

AACE International Conference & Expo (AACE 2024)

Atlanta, Georgia, USA
16 - 18 June 2024

Volume 1 of 2

ISBN: 979-8-3313-0197-2

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© (2024) by AACE International
All rights reserved.

Printed by Curran Associates, Inc. (2025)

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

CLAIMS AND DISPUTE RESOLUTION (CDR)

CDR-4214	<i>Integrated Construction Project Subnetworks: Development, Monitoring, and Analysis...1</i>	Eric Anthony, PSP
CDR-4217	<i>Construction Equipment Disruption Modeling Applying Data Analysis and Simulation...20</i>	Dr. Wael El Ghandour; Karim El Ghandour
CDR-4218	<i>Integrated Disruption Modeling (IDM) using Artificial Intelligence and Discrete-Event Simulation...40</i>	Dr. Wael El Ghandour; Belkacem Foura
CDR-4221	<i>On the Intricacies of Evaluating Delay Damages...57</i>	Natasha Dahl, CCP PSP; Avi Sharma; Dr. Tong Zhao, PE CCP CFCC PSP
CDR-4222	<i>Apples and Oranges: The Need for Comparative Project Guidelines...70</i>	Alessio Loreti, PE PSP; Cory R. Milburn, CCP CFCC PSP
CDR-4226	<i>Forensic Evaluation of Subcontractor Components in CPM Schedules...86</i>	Greg M. Hall, PSP; Abbas F. Saifi, CCP EVP PSP
CDR-4231	<i>Adjusted Measured Mile Baseline Methodology for Quantifying Lost Productivity Damages in Construction Claims...100</i>	Karim Nagui
CDR-4239	<i>Tales from the Construction Crypt– Lessons Learned...120</i>	James G. Zack, Jr. CFCC FAACE Hon. Life
CDR-4255	<i>Seeing Double? How to Address Claimed/Duplicative Costs in Damages and Delay Analyses...140</i>	Rachel Domingo, PSP; Michael R. Martin, Jr.
CDR-4259	<i>Reconstructing Schedules for Forensic Analysis: Methods, Insights, and Case Study...165</i>	Matthew G. Nichols, PSP; Avi Sharma
CDR-4260	<i>Poor Practices Used in Contemporaneous Schedule Updates to Build Delay Claims...178</i>	Hala Marvan, PSP; Khaled M. Aziza, EVP PSP
CDR-4274	<i>Practical Considerations for Substantiating Disruption Claims...190</i>	Kareem M. Khattab, PE PSP; Dr. Rania Fayed
CDR-4277	<i>Pacing Delays - Application and Considerations...212</i>	Kareem M. Khattab, PE PSP; Dr. Rania Fayed
CDR-4284	<i>Shortcomings in the Dispute Resolution Procedure under AIA232-2019 Contract...230</i>	Dr. Rania Fayed; Dr. Waleed M. El Nemr
CDR-4285	<i>Claim Avoidance Emphasis in FIDIC Construction Contracts and Selection of ADR Neutrals...238</i>	Luis Otavio Rosa
CDR-4287	<i>Expert Terms of Reference in Arbitration: Guidelines and Applications...247</i>	Beatriz Vidigal Xavier da Silveira Rosa; Luis Otavio Rosa
CDR-4293	<i>Biting the Hand that Feeds You– The Impact of Litigation Against the Owner...256</i>	Nickolas Florez, CFCC
CDR-4301	<i>Daubert Challenge Paper Revisited: The Landscape Two Decades Later...270</i>	Kenji P. Hoshino, CFCC PSP
CDR-4311	<i>False Claims Act Regulations and Dispute Resolution in the Construction Industry...292</i>	Cory Milburn, CCP CFCC PSP; Suleiman Al Rai, PE PSP; Gregory S. Martin; Codi K. Cox
CDR-4312	<i>Identifying, Quantifying, and Proving Delay or Disruption Using Linear Schedules...311</i>	Benjamin R. Winsor, PE; William C. Schwartzkopf, PE Emeritus
CDR-4337	<i>How to Impact Activity Durations and Quantify Delay due to Design Changes...323</i>	Nathan Swink, PSP; John Cleary, PSP
CDR-4359	<i>Schedule Delay Analysis: The Intermediary Method...338</i>	Ryan Clark, PE; David Kendall, PE
CDR-4398	<i>Time Impact Analysis: Past, Present, and Future...355</i>	Mark C. Sanders, PE CCP CFCC PSP
CDR-4410	<i>Addressing Missing Schedule Logic when Performing a Contemporaneous Period Analysis...379</i>	Roberto Leandro; Anthony Springer, PSP; Ishmael Smith, PSP
CDR-4414	<i>Overcoming Noisy Data in Measured Mile Productivity Analysis...395</i>	Timothy A. Hampson, PE CCP PSP; Justin K. Norman, CCP PSP; Dr. David W. Halligan, PE

2024 AACE® INTERNATIONAL TRANSACTIONS

COST AND SCHEDULE CONTROL (CSC)

CSC-4375	<i>Definition of a Float-Based KPI for Disruption Evaluation in Complex Project Schedules...406</i>	Alberto Lopez Yus
----------	---	-------------------

PROFESSIONAL DEVELOPMENT (DEV)

DEV-4364	<i>Cost Engineering Competency Matrix for Oil & Gas Business...432</i>	Candra Nugraha, CCP; Ashwin Kumar Narayanan
DEV-4409	<i>Including the Estimator's Leadership Traits With the Basis of Capital Cost Estimate...444</i>	Saumil H. Maniar, PE

DATA SCIENCE AND ADVANCED ANALYTICS (DSAA)

DSAA-4200	<i>Data Analytics: Reimagining One's Total Cost Management Journey to Enhance Value...456</i>	H. Lance Stephenson, CCP FAACE Hon. Life
DSAA-4282	<i>Leveraging Data Analytics in Construction Projects to Improve Schedule Predictability and Stakeholder Relationships...488</i>	Jawahar Maran, PE CCP PSP; Ben Lamm, PSP
DSAA-4300	<i>Supercharging Asset Longevity with IoT Sensors and AI...502</i>	Avi Schwartz; Eric Dembert; Shirley Albritton; Ephraim Schoenbrun; Tim Kelly; Jordan Thrailkill; Rob Coslett; Jaden Wood
DSAA-4328	<i>A Case Study on the Usage of Data Analytics and Machine Learning to Measure Schedule Health...516</i>	Joseph Lozada; Kaylyn Mickelsen, PSP; Hamid Sayed; Stephanie Zerkel
DSAA-4395	<i>Industrial Goods Cost Estimating Using Machine Learning Techniques...551</i>	Fernando Nahid Leitão; Leonardo Carmo de Holanda; Adriano Gonçalves da Silva
DSAA-4406	<i>Optimization Techniques and Metaheuristics in Project Scheduling: Using Real-World Applications to Estimate Sustainability Metrics...564</i>	Dr. Achintyamugdha Sharma; Dr. Priyanka Dekka; Goutam Jois, Esq.; Umesh K. Jois

ESTIMATING (EST)

EST-4203	<i>Independent Cost Estimate's Value on Construction Manager/General Contractor Transportation Projects...574</i>	Dr. Douglas D. Gransberg, PE; Dr. Milagros Pinto-Nunez; Dr. Nils J. Gransberg
EST-4232	<i>A Technical Approach to Classify Decommissioning Cost Estimates...585</i>	Alberto Carlos Caldeira Costa Coelho; Cócis Alexandre dos Santos Balbino; Leonardo Muller, CCP PRMP PSP
EST-4304	<i>Evolution of Cost Estimating from the 1950s to Today...604</i>	Hetali D.N. Doshi; Douglas W. Leo, CCP CEP FAACE Hon. Life
EST-4349	<i>Estimating Productivity Adjustments...613</i>	Ben Crawley; Luke McMullan, CEP; Catherine Cerruti
EST-4352	<i>Successful Implementation of Continuous Estimating for Target Costing in Collaborative Contracts...630</i>	Behrad Kiafar, CEP; Daniel Drouin
EST-4363	<i>Cost Estimate Challenges for Floating Production, Storage, and Offloading (FPSO) Decommissioning...653</i>	Candra Nugraha, CCP; Husaini Md Rasid
EST-4402	<i>Indirect Cost Estimating Based on Statistical Analysis...665</i>	Dr. Chunhong Tian; Prashant K. Srivastava, PEng; Ryan McPhee; Wilson Ting, PEng; Amita Narayanan, CCP; Nathan Len, PEng

EARNED VALUE MANAGEMENT (EVM)

EVM-4197	<i>The Value of Earned Value...676</i>	Sylvia M. Donado; John Holincheck
EVM-4215	<i>Is Cost Performance Index Predictive of Project Performance?...692</i>	Eric Vyskocil; Ashrita Srikanth
EVM-4408	<i>Basics of Earned Value Management – How & Why...715</i>	Carole A. Venters, CCP EVP
EVM-4420	<i>Performance Baseline-Contract (PB-K) Based Independent Estimate-at-Completion (iEAC)...727</i>	S. Brian Kong, PE CCP

2024 AACE® INTERNATIONAL TRANSACTIONS

GLOBAL PROJECTS (INT)

INT-4273	<i>The Challenges of Business Development for Engineering Firms and Contractors...733</i>	Lan Zhang; Yi Fang; Zhenyu Qiang
----------	---	----------------------------------

IT/IM in PROJECT AND COST MANAGEMENT (IT)

IT-4291	<i>Robotic Process Automation (RPA) for Cost Estimating...744</i>	Sulaiman Alabdulkarim; Josue E. Garcia, CCP CEP; Rafael E. Lozada F.
---------	---	--

OWNER ISSUES (OWN)

OWN-4202	<i>Perceived Risk in Project Delivery Method Selection in the U.S. Federal Transportation Sector...756</i>	Dr. Douglas D. Gransberg, PE; Daniel D'Angelo, PE
OWN-4253	<i>Applying Lessons Learned From Past Schedules...767</i>	Andre K. W. Chong
OWN-4268	<i>Effectively Leveraging Schedule Reserve...783</i>	Stephen L. Cabano, FAACE; Zachary Ledet
OWN-4271	<i>PM Responsibilities Comparison Model Between Owner and Contractor for a Theme Park Project</i>	Lan Zhang; Kai Wang; Renjun Luo
OWN-4308	<i>Main Challenges and Strategies in Utility-Scale Solar Projects...807</i>	Dennis Y. Bocuzzi and Vitor L. Ladeira
OWN-4348	<i>Reviewing and Validating Third-Party Cost Estimates...817</i>	Jake Chalin; Jack Treval; Luke McMullan, CEP
OWN-4386	<i>Setting Up a Cost Engineering Department and a Benchmark of Its Estimating Practice - A Case Study...830</i>	Muftau J. Akanbi, CCP
OWN-4392	<i>Equity and Environmental Justice in Early-Stage NNSA Project Planning...844</i>	Zachary Matheson
OWN-4425	<i>Capital Assets Recognition and Derecognition Process in Oil and Gas Operating Companies...865</i>	Chad Itagi, PEng CCP CEP PSP; Nanda Itagi, CCP

PROJECT MANAGEMENT (PM)

PM-4220	<i>Collaborative Projects: The Ultimate Trust Fall Exercise for Both Vendors and Owners...885</i>	Shoshanna Fraizinger, CCP
PM-4224	<i>Lessons Learned—A Culture of Moving Forward...903</i>	George S. Bekhit; David Jurgeneit
PM-4251	<i>Program and Project Management Insights Gained From an Analysis of Completed Projects...918</i>	Dan Melamed, CCP EVP FAACE; Kevin Lee; Elizabeth B. Barnett; Bryan A. Skokan, PE; Rodney Lehman; Richard J. Schassburger
PM-4265	<i>Using TCM to Establish a Standard Project Management Methodology for Construction Projects...933</i>	Rogério F. Cruz; Marcelino R. Braga; Ricardo P. Sanches
PM-4283	<i>Managing and Controlling Scope Creep in Construction Contracts: Case Study...950</i>	Esraa Khaled Abdelraouf Mohammed
PM-4332	<i>WBS-Based Work Processes: The Missing Component in Stage Gate Processes...962</i>	Richard P. Helper, PSP
PM-4351	<i>Keep Capital Projects on Track Through Agile Execution and Contracting Strategy...977</i>	Virgilio T. Monton, II PEng CCP
PM-4370	<i>Enhancing Affordable Housing Construction Through Lean Practices, Takt Planning, and Offsite Modular Integration...996</i>	Roger Nelson, PE PSP; Hassan A. Dia

PLANNING AND SCHEDULING (PS)

PS-4230	<i>Schedule Narratives and Reports...1006</i>	Delbert E. Bearden, PSP
PS-4233	<i>How Recommended Practices for Project Scheduling are Becoming Obligations by Project Contracts...1017</i>	Saeid Khademagha, PEng PSP; Ali Yazdani, PEng
PS-4236	<i>Correcting Out-of-Sequence Logic...1033</i>	Ronald M. Winter, PSP FAACE

2024 AACE® INTERNATIONAL TRANSACTIONS

PS-4241	<i>The Top Ten Approaches to Avoiding Resource-Related Claims...1048</i>	Glen R. Palmer, CFCC PSP FAACE;
PS-4267	<i>Planning and Scheduling for Workplace Safety...1080</i>	Christopher W. Carson, CEP DRMP PSP FAACE Daniel P. Gilmour, PSP; Matthew Smith; Mark David Smith
PS-4315	<i>Schedule Development and Progress Measurement Requirements for Fixed-Price Construction Contracts...1097</i>	Ricardo Albeny, CCP EVP
PS-4342	<i>A Statistical Approach to Developing Empirical System Durations for Wastewater Treatment Plant Schedules...1110</i>	Shreyas Raghavendra; Christopher W. Carson, CEP DRMP PSP FAACE
PS-4354	<i>An Efficient Approach to Scheduling Repetitive Projects...1153</i>	Christopher W. Carson, CEP DRMP PSP FAACE
PS-4358	<i>An Overview of Hydropower Projects in Canada Part 2 (Spillway)...1164</i>	Ali Montaser, PEng CCP EVP PSP; Ahmed Montaser, EVP
PS-4377	<i>Addressing Schedule Complexity and Optimizing Scheduling Process for Infrastructure Projects...1187</i>	Shrutika Barwal, PSP; David Chigne, CCP CEP PSP
PS-4387	<i>Mastering Risk Factors for Renewable Energy Projects So You Don't Get Burnt, Blown Away, or Washed Out...1202</i>	Christopher J. Brasco; Matthew D. Baker; James F. Timko; Dakus Gunn

DECISION AND RISK MANAGEMENT (RISK)

RISK-4240	<i>Case Study: Use of the Hybrid Parametric and Expected Value QRA Method on the Keeyask Hydropower Megaproject...1218</i>	John K. Hollmann, PE CCP CEP DRMP FAACE Hon. Life; Raminder S. Bali, PEng
RISK-4247	<i>Defining a Lognormal Distribution Using 3-Point Entry: The J-QPD Distribution...1237</i>	John K. Hollmann, PE CCP CEP DRMP FAACE Hon. Life; J. Eric Bickel
RISK-4307	<i>Treading Cautiously: Risk Management in the Leapfrogging of Offshore Wind Turbine Technologies...1252</i>	John Coker; Emily J. Byrd (Kelly)
RISK-4330	<i>Navigating Risk Management Challenges in Progressive Environments: Case of Progressive Design Build Contract Delivery Model...1263</i>	Roozbeh Panahi; Katia Rizkallah; Kyle Mawhinney; Sara Martino
RISK-4356	<i>Enhancing Decision-Making Process through Probabilistic Schedule Analysis Across the Project Lifecycle...1277</i>	Dr. David T. Hulett, FAACE; Steve Uhl; Keith D. Hornbacher; Abbas Shakourifar, PSP
RISK-4367	<i>Challenges Aggregating Multiple, Interdependent Projects into an Integrated Program-Schedule Quantitative Risk Analysis...1297</i>	Dr. David T. Hulett, FAACE; Ian Bailey; Lorrie B. Tietze
RISK-4401	<i>Assessing Proposed Risk Mitigation Actions Using Mitigation Scoring...1312</i>	Waylon T. Whitehead; Dr. David T. Hulett, FAACE
RISK-4435	<i>Practical Implementation of AI-Based Risk Analysis on Construction Megaprojects...1331</i>	Rhys Phillips; Dev Amratia; Carlos Ledzema; Richard Bendall-Jones; Vahan Hovhannisyan; Leonie Anna Mueck

TOTAL COST MANAGEMENT (TCM)

TCM-4314	<i>Desalination Public-Private Partnership: Assessment of Plants Operation Costs...1346</i>	Mayar M. Khairy; Mohamed Abdel Raouf; A. Samer Ezeldin
----------	---	---