>David T. Hulett, Waylon T. Whitehead</i>	
RISK-3851: Continuous Improvement of the Project Plan by Effective Use of Execution Scenario Planning.....	1151
<i>Stephen Uhl, Abbas Shakourifar</i>	
RISK-3859: Using an Industry Parametric Risk Analysis Model to Assess Recommended Cost Accuracy Ranges.....	1162
<i>Leonardo Muller, Sued dos Prazeres Santos, Cocis Alexandre dos Santos Balbino, Carlos Henrique Nobre Magalhaes</i>	
RISK-3908: Risk Analysis and Contingency Estimating for Class 10 Estimates	1203
<i>John K. Hollmann</i>	
RISK-3914: The Importance of Doing a Risk Assessment in Every Project, Early and Often	1231
<i>Francisco Cruz Moreno, Gino Napuri</i>	
RISK-3920: A Hybrid Quantitative Schedule Risk Analysis using Earned Value Management and Risk Drivers Methods.....	1247
<i>Mohammadjavad Arabpour Roghabadi, Osama El Sayed Moselhi, Sedat Akkaya, Angus Johnston</i>	

TOTAL COST MANAGEMENT (TCM)

TCM-3813: Proactive Cost Engineering Techniques to Avoid Common Project Failures	1266
<i>Christopher W. Carson</i>	
TCM-3825: An Organizational Change Journey - Fusing Project Controls, Lean Construction Principles & Technology for Fast-Track EPCM Pharmaceutical Projects	1300
<i>Britton L. Wolf</i>	
TCM-3933: The Project Life Cycle: Preventing Change and Project Failure	1313
<i>H. Lance Stephenson</i>	
TCM-3934: The Project Life Cycle: Treatment and Control of Change.....	1350
<i>H. Lance Stephenson</i>	

Author Index