

62nd AACE International Conference & Expo 2018

San Diego, California, USA
24 - 27 June 2018

Volume 1 of 3

ISBN: 978-1-5108-6574-7

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© (2018) by AACE International
All rights reserved.

Printed by Curran Associates, Inc. (2018)

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

ADVERSE CONDITIONS (ADV)

- (ADV-2750) Overbilling of Public Works in Brazil: Case Study - Operation Black Box 1
Alan De Oliveira Lopes

BUILDING INFORMATION MODELING (BIM)

- (BIM-2854) Novel Single-side Suspension Footbridge: BIM, IPD and Cost Control Case Study 18
Xuelei Pang; Chao Yu; Mengjie Chu

CLAIMS AND DISPUTE RESOLUTION (CDR)

- (CDR-2766) Unraveling the Complexities of Construction Fraud 36
Dayna L. Anderson; Sashi A. Mahtani
- (CDR-2769) Daily Effect in Extension of Time Claims 49
Carlos Seoane Dopazo; Javier Trapero Pérez
- (CDR-2792) Using the Half-Step Technique in Retrospectively Analyzing Schedule Delay 71
Robert M. Freas; Muhammad Khedr
- (CDR-2803) An Egyptian Owner's Perspective on the “Missing Bill of Quantities Items” Phenomenon
in Unit Price Contracts 87
Waleed M. El Nemr; Ahmed S. Afifi
- (CDR-2807) Application of Liquidated Damages When the Completion Date is Unknown - Insight
from an Egyptian Perspective 100
Waleed M. El Nemr; Amr Seddik
- (CDR-2812) Trends in Construction Technology – The Potential Impact on Project Management &
Construction Claims 114
Harold G. Dorbin, Benjamin Woolley; James G. Zack Jr.
- (CDR-2818) Criticism of the ASCE Schedule Delay Analysis Offsetting Delay Concept 149
Mark F. Nagata
- (CDR-2837) Introduction to Claims Management Guideline 169
Joseph L. Seibold, Christi Fu
- (CDR-2838) Forensic Schedule Diagnostics to Support Selecting a Methodology in AACE RP29R-03,
Forensic Schedule Analysis 183
Jerry L. Vogt
- (CDR-2845) Comparison of the AACE International and ASCE Forensic Scheduling Consensus
Documents 210
Mark C. Sanders
- (CDR-2849) Time Impact Analysis in Windows - Concurrency Analysis 242
Lucia Vernon
- (CDR-2864) An Effective Approach to Delay Analysis when Schedule Updates are Missing 264
Emad Mofarej Kouchaki, Christopher W. Carson
- (CDR-2887) SCL Delay and Disruption Protocol 2nd ed. as Compared to AACE RP29R-03 286
John C. Livengood
- (CDR-2888) Success of Dispute Boards for Avoidance and Resolution of Disputes on Complex
Projects 309
Richard Appuhn; Ferdinand Fourie
- (CDR-2936) The Impacted As-Planned Methodology (MIP 3.6) – Suitability and Application in Delay
Analysis 320
Walied Abdeldayem
- (CDR-2954) Proper Application of TIAs to Measure Delays on Government Projects 338
Michael P. Ryan, Bryan Van Lenten
- (CDR-2963) The Why, When, and How of a Productivity Claim 351
Joel A. Velasco; Maria Petrov
- (CDR-2966) Primavera's Float Path Calculation: Review and Analysis of Applications 367
Patrick M. Kelly, Roger Nelson

(CDR-2972) Productivity Loss Quantification Using a Novel Artificial Intelligence Approach	388
<i>Sasan Golnaraghi; Osama El Sayed Moselhi; Sabah Alkass; Farzaneh Golkhoo</i>	

COST AND SCHEDULE CONTROL (CSC)

(CSC-2815) Using Document Management Workflow for Measuring Performance of Project Engineering	405
<i>Definia Richardson; Mohamed E. El-Mehalawi</i>	
(CSC-2826) The Ten Commandments of Risk-Based Project Controls	420
<i>Richard C. Plumery</i>	
(CSC-2831) Schedule and Cost Management of Subcontracts	443
<i>A. Hagire Emrani; Syd Daneshyar</i>	
(CSC-2850) Scope Changes Impact on Construction Labor Performance Index	460
<i>Hani S. H. Alzraiee; Osama El Sayed Moselhi</i>	
(CSC-2855) Integrated Cost and Schedule Model for Shipbuilding Projects	474
<i>Ahmad Emam</i>	
(CSC-2879) Construction Labor Productivity Loss in Cleanroom Conditions: A Case Study	499
<i>John D. Borcharding; James T. O'Connor; Jeyoung Woo</i>	
(CSC-2910) Trending and Forecasting Using Available Construction Data	515
<i>Jake Ortego, Antonio Fratangelo</i>	

PROFESSIONAL DEVELOPMENT (DEV)

(DEV-2787) P6 Leadership, Training and Adoption Methods for Large Capital Programs	538
<i>Brian Criss, John W. Blodgett; Joseph Sciannameo</i>	

ESTIMATING (EST)

(EST-2751) Estimate Quality: Observations from Independent Reviews of Owner's Estimates	557
<i>Shoshanna Fraizinger</i>	
(EST-2825) Introduction to the Organizational Cost Community Framework	582
<i>Terry Josserand; Edwin P. Chamberlin; Leone Z. Young</i>	
(EST-2827) Allocating Probabilistic Contingency	602
<i>Gustavo Vinueza</i>	

VOLUME 2

(EST-2832) Transmission Project Estimate Assessment	627
<i>Yan Wang</i>	
(EST-2833) Maturity Assessment for Engineering Deliverables	644
<i>H. Lance Stephenson, Peter R. Bredehoeft Jr.</i>	
(EST-2875) CAPEX Growth Over Project Delay - A Case Study	668
<i>Dorothy A. Ekeng</i>	
(EST-2877) Credible Estimates Require Probabilistic Models	691
<i>John R. Schuyler</i>	
(EST-2880) The Development of an Estimating Department – Strategic Approaches	719
<i>David Kyle</i>	
(EST-2881) Benchmarking and Predictive Analytics to Improve Estimates, Forecasts, and Performance Measurement	730
<i>Susan W. Bomba, Lamis El Didi</i>	
(EST-2884) Three Models for Estimating Bid Markups	750
<i>Mohammadjavad Arabpour; Osama El Sayed Moselhi</i>	
(EST-2892) Pre-Class 5 Estimating Cost Communication for Long-Term System Planning	763
<i>Lisa M. Taylor; Gregory Brink; Paul Galeno; Douglas W. Leo</i>	
(EST-2901) How to Achieve Dramatic Reductions in Megaprojects Costs	778
<i>Arnaldo M. Angelini; Giulio Sansonetti</i>	
(EST-2909) Data Development for Parametric Estimates in Highway Construction	808
<i>Daniel E. Poole</i>	

(EST-2912) Technology Readiness Levels Guiding Cost Estimation in the Chemical Industry	826
<i>Georg Buchner; Johannes Wunderlich; Reinhard Schomaecker</i>	

EARNED VALUE MANAGEMENT (EVM)

(EVM-2758) Structuring a Schedule and Cost System (Generic) for an Integrated Cost/Schedule EVMS	849
<i>Charles D. Blankenbiller</i>	

INFORMATION TECHNOLOGY (IT)

(IT-2739) Cost Factors for Green Building Materials in Cost Databases	858
<i>Srinivasa R. Vanga</i>	
(IT-2941) Human Centered Design in Capital Program System Development	867
<i>Yuvaraj K. Satyanarayanan; Michael Goggin</i>	

OTHER TOPICS (OTH)

(OTH-2736) Engineering Ingenuity: Garden Design in Desert Climates	880
<i>Caren Yglesias</i>	

OWNER ISSUES (OWN)

(OWN-2789) Major Risks in Transmission Line Enterprises	913
<i>Dennis Y. Bocuzzi; Luciano Fujii</i>	
(OWN-2800) Owner's Role in Construction Productivity and Schedule Constructability	931
<i>Ahmad Emam</i>	
(OWN-2809) How to Maximize ROI from Integrated PMIS and IWMS/FREM Solutions	949
<i>Steve Powers; Kimberly McDonald Baker</i>	
(OWN-2852) Path to Predictability: The Evolution of An Owner's Integrated Cost Engineering System	963
<i>Prashant K. Srivastava; Kyle Rakowski; Maury Porter; Nathan Len</i>	
(OWN-2853) High Voltage Transmission Line Megaprojects: Strategic Considerations and Lessons Learned	980
<i>Jason R. Kean</i>	
(OWN-2862) Owner Project Planning Supports Estimate and Schedule Accuracy	999
<i>Robert C. Mathias; Christopher F. Michalak; Paul G. Williams</i>	
(OWN-2873) Improving Public Procurement by Applying Principles of Project Control	1027
<i>Bryan Payne</i>	
(OWN-2973) What, Why, and How of an FTA Before-and-After Study	1046
<i>Omoniyi O. Ladipo</i>	

PROJECT MANAGEMENT (PM)

(PM-2742) Performance Measurement of Egypt's Construction Industry using Key Performance Indicators	1062
<i>Ahmed Bahaeldin I. Ghonamy; Mohamed A. El-Mikawi</i>	
(PM-2774) Project Lifecycle Stakeholder Management	1081
<i>J. Michael Devine; Rachael Konke</i>	
(PM-2886) Improving Portfolio Management through Integrated Master Schedules and Dashboard Analytics	1095
<i>Jodie Leeka; Rick Weston; Ryan Mextorf; Bo Johns</i>	
(PM-2955) Utilization and Multiplier – Which to Use and Why?	1115
<i>John A. Kuprenas; Brandon Hays</i>	
(PS-2744) Enhanced Evaluation of Schedule Updates	1129
<i>Joseph R. Hellenbrand; Brittany Myren</i>	

(PS-2752) Phantom Float in Commercial Scheduling Software	1148
<i>Diana M. Franco-Duran; Jesús M. De La Garza</i>	
(PS-2768) Understanding the Techniques to Update a Schedule	1165
<i>Paul Eastwood Harris</i>	
(PS-2796) Working with Layouts and Gantt Charts	1202
<i>Abbas Saifi</i>	
(PS-2816) Liars and Schedules	1219
<i>Nelson E. Bonilla</i>	
(PS-2821) Play Ball – Challenges of Planning & Scheduling a Major Sports Facility	1239
<i>Daniel P. Gilmour; Steven F. Duvall</i>	

VOLUME 3

(PS-2841) Preventing Fire Drills via Stellar Reporting	1256
<i>David D. Rose; Marina G. Sominsky</i>	
(PS-2842) Proposing a Better Definition of Critical Path	1279
<i>Mark C. Sanders; Mark F. Nagata</i>	
(PS-2871) A Realistic Look at Float Consumption	1302
<i>Greg M. Hall</i>	
(PS-2919) The Power of Look-Ahead Schedules During Construction	1324
<i>Devang B. Dedhia</i>	
(PS-2924) Evaluating Current Construction Scheduling Tools	1334
<i>Cynthia Moore; Raquel Shohet Floyd; Andrea Taylor</i>	
(PS-2949) Pull Planning and CPM Scheduling: Counterparts Not Competitors	1343
<i>Satinder Singh Baweja; Lori Vidak</i>	
(PS-2950) Author vs Typist: A Reflection on the Role of the Scheduler in Commercial Construction	1362
<i>Satinder Singh Baweja; Lori Vidak</i>	
(PS-2953) Extracting the Resource-Constrained Critical/Longest Path from a Resource-Leveled Schedule, Part II	1383
<i>Paul T. Reeser</i>	
(PS-2956) The Behavior of Resource Critical Schedules	1405
<i>Brandon Atkins</i>	
(PS-2961) Evaluating Project Performance Using Baseline Schedules	1417
<i>Nour El Imane Bouhou; Antoine Bechaalani; Kelly Pettersen; Marcelo Azambuja</i>	
(PS-2975) A Practical Guide to Successful Program Scheduling	1432
<i>Christopher W. Carson; Vishu Divvela; Gino Napuri</i>	
(PS-3006) Reporting on Out-of-Sequence Progress	1452
<i>Ronald M. Winter</i>	
(PS-3007) Analyzing Out-of-Sequence Progress	1471
<i>Ronald M. Winter</i>	

DECISION AND RISK MANAGEMENT (RISK)

(RISK-2737) Advancing Decision-Making in Oil & Gas Projects: Integrating Real Options and Monte-Carlo	1490
<i>Daping Zhang; Feng Jin; Wenwu Xiang; Bochen Zhang</i>	
(RISK-2795) Project Risk Drawdown – A Structured Approach to Contingency Management	1505
<i>Christopher Stroemich; Manjula Dissanayake</i>	
(RISK-2808) Non-Linear Probabilistic (Monte Carlo) Modeling of Systemic Risks	1518
<i>Yuri Raydugin</i>	
(RISK-2813) Public-Private Partnership Projects – What, Why & How Is Risk Allocated?	1543
<i>Peter V. Badala; Misbah Uddin; James G. Zack Jr.</i>	
(RISK-2839) Risk Communication Throughout Project Lifecycle	1586
<i>Stacey A. Dennee; Christopher P. Caddell; David C. Brady</i>	
(RISK-2847) Two-Dimensional Risk Analysis for PPP Project Investment Decision Making	1599
<i>Wenwu Xiang; Feng Jin; Jianbo Sun</i>	
(RISK-2878) Simple Risk Policy as a Utility Function	1614
<i>John R. Schuyler</i>	
(RISK-2890) Journey-Map to a More Mature Schedule Risk Analysis (SRA) Process	1644
<i>David T. Hulett</i>	

(RISK-2891) The Art of Strategic Written Criticism to Effectively Mitigate Risk	1669
<i>Shawn M. Paroline; Ramon A. Ruelas; Devang Dedhia</i>	
(RISK-2926) Project Controls & Data Analytics in the Era of Industry 4.0	1695
<i>James E. Arrow, Arvid Markhus; Vijai Singh; Cesar Ramos; Stefan Bakker</i>	
(RISK-2929) Improving Risk Management Effectiveness by Testing Risk Relevance	1717
<i>James E. Arrow</i>	
(RISK-2932) Utilizing a QRA Maturity Model for Continuous Improvement	1732
<i>James E. Arrow</i>	
(RISK-2946) Oil & Gas Plant Project Activities Parallelization	1744
<i>Francesco Cau; Franco Caron; Giambattista De Ghetto; Filippo Fratoni; Marika Guerra</i>	
(RISK-2947) Probabilistic Inference and Elicitation of Structured Expert Knowledge in Industrial Megaprojects	1765
<i>Pouya Zangeneh; Brenda McCabe; Murray Pearson; Nick Mason</i>	

TOTAL COST MANAGEMENT (TCM)

(TCM-2771) Industrial Engineering, Management Science, and the Future of Project Controls	1783
<i>Alexia A. Nalewaik</i>	
(TCM-2830) Cost Control of Crude Oil Production Costs – NOC’s Perspectives	1795
<i>Johnson O. Awoyomi</i>	
(TCM-2885) Benchmarking Cost Performance of Heavy Industrial Construction Projects	1809
<i>Mihai Robu; George F. Jergeas; Farnaz Sadeghpour</i>	
(TCM-2925) Program and Project Assessment for Effective Execution In the Public Utility Market	1827
<i>Valeria Tyndall; Isis Murillo; Matthias H. Naderi</i>	
(TCM-2952) Life-Cycle Cost Analysis for Concrete Pavement Structures	1840
<i>Robert L. Schmitt; Samuel Owusu-Ababio</i>	
(TCM-2957) Optimization of Team Mix to Reduce Cost and Increase Profitability in Projects and Bids	1867
<i>Kamran Hazini</i>	
Author Index	