The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(ADV-4603) Quantifying the Impact of Supply Chain Disruptions on Critical Lifelines and Near-Site Logistics in Construction Projects

Time | Room: TUE 10:10-11:10 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management 10.3. Change Management
Author(s)/Presenter(s):
Dr. Sashi Kanth Tadinada *NFP*
Vishwambhara Kumbharathi, CEP PSP *Amtrak*

Abstract: Supply chain disruptions pose significant challenges to construction projects, leading to delays and cost escalations. This paper investigates the repercussions of such disruptions on critical lifelines and near-site logistics, which are essential for the efficient execution of construction projects. Lifeline disruptions can stem from natural and man-made disasters, as evidenced by events such as the Francis Scott Key Bridge, the Three Mile Bridge during Hurricane Sally, the Memphis I-40 bridge, and the I-35W Minneapolis bridge incidents. These disruptions can significantly impact ongoing and upcoming construction projects by delaying material deliveries and increasing project costs. This study introduces a framework based on network analysis to quantify the effects of these disruptions on both supply chains and near-site logistics. The framework comprises (1) an exposure module, (2) a network model, and (3) a comprehensive cost model that computes the impacts on exposed projects in terms of expected delays and increased costs when specific nodes or links are compromised. Simulations using various variables were conducted to perform the analysis, offering valuable insights into the potential impacts. The findings from this investigation provide critical guidance to stakeholders in the construction industry, facilitating the formulation of effective risk mitigation strategies. Additionally, the research proposes scaling the analysis techniques to the program level to assess the contingencies in place.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(BIM-4565) The Next Level of Analytics: BIM and Power BI Integration

Time | Room: TUE 1:45-2:45 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 2.2. Total Cost Management Process Map 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Jeancarlo Duran Maica, CCP EVP *CPB Contractors Australia*
Gino Napuri, EVP *The Walsh Group*

Abstract: The successful integration of building information modeling (BIM) and Power BI holds immense potential for revolutionizing the construction industry's data-driven decision-making processes. BIM, a sophisticated 3D modeling technology, enables seamless collaboration, visualization, and management of building projects. On the other hand, Power BI, a powerful business intelligence tool, empowers stakeholders to extract valuable insights from diverse data sources through interactive dashboards and reports. A successful integration between BIM and PowerBI enables data synchronization and dynamic visualization of project information.

Integration facilitates enhanced communication and collaboration among stakeholders by providing a centralized platform for data analysis and sharing. As a result, project teams can make informed decisions promptly, mitigating risks and increasing project efficiency. Nonetheless, innovation is not just the introduction of new technology, but a fundamental change in business processes and workflows. The success of any innovative initiative is largely due to the introduction of the necessary changes in operational processes and the involvement of the people who must carry them out.

In this presentation, the authors will explore how project control is helping organizations to provide faster, automated and more reliable information to increase project predictability and help management teams make informed decisions in a timely manner.

This paper explores different use cases where the symbiotic relationship between BIM and Power BI empowers the construction industry to make data-driven decisions, streamline project workflows, and optimize resource utilization. By embracing this integration, construction professionals can foster communication and a more collaborative approach to project management, ultimately achieving higher levels of trust among team members and delivering added-value outcomes for stakeholders.

The authors have experience in large programs and bring years of experience at the forefront of data integration, following the AACE TCM Framework and recommended practices. This paper's objective is to encourage project teams to plan and dedicate the appropriate time and effort to their project's data integration.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4463) Intricacies and Factors To Consider When Performing a Half-Step Schedule

Time | Room: SUN 10:00-11:00 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
Stanko Pavlovic, PSP *Consilion*
Greg M. Hall, PSP *Kiewit*

Abstract: Performing a bifurcation, a.k.a. progress-only half-step update, as part of the MIP 3.4 half-step analysis, involves careful consideration of multiple factors to accurately isolate progress-related changes within a project schedule. One key factor is the treatment of the remaining duration (RD) of activities. Only changes that reflect actual progress, such as a reduction in the remaining duration when an activity is in progress, are considered valid for the half-step schedule. If the remaining duration is reduced beyond the period's working time, it is adjusted to reflect only the time worked. However, what if the reduction of the remaining duration is greater than the duration of the analyzed window itself? Is it a reasonable "gain" by the contractor or a way to hide the delay?

Another key factor to consider when performing the bifurcation also involves handling deleted activities and different approaches to dealing with these "deleted" activities. If deleted activities are considered to be "removed" by actualizing them with the forecasted dates from the baseline/previous update, it could potentially alter the critical findings of the bifurcated schedule compared to when deleted activities are left un-actualized and driven by the data date. Some of the examples in this paper refer to Steelray Delay Analyzer (SDA). However, AACE does not promote or endorse any particular tools or software.

(CDR-4471) CAPES Methodology: A Tool for Experts Analysis of Claims

Time | Room: SUN 12:00-1:00 | Grand Ballroom G-H
Skill Level: Advanced
TCM Section(s): 7.5. Value Analysis and Engineering 6.2. Asset Change Management
Author(s)/Presenter(s):
Luis Otavio Rosa *Tarobá Engenharia*
Beatriz Vidigal Xavier da Silveira Rosa *Taroba Engenharia*

Abstract: Complex cases in arbitration or litigation with several claims, many of them interwoven with each other, require careful analysis from arbitrators and judges to unravel the technical aspects and values of claims. A methodology was developed by authors and applied in arbitration and litigation proceedings since 2016, named the CAPES methodology, an acronym (in Portuguese) for contract (Contrato), contract addendums or amendments (Aditivos), claims (Pedidos), progress of contract execution, (Execução) regarding change orders and payment progress, and balance of the contract (Saldo). This paper presents the CAPES methodology, with analysis of technical issues and related calculations, including price escalation and interest, in a single file, with a comprehensive view and summary tables, inspired by UNCITRAL notes on organizing arbitral proceedings and by the ICC Commission on Arbitration and ADR report on recommended tools and techniques for effective management for construction industry arbitrations. The CAPES single file gives an opportunity to review the underlying data and, also, facilitate any addition or revision on calculations after decision on the merits by arbitrators or judges.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4478) Past Performance Can Be a Good Indicator of Future Results: Part 2

Time | Room: MON 1:45-2:45 | Grand Ballroom J-K
Skill Level: Advanced
TCM Section(s): 10.2. Forecasting 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Tara L Hannebaum *Aperture, LLC*
Tucker Dezelan *Aperture, LLC*

Abstract: Common implementations of the Association for the Advancement of Cost Engineering (AACE) International dynamic forensic methodologies (Method Implementation Protocol [MIP] 3.3, 3.4, and 3.5) focus on the gain and loss to the forecasted completion date between two updates. The change in the forecasted completion date is the sum of gain or loss on actual progress and the projected gain and loss on future work compared to the prior schedule. Failing to segregate actual gain or loss—what happened to the left of the data date—from future gain or loss—what is forecasted to the right of the data date—ignores critical information. Comparing actual progress to planned progress provides insight into whether the project is actually performing on schedule. Focusing solely on the forecasted completion date can result in:

- Failing to pursue time extension or compensation for actual delays that have been offset with projected mitigation
- Relying on projected future schedule gains that may or may not occur
- Improperly assigning critical path delay responsibility resulting from identifying “delays” that are really a failed mitigation of earlier delay and ignoring the actual cause of delay

This paper discusses cases that demonstrate these scenarios and proposes a method that allows for the proper analysis of actual critical path delay and mitigation that is realized independent of forecasted future critical path performance.

(CDR-4491) Periodic Schedule Updates, Can They Be Trusted?

Time | Room: SUN 1:10-2:10 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 9.2. Progress and Performance Measurement 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Aaron W. Fackler, PSP *LitCon Group, LLC*

Abstract: Periodic project schedule updates play a central role in forensic delay analysis. Because these updates are often contractually required and approved by owners, the data contained in these schedules form a foundational part of an analyst’s understanding of a project from start to finish. However, no schedule is perfect, and updates may include a variety of inaccuracies, both inadvertent and intentional. The complexity of modern CPM schedules provides many opportunities for seemingly small errors in logic or activity and relationship attributes to have significant impacts to a delay analysis. The author will discuss common issues seen in update schedules, identify techniques to overcome these errors, and provide real world examples. Finally, the author will discuss the challenges these errors present when the project of interest has long been completed and other supporting sources of information, such as interviews with project personnel, are unavailable.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4498) The Devil's In the (Contract) Details: How 'No Damages for Delay' Clauses Shape Forensic Schedule Methodologies and Damage Calculations

Time | Room: SUN 2:50-3:50 | Grand Ballroom G-H
Skill Level: Advanced
TCM Section(s): 6.4. Forensic Performance Assessment 0.0. General Reference
Author(s)/Presenter(s):
Rachel Domingo, PSP *The Vertex Companies, LLC*
Chloe Mandell *The Vertex Companies, LLC*

Abstract: When technical experts are sought out in construction disputes, the broad term "delay and damages analysis" is often used. Among the accepted forensic schedule methodologies and the various methods used to calculate compensatory damages, an expert may feel overwhelmed with selecting an approach. As experts, it is imperative to review the contract before becoming overburdened with project documents, including a review of whether or not the contract contains a "no damages for delay clause." From there, and with careful consideration of the additional project documents, experts are in a more informed position to determine what methodologies to utilize for analysis. This paper will guide analysts through several case studies to demonstrate how the "no damages for delay" clause, and the types of documents in the project record, can change the approach on how to determine delay and compensatory damages.

(CDR-4500) Using Trend Graphs to Analyze Labor Productivity

Time | Room: SUN 4:00-5:00 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Amar Majid *Delta Consulting Group*
Dr. Tong Zhao, PE CCP CFCC PSP *Delta Consulting Group*

Abstract: A contractor's productivity will generally vary throughout a project and is contingent on many factors including project-specific characteristics like resources, working conditions, similarity of work as well as the contractor's means and methods. Plotting productivity trend graphs is a useful tool for measuring performance, explaining productivity trends, identifying the factors impacting productivity, and introducing effective countermeasures. In the context of a loss of productivity claim, productivity trend graphs can be useful to demonstrate causation, quantify lost productivity and challenge claims for loss of productivity. This paper illustrates the use of project specific trend curves on two case studies. On the first case study trend curves are used to determine the should-have-been productivity in the context of varying work areas with access restrictions to help resolve a loss of productivity claim for a paving subcontractor in a shopping mall renovation project. On the second case study trend curves were used to undermine the contractor's claim on productivity losses allegedly for abandoning ramp access on an RCC gravity dam by showing that the productivity evolution was driven by the characteristics of the work.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4503) Digital Transformation (DX) Trends in Construction Forensic Analysis

Time | Room: SUN 5:10-6:10 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 10.3. Change Management
Author(s)/Presenter(s):
Dr. Wael El Ghandour, PEng *Aramco*
Belkacem Foura, PEng *Aramco*

Abstract: The rapid development of digital tools is transforming various industries, including construction disputes forensic analysis for both schedule delays and loss of productivity. Construction disputes are a significant challenge in the industry, often leading to delays, cost overruns, and strained relationships among stakeholders. . This paper provides a systematic evaluation of digital transformation (DX) technologies in construction dispute resolution, analyzing their implementation through two methodological lenses: (1) forensic schedule delay analysis, and (2) labor/equipment disruption modeling. The study assesses technological capabilities against practical implementation barriers, governance requirements, and skills evolution needs. These technologies assist in tasks such as contract analysis, claim assessment, improving communication, facilitating better decision-making, providing a reliable source of truth for all parties involved, and predictive modeling of dispute outcomes. They offer enhanced visibility, enabling proactive identification of potential issues that may lead to disputes. Through case studies and industry examples, the paper examines the practical use of DX technologies in real-world construction disputes forensic analysis and disruption modeling. It assesses the current limitations and future trends. It describes the required governance for their applications with their challenges. The findings suggest that while DX technologies offer significant promise in enhancing dispute forensic analysis processes, careful implementation, and ongoing human oversight are essential to fully realize its benefits. It describes new expected skills for construction disputes forensic analysis stakeholders due to implementation of DX technologies.

(CDR-4520) Understanding Time-Related Overhead Claims on Federal Projects

Time | Room: MON 10:10-11:10 | Grand Ballroom G-H
Skill Level: Basic
TCM Section(s): 9.2. Progress and Performance Measurement 10.3. Change Management
Author(s)/Presenter(s):
Michael P. Ryan, PE PSP *Trauner Consulting Company*
Saimir Bici, PSP *Trauner Consulting Company*
Alexander Leland Zimmet *Trauner Consulting Company*

Abstract: Federal projects are governed by the strict requirements of both the Federal Acquisition Regulation (FAR) and the individual government organization that serves as the owner for the project. Yet contractors often ignore these requirements when submitting time-related claims, particularly for field and home office overhead. Unfamiliarity with the requirements for time-related claims, both from the contractor's and the owner's management teams, can result in protracted and costly litigation.

This paper will first provide background on the two main types of overhead costs: field and home office. Next, it will discuss several critical requirements and legal rulings that the analyst should be aware of when assisting with the development or review of a time-related federal claim. Finally, it will discuss key lessons learned from past experiences with time-related claims on government projects that can be used to advise future clients.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4535) Developing a Persuasive Cause and Effect Link in Disruption Claims

Time | Room: SUN 2:50-3:50 | Grand Ballroom J-K
Skill Level: Basic
TCM Section(s): 10.3. Change Management
Author(s)/Presenter(s):
Suleiman Al Rai, PE PSP *Delta Consulting Group*
Khaled Aziza, EVP PSP *Delta Consulting Group*
Dr. Hatem Ibrahim, PE *Delta Consulting Group*

Abstract: Disruption claims are among the most common types of claims, yet many claimants often fail to establish a persuasive cause-and-effect relationship between claimed damages and disruptive events. This paper examines the challenges of establishing cause-and-effect relationships, defines both direct and indirect impacts of disruption, including the cumulative impact effect that results in productivity losses, and explores the basic principles in the establishment of a convincing disruption claim. Through case studies, examples from industry standards, and case law support, the paper offers practical guidance for contractors, claim analysts, and legal practitioners in navigating the complexities of disruption claims in modern construction projects.

(CDR-4541) Bridging the Gap: A New Take on As-Planned vs. As-Built Methodology using Performance-Driven Delay Analysis

Time | Room: MON 1:45-2:45 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Hussain Chizari *Quantum Global Solutions*

Abstract: In the field of project management, delay analysis is a critical component that is intended to help settle disputes and support the project's successful completion. However far too often the chosen methodology and the misuse of particular analysis practices can contribute to more arguments and create disputes rather than settling them. AACE International describes a broad spectrum of methodologies and provides frameworks for analyzing and addressing project delays. These established techniques are invaluable for various project scenarios, offering structured approaches that cater to different complexities and requirements. However, given the diverse nature of construction projects and the varying quality of contemporary records there is a need for flexibility and adaptability in applying these methodologies.

This paper explores an alternative approach to delay analysis that complements existing AACE methodologies by focusing on the application of resources and teams applied to work sequences, whilst assessing and comparing rates of production achieved in the delivery across the works as a whole. This approach can be used to deliver an as-planned vs as-built methodology using various data sources beyond schedule updates. Furthermore, it can also support and enhance AACE MIP 3.2 and MIP 3.3 Recommended Practice 29R-03 by using contemporary records to validate as-built critical paths. The approach is supported by court cases calling for delay analysis to be objective, logical and practical in the determination of the 'actual critical path'. This paper therefore proposes to look at simple and practical methods for reviewing and assessing delay through more 'productivity/performance based' approaches under the delay analysis banner of the as-planned v as-built method.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4548) The Reality Check: A Comparison of Retrospective Delay Analysis Methods on Terminated Projects

Time | Room: MON 3:25-4:25 | Grand Ballroom G-H
Skill Level: Basic
TCM Section(s): 10.1. Project Performance Assessment 10.2. Forecasting
Author(s)/Presenter(s):
Alessio Loreti, PE PSP *Delta Consulting Group*
Mikaela Hutchison *Delta Consulting Group*

Abstract: In contract termination cases, accurately quantifying delays is crucial for assessing liability, calculating damages, and supporting termination decisions. This paper examines the role of various retrospective delay analysis methodologies—as-planned vs. as-built analysis, contemporaneous windows analysis, and half-step analysis—in establishing a factual basis for these evaluations. By comparing how these methodologies address actual versus forecasted delays, the paper highlights their impact on delay quantification, responsibility allocation, and the overall defensibility of termination claims. Key considerations, such as the quality of available schedules, the incorporation of delay events, schedule revisions, and how parties made decisions based on these schedules, are discussed to guide the selection of the most appropriate methodology. The paper includes a real-world case study that examines how differing site conditions affected a project, comparing delay quantifications at the point of termination using both the as-planned vs. as-built and contemporaneous windows methods and discusses the implications of these findings for dispute resolution. This paper concludes with best practices for selecting a methodology, emphasizing the importance of project-specific characteristics and the benefits of integrating multiple approaches to achieve a more comprehensive and balanced view of delays.

(CDR-4557) Circumstantial Silence in Construction Projects

Time | Room: MON 4:35-5:35 | Grand Ballroom G-H
Skill Level: Basic
TCM Section(s): 6.3. Asset Historical Database Management 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Maged Raouf Fayek *Contracting and Construction Enterprises (CCE)*
Waleed El Nemr *Bechtel*

Abstract: In the dynamic and complex landscape of construction projects, silence often speaks volumes and can have notable adverse implications on the contracting parties and the project. One intriguing phenomenon is termed in this paper “circumstantial silence”, which manifests when contracting parties intentionally adopt silence as a means to improve their circumstances. Such is the case when parties fail to respond promptly to critical matters to gain a certain advantage over the other party. This paper addresses a few examples of circumstantial silence from the owner and the contractor and mentions implications of such silence, with the objective that the practice of this phenomenon is avoided or at least reduced in the industry.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4560) Impact Damages: Fact or Fiction?

Time | Room: TUE 1:45-2:45 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 10.3. Change Management
Author(s)/Presenter(s):
James G. Zack, Jr. CFCC FAACE Hon. Life *James Zack Consulting, LLC*

Abstract: When owners and contractors discuss construction claims, issues cited center primarily on poor design, change orders, site conditions, and delays. When the discussion turns to damages, the focus is most often on labor cost, time extensions, extended overheads, and such. All too often owners and contractors fail to raise the issue of impact damages. Impact damages are the downstream effects of adverse events on a project that are not typically compensated for in change orders or claim settlements. This paper discusses some typical causes of impact damages and the elements of proof necessary to recover impact damage claims. And while many impact damage claims are legitimate and recoverable, many are not. This paper identifies and briefly discusses 10 legitimate impact damage claims, highlights 11 different impact damage claims that are often asserted but need to be closely examined by owners, and suggests potential defenses against these latter impact damage claims.

(CDR-4562) Resource Planning Essential to Forensic Performance Assessment

Time | Room: TUE 11:20-12:20 | Grand Ballroom G-H
Skill Level: Advanced
TCM Section(s): 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Eric Anthony, CFCC PSP *SOCOTEC Advisory, LLC*

Abstract: Forensic performance assessment relies on accurate resource planning and performance measurement data. The original duration of a construction activity is partly determined by the estimated quantity of workhours divided by the daily workforce hours. The estimated workhours are loaded as activity resources into a construction schedule to forecast the aggregate activity resource allocations. Based on the time distributed resource output, combined physical progress s-curves, and workforce histograms are generated to summarize scheduled activity groups. The construction activity duration calculations and workforce allocations are documented to validate the baseline schedule. Each month, the workforce data is used to analyze efficiency and forecast workforce adjustments. In the event of a recognized schedule impact, contemporaneous workforce data supports the quantification of actual damages resulting from productivity loss due to acceleration, pacing, delay, or disruption. Additionally, workforce documentation provides valuable historical data for schedule benchmarking.

This technical paper demonstrates the claims and dispute resolution (CDR) advantages of utilizing resource planning for baseline schedule development, physical progress measurement, productivity loss analysis, delay quantification, and benchmarking.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4590) Effective Approach for Time Impact Analysis When Dealing With Claim Blitz

Time | Room: TUE 10:10-11:10 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 10.3. Change Management 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Edward Kucher, CCP PSP *AECOM*
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis*

Abstract: Many projects are guided by reasonable change management language in the contract, even with respect to the time component of owner requests or unforeseen conditions. That time-related language most often calls for use of a time impact analysis (TIA) which suggests using the most recent schedule of record and add a model of the changed condition and recalculating to determine the estimated impact of the changed condition on the schedule. While this is the best way to estimate or forecast the time impact of individual changed conditions, when there are dozens of change requests from owner requests and unforeseen conditions in the field, the TIA specification commonly is not sufficient to provide a valuable approach to timely resolution. This paper will address the problems and risks with the delay claim blitz and provide reasonable and workable solutions.

(CDR-4605) Beyond a Single Method: The Various Approaches to As-Planned vs. As-Built Schedule Analysis

Time | Room: TUE 3:25-4:25 | Grand Ballroom G-H
Skill Level: Advanced
TCM Section(s): 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Patrick M. Kelly, PE PSP *Ankura*
Javier Arniella, PE PSP *Ankura*

Abstract: The as-planned vs. as-built schedule analysis is often misconceived in the construction industry as a singular method for evaluating project delays and disruptions. However, it represents a category encompassing several methodologies. This paper delves into the nuances of the distinct approaches within this category, including but not limited to, the as-built model, retrospective longest path, and the various ways in which the as-built critical path can be determined and quantified. By examining these methodologies, this paper aims to clarify the multifaceted nature of as-planned vs. as-built analysis, fostering a deeper understanding and more accurate application in forensic schedule analysis. Additionally, this paper will explore the strengths and limitations of each approach, offering insights into their practical implementations and the contexts in which they are most effective. Ultimately, this comprehensive examination seeks to enhance the precision and reliability of delay and disruption assessments in construction project management.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4608) (Panel Discussion) Recommended Practice 29R-03 Under Attack - AGAIN!

Time | Room: TUE 10:10-12:20 | Grand Ballroom J-K
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
James G. Zack, Jr. CFCC FAACE Hon. Life *James Zack Consulting, LLC*
Kenji P. Hoshino, CFCC PSP FAACE *Project Controls & Forensics, LLC*
Dr. Jeffrey L. Ottesen, PE *Berkeley Research Group*
Mark C. Sanders, PE CCP CFCC PSP *Alpha 3 Consulting LLC*
John Theiss *Truss Faber PC*

Abstract: Notwithstanding 14 years of recognition and use by industry experts around the globe, AACE's RP29R-03, Forensic Schedule Analysis is again under attack by some forensic scheduling experts in litigation. The following arguments are being employed to attempt to discredit the use of AACE's RP and experts who is it in arbitration or litigation. The initial argument is that industry authorities and legal tribunals have found that the RP29R-03 does not reflect any standard of practice and is generally not relevant to performance of a schedule delay analysis within the industry. The second argument is that experts relying on RP 29R-03 are citing a reference that is not an industry standard and neglects to mention the consensus industry standard for schedule delay analysis published by the American Standards Industry Institute (ANSI), the American Society of Civil Engineers (ASCE), and the Construction Institute (CI). This panel discussion will address each of these arguments in an interactive session.

(CDR-4618) The Risks and Implications of Forecasting an Early Completion in a Baseline Schedule

Time | Room: TUE 4:35-5:35 | Grand Ballroom G-H
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Anthony Springer, PSP *Spire Consulting Group*
Keefe Mulligan *Spire Consulting Group*

Abstract: The ownership of total float is often not explicitly defined in construction contracts or subcontracts but can easily become the source of time-related disputes. In construction claims and disputes, it is widely accepted that the total float does not belong to the owner or contractor, but rather the project. AACE International (AACE) Recommended Practice (RP) 29R-03, states that the majority view is that total float, a shared commodity, is available for consumption on a 'first come, first served' basis. However, for projects that end up in dispute, the 'first come, first served' basis and ownership of total float could possibly increase the contractor's risk and inability to recover time-related damages. The purpose of this paper is to discuss a contractor's risk associated with forecasting an early completion, or including total float, in its baseline schedule from a claims and disputes perspective. In addition, the paper will discuss potential mitigation efforts that a contractor can employ to decrease risks associated with a planned early completion. Furthermore, this paper contains representative examples where the apportionment of critical path delays and the entitlement of time-related damages were impacted by the contractors' inclusion of total float in its baseline schedules.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4634) Mastering Concurrent Delays: A Case Study Guide for All Construction Stakeholders

Time | Room: TUE 11:20-12:20 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
Roy Abdollahi *Exponent, Inc.*
Gayathri Shetty *Exponent, Inc.*
Robert Freas *Exponent, Inc.*

Abstract: The best approaches to managing and resolving concurrent delays are still a topic of hot debate in both academic and professional circles. Section 4.2 of the AACE International Recommended Practice No. 29R-03 accurately states that "the identification and quantification of concurrent delay is arguably the most contentious technical subject in forensic schedule analysis." This contention arises from varying definitions and approaches to evaluating and measuring concurrent delays across the design and construction timeline. Furthermore, different stakeholders may have different perspectives on the same delays leading to conflicting views on accountability and responsibility.

Given the intricacies of the subject and the absence of a one-size-fits-all approach for measuring concurrent delays, case-based learning provides an effective method of applying academic knowledge to real-life scenarios. In this paper, we will present three case studies in which concurrent delays were disputed by different stakeholders, on projects of varying types, delivery methods, and contract structures. This paper examines each party's approach to concurrent delays and analyzes how they relate to different definitions and methodologies presented. The goal is to provide considerations and lessons learned that can guide different parties – owners, general contractors, subcontractors, and even designers to determine if they have encountered concurrent delays in a project and their extent.

(CDR-4643) Nailing Down Construction Costs Like a Fraud Examiner

Time | Room: SUN 12:00-1:00 | Grand Ballroom J-K
Skill Level: Basic
TCM Section(s): 9.1. Project Cost Accounting 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Rachel Weinthal *Delta Consulting Group*
Nicole Kelly *Delta Consulting Group*

Abstract: During construction, changes after the initial plan is established and agreed upon are common; these changes often cause additional costs to be incurred. The additional costs may be related to direct project costs, general conditions, home office overhead, interest, insurance, and/or bond costs.

Regardless of categorization, all costs need to be evaluated to ensure they are born by the appropriate party given the contract that was in place at the time of the initial contract agreement. Pressures from management and other stakeholders to meet certain objectives or financial performance metrics can lead to misrepresentation and/or inappropriate allotment of certain project costs, heightening the importance of thoughtful evaluation.

This paper looks at project cost claims through the eyes of a forensic investigator, identifying common fraudulent behavior and associated "red flags" to look for when evaluating construction cost claims. Case study examples will also be included, providing actual instances when over-inclusion of costs was identified, preventing the damaged party from suffering financial harm.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4675) Enhancing As-Built Data Reliability for Forensic Delay Analyses

Time | Room: SUN 1:10-2:10 | Grand Ballroom J-K
Skill Level: Intermediate
TCM Section(s): 9.2. Progress and Performance Measurement 10.3. Change Management
Author(s)/Presenter(s):
Hamed Arabzadeh, PSP *Rimkus Consulting Group, Inc.*
Murat Kilic, CFCC PSP *Rimkus Consulting Group, Inc.*
Mohammad Reza Farzad, PSP *Rimkus Consulting Group, Inc.*

Abstract: As-built project data holds paramount importance in achieving accurate delay analysis results. The focus of this paper lies in investigating the reliability of as-built data and addressing challenges related to retrospective changes in actual dates. Through real-world case studies, the paper demonstrates the critical importance of utilizing dependable as-built data in delay analysis procedures. It underscores the need to establish protocols to manage retrospective modifications to actual dates, which often pose challenges in determining the true occurrence of delays. The paper introduces a systematic approach to identify instances where actual dates were changed in subsequent updates. By detecting and addressing such occurrences, the analyst can increase the accuracy of the delay findings through preventing potential misinterpretations. Moreover, the paper presents a systematic method for evaluating the impact of these retrospective changes on the delay analysis outcome. In conclusion, this paper advocates for a proactive approach to handling as-built data and its retrospective changes, emphasizing the critical role such data plays in achieving accurate delay analysis results. By implementing the proposed method, forensic delay professionals can enhance transparency, credibility, and confidence in delay analysis, leading to improved project outcomes and strengthened stakeholder relationships.

(CDR-4679) Principles of Forensic Schedule Analysis: A Framework for Reliability and Credibility

Time | Room: MON 10:10-11:10 | Grand Ballroom J-K
Skill Level: Advanced
TCM Section(s): 10.3. Change Management 6.4. Forensic Performance Assessment
Author(s)/Presenter(s):
Patrick M. Kelly, PE PSP *Ankura*

Abstract: Effective FSA is crucial for resolving construction disputes and understanding project delays. This paper outlines fundamental principles that constitute robust and credible schedule analysis, applicable across various methodologies. Emphasizing scientific rigor and competent application, the discussion centers on data collection and validation, aligning schedule data with project questions, the employment of multiple methods to develop an exhaustive analysis, careful method implementation, maintaining skepticism by considering alternative explanations, and ensuring reproducibility to validate findings. Following these principles ensures the analysis is methodologically sound, transparent, and reliable, meeting high standards of evidence required in legal and dispute resolution contexts. This framework equips practitioners with a clear, evidence-based approach to FSA, enhancing the reliability and credibility of their conclusions.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CDR-4687) Living With Uncertainty: Allowances, Cost Contingency, and Dispute Resolution

Time | Room: SUN 4:00-5:00 | Grand Ballroom J-K
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 10.3. Change Management
Author(s)/Presenter(s):
Roger Nelson, PE PSP *Spire Consulting Group, LLC*
Steve Purugganan *Spire Consulting Group, LLC*
Adam Troscinski *Spire Consulting Group, LLC*

Abstract: Allowance and contingency provisions are widely included in construction contracts to account for uncertainty and to allocate risk between parties. Effectively managing these mechanisms can present significant challenges that, if not properly addressed, may lead to dispute. This paper will discuss the role that allowances and contingency play in construction contracts and address considerations when managing projects and resolving construction disputes. It will also provide a case study to demonstrate how a forensic analyst's understanding of contingencies and allowances is critical for accurately quantifying damages.

(CDR-4691) (Presentation Only) Keeping Pace Without Tripping Over Yourself

Time | Room: SUN 5:10-6:10 | Grand Ballroom J-K
Author(s)/Presenter(s):
Christopher J. Brasco *Watt Tieder*
Matthew D. Baker *Watt Tieder*
Dakus Gunn *Delta Consulting Group*

Abstract: A party faced with a critical path delay for which it is not responsible potentially must decide whether or not to pace its own work during the pendency of such delay. However, a party who paces its work risks creating the perception of concurrent delay. This paper will provide practical guidance to parties attempting to navigate their duty to mitigate while preserving their rights in the face of a critical path delay for which they are not responsible. The authors will review AACE's recommended practices as they relate to evaluating pacing, parent delays, and the review of near-critical paths. Relevant case law will also be reviewed. Finally, the authors will address case studies where pacing was effectively utilized and when it was a smokescreen for actual concurrent delay.

(COM-4713) Asset Planning & Management (APM) Subcommittee Meeting

Time | Room: SUN 2:50-3:50 | San Diego
Author(s)/Presenter(s):
Gino Napuri, EVP *The Walsh Group*

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(COM-4714) Building Information Modeling (BIM) Subcommittee Meeting

Time | Room: SUN 4:00-5:00 | San Diego
Author(s)/Presenter(s):
John B. Newman, CCP CEP *Hill International*

(COM-4715) Claims & Dispute Resolution (CDR) Subcommittee Meeting

Time | Room: MON 3:25-4:25 | Grand Ballroom J-K
Author(s)/Presenter(s):
Roger Nelson, PE PSP *Spire Consulting Group, LLC*
Mojtaba Z. Kesheh, PSP *FTI Consulting*

(COM-4717) Cost Estimating (CE) Subcommittee Meeting

Time | Room: SUN 5:10-6:10 | Orange County Ballroom 4
Author(s)/Presenter(s):
Shoshanna Fraizinger, CCP FAACE
David Waggoner

(COM-4718) Data Science & Advanced Analytics (DSAA) Subcommittee Meeting

Time | Room: SUN 12:00-1:00 | Orange County Ballroom 3
Author(s)/Presenter(s):
H. Lance Stephenson, CCP FAACE Hon. Life *AECOM*
Michael A. Pink *SmartPM*

(COM-4719) Decision & Risk Management (DRM) Subcommittee Meeting

Time | Room: TUE 4:35-5:35 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Francisco Cruz, CCP *PMA Consultants*
Dr. David T. Hulett, FAACE *Hulett & Associates, LLC*

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(COM-4720) Planning & Scheduling (PS) Subcommittee Meeting

Time | Room: MON 4:35-5:35 | Grand Ballroom J-K
Author(s)/Presenter(s):
Matthew Freih, PE PSP *AECOM*
Ajay Raman, PSP *WSP*

(COM-4721) Productivity, Performance, & Earned Value (PPEV) Subcommittee Meeting

Time | Room: MON 10:10-11:10 | San Diego
Author(s)/Presenter(s):
Michael F. Marcell, EVP PSP *K2 Consulting*

(COM-4722) Program & Project Management (PPM) Subcommittee Meeting

Time | Room: MON 3:25-4:25 | San Diego
Author(s)/Presenter(s):
Michael S. Pytlik, EVP PSP *M.C. Fuhrman & Associates, LLC*

(COM-4723) (Panel Discussion) Strategic by Design: The Future Role of Project Controls - How Women are Redefining Influence, Strategy and Impact in a Data-Driven World

Time | Room: MON 1:45-2:45 | Los Angeles/La Jolla
Author(s)/Presenter(s):
Stephanie Kers *Canadian Natural Resources Ltd*
Omoniyi (Niyi) Ladipo, CCP EVP *MBP*
Dr. Diana Nada *Turner & Townsend*

Abstract: Project controls is no longer just a tactical function – it's becoming a strategic engine that drives insight, guides executive decisions, and shapes the future of project-based organizations. In a world increasingly defined by complexity, volatility, and data overload, project controls professionals are uniquely positioned to bring clarity, foresight, and alignment to both project and enterprise outcomes. This panel features women who are leading this evolution with intention – professionals who are not only mastering the data but also connecting it to strategy, influencing stakeholders, and designing a more impactful future for the discipline.

Brought to you by the Women in Project Controls (WPC) Committee.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(COM-4724) Section Leadership Meeting

Time | Room: SUN 1:10-2:10 | San Diego
Author(s)/Presenter(s):
Ghaith Al-Hiyari, CCP *Turner & Townsend*

(COM-4725) AACE Canada Meeting

Time | Room: MON 11:20-12:20 | San Diego
Author(s)/Presenter(s):
Cindy L. Hands, PEng CCP *Hatch Ltd.*

(CSC-4476) Concurrency as a Metric: A Simple Leading Indicator for Project Delay

Time | Room: TUE 4:35-5:35 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 7.2. Schedule Planning and Development 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
Matthew Hayek, PE PSP *Rummel, Klepper, & Kahl, LLP*

Abstract: A major challenge in monitoring CPM schedules throughout construction is capturing how subcritical progress, or a lack thereof, could impact the project. Often, complex projects can include several subcritical work elements with a large amount of available float, indicating the ability to slip significantly without affecting project completion; however, as the project approaches its final months, the compounded subcritical and critical work becomes insurmountable with the available resources.

This paper will present a proposed method to monitor subcritical progress and provide a leading indicator for the compounding of subcritical work. The proposed metric can be applied to schedules of varying complexity and does not require resource-loading to provide valuable insight into a contractor's planned vs. actual productivity.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CSC-4499) (Panel Discussion) Missing the Mark: Trending of Projects that Extend Past Contract Parameters

Time | Room: SUN 2:50-3:50 | Los Angeles/La Jolla
Author(s)/Presenter(s):
Kim Forbes, PSP *MBP*
Ghaith Al-Hiyari, CCP *Turner & Townsend*
Rami Daniel *D2 Global*
Duan van der Merwe *Delta Consulting Group*
Lucia Vernon *Quantum Global Solutions*

Abstract: The construction industry is fast-paced and constantly evolving. Throughout our careers, we have continued to question why projects are not completed within the contract parameters and why the trend continues and appears to be getting worse even with the technology evolving, which is providing us with more powerful tools than ever before. Is it due to client expectations, funding parameters, delivery method, lack of labor, contractor complacency, project complexity, changes in the supply chain, or sustainability and regulations? Understanding these factors can help better manage and mitigate project extension of cost and time.

This panel discussion will explore these issues further based on their own experiences and views from various industry sectors.

(CSC-4564) Controlling Costs on Major Construction Projects Executed on Reimbursable Basis

Time | Room: TUE 10:10-11:10 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 2.4. Project Control Process Map 2.2. Total Cost Management Process Map
Author(s)/Presenter(s):
Moses Y. Nkuah, CCP EVP *Hatch Ltd.*
Seth Agyepong-Wiafe, CCP EVP *Department of Energy*

Abstract: On many major construction projects, cost reimbursable contracts are increasingly being used as the method of compensation. This trend has been driven by the need to start projects early, improve flexibility, control project cost, improve transparency and build synergistic partnerships between the owner and executing contractor. Despite the intended benefits expected by all parties, controlling costs on reimbursable construction projects has been a challenge in the industry. The prime objective of a cost control system providing early warning of significant cost deviations from budget plans, so that major deviations can be corrected, minimized, neutralized, or justified is not achieved. These challenges are compounded by the need for greater oversight, unalignment of goals and interests, and the unwillingness of most contracting parties to be flexible under conditions of uncertainty. This paper aims to discuss best practices that contribute to effectively controlling costs on construction projects executed on a reimbursable cost basis.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(CSC-4612) Sailing Successfully through Bow-Wave Impacts

Time | Room: MON 4:35-5:35 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 7.2. Schedule Planning and Development 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
Shiv M. Pathak *Fluor*

Abstract: Due to increasingly demanding clients who make continuous changes during the engineering phase, along with supply chain challenges and client-driven pressure on schedule and cost, more projects than ever are now going thru bow-wave and experiencing significant cost and schedule impacts during construction and commissioning.
Therefore, planning for successful sailing through the bow-wave is becoming more and more important.

Bow-wave is a phenomenon where-in, for various reasons, a substantial amount of early sequenced work gets deferred to the later part of the project. The deferred tasks accumulate, piling up in front of a project completion date that is not being allowed to naturally move to the right to account for the delay impact of the aforementioned changes, delays, resequencing and disruption. This creates a wave that impacts schedules and budgets, endangering successful project delivery. Often, the bow wave puts project teams in an almost impossible schedule squeeze. The bow-wave is quite often the result of the emphasis on 'not compromising' on a scheduled delivery date, which then becomes an unrealistic goal. Eventually, the whole final delivery schedule gets blown out of the water.

This paper is based on experience of bow-wave impacts, exacerbated by COVID-19, on a globally sourced mega project. The paper focuses on early recognition of a bow-wave, while seeking to reduce probability of it happening, as well as, when realized, minimizing impacts of bow-wave on cost and schedule baselines by meticulously planning successful execution through it.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CSC-4625) Unlocking Success by Leveraging Cost and Scheduling in Design-Build Projects: Enhancing Efficiency and Predictability

Time | Room: SUN 5:10-6:10 | Los Angeles / La Jolla
Skill Level: Intermediate
TCM Section(s): 7.1. Project Scope and Execution Strategy Development 8.1. Project Control Plan Implementation
Author(s)/Presenter(s):
David Johnston *Toscano Clements Taylor, LLC*
David A. Chigne, CCP CEP PSP *Toscano Clements Taylor, LLC*

Abstract: The design-build method has become a popular option in today's fast-paced construction environment due to its ability to improve collaboration, reduce execution times, and mitigate risks. However, the success of this type of delivery method significantly depends on the integration and strategic management of cost and scheduling processes. This presentation explores the crucial role that cost engineering and schedule optimization play in achieving project objectives, particularly within the framework of complex infrastructure projects.

By leveraging a robust cost control system and schedule optimization, design-build projects can enhance decision-making, foster accountability, and promote efficient resource allocation from conceptual design to project delivery. This study examines key cases where advanced cost control methodologies were integrated with predictive techniques to help mitigate scope creep and ensure timely delivery.

Furthermore, the presentation addresses the challenges of aligning cost estimates with evolving design requirements and how proactive scheduling can anticipate potential delays. Through a combination of cost modeling schedule compression, and risk analysis, this presentation will try to demonstrate how design-build projects can deliver high-quality results while remaining within budget and meeting established deadlines.

Ultimately, the presentation will provide the audience with practical insights into how project teams can leverage the synergies between cost management and scheduling, as supported by industry best practices and studies in project management from organizations such as AACE International and the Construction Industry Institute (CII), to not only meet client expectations but also achieve greater levels of efficiency and predictability, leading to overall project success.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(CSC-4698) Harnessing the Power of Bow Wave Reports

Time | Room: MON 3:25-4:25 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 8.1. Project Control Plan Implementation 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Kyle Palmer, EVP PRMP *K2 Inc.*
Tim Boatwright, EVP *K2 Inc.*

Abstract: It can be a challenge to summarize and interpret the impact of activity finish dates pushing right in large-scale construction projects with low-quality schedules. How can project risk be adequately summarized when thousands of activities are being pushed out each month? What if the project doesn't have a well-defined critical path in the first place due to missing logic, hard constraints, lags, relationship types, etc.? A bow wave report is a tool that mitigates these scenarios by summarizing a project's scope of work, in terms of duration days by period, to graphically depict the knock-on effect of slipping critical and non-critical tasks.

The bow wave report is a simple tool that can easily visualize the accumulation of work scope from activities riding the schedule data date. It is an easy way to combat low-quality schedules and provides the user with meaningful and actionable information regardless of their background in planning and scheduling. This paper will show what a bow wave report is, when to use it, how to develop it, and walk through a case study demonstrating the effectiveness of the analysis on real-world examples.

(DEV-4567) Consequences of a Bad Estimate, or a Bad Estimator – Does it Warrant Having a Professional Board of Cost Estimators?

Time | Room: TUE 3:25-4:25 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.4. Resource Planning
Author(s)/Presenter(s):
Vishwambhara Kumbharathi, CEP PSP *Amtrak*
Saumil H. Maniar, PE *PMA Consultants*

Abstract: In the United States, the need for consistent professional governance across various disciplines has long been acknowledged. Professionals such as engineers, architects, doctors, barbers, lawyers, and real estate agents are all governed by licensing bodies that uphold standardized practices, ensuring reliability and quality within their respective fields. These professional boards monitor practitioners, develop codes of conduct, and safeguard public trust by enforcing compliance with industry standards.

However, one crucial sector remains without a professional board to govern its operations—public infrastructure cost estimation. In an era where the efficient use of taxpayer dollars is paramount, the absence of a regulatory body for cost estimators in public infrastructure is glaring. The cost of infrastructure projects is often a point of contention, and any inconsistency in cost estimating methodologies can lead to severe consequences, including budget overruns, delays, and project cancellations.

This paper explores the rationale behind establishing a professional board for cost estimators in public infrastructure projects. It examines how the lack of governance contributes to inconsistencies in cost estimation and how the creation of a professional board could enhance accountability, precision, and trust in the execution of infrastructure projects that are critical to public welfare.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DEV-4622) Driving Career Success: The Power of Effective Leadership in Project Controls

Time | Room: TUE 4:35-5:35 | Grand Ballroom J-K
Skill Level: Basic
TCM Section(s): 11.2. People and Performance Management
Author(s)/Presenter(s):
Ernesto Llorens, CCP *Toronto Transit Commission*

Abstract: Today's emerging economic, societal, generational, and technological trends create opportunities and challenges for project professionals. As a result, project leadership must evolve to address these challenges successfully. Project leadership is widely studied and associated with project management. However, it is often overlooked in project controls, a unique field that combines technical skills, financial acumen, and data translation. These skills are acquired through experience and are not necessarily the outcome of a specialized university or college degree. Consequently, leadership in project controls plays a fundamental role in engaging, hiring, motivating, and developing project controls professionals.

This paper aims to describe the specific needs of project controls professionals and the significance of effective leadership tailored to these needs. Through informal discussions with project controls leaders, insights from leadership literature, and the author's extensive 20 years of experience in project controls management roles, a practical leadership approach is presented to successfully guide and inspire professionals in the unique field of project controls.

(DEV-4661) (Panel Discussion) The Transferability of Cost Engineering Skills

Time | Room: TUE 1:45-2:45 | Orange County Ballroom 4
Skill Level: Basic
TCM Section(s): 1.2. Purpose and Uses of the TCM Framework 11.2. People and Performance Management
Author(s)/Presenter(s):
Shoshanna Fraizinger, CCP FAACE *Shoshanna Fraizinger Consulting Inc*
Diana Nada *Turner & Townsend*

Abstract: The panel discussion will explore the versatility and cross-industry applicability of cost engineering expertise. Featuring panel members from diverse sectors, the discussion will highlight how core cost engineering skills, such as cost estimation, budgeting, and financial analysis, transcend industry boundaries and offer value in different contexts. The panelists will provide insights into the portability of these skills and demonstrate how professionals with experience in one industry can successfully transition to and contribute to wholly different industries. This session aims to foster a broader acceptance and recognition of cost engineers' capabilities across various sectors, emphasizing the universal relevance of their expertise in supporting organizational goals, improving project outcomes, and driving economic efficiency.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4501) Turn Around on the Future of Construction: The Power of AI in Construction Planning and Scheduling

Time | Room: SUN 10:00-11:00 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Mauricio Schneider *Andrade Gutierrez Engenharia*
Wesley Ferreira Barbosa *Andrade Gutierrez Engenharia*

Abstract: The construction industry faces increasing challenges in delivering optimized schedules within compressed study and execution timelines. Traditional planning methods often struggle to balance cost, duration, and quality effectively. The transformative impact of artificial intelligence (AI) on construction planning is analyzed, particularly in generating multiple scenarios to support informed decision-making. A study published in the Journal of Construction Engineering and Management highlighted that traditional scheduling methods often fail to address complexities, leading to cost overruns and delays (Cioffi, F., et al., "Analysis of project scheduling methodologies and their applications in construction projects," 2019).

In addition to reducing time and cost, the findings within this paper demonstrate that AI improves outcomes by addressing resource leveling, feasibility constraints, and constructability sequencing. This document outlines the inputs, outputs, and constraints required for AI to optimize scheduling. By automating scenario generation and analyzing diverse planning strategies, AI enables planners to select the most suitable solutions.

A notable feature of this solution is its dual-purpose functionality, serving as a two-way tool that supports planners in repetitive tasks. These tasks often surpass human capabilities in terms of speed and the ability to test all possible scenarios. As a result, planners can focus on conceptual aspects, gaining additional time and capacity for plan analysis while enhancing expertise in execution strategies.

(DSAA-4511) Harnessing Generative AI and Chatbots for Enhanced Project Controls and User Experience

Time | Room: TUE 4:35-5:35 | Orange County Ballroom 3
Skill Level: Basic
TCM Section(s): 11.3. Information Management 8.1. Project Control Plan Implementation
Author(s)/Presenter(s):
Kiran Kumar Galla *Hatch*
Virgilio T. Monton, II PEng CCP *Hatch*

Abstract: The integration of generative AI and chatbots into project controls systems offers a promising future for enhancing user experience and operational efficiency within project controls. With the ability to analyze vast amounts of data and generate human-like text, generative AI can provide real-time insights and predictive analytics, enabling project managers and project controllers to make swift, informed decisions. Meanwhile, chatbots can offer round-the-clock support, answering queries, providing updates, and assisting with routine tasks, freeing up valuable time for the stakeholders to focus on more strategic activities. Together, these technologies can streamline communication, reduce response times, and improve overall project management processes. Looking ahead, the potential for generative AI and chatbots to revolutionize project controls systems is immense, offering a more intuitive, efficient, and user-friendly experience. This paper will explore the various applications of these technologies, their benefits, and the challenges that need to be addressed to fully realize their potential in the realm of project controls.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4524) Breaking Data Silos: Business Intelligence Tools in Project and Program Management

Time | Room: SUN 1:10-2:10 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Jigar Thakkar *Exponent*
Joshua Langevin *Exponent*

Abstract: The effective management of data is paramount in project and program management where the complexity and volume of information demand advanced solutions. This paper explores the transformative role of business intelligence (BI) tools in breaking down data silos and enhancing decision-making processes. By aggregating data from disparate sources, BI tools provide real-time insights through dynamic dashboards, enabling project managers to monitor performance metrics, optimize resource allocation, and mitigate risks effectively.

Using case studies, this paper demonstrates the practical applications of BI tools, such as their implementation in environmental remediation projects and post-construction processes for capital improvement programs. These tools addressed challenges including data fragmentation, outdated reporting methods, and inefficiencies in geographic information system (GIS) mapping, resulting in significant improvements in project tracking, collaboration, and risk management. Key benefits include streamlined workflows, improved data accuracy, enhanced regulatory compliance, and measurable cost savings.

By illustrating how BI tools integrate real-time data visualization with predictive analytics, this paper highlights their ability to revolutionize project management practices, align with Total Cost Management principles, and provide a scalable framework for future applications in complex project environments.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4531) Functional Requirements for Machine Learning Modeling in Total Cost Management

Time | Room: MON 10:10-11:10 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 0.0. General Reference
Author(s)/Presenter(s):
H. Lance Stephenson, CCP FAACE Hon. Life *AECOM*

Abstract: This paper serves as a foundational guide for organizations seeking to integrate artificial intelligence (AI) and machine learning (ML) models into their business operations. It provides guidance for readers and directs them through the deployment steps based on the defined functional requirements for ML modeling. This structured approach paves the way for the integration of sophisticated technologies for data-driven results.

With this said, this paper outlines the requirements for organizations to introduce artificial intelligence and machine learning into their business environments. Key points covered in this paper include:

- Data-driven content for quality, accuracy, and completeness, focusing on data understanding and data types (structured, semi-structured, unstructured).
- Defining structural frameworks like data ontologies, layering, knowledge graphs, and feature engineering for categorizing data entities.
- Establishing a machine learning life cycle and mining process for consistent data analysis in predictive and prescriptive.
- Identifying problems, framing use cases, and creating analytical models for different machine learning strategies. Learn how to recognize the attributes of machine learning and prepare datasets for modeling.

By establishing functional requirements and data modeling for AI/ML, organizations can enhance the utilization of data as a strategic asset. These steps enable organizations to improve data quality, accuracy, and completeness while also structuring data frameworks and implementing an ML life cycle. Additionally, organizations can identify problems, frame use cases, and develop analytical models tailored to their specific business objectives.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4532) Using Machine Learning to Enhance Cost Predictability and Minimize Profit Loss

Time | Room: MON 1:45-2:45 | Orange County Ballroom 3
Author(s)/Presenter(s):
H. Lance Stephenson, CCP FAACE Hon. Life *AECOM*
Joseph Lozada *Qualus*
Kaylyn Mickelsen, PSP *Qualus*

Abstract: In today's project environment, data is more than a resource; it's a strategic asset. When combined with artificial intelligence (AI) and machine learning (ML), data becomes a powerful driver of insight, action, and value. These technologies are transforming how organizations decode complexity, turning massive datasets into clear, actionable intelligence.

This paper examines the application of machine learning (ML) techniques in the project delivery environment by introducing a proof-of-concept approach to enhance cost and revenue predictability and aid in reducing profit loss. By analyzing historical project data and identifying key cost drivers, a case study is presented to demonstrate how machine learning models can generate actionable insights to improve project outcomes. Key topics covered include:

- Developing a use case aligned with functional requirements for AI modeling to define the problem and identify root causes of profit loss.
- Introducing and demonstrating the various ML techniques needed for data preparation and modeling, including feature selection, validation approaches, and model performance analysis.
- Conducting a comparative analysis between traditional costing and pricing methods and ML-driven results to improve decision-making efficiency.

The use case for completing the case study is provided in the appendix. The use case is considered the planning and approval document that establishes the viability of the study, defines the requirements, and outlines the work to be executed.

(DSAA-4559) Leveraging Business Intelligence Platforms for Data Analytics in Forensic Schedule Analysis & Quantification of Damages for Construction Projects

Time | Room: SUN 2:50-3:50 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
Tanner S. Weil, PSP *Secretariat Advisors, LLC*
Marc A. Pichon *Secretariat Advisors, LLC*

Abstract: Spreadsheets are widely considered the standard tool used to analyze and develop graphical visualizations of large datasets. In forensic schedule delay analyses and quantification of damages of construction projects of all sizes (including mega projects), spreadsheets are commonly used to evaluate labor, cost, schedule, and progress reporting data. With the advent of data analytics platforms in the past decade, analysis of these datasets can be performed effectively with alternate platforms that offer different options and functionality.

This paper explores various practical applications, use cases, and guiding principles for leveraging business intelligence platforms in support of the analysis of large datasets. As will be discussed, using these platforms offers the analyst additional capabilities, while also allowing for seamless integration with other commonly used software programs.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4577) The Prediction of Residuals Impact of Pacing Delays by Machine Learning

Time | Room: SUN 4:00-5:00 | Orange County Ballroom 3
Skill Level: Advanced
TCM Section(s): 11.3. Information Management 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Mohamed Ashraf Ahmed Mahmoud *KFUPM*

Abstract: “Delay analysis” is the proper term, as the construction industry has spent years examining project delays analyzing their causes, effects, and underlying factors. Moreover, delay analysts have long debated distinctions between concurrent and pacing delays, particularly their measurement and impact. In today’s era of advanced machine learning, tools enable more profound and more accurate analysis of multiple delay types, including pacing delays. This paper leverages data from over 250 contemporaneous construction projects and employs XGBoost to analyze the severity and cost implications of pacing delays with remarkable predictive accuracy.

The findings challenge the traditional assumption that pacing delays mitigate owner-induced disruptions. Instead, results indicate that pacing delays often exacerbate inefficiencies and harm contractors by increasing delay severity and cost impacts. The findings in this paper underscores how insufficient funding, contractual disputes, and the inherent complexity of large projects amplify the adverse effects of pacing delays; The study also underlines that machine learning models, XGBoost, significantly outperform traditional approaches in predictive accuracy, enhancing delay management strategies.

The ability to predict delays with high precision provides a vital tool for project management and delay mitigation strategies, addressing the limitations of human-based analysis. This research demonstrates the indispensable role of innovative technology in construction management, acting as a catalyst for future growth and the development of automated project analytics.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4609) Unveiling the Future of Risk Management: AI Meets Monte Carlo

Time | Room: TUE 1:45-2:45 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management 3.3. Investment Decision Making
Author(s)/Presenter(s):
J. Gustavo Vinueza *The Ferryfield Group*

Abstract: This paper investigates a novel approach to risk management that combines artificial intelligence (AI) for data analysis with Monte Carlo simulation techniques. It examines how AI's data processing capabilities, when integrated with the stochastic modeling of Monte Carlo methods, might enhance the depth and accuracy of risk assessments.

The research explores AI's capacity to analyze large volumes of data from diverse sources, including demand records, time series, and external factors. This enhanced data capability potentially allows for a more comprehensive understanding of risks and their interrelationships, while also reducing human bias by grounding assumptions in empirical evidence and machine-learned insights.

The author proposes a hybrid model that integrates AI-driven predictive analytics with Monte Carlo simulation. This approach uses machine learning algorithms to identify patterns and correlations in data, which then informs the parameter distributions used in simulations.

The aim is to develop a risk modeling framework capable of handling uncertainty and enhancing both impact calculation and probability estimation in risk registers. By running multiple AI-informed simulations, we investigate whether risk managers can obtain more accurate probability distributions of potential outcomes.

Ongoing study investigates whether AI-enhanced Monte Carlo simulations improve risk forecasting in complex, data-rich environments. Preliminary insights highlight potential benefits for decision-making and resilience, though further research is needed before drawing final conclusions. Recommendations for further study are made.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4619) Graph Databases for Project Controls

Time | Room: MON 4:35-5:35 | Orange County Ballroom 3
Skill Level: Advanced
TCM Section(s): 11.3. Information Management 8.1. Project Control Plan Implementation
Author(s)/Presenter(s):
Jake Williams *Kaleido*

Abstract: This paper presents a framework for developing knowledge graphs (KG) for project controls in large-scale capital projects. Current project control systems often suffer from fragmented data sources, with cost, schedule, risk, and procurement information typically residing in separate platforms. As McKinsey research shows, 98% of megaprojects suffer cost overruns exceeding 30%, with 77% running at least 40% late [1]. Part of this problem can be attributed to information silos that prevent holistic project visibility and optimal decision-making.

The paper outlines a structured methodology for implementing knowledge graphs within existing project control frameworks, including ontology design, query capabilities, and practical applications. The proposed approach leverages graph database technology to overcome the limitations of static risk registers and rigid relational databases by creating a connected network of project entities (tasks, costs, risks, constraints) and their relationships. Through a hypothetical case study, the paper demonstrates how this framework enables complex queries like "If our assumption is invalid, which interface agreements and milestone dates are at risk, and what is the total potential cost impact?" that would be nearly impossible to trace with siloed, legacy systems.

By adopting a KG-driven approach with potential AI integration, project teams can transition from static, siloed data management to a dynamic, interconnected system that improves decision-making, risk detection, and execution efficiency. This seeks to address the "iron law of megaprojects: over budget, over time, over and over again" [2] by providing real-time impact analysis and continuous risk updates across traditional project control boundaries.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4621) AI-Driven Body of Knowledge: Optimizing Custom Chatbots for Project Specialists

Time | Room: TUE 3:25-4:25 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 0.0. General Reference
Author(s)/Presenter(s):
Robert C. Butler *Kaleido*

Abstract: The increasing complexity and volume of project controls knowledge presents significant challenges for practitioners seeking to effectively apply best practices. Professional bodies have accumulated extensive codified knowledge, which can be difficult for project specialists to access and apply effectively due to several factors: the sheer volume of documents spanning thousands of pages, the dispersed nature of this information across multiple formats and repositories, and the time constraints faced by practitioners needing quick answers to specific questions without reading entire documents. Furthermore, due to their inherent complexity, best practices are open to misinterpretation, potentially widening the gap between theory and real-world application.

Generative AI (Gen-AI) offers a transformative solution through specialized chatbots capable of synthesizing vast amounts of domain-specific knowledge. Utilizing advanced database design, retrieval and validation techniques, these chatbots can significantly enhance the application of project management and project controls practices. This paper explores how project-oriented organizations can develop and deploy custom Gen-AI applications.

The paper examines key techniques required for building effective Gen-AI systems, including parsing and embedding knowledge, optimizing storage and retrieval processes, and implementing AI agent workflows for enhanced reasoning and validation.

Through a practical case study, this research demonstrates how Gen-AI systems help project specialists overcome knowledge retrieval and application challenges by improving the quality and accessibility of an organization's body of knowledge. Ultimately, these systems aim to bridge the gap between codified knowledge and practical application, driving better project outcomes.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4629) AI Applications in the AEC Industry: A Systematic Literature Review

Time | Room: TUE 10:10-11:10 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 0.0. General Reference
Author(s)/Presenter(s):
Dr. Vijayeta Malla *Bantrel Co*
Dr. Chaitanya Poolla *Intel*
Teja Pulla, CCP CEP EVP PRMP PSP *Princeton University*

Abstract: The architecture, engineering, and construction (AEC) industry has been notoriously known for stagnant productivity due to substantial dependence on labor-intensive operations and continued mundane processes lacking automation for several decades [1].With the progression of technological interventions such as the use of artificial intelligence (AI), building information modeling, data science, virtual, augmented, and mixed reality, and blockchain, the construction landscape's dearth of technological interventions in improving productivity has been to some extent fulfilled [2] [3]. The technology-driven tasks transformed the construction operations with visualized outcomes, simulations, and pre-emptive risk identification with information-rich models that facilitated informed decision-making. Gradually, the era of Industry 4.0 was infused into construction project operations, complimented decision-making, and thereby became the mainstream phenomenon in the current construction industry.

Although the AI applications have percolated in developed nations, the need to explore the potential of the research is limited. The current study performs extant research status and potential research areas through a scientometric route on AI in the construction domain. It presents a scientometric analysis of scholarly articles on AI, ML, and its applications in the built environment domain using VOSviewer. Social network maps of publications of the shortlisted research articles in the construction domain are developed to present a co-occurrence of keywords and co-authorship (countries and co-authors) sociogram. This scientometric review presents prospects of research through thematic analysis (TA).

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4646) Leveraging Computer Vision AI to Drive Cost Efficiency

Time | Room: SUN 10:00-11:00 | Grand Ballroom J-K
Skill Level: Advanced
TCM Section(s): 11.3. Information Management 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Joseph Lozada *Qualus*

Abstract: Vegetation overgrowth is of significant importance to the utility industry. Overgrowth can increase the likelihood of power outages thereby reducing system reliability and increasing maintenance costs. It can also increase safety and fire hazards. To improve vegetation monitoring and maintenance within the utility industry, this paper presents a proof-of-concept demonstrating the application of convolutional neural networks (CNNs), a type of deep learning model designed for processing image data. By using CNNs for vegetation overgrowth management, utility companies can gain real-time, automated insights from satellite or aerial imagery, allowing them to identify critical areas where vegetation encroaches onto infrastructure. This improves program management by enabling data-driven prioritization of maintenance efforts, ensuring that high-risk areas are addressed first, and reducing the likelihood of outages or safety hazards. Additionally, the ability to monitor vast regions efficiently allows companies to allocate resources more effectively and streamline work schedules, ultimately reducing costs and optimizing the overall maintenance workflow.

The model presented in this paper is an ensemble convolutional neural network (CNN), consisting of two CNNs for street detection and vegetation detection, algorithms for edge and texture analysis, the ResNet50 CNN, and a final set of dense layers for interpretation. The street and vegetation detection models produce an output of high-level probability features, while the edge and texture analysis generate encoded data that describe the images. This information is then combined with the ResNet50 feature vector output resulting in an ensemble model that is able to accurately interpret images with a high level of abstraction, and identify areas of vegetation encroachment and overgrowth. The model for this paper was trained and validated on a dataset of more than 12,000 satellite images sourced through the Google Maps API, representing a diverse selection of vegetation scenarios. Although encroachment is typically measured as growth over power lines and other critical infrastructure, due to limitations in the availability of images of power infrastructure, vegetation overgrowth was defined as vegetation encroaching onto a street (rather than power lines) so as to collect sufficient data and serve as a proof-of-concept. The technical processes, techniques, and best practices for working with CNNs are discussed in detail, and the paper concludes with final thoughts regarding model accuracy, model deployment, and the future of neural networks and AI in the utility industry.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4677) Using Advanced Analytics and Data Visualization for KPI Development in Project Delivery

Time | Room: MON 3:25-4:25 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Stephanie Zerkel *Qualus*
Dr. Nakisa Alborz *Pacific Gas &Electric*
H. Lance Stephenson, CCP FAACE Hon. Life *AECOM*

Abstract: Advanced analytics serves as a vital component in today's complex project landscape, allowing users to convert complex data into intuitive, simplified formats for enhanced understanding. New and emerging technologies, such as business intelligence platforms, are enhancing an organization's ability to assess and interpret data more effectively, improving project outcomes.

This paper examines how advanced analytics, supported by business intelligence platforms, facilitated the discovery of observable traits and causal factors that contributed to both project success and failure. By analyzing historical project data, the assessment team identified instances of profit loss and examined the underlying cost and performance drivers, particularly key performance indicators (KPIs). The findings highlighted the need to design KPIs that provide more meaningful measures of project performance and offer greater responsiveness to emerging risks. With this in mind, this paper will demonstrate how using advanced analytics, complemented by visualization techniques, enables project teams to develop effective KPIs. Key topics covered include:

- Establishing an understanding and methodology for utilizing business intelligence tools and data visualization techniques for KPI development throughout the project life cycle.
- Conducting a comparative analysis of traditional KPIs and data-driven results to enhance decision-making efficiency.
- Integrating visualization of data-driven models into existing cost management frameworks to enhance project performance.

The application of the key elements discussed in this paper is demonstrated in a case study provided in the appendix.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(DSAA-4693) Using AI to generate and Iterate Schedules Based on Scope Documents

Time | Room: TUE 1:45-2:45 | Orange County Ballroom 3
Skill Level: Intermediate
TCM Section(s): 11.3. Information Management 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Dev Amratia *nPlan*
Leonie Anna Mueck *nPlan*
Damian Borowiec *nPlan*
Rhys Phillips *nPlan*
Gerard Cardoso *nPlan*

Abstract: In major construction projects the planning process is often labor-intensive and complex. From conceptualization to project closeout, schedules must be managed and adjusted, often leading to bottlenecks that impede project flow. Project planners grapple with time-consuming manual inputs, frequent reworks, and the need to account for numerous interdependent activities in large and complex schedules. These challenges can result in scheduling delays, reduced visibility of key project issues, increased time to course-correct in projects, and increased costs, making efficient planning a persistent struggle in the construction industry.

This paper introduces schedule generation, a generative AI technology that transforms how construction schedules are created and kept updated. Leveraging the largest database of construction schedules globally and using plain text inputs, this tool automates the creation and iteration of detailed schedules, making the process faster, more flexible, and more impactful to project decision making. Key advancements in the fields of document processing and generative AI have made this innovation possible.

This paper also introduces a real-life demonstration of this technology. This practical example illustrates how schedule generation not only streamlines planning but also has the potential to drive cross-disciplinary improvements, making it a transformative tool for modern construction planning. The trends in technology development and the reducing cost of such technologies will inevitably lead to its applications in the planning domain.

Given the current status quo in planning and the increasing maturity of schedule generation technology, the likely future of planning is one where the burden of manual reporting work is alleviated, schedules are routinely built using AI, and planners are freed to focus more on proactive horizon scanning, and the development of different delivery options.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4488) A Study of Project Owner's Costs in the Canadian Hydropower Industry

Time | Room: MON 10:10-11:10 | Orange County Ballroom 4
Skill Level: Advanced
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.4. Resource Planning
Author(s)/Presenter(s):
John K. Hollmann, CCP CEP DRMP FAACE Hon. Life *Validation Estimating LLC*
Raminder S. Bali, PEng *Manitoba Hydro*
Alexandra Gagnon *Hydro Quebec*
Terrance K. Ginter *SaskPower*
Kenneth Ng *BC Hydro*
Nader Rahmaty, PEng *Ontario Power Generation*
Nick Sebastian, PEng *BC Hydro*

Abstract: This paper presents a study of project owner's costs in the Canadian hydropower industry. The study sought to improve the owner company participants' understanding of these costs (including actual/estimate cost growth) and potential owner's cost drivers (e.g., variations by project type, size, complexity, year, and so on.) The study included data from 64 power generation, transmission and distribution projects by the five participating companies in five Canadian provinces. This paper may offer insights to those working in other regions and industries and will provide a reference for an AACE International recommended practice (RP) on owner's costs. As background, the paper proposes a definition of owner's costs and introduces an owner's costs account structure developed for use in the study. After the study, the team initiated draft AACE RP 137R-25 "Owner's Costs: Definition and Considerations for Estimating" [1] that is now a reference to this paper.

(EST-4504) Theme Parks & Attractions – A Call for Standard Cost Breakdowns

Time | Room: SUN 12:00-1:00 | Orange County Ballroom 4
Skill Level: Basic
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.7. Procurement Planning
Author(s)/Presenter(s):
Asif Parkar, CCP CEP EVP PSP *Cumming*

Abstract: Themed entertainment projects are unique projects that include theme parks, attractions, zoos, aquariums, waterparks, and immersive experiences. These projects include numerous specialist scopes of work not found in other sectors, but despite a tremendous increase in completed and planned projects around the world in recent years, there are no established cost or work breakdown structures for these projects.

Considering that the specialist scopes of work for show and ride can comprise over 50% of the cost of a project, there is a glaring need for standard cost breakdowns for these project types.

This paper discusses the need for standard cost breakdowns to support commercial management of themed projects. The paper will review the reasons that no standard cost breakdowns have been established and why they are required before putting forward a suggested list of divisions of work for cost estimating and management together with some action items for further development and industry wide implementation.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4523) Developing an Integrated Preconstruction Approach for Collaborative Project Delivery

Time | Room: SUN 1:10-2:10 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting 4.1. Project Implementation
Author(s)/Presenter(s):
Amanjeet Singh *Barry Wehmiller Design Group*

Abstract: The construction industry is utilizing the term "preconstruction" often as a replacement for cost estimating and occasionally for estimating in conjunction with project scheduling, planning and other design phase services. While industry literature is beginning to find consensus on preconstruction being a more robust service offering, with better opportunity for favorable project outcomes, few AEC organizations have made conscious adjustment to their processes, tools, and training mechanisms in order to fully transition to this new reality. This paper discusses such transitional approach from the perspective of an ENR Top 100 AEC organization. It presents the structural, procedural, and stakeholder challenges and shares a roadmap to overcome these challenges, for other organizations as they embark on this journey.

(EST-4566) Overcoming Challenges in Estimating Capital Costs for Green Hydrogen Plants

Time | Room: SUN 2:50-3:50 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 2.1. Basis of Total Cost Management Processes 1.2. Purpose and Uses of the TCM Framework
Author(s)/Presenter(s):
Kenia Kalsum-Feunekes, CCP *Plug Power*

Abstract: As the global energy transition progresses, the demand for clean hydrogen is projected to reach 125 Mt/year by 2030 and 523 Mt/year by 2050 [1]. As of October 2024, 142 green hydrogen plants are in operation worldwide, with a cumulative production capacity 152 kt/year [2]. To meet the projected demand for 2030 and 2050, a substantial number of additional green hydrogen plants will need to be constructed.

From a cost estimating perspective, several challenges arise when estimating the capital costs of green hydrogen plants, such as:

- Limited availability of (historical) cost data.
- The rapid development of green hydrogen technology, requiring "first of its kind" projects to be estimated with limited historical references.
- Long project lead times in volatile markets, making escalation determination complex.
- The anticipated significant decrease in the price of green hydrogen per kilogram requires a capital cost estimate that is neither too conservative nor overly optimistic. The new technology in green hydrogen generation is expected to optimize this capital cost estimate. However, the uncertainties associated with unproven technology should be considered in relation to the contingency calculation. Once the technology is proven, the contingency will be lower, and the decrease in green hydrogen price can be realized.

This paper describes the above challenges in detail and how to overcome them based on the current knowledge, industry practices, and experience in developing green hydrogen projects.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4581) Do You Really Know the Difference Between Estimate Classification and Accuracy?

Time | Room: MON 3:25-4:25 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Jordan Beckel, CCP CEP *Svante*

Abstract: Estimates are essential communication tools providing a prediction of the resources (i.e., time, cost, materials, etc.) required to achieve an agreed upon scope (i.e., for an investment, activity, project, etc.) [1, p.3]. The role of the estimator is vital in properly communicating this information in a clear and effective manner, while recognizing that AACE states “every base estimate value will likely prove to be wrong” [1, p.3].

So, if every base estimate value is likely wrong, how does an estimator properly use components of the estimate, such as classification and accuracy, to characterize the estimate (using AACE guidelines) and what are some common mistakes estimators need to be aware of?

Estimators are responsible for preparing the estimate statement, which is a concise summary that describes the estimate and encapsulates the result of the estimation process. It serves as a distilled version of the estimator’s work and is aimed at presenting the critical information in a format that can be quickly understood by decision-makers.

This paper will break down an estimate statement into five components and describe the purpose and common mistakes found in each component.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4602) From Maturity to Readiness: A Systems Approach to Cost Classification

Time | Room: SUN 4:00-5:00 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.4. Resource Planning
Author(s)/Presenter(s):
Jareth Reeves *Kaleido*

Abstract: AACE's Estimate Classification Framework provides recommended practice for aligning project estimates with stages of project maturity. However, companies often misinterpret the framework and "standardize" ranges to force-fit estimates, leading to bias and broken model fidelity, contributing to poor project planning. In his book "Project Risk Quantification," John Hollmann highlights two major causes of poor risk quantification: the use of predetermined ranges and the manipulation of estimates to artificially narrow ranges.

This paper clarifies the distinction between maturity and readiness for cost classification. While maturity focuses on project definition completeness at point of assessment, readiness evaluates preparedness of the estimate for a real-world delivery application. Inspired by an early iteration of NASA's Cost Estimate Handbook, this paper introduces Cost Readiness Levels (CRLs) as a complementary framework to the traditional classification system.

CRLs assess cost estimate reliability through a structured nine-level framework that evaluates data quality, assumption validation, and risk quantification. Using a semiconductor manufacturing facility case study with distinct building and process engineering subsystems, the paper demonstrates how CRLs provide more granular insight into estimate readiness than traditional classification alone to better handle the complexity of major projects. CRL's offer insight into the sensitive drivers of costed scope with the ability to aggregate to determine readiness by lifecycle stage.

The framework helps organizations identify and communicate hidden risks on items or areas of low readiness to allocate resources more effectively and implement targeted mitigation strategies through forward action. This systems approach addresses the pitfalls of using the class to "standardize" accuracy ranges while preserving the valuable structural aspects of existing classification frameworks, ultimately improving project outcomes through enhanced estimate reliability and certainty.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4655) (Panel Discussion) Examining the Quality of Cost Estimates

Time | Room: MON 4:35-5:35 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Omoniyi (Niyi) Ladipo, CCP EVP *MBP*
Dan Melamed, CCP EVP FAACE *United States Department of Energy*
Carlos Rosales *United States Department of State*
Luke McMullan, CEP *Parametrix*
Paul Williams *Pathfinder, LLC*

Abstract: Accurate and well-supported project cost information is required to successfully manage all varieties of projects as they mature from their initial inception through their completion. We have assembled a panel of experts to provide a discussion about the best practices required to properly evaluate cost estimates throughout a project's life cycle. Panel members will discuss the methods to determine whether a cost estimate is reasonable, given the scope and the maturity level of a given project along with the five levels of cost estimates (developed by AACE International - tailored for specific industrial sectors) that demonstrate the accompanying degrees of project maturity.

(EST-4659) Measurement and Communication of Estimate Maturity and Accuracy from Update to Update

Time | Room: TUE 10:10-11:10 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.6. Risk Management
Author(s)/Presenter(s):
Shoshanna Fraizinger, CCP FAACE *Shoshanna Fraizinger Consulting Inc*

Abstract: Traditional cost and schedule estimate classifications, as defined by AACE International recommended practices, typically rely on milestone-based (gate-to-gate) assessments. This paper examines the benefits and challenges of transitioning to an update-to-update tracking framework, where estimate maturity and accuracy are continuously refined between reporting periods. This paper proposes a hybrid methodology that blends milestone validations with real-time updates by integrating case study insights with detailed analyses of existing practices. This approach aims to enhance forecast accuracy, improve risk-adjusted contingency planning, and foster more transparent stakeholder communication in dynamic project environments.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(EST-4663) Tools and Techniques for Enhancing Program-Level Check Estimates at Federal Sites Throughout their Life Cycle

Time | Room: TUE 11:20-12:20 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Dan Melamed, CCP EVP FAACE *United States Department of Energy*
Rodney Lehman *United States Department of Energy*
Richard Schassburger *Acuity-Project Time and Cost, LLC*
James Moore *United States Department of Energy*
Bryan A. Skokan, CCP *Acuity-Project Time and Cost, LLC*
Kevin Lee *Acuity-Project Time and Cost, LLC*
Elizabeth Barnett *Acuity-Project Time and Cost, LLC*

Abstract: Accurate forecasting of lifecycle cost information is critical for the success of any project. The complexity of this task increases significantly when cost estimates are required for an entire program that encompasses the study, design, construction, operation, and decommissioning of a diverse range of facilities. This is particularly true for the Department of Energy (DOE) Environmental Management (EM) program (DOE-EM), which is required to build and operate a vast array of facilities for EM to complete its environmental cleanup mission. Complete in-depth independent cost estimates and reviews play an important role in verifying federal site lifecycle cost estimates, which is a key requirement for the management of the EM Program. However, the review of the cost-to-complete estimates can be time consuming and very expensive to implement as every project matures (including necessary responses to changes that occur across the program). This effect is multiplied when considering the EM program with its significantly challenging programs with complex scope distributed across the country. As a result of ongoing site lifecycle reviews the EM program has performed, have developed tools, techniques, and review methods to help ensure the project and program cost estimates are reasonable.

This paper aims to summarize, describe, and provide selected examples of some of the methods and techniques that have been successfully employed, which may be of assistance to other organizations seeking to periodically verify the reasonableness of their cost estimates at any stage of their project or program life cycle. The goal for this will be to improve the accuracy of cost estimates for the sites of the EM program through the coming years.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(EST-4671) Basis of Estimate Presentation to Client: It is Not Just Numbers

Time | Room: SUN 10:00-11:00 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Hetali Doshi Joglekar *RIB U.S. Cost*
Douglas W. Leo, CCP CEP FAACE Hon. Life

Abstract: Presenting the total estimated costs involves more than just the final bottom-line numbers in the project's estimated summary and details. Stakeholders require a comprehensive understanding of all the implications of project costs, including both risks and opportunities. These include the scope, assumptions, exceptions, cost basis, engineering basis, and any reconciliations with prior estimates that explain the buildup of costs. A succinct and comprehensive basis of estimate will address and document the facts, figures, potential concerns, and unforeseen challenges that any project may encounter regarding cost.

The basis of estimate (BOE) document is the key component of the project estimate, and it is impossible to present a project cost estimate without it. This paper will discuss compilation and delivery of a project cost estimate based upon AACE Recommended Practice 34R-05, Basis of Estimate [1]. Items in the BOE include project scope, execution plan, methodology, risk analysis, reconciliation, and required deliverables, all of which are supported by documentation. Using this recommended practice (RP) as a guide helps estimators create comprehensive estimating packages tailored to their specific projects, including the essential documentation that forms the foundation of a successful BOE presentation to the client.

(IND-4701) (Presentation by Contruent) Turning Data into Direction: Forecasting with Percent Complete Calculations

Time | Room: MON 11:20-12:20 | Grand Ballroom G-H
Author(s)/Presenter(s):
Ryan Craaybeek *Contruent*

Abstract: In today's data-rich project environments, the ability to convert performance data into reliable forecasts is critical for proactive decision-making and successful project delivery. This interactive presentation explores the foundational variables that significantly influence forecast predictability, including scope, cost, and time integration; percent complete calculations; standardized reporting periods; and cost distribution curves. Attendees will gain insight into how each of these elements contributes to the accuracy and consistency of project forecasts. Through practical examples and analysis, the session will demonstrate how integrating these key variables enhances visibility, strengthens control mechanisms, and transforms raw data into actionable direction. This session is ideal for project controllers, cost engineers, and stakeholders seeking to improve forecasting accuracy and project outcomes through better data alignment and strategic variable management.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(IND-4702) (Presentation by CMC Project Solutions) Bridging the Gap: Integrating Cost and Schedule for Enhanced Project Outcomes

Time | Room: MON 11:20-12:20 | Grand Ballroom J-K
Author(s)/Presenter(s):
Eric N. Costantino *CMC Project Solutions, Inc.*

Abstract: In today's complex project landscape, achieving timely and on-budget completion often feels like a moving target. This presentation will delve into the critical, yet often overlooked, synergy between cost and schedule management. We'll explore practical approaches to seamlessly integrate these two vital project control functions, moving beyond theoretical concepts to demonstrate how a unified approach can significantly enhance project predictability and success. Attendees will gain actionable insights into how integrating cost and schedule can lead to more robust forecasting, improved resource allocation, proactive risk mitigation, and ultimately, superior project outcomes across diverse industries, from IT and capital projects to commercial builds.

(IND-4704) (Presentation by Steelray Software) AI vs. Expertise: The Next 10 Years of Forensic Schedule Analysis

Time | Room: MON 11:20-12:20 | Orange County Ballroom 2
Author(s)/Presenter(s):
Brian Leach *Steelray Software*

Abstract: What happens when decades of scheduling expertise meet a decade of AI disruption? Drawing on twenty years of experience with some of the most advanced schedule analysis practitioners, this session offers a unique forecast of how AI will be applied to forensic schedule analysis over the next ten years. We'll compare today's most effective non-AI methods with emerging AI-enabled techniques — and explore what's hype, what's near-term, and what will redefine the discipline. Whether you're a skeptic or an early adopter, this session will help you prepare for the next wave of change and offer a clear-eyed view of what's possible (and what's not) in the next ten years.

(IND-4705) (Presentation by Schedule Validator) How to use MIP 3.3 vs 3.4 Forensic Schedule Analysis

Time | Room: MON 11:20-12:20 | Orange County Ballroom 3
Author(s)/Presenter(s):
John Jackson *Schedule Validator*

Abstract: Our session will showcase how ScheduleValidator.com can help:
- Apply forensic techniques using our presentation on MIP 3.3 vs 3.4 Forensic Schedule Analysis
- Analyze schedule quality faster
- Detect hidden delays with confidence
Whether you're an owner, contractor, or consultant, you'll walk away with practical tools to make schedule evaluation more accurate, defensible, and efficient.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(IND-4706) (Presentation by Planisware) Optimizing Portfolio and Project Delivery: Three Use Cases for PPM in the Digital and AI Era

Time | Room: MON 11:20-12:20 | Orange County Ballroom 4
Author(s)/Presenter(s):
Gilles Almeras *Planisware*
Clemence Baronick *Planisware*

Abstract: This session presents three case studies from the energy, utilities, and construction sectors, each navigating the challenge of managing large, complex portfolios. We'll explore how they improved alignment between strategy and execution, enhanced delivery performance, and strengthened collaboration through shared processes and data. Each organization faced issues like fragmented tools, inconsistent planning methods, and limited visibility into resources and forecasts. Attendees will gain practical takeaways for improving capital planning, field execution, and cross-functional coordination.

(IND-4707) (Presentation by Nodes & Links) The State of AI in Project Controls

Time | Room: MON 11:20-12:20 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Charles *Wright Nodes & Links Limited*

Abstract: Everyone's talking about AI in project controls. But what does it actually look like in practice, and is it making a difference?

This session shares what we've learned by building and deploying AI directly into the hands of project teams. No theory. Just real insights from GCs, Owners, and Consultancies around the world who are using AI right now to deliver projects faster and with more control.

We'll cover:

- Where AI is genuinely driving value: automating reporting, improving risk visibility, accelerating decisions.
- Where it's falling short, and why.
- What it takes to go from pilot to scale in organizations juggling legacy systems, stretched teams, and high expectations.

Hosted by Nodes & Links, this session isn't just about what's possible. It's about what's happening today, with practical lessons you can take back to your project or program immediately.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(IND-4708) (Presentation by InEight) Bridge the Gap between Estimating and Scheduling

Time | Room: MON 11:20-12:20 | Los Angeles/La Jolla
Author(s)/Presenter(s):
Jordan Brooks, EVP PSP *InEight*
Dominic Cozzetto *InEight*

Abstract: In construction project management, time and cost are intrinsically linked; an impact on one invariably affects the other. However, discrepancies between these elements often lead to frustration, inefficiencies, fragmented work and increased project risk. Additionally, the ongoing challenge of aligning costs with schedules across a project team remains a significant concern. Our construction management experts propose a more strategic approach: by tightly synchronizing estimates, which form project budgets, with schedules, teams can significantly achieve greater financial accuracy and project progress consistency, but also significantly reduce risk.
We will examine the frequent mismatches between cost estimates and project timelines and their negative impacts on project outcomes, including budget overruns and delays. Our experts will also highlight the cost risk benefits of integrating these elements, such as improved forecasting, better resource allocation, and improved accountability. Lastly, our experts will share actionable strategies and practical tips to overcome common integration challenges, enabling better risk management and smoother implementation in ongoing projects.
Key Areas of Discussion:
- Integration Challenges: The primary hurdles include the distinct nature of scheduling and estimating applications and the different structures of estimates and schedules. These differences can complicate the integration process, requiring specialized approaches to bridge the gap.
- Strategic Implementation: Explore effective strategies and practical tips for addressing common barriers to integration, ensuring successful adoption in project management practices.
- Technological Advancements: Exploring state-of-the-art tools and technologies that support the integration of construction estimates and schedules.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(IND-4709) (Presentation by SmartPM) The Cost of Silence: Why Ignoring Schedule Data is Killing Your Bottom Line

Time | Room: TUE 10:10-11:10 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Michael A. Pink *SmartPM Technologies*
Umut Artuk *Moss & Associates*
Sean Badger *Hendershot Consulting*
Rohit Sinha *SmartPM Technologies*

Abstract: Mountains of project data are created every day — but too often, critical insights stay buried in the schedule. The result? Missed risks, reactive cost overruns, and late-stage surprises that erode trust and margins.

In this practical, no-fluff panel, Rohit Sinha (SmartPM), Umut Artuk (Moss Construction), and Sean Badger (Hendershot Consulting) will unpack how leading teams are breaking down silos between schedule and cost to get ahead of risk — and drive smarter decisions from the field to the boardroom. Moderated by Michael Pink, this session blends boots-on-the-ground insights with proven strategies for integrating time, cost, and risk into a clear picture of project health.

You'll walk away with actionable ways to:

- Spot schedule signals before they become cost problems
- Turn fragmented data into real-time visibility
- Use schedule intelligence as a lever for cost control and stakeholder alignment

Whether you're a scheduler, cost engineer, or project exec — this is the conversation we should've been having years ago.

(IND-4710) (Presentation by Contruent) Not (Just) Another Maturity Model!!

Time | Room: TUE 11:20-12:20 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Karl J. Vantine *Contruent*

Abstract: Maturity Models aren't new to Project Management or Project Controls. There are many of them out there, some better than others. But many are just high-level guides telling you things you already know, such as "have documented processes and you'll improve your controls maturity." While that's true of course, it doesn't really help you know where to start or which areas to focus on to improve your processes. In this presentation, we will explore Contruent's new Maturity Model, which is specifically focused on Cost Management and the various inputs to the discipline (e.g., Schedule, Change, Field Progress, etc.). The Model guides users on specific and tangible measures they can implement to improve their organizational maturity as it relates to Cost Management. The Contruent Maturity Model also provides a framework for tracking improvements in maturity and linking those improvements to quantifiable business value and Return on Investment.

The following sessions are scheduled for the technical program.

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(IND-4711) (Presentation by Omega365) Working Smarter: Project Controls Enhanced with AI

Time | Room: MON 3:25-4:25 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Shane Derek Butt *Omega 365*
Graeme Erskine *Omega 365*
Kevin Marquez *Omega 365*

Abstract: Omega 365 have been proactively integrating AI directly into our Omega 365 product suite. Come and see first hand how AI is enhancing our offerings in the areas of:
- Scheduling
- Risk management
- Document control / management

(IND-4712) (Presentation by Lumivero) Navigating Your Own Critical Path as a Project Risk Manager

Time | Room: MON 4:35-5:35 | Newport Beach/Rancho Las Palmas
Author(s)/Presenter(s):
Mark Jenkins *Lumivero, LLC*

Abstract: A week in the life of a megaproject Risk Manager - a story of bringing certainty from chaos, leveraging the tools that help us scale our effectiveness and reduce errors and uncertainty. How to avoid key common mistakes and what to do instead.

(IND-4726) (Presentation by Deltek) Forensic Files - Project Scheduling Edition

Time | Room: MON 1:45-2:45 | Orange County Ballroom 4
Author(s)/Presenter(s):
Denise Russell *Deltek*

Abstract: How confident are you that you know what details have changed in your schedule as you have been executing your project? Most people would say they're fairly confident they know how things have generally changed, like activities on Critical or Driving Paths, how much work they've accomplished, or what milestones they've met. But do you know if previously reported Actuals have been changed? Can you easily identify how your schedule logic has changed? Or how your forecasted resources have changed? Can and should you utilize half-step analysis to isolate the impact of project progress from schedule changes? Acumen Fuse can help answer these questions and more! Join us during this session to find out how.

(IND-4727) (Presentation by TBD)

Time | Room: TUE 1:45-2:45 | Los Angeles/La Jolla
Author(s)/Presenter(s):
TBD

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(IT-4518) Cost Management System - Why it is Not a Complete Solution to Your Cost Management Problems

Time | Room: TUE 4:35-5:35 | Orange County Ballroom 4
Skill Level: Intermediate
TCM Section(s): 10.1. Project Performance Assessment 11.3. Information Management
Author(s)/Presenter(s):
Martin Atchison *FTI Consulting*
Kirti Khanna, CCT *FTI Consulting*

Abstract: Cost management is organizing and directing costs to achieve a specific goal – project delivery. Implementing a cost management system (CMS) provides organizations with a tool to help users organize cost data. The typical CMS has 4 main elements- resource planning, cost estimating, cost budgeting, and cost control. With that understanding, one might conclude that the discipline of cost management could be well served by utilizing a CMS. A CMS drives the organization's existing business processes and acts as a delivery system of raw data. Secondly, the strength of the human resources/ system users directly impacts the success and ROI of a CMS. Lastly, many CMS products cast a wide net, trying to reach across many different industries to offer a standard solution. This requires in-depth configuration to map specific business processes to a tool AND said processes may still need to be complemented by additional tools or solutions to achieve business goals and objectives. For these reasons, a CMS is NOT the full solution to cost management.

(OWN-4457) Cost Control Maturity Model

Time | Room: MON 3:25-4:25 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 8.1. Project Control Plan Implementation 9.1. Project Cost Accounting
Author(s)/Presenter(s):
Ghaith Al-Hiyari, CCP *Turner & Townsend*

Abstract: Cost control refers to the systematic application of procedures to monitor expenditures and performance against project or operational progress. This approach allows for the identification of variances from authorized budgets and the implementation of corrective actions to minimize cost [1]. Additionally, cost forecasting—both time-phased and across the project lifecycle—often falls within the responsibilities of a cost control practitioner.

The purpose of this paper is to develop a practical framework for assessing the maturity of an organization's cost control practices. By evaluating their current maturity level and understanding the characteristics of each stage, organizations can identify areas for improvement and follow a clear roadmap for progression.

This paper will focus specifically on cost control, as defined above, and will not encompass the broader scope of project management, project controls or cost engineering. The cost control maturity model is intended to help organizations evaluate their current standing and determine their desired future state. It guides users in recognizing the limitations of their existing maturity level while providing insights into higher levels, along with some of the actions, practices, environmental and cultural influences required to advance.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4480) Cost-Effective Capital Project Insurance Strategies

Time | Room: SUN 4:00-5:00 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 4.1. Project Implementation 7.1. Project Scope and Execution Strategy Development
Author(s)/Presenter(s):
Neil D. Opfer, CCP CEP PSP FAACE *UNLV / OPCOR Group*

Abstract: Insurance for the construction of capital projects involves numerous issues. An overarching question must always be balancing the cost of insurance versus the risk of loss from a particular event. Capital projects in terms of insurable risks are confronted with the needs for worker's compensation insurance, builder's risk insurance, and commercial general/ professional liability insurance as the three primary cost centers. A fourth area of surety bonding/sub-guard insurance is also important and is included with the realization that bonding does act as a sort of insurance for a third party however not for the purchasing contractor. A group of thirty-four owner/developers and contractors involved in large projects defined as US$100 million-plus in size responded to a research survey concerning their strategies for achieving cost-effective insurance coverage for their projects. The strategies of these contracting entities varied widely and their responses form the basis for this paper. Some entities are achieving significant savings versus their competitors.

(OWN-4502) Owners Challenges in Managing Contractor-Driven Extension of Time and Disruption Claims: A Framework for Prevention and Resolution

Time | Room: SUN 2:50-3:50 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 4.1. Project Implementation
Author(s)/Presenter(s):
Dr. Wael El Ghandour, PEng *Aramco*
Belkacem Foura, PEng *Aramco*

Abstract: Owners in the construction industry face escalating risks from contractor-driven Extension of Time (EOT) and disruption claims. This paper examines owner strategies for managing such claims through a structured framework, supported through a multi-billion offshore gas project case study. It identifies key owner challenges, including causation analysis, documentation gaps, and contractual ambiguities, and proposes preventive measures, forensic defense protocols, and collaborative resolution techniques. The findings demonstrate how proactive planning, robust documentation systems, and structured frameworks reduce claim severity by up to 67% and accelerate dispute resolution by nearly 11 weeks. The study provides actionable insights for owners to mitigate project risks while maintaining contractor relationships. The findings underscore the importance of preparation and strategic planning in mitigating the risks particularly associated with EOT and disruption claims, ultimately leading to more equitable outcomes in construction projects.

Through a comprehensive literature review and analysis, this paper explores the root causes of construction claims, challenges in claims management, prevention and resolution strategies, and the importance of cause-effect analysis. The paper investigates how effective planning, communication, and risk management can reduce the likelihood and impact of claims. The findings highlight the importance of proactive claim management and offer recommendations for construction project owners and practitioners. By addressing key areas such as contract management, documentation, stakeholder engagement, and technology utilization, owners can considerably improve their ability to prevent and resolve construction claims.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4521) The Impact of Engineering Deficiencies on Change Orders and Cost Estimate Accuracy

Time | Room: SUN 5:10-6:10 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 7.3. Cost Estimating and Budgeting 7.6. Risk Management
Author(s)/Presenter(s):
Abdulaziz Haqawi, CEP *Saudi Aramco*
Saeed Alhajri *Saudi Aramco*
Mujahad Alarfaj, CEP *Saudi Aramco*

Abstract: Change orders are a frequent and costly occurrence in engineering and construction projects, often leading to delays, increased costs, and compromised project outcomes. This paper examines the role of not well-developed engineering deliverables in contributing to the prevalence of change orders and their subsequent impact on estimate accuracy and cost over-runs. Engineering packages that have incomplete designs, inadequate planning, and insufficient coordination, frequently results in project modifications that disrupt schedules and budgets. This paper explores the relationship between engineering completeness and project performance through analysis of 102 completed projects, highlighting how incomplete engineering development leads to cost growth and necessitate frequent change orders.

The findings underscore the importance of enhancing engineering maturity and quality through deployment of robust value assurance reviews (VAR), comprehensive risks assessment, suitable contracting strategy, and well-established change management procedure to minimize change orders and improve estimate reliability.

(OWN-4526) Open-Book Guaranteed Maximum Price Negotiations: Case Study Analysis

Time | Room: MON 10:10-11:10 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 4.1. Project Implementation 7.1. Project Scope and Execution Strategy Development
Author(s)/Presenter(s):
Dr. Douglas D. Gransberg, PE *Gransberg & Associates, Inc.*
Marko Pala *Stanton Constructability Services, LLC*
Dr. Nils J. Gransberg *Gransberg & Associates, Inc.*

Abstract: Negotiating a guaranteed maximum price (GMP) is a complicated process. State departments of transportation (DOTs) have sought to increase the probability of reaching a mutually agreed GMP for construction manager/general contractor (CMGC) and progressive design-build (PDB) projects by requiring open-book negotiations to provide transparent pricing. This may also include a third-party independent cost estimator (ICE) to validate the contractor's proposed GMP. This paper reviews five projects where the contractors' GMP estimates exceeded the available funding and details the outcomes achieved through the open-book negotiation process. It finds that including the ICE is critical to the owner's understanding of the reasonability of the contractor's proposed GMP. It also finds that the collaborative environment engendered by the open-book process facilitates the search for solutions to avoid contract termination.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4529) Capital Cost Escalation: Interpreting Bid Premiums in Evolving Market Conditions

Time | Room: SUN 10:00-11:00 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 7.7. Procurement Planning 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Razan Al Taleb, CEP *Saudi Aramco*
Mahmoud Sobahy, CEP *Saudi Aramco*
Bassam Ogayil, CEP *Saudi Aramco*

Abstract: The cost of executing capital projects in the Gulf Cooperation Council (GCC) states is rapidly increasing due to multiple concurrent mega projects that are being funded at the same time. Saudi Aramco Estimating Services Division was tasked to investigate the current Engineering, Procurement, and Construction (EPC) market dynamics in light of capital cost escalation across multiple project. To identify the main root causes of cost escalation, the team has conducted a comprehensive market condition study examining both demand and supply sides to help decision makers address the cost escalation issue. The study consists of overall project market analysis, EPC & construction contractors environment analysis, and leveraging insights from this analysis to define key challenges and develop appropriate mitigations. This paper will demonstrate the systematic approach that was followed in the analysis from gathering the market intelligence, conducting the analysis and finally presenting key insights and recommendations to top management to support effective planning and execution of company portfolio.

(OWN-4547) Procurement Matrix for the Theme Park Project at Shanghai

Time | Room: MON 4:35-5:35 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 7.7. Procurement Planning
Author(s)/Presenter(s):
Lan Zhang *CENTURY 3 Shanghai Inc.*
Zhitao Fan *CENTURY 3 Shanghai Inc.*

Abstract: Procurement involves engaging suitable stakeholders in a market at competitive prices for certain projects in compliance with regulations and codes. Traditional procurement methods lack systematic analysis of project characteristics, market investigation, and regulatory requirements, resulting in delayed projects and increased costs because of contracting incompetent vendors or disregarding regulatory requirements. A procurement matrix considers project features, market availability, and local practices to overcome these limitations. This study defines procurement strategies for theming, riding, and planning design and construction phases. Five contract types are analyzed based on the nature of service or scope of work provided to an owner; workload analysis and lifecycle phase are identified as guidelines for procurement activities; and different commercial tendering platforms are evaluated based on tendering regulations. A case study of a famous theme park operator in Shanghai is considered to demonstrate the matrix and its applications. A procurement model with procurement priorities at each phase, procured packages, and right tendering platform are key to accomplish procurement objectives enable the project team to focus on project delivery. This model enriches the body of knowledge on project management procurement by analyzing the nature of the project, available resources, and local regulatory requirements to avoid engaging incompetent vendors.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4558) Scheduling Permits for Large Resource Projects

Time | Room: TUE 10:10-11:10 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 7.1. Project Scope and Execution Strategy Development 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Andre Kin Wai Chong *Teck Resources*

Abstract: Large resource projects often seek to commence construction shortly after major environmental approval is granted by the government. However, numerous additional permits and approvals are required to construct resource projects. These “secondary” permits, issued by local, state, or specialized regulatory bodies; are required for specific activities such as waste management, water use and road access.

Delays in securing secondary permits frequently result in project delays and claims. Scheduling these permits can be complex for owners due to changing regulations, the multitude of permits required, and hidden dependencies between these permits. This paper provides a systematic method that owners can use to manage the process. The steps are:

- Divide the project into distinct construction work fronts based on permitting difficulty. This helps improve focus on permitting issues.
- Create a matrix to identify the permits required for each work front. Plot all work fronts against all permits applicable to the project.
- Diagram the steps required to obtain each permit to identify hidden dependencies. Conduct workshops to help identify potential issues and discuss solutions
- Build a schedule using the diagram to control the permit process.
- Create supplementary registers to manage engineering deliverables and track permit application status

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(OWN-4569) Railway Network Upgrade Programs (Part 1 – Challenges Overview)

Time | Room: SUN 12:00-1:00 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 6.2. Asset Change Management 3.1. Requirements Elicitation and Analysis
Author(s)/Presenter(s):
Dr. Ali Montaser, PEng CCP EVP PSP *Accenture I&CP*
Ahmed Montaser, EVP *Aecon*

Abstract: Railway network upgrade programs are essential to addressing the growing transportation needs of major cities and regions. However, executing upgrades on active rail tracks introduces a level of complexity far greater than that of new subway or light rail transit (LRT) projects. These upgrades must seamlessly integrate new enhancements into existing infrastructure while minimizing disruptions to daily operations. The complexity is heightened by the intricate interfaces and integrations with multiple stakeholders, including passenger and freight operators, third parties, and maintenance teams. Managing these diverse interfaces, ensuring operational readiness, and navigating the physical limitations of aging infrastructure such as tracks, stations, and signaling systems is a daunting task. Furthermore, these programs often encompass over 100 projects spread across the network, with budgets ranging from a few million to several billion dollars. Each project presents unique delivery models and complexities, complicating the overall program management. This paper is the first in a series that provides an in-depth analysis of the challenges encountered in railway network upgrade programs. It explores the challenges of these upgrades, emphasizing their critical differences and increased complexity. Additionally, it addresses systemic issues identified through the authors' lessons learned from their experiences in such programs.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4571) Legal Considerations in Proving Disruption Claims

Time | Room: TUE 1:45-2:45 | Grand Ballroom J-K
Skill Level: Advanced
TCM Section(s): 6.4. Forensic Performance Assessment 10.3. Change Management
Author(s)/Presenter(s):
Dr. Rania Fayed *Hill International*
Kareem M. Khattab, PE PSP *Ventia*

Abstract: At the 2024 AACE Conference and Expo, the authors presented different challenges in proving and quantifying disruption claims as well as the practical considerations for conducting a reliable disruption analysis in view of the methods described in AACE International RP 25R-03 through different scenarios providing better explanation and more accurate estimation of the methods. During the presentation of the paper, a constructive discussion took place with the audience on how to handle such challenges in order to achieve successful disruption claims, in respect of merit and quantum, in absence of express provisions in the contract providing guidance to deal with disruption events. Furthermore, the discussion touched on the courts position and considerations regarding the different methods of calculating disruption damages described in AACE International RP 25R-03. Due to the fact that these issues are a topic of their own right, it was decided then to prepare a separate paper that is a sequel to the 2024 paper that focuses on the legal considerations in proving disruption claims in view of the US and UK jurisdictions, with the aim of introducing contractual provisions and methodology for calculating and substantiating disruption claims that could be considered in the construction contracts in order to facilitate demonstrating and quantifying disruption damages.

(OWN-4580) Owner Organization Readiness: Key Elements for Capital Project Success

Time | Room: TUE 11:20-12:20 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 3.2. Asset Planning 6.1. Asset Performance Assessment
Author(s)/Presenter(s):
Noe' H. Saenz *Burns & McDonnell*

Abstract: Construction owners increasingly face challenges in delivering capital engineering and construction projects, particularly when undertaking portfolios or programs that exceed their typical scope and scale. Experience demonstrates that organizational-level deficiencies within the project owner organization represent the primary driver for project failures, creating a “domino effect” throughout the project delivery process.

This paper presents a comprehensive framework of ten key elements organized across portfolio, program, and project levels that construction owner organizations can implement to establish the foundation for successful capital project delivery. While these elements represent established industry best practices, evidence shows that they are frequently overlooked, poorly implemented, or siloed within different departments, leading to misalignment and delivery failures. This integrated approach provides owner organizations with a practical reference guide for essential documentation and processes needed at each level of project delivery, ensuring proper integration from strategic planning through execution. The framework is based on the author's real-life experience from numerous capital construction projects, programs, and portfolio management implementations.

The following sessions are scheduled for the technical program.

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(OWN-4648) Optimizing Program Governance in Complex Environments: Navigating the Matrix Structure for Maximum Efficiency and Control

Time | Room: MON 10:10-11:10 | Los Angeles / La Jolla
Skill Level: Basic
TCM Section(s): 11.2. People and Performance Management 4.1. Project Implementation
Author(s)/Presenter(s):
David A. Chigne, CCP CEP PSP *Toscano Clements Taylor Consultants*
Armando Sanchez *SC Management Consultants*

Abstract: In complex program management, the matrix structure has emerged as a powerful tool to enhance governance and control. By integrating multiple project & program managers under the leadership of a program director and supporting them with a project management office (PMO) focused in programs (PgMO), this model provides a comprehensive view of large-scale initiatives, however, its implementation is not without challenges: Issues such as role confusion, information obstruction, and inaccurate data can impede program efficiency, leading to delays and cost overruns, as seen in high-profile cases like the London Olympics 2012 and the Airbus A380 project.

This paper delves into the specific governance challenges posed by the matrix structure and offers actionable solutions to optimize its performance in a megaproject developed in South America across G2G (government to government) agreement. By clarifying roles, leveraging digital monitoring tools, promoting transparency, and fostering leadership support, organizations can unlock the full potential of the matrix model. Lessons learned from major projects will be highlighted to demonstrate best practices in role definition, data management, and team engagement. Readers will gain critical insights into how to navigate these complexities and enhance program governance for successful outcomes in even the most demanding environments.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4651) Owner Project Control Alignment at Project Authorization

Time | Room: MON 1:45-2:45 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 2.3. Strategic Asset Management Process Map
Author(s)/Presenter(s):
Stephen L. Cabano, FAACE *Pathfinder, LLC*

Abstract: Many believe that project control is a standard function, and all project organizations conduct project control in the same manner. In addition, it is thought that the owner's project control function is the same as the contractor's project control responsibilities. Both statements are far from the truth and can lead to misalignment in the function, poor transparency on project status, and poor project management decision making.

AACE® International has long promoted the aspect of a project control plan (PCP) as a "best practice" for all projects. This plan defines the roles of all project participants and the specific approach to be applied for the given project. Characteristics such as estimate and schedule classifications, definition of productivity and its supporting calculations, utilization of progress and performance measurement options such as earned value and digital performance management, all become aspects that need to be defined. This definition is typically mandated by the owner and communicated to the contractor in the bidding and contracting process. Doing this early in the process ensures better alignment and maintains business value.

This paper will address the above issues from an owner's perspective, taking into consideration the various project control and data analysis options, thereby creating an effective project control step that functions across projects of varying size/complexity.

(OWN-4665) (Panel Discussion) Transit Forum: Keeping Transit Project Costs and Schedule in Check

Time | Room: TUE 3:25-4:25 | Grand Ballroom J-K
Skill Level: Intermediate
TCM Section(s): 6.1. Asset Performance Assessment
Author(s)/Presenter(s):
Omoniyi (Niyi) Ladipo, CCP EVP *MBP*
Shoshanna Fraizinger, CCP FAACE *Sargent & Lundy*
Andrew Harasz, PE *Clark Construction Group, LLC*
Ernesto Llorens, CCP *Toronto Transit Commission*
Ghaith Al-Hiyari, CCP *Turner & Townsend*
H. Lance Stephenson, CCP FAACE Hon. Life *AECOM*

Abstract: US rail and transit projects often experience significant cost increases and delivery delays compared to the original capital budgets and schedules against which they were approved. This panel, comprised of owners and consultants in this sector, will discuss some intrinsic factors outside the project team's control that affect costs and schedules for such projects. They will examine some challenges specific to rail and transit projects that impact the costs and schedules. The panel will present some solutions project stakeholders and teams have successfully implemented to mitigate these cost and schedule increases in the US and Canada.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(OWN-4700) Railway Network Upgrade Programs (Part 2 – Program Integration Overview)

Time | Room: SUN 1:10-2:10 | Orange County Ballroom 2
Skill Level: Advanced
TCM Section(s): 6.2. Asset Change Management 4.1. Project Implementation
Author(s)/Presenter(s):
Dr. Ali Montaser, PEng CCP EVP PSP *Accenture I&CP*
Ahmed Montaser, EVP *Aecon*

Abstract: Railway network upgrade programs are essential to addressing major cities' and regions' growing transportation needs. However, executing upgrades on active rail tracks introduces a level of complexity far surpassing that of new subway or light rail transit (LRT) projects. These upgrades must integrate new enhancements into existing infrastructure while minimizing disruptions to operations. The complexity is heightened by the intricate interfaces and integrations with multiple stakeholders, including passenger and freight operators, third parties, and maintenance teams. Furthermore, these programs often encompass over 100 projects spread across the network, with budgets ranging from a few million to several billion dollars. Each project presents unique delivery models and complexities, complicating the overall program management. This paper, the second in a series, offers an overview of key integration aspects critical to the successful execution of railway network upgrade programs—interface management, testing and commissioning, operational readiness, and rail access planning. Drawing from the authors' industry experience and literature review, the paper offers actionable insights, best practices, and strategic recommendations to address challenges and optimize program delivery. It serves as a valuable resource for decision-makers and industry professionals, guiding them in navigating integration complexities and ensuring the long-term success of railway infrastructure projects.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PM-4477) How to Manage Successful EPC Oil & Gas Projects with Competitive and Risk Management Strategies

Time | Room: SUN 10:00-11:00 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management 2.3. Strategic Asset Management Process Map
Author(s)/Presenter(s):
Arnaldo M. Angelini, PE CCP *LGM International*
Sean T. Regan, CCP CEP EVP PSP FAACE *LGM International*
Apostolos Chatzisymeon, PE *Nomitech*
Grigorios Anagnostopoulos, CCP *Energean*

Abstract: As a result of the escalating energy prices resulting from the expanding economies and the conflicts in Ukraine and Gaza, there has been a remarkable rise in oil and gas exploration initiatives in several countries.

Global experience from around the world indicates that both brownfield and greenfield oil & gas projects continue to face unreliable costs and schedules. Up to 60% of projects fail to achieve their intended cost and schedule objectives because of the prevailing economic uncertainties and project risks.

The authors will illustrate that it is critical for oil & gas companies to implement not only the most effective practices of project and risk management, but also competitive strategies prior to venturing into a new exploration/development area.

The study aims to showcase the present methods employed to mitigate risks for engineering, procurement, and construction (EPC) contractors and owners throughout the project life cycle, including proposal, detail engineering, procurement, construction, and commissioning.

This paper employs several case investigations examining both successful and unsuccessful projects. This analysis will show the advantages and mistakes made by project teams, as well as the consequences of not conducting an in-depth examination of the competitive advantage in the country.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(PM-4545) Kitchen Inputs Model for the Theme Park Restaurant Design

Time | Room: SUN 12:00-1:00 | Los Angeles/La Jolla
Skill Level: Basic
TCM Section(s): 1.3. Organization of the TCM Framework 2.4. Project Control Process Map
Author(s)/Presenter(s):
Lan Zhang *CENTURY 3 Shanghai Inc.*
Yannan Chen *CENTURY 3 Shanghai Inc.*
Gaojian Gu *CENTURY 3 Shanghai Inc.*

Abstract: The design of theme park kitchens often faces significant challenges due to the absence of early operator input. Typically, design teams rely on assumptions based on past projects, which are refined later when the operator is selected. This approach frequently leads to discrepancies between initial designs and actual requirements, causing delays, demolition, and budget overruns. To address this, a systematic kitchen input model is proposed. The model outlines a structured process, starting with food categories, production modules, and equipment specifications, followed by spatial, mechanical, electrical, plumbing (MEP), and HVAC requirements. Additionally, a design review checklist based on prior projects and regulatory codes is provided to guide engineering teams and mitigate future changes. A case study demonstrates the model's application and effectiveness in minimizing late-stage alterations. By integrating early input from end users, the model facilitates efficient kitchen design and construction, aligning with operational needs while reducing delays and costs.

For the most of the theme park kitchen design, since the operator of the kitchen is not chosen, the kitchen requirements is not fully clarified. The normal practice is to reserve the layout and utilities based on the previous project data and fine tune the design at a later date. When the owner's team select the operator and start to collect the requirement to design the kitchen while the construction is ongoing, the assumptions earlier might be wrong that might result issuing change directive to the contractor because the completed physical work per previous drawings has to be demolished that might cause delay and over budget. A kitchen input model is provided to address this issue ahead of the time. This study starts with the categories of the foods offered at this kitchen, food production process modules, and the proposed equipment and hygiene requirement. An owner's kitchen requirement in term of space, structure, mechanical, electrical, plumbing and HVAC is given as the guidelines for the engineering team to do the detail design. Furthermore, a design review checklist template is provided based on the previous project experience and codes regulatory requirement enable the owner to avoid major changes at a later date. A case study on the input model is further provided to demonstrate its logic and application. For the kitchen design, food production based on the theme story will be identified, followed by the production process, the layout, utilities, exhaust requirement must be identified and quantitated at the drawings to avoid possible change order. The input model gives a systematical tool for the owner to manage the kitchen design at planning phase. However, the model itself can not solve all problems, but give a guidelines to the designer as a systematic tool. The real effeteness of the model is depending on the designer's professional skill and experience.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PM-4561) Project Controls Provide Integrated Common Sense

Time | Room: TUE 3:25-4:25 | Los Angeles/La Jolla
Skill Level: Intermediate
TCM Section(s): 1.2. Purpose and Uses of the TCM Framework 4.1. Project Implementation
Author(s)/Presenter(s):
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis U.S., Inc.*
Andre Luiz Siqueira Marques, EVP PSP *Kiewit Corporation*

Abstract: The analytical power of construction project management tends to lie in the project controls disciplines, which rely on structured methodologies to ensure success. However, integrating common sense — logical thinking, practical judgment, and experience-based decision-making — into the construction management effort is crucial for effectively navigating project complexities. This paper explores how common-sense principles complement formal frameworks to enhance project planning, monitoring, and execution.

This paper examines the challenges in integrating common sense within structured project management, such as organizational barriers and cultural adaptation. It also explores emerging technologies like artificial intelligence that support intuitive decision-making in complex project environments. Ultimately, integrating common sense through project controls offers improved problem-solving efficiency, adaptability to change, and enhanced project outcomes.

This paper underscores the value of construction management by integrating common sense principles into project controls. It summarizes findings on how intuitive reasoning enhances project management practices, discusses implications for better control and future research, and recommends practical strategies for implementation.

(PM-4586) Developing A Construction Contract Playbook

Time | Room: TUE 11:20-12:20 | Los Angeles/La Jolla
Skill Level: Basic
TCM Section(s): 2.1. Basis of Total Cost Management Processes 2.2. Total Cost Management Process Map
Author(s)/Presenter(s):
Christopher P. Caddell, CCP DRMP FAACE *Spire Consulting Group*
Adam L. Troscinski *Spire Consulting Group*

Abstract: Construction contracts are challenging documents to use for managing construction projects, being lengthy, convoluted, and confusing. As a result, construction teams may not understand the requirements placed on them as an owner or contractor or the requirements of the other party. Project teams often refer to the contract as a document that was put in a drawer or on a shelf and rarely used. As a result, project teams may fail to follow the terms and conditions of the contract which can result in issues and disputes, putting the organization in danger of not adhering to the contract requirements. Developing a construction contract playbook can help project teams understand the key requirements of the contract by organizing key elements in a user-friendly structure and using plain language that project team members can quickly understand. The playbook compiles the key stipulations of the contract such as the cost, schedule, requirements of each party, payment terms, change processes, notice provisions, and other elements that each member of the project management team should understand. Having a playbook of the contract can increase a project team's compliance with the contract terms, help protect against claims, and assist to improve project performance.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PM-4692) Using Project Controls Techniques to Measure Sustainability: Principles for Developing Industry Standards

Time | Room: SUN 10:00-11:00 | Orange County Ballroom 1
Skill Level: Basic
TCM Section(s): 11.6. Environment, Health, and Safety Management 11.5. Value Management and Value Improving Practices (VIPs)
Author(s)/Presenter(s):
Goutam U. Jois, Esq. *Jois Construction Management*

Abstract: In recent years, there has been a focus on sustainability in construction, in particular on the embodied carbon associated with construction projects. But to date, there is no industry-standard approach to analyze project sustainability. This paper uses AACE's TCM Framework to set out principles for a system to analyze project sustainability.

The starting premise is that a project's CPM schedule—which is already widely used to measure and analyze project performance—should be the "backbone" of sustainability analysis: professionals' pre-existing familiarity with CPM schedules means a shorter learning curve.

From that premise, the paper sets out ways in which project sustainability could be measured, managed, and analyzed. First, embodied carbon associated with a few key materials could be tracked. Some regulatory authorities are requiring, and industry associations are encouraging, a limited version of this tracking. Second, carbon could be tracked as to all aspects of a project, not just as to a few materials. Third, carbon could be tracked at the activity level, for more detailed analysis. Finally, metrics could be developed around sustainability, to measure actuals against planned values.

Eventually, this paper's framework could be used to develop guidelines or recommended practices around carbon measurement, helping standardize sustainability analysis in project management.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4470) Automatic Train Control – Technical Challenges and Project Controls

Time | Room: TUE 4:35-5:35 | Los Angeles/La Jolla
Skill Level: Basic
TCM Section(s): 8.1. Project Control Plan Implementation 10.4. Project Historical Database Management
Author(s)/Presenter(s):
Dr. Achintyamugdha Sharma *Jois Construction Management*
Dr. Priyanka Deka *Jois Construction Management*
Goutam U. Jois, Esq. *Jois Construction Management*
Umesh K. Jois *Jois Construction Management*

Abstract: Different types of projects and programs can result in tangible differences in scheduling and project controls processes. The planning and scheduling community may face unique challenges in the case of automatic train control and other railroad projects. The rail transit industry invests heavily in its infrastructure to ensure efficiency and safety of millions of commuters. Federal agencies like the Federal Railroad Administration (FRA), Federal Transit Administration (FTA) and various transit agencies across the US have prioritized the implementation of positive train control (PTC) to enhance commuter safety. For increased frequency of trains and efficiency of dispatch, systems like communications based train control (CBTC) are implemented on railroads. These highly specialized systems and their complex implementation on the wayside, onboard rail cars, and back offices and central dispatch centers of the railroads are accompanied by unique challenges. Some of these challenges include interoperability among different railroads, reliance on strict outages, highly proprietary software and hardware systems uniquely customized for specific systems, and a small pool of qualified contractors to perform such kind of work. These in turn pose significant challenges to planning the sequence of activities and schedule durations accurately, which in turn lead to extension of time and claims in projects. In this paper, the challenges associated with train control type projects from planning, scheduling, risk management and project controls standpoint are presented.. Additionally, a model is proposed to predict the duration of activities more accurately for train control type projects.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4497) Challenges and Framework for Subcontractor Schedule Development and Management

Time | Room: SUN 12:00-1:00 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 7.2. Schedule Planning and Development 7.6. Risk Management
Author(s)/Presenter(s):
Huimin Shi, CCP PSP *Weeks Marine*
Dr. Pei Tang, PRMP PSP *TYLin*
Tianxiong Yang, PE *RailWorks Corporation*
Abraham Naim, PE PSP *TYLin*

Abstract: Effective subcontractor schedule development and management are critical to the success of large construction projects. This paper delves into the essential components of subcontractor schedule development, with a particular focus on the challenges associated with baseline schedule creation, schedule updates, and lookahead schedule planning. Drawing from extensive experience, it presents lessons learned and strategies for managing subcontractors' real planning processes and addressing delays. The integration of subcontractor schedules into the overall project timeline is examined, along with best practices for fostering collaboration between the general contractor ("GC") and its subcontractors. Additionally, the paper explores the common challenges subcontractors face during change management and offers practical solutions for both subcontractors and the GC to improve project progress management. By providing a comprehensive framework, this paper aims to equip project managers from both the GC and subcontractors with the tools necessary to enhance performance, ultimately ensuring the successful completion of construction projects.

(PS-4506) Prospective Time Impact Analysis - The Perfectly Imperfect Theory

Time | Room: SUN 1:10-2:10 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 10.3. Change Management 10.2. Forecasting
Author(s)/Presenter(s):
Savannah Kleyla, PSP *Delta Consulting Group, Inc.*
John S. Crane, CFCC PSP *Delta Consulting Group, Inc.*

Abstract: In contemporary project management, a time impact analysis (TIA) is often required for evaluating delays in a project's timeline. Many may know the concerns with performing a retrospective TIA when analyzing project delays. However, they may not realize that some of the same concerns still apply when performing a prospective TIA. This research aims to unveil the underlying intricacies of TIA's, shedding light on often-overlooked nuances and fallacies. Drawing from publications and examples, this paper will highlight the critical factors influencing the effectiveness and accuracy of a prospective TIA. While a prospective TIA is an indispensable tool for forecasting project delays, its accuracy is contingent upon a comprehensive understanding of the project's status, contract requirements, and clarity of the change. All too often there is a gap between the theoretical model and the practical implementation that could potentially obscure other impacts on the project.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4515) Exposing the Risks of Progress Override and Actual Dates in Delay Analysis

Time | Room: MON 10:10-11:10 | Orange County Ballroom 1
Skill Level: Advanced
TCM Section(s): 9.2. Progress and Performance Measurement 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
John Coker, PSP *Delta Consulting Group*
John Cleary, PSP *Delta Consulting Group*

Abstract: This paper examines Oracle P6 Critical Path Method (CPM) calculation settings. In particular, it examines the effects of using progress override and actual date calculations in Engineering, Procurement, and Construction (EPC) scheduling, particularly in the context of forensic delay analysis. By utilizing a real case study that applies retained logic calculations and comparing it with hypothetical scenarios employing progress override and actual date calculations, the analysis demonstrates how these alternative settings can distort outcomes. The findings underscore the importance of adhering to retained logic to ensure accurate and reliable delay analysis results. Practical examples and detailed comparisons further highlight the misleading nature of progress override and actual date calculations, offering clear guidance for real-world application.

(PS-4551) Utilizing AutoCAD and Excel to Generate a Linear Schedule

Time | Room: SUN 2:50-3:50 | Orange County Ballroom 1
Skill Level: Basic
TCM Section(s): 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Huimin Shi, CCP PSP *Weeks Marine, Inc*
Matt Kolb *Weeks Marine, Inc*
Benjamin Chan *Weeks Marine, Inc*

Abstract: There exists various software on the market for schedulers to develop linear schedules. This paper presents a procedure in which a contractor can utilize AutoCAD to generate a linear schedule. The generation of the schedule is automated with the assistance of an Excel spreadsheet. The usage of AutoCAD with Excel provides a visualization platform which is modular and accessible. This allows the contractor to analyze risks, conflicts, and opportunities within the schedule.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4555) The Top Ten Mistakes Made in Planning a Complex EPC Project

Time | Room: SUN 4:00-5:00 | Orange County Ballroom 1
Skill Level: Basic
TCM Section(s): 7.2. Schedule Planning and Development 4.1. Project Implementation
Author(s)/Presenter(s):
Glen R. Palmer, CFCC PSP FAACE *GR Palmer Consulting Services, LLC*
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis US, Inc.*

Abstract: Many of the problems that arise during construction are just symptoms of the original problems related to poor planning. If a project is planned in detail with the right stakeholders, it will survive most challenges with minor revisions or actions. Failure to plan or mistakes made in planning result in delays, inefficiencies, disruption, and increase the management needed during construction.

In this paper, the authors will describe the top ten mistakes usually made in planning a complex construction project. The paper will explain why each of these ten mistakes leads to later failures and how to perform this aspect of planning in a more efficient and successful way to ensure a better project plan. The authors have a long history of planning projects that have resulted in projects with collaborative project teams, a viable project plan, and on-time project delivery.

(PS-4556) Owners, Don't Let Your Modeled Forecasts Grow Up to be Absorbed Claims

Time | Room: SUN 5:10-6:10 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis, U.S. Inc.*
Mark C. Sanders, PE CCP CFCC PSP *Alpha 3 Consulting, LLC*

Abstract: Owners commonly choose fixed price contracts to transfer time and cost performance risk to the contractor based on an estimated cost and duration. When scope is changed, additional money and time may be required for performance of the contract, and typically contractors provide a cost estimate for the scope change prior to performing the work. Similarly, when the project is delayed, contractors are asked for a schedule model and estimate of any additional time required. Once the additional time and cost for performance are negotiated, the change order formally transfers the risk of performance of the changed scope, and the contractor is left to optimize performance to achieve or improve profit.

However, it is common for time extension negotiations to be prolonged or fail entirely, and the changed scope begins or even completes without knowing whether a time extension will be granted. Failing to negotiate time extensions timely leaves the performance risk on the owner, who loses the opportunity to assign the risk to the contractor, as was done in the original contract.

The analysis required to resolve the time extension shifts from a prospective model of the estimated impact to a forensic determination of the actual impact once delay is absorbed. This paper details the benefits of negotiating time extensions prospectively and provides guidance on successfully transitioning from modeled to observational delay analysis if those negotiations are not concluded timely.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4576) Quantitative Schedule and Cost Risk Analysis on Critical Path Method (CPM) Schedule

Time | Room: TUE 3:25-4:25 | Orange County Ballroom 1
Skill Level: Advanced
TCM Section(s): 7.6. Risk Management 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Abbas Saifi, PEng CCP EVP PSP *EBC Inc*
Greg M. Hall, PSP *Kiewit*

Abstract: Project success relies on proper upfront planning, cost projection, and execution. This requires an accurate and realistic project schedule and estimate representing the project plan and budget. The CPM schedule is developed to meet the owner's milestone and completion dates but cannot incorporate the uncertainty of activity durations. These activity durations are set on some assumptions, which, over time, are forgotten, and the logic-duration-driven dates are presumed to be definitive rather than conditional statements. This paper aims to predict the risks and uncertainties in activity duration and derive the implications for the project schedule and cost. It will also show the likelihood of a project meeting the planned dates and the required time and cost contingency to overcome the identified risks in the schedule.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4585) Maximizing Schedule Effectiveness: A Guide to Resource and Cost Loading Methodologies

Time | Room: MON 3:25-4:25 | Orange County Ballroom 1
Skill Level: Advanced
TCM Section(s): 7.4. Resource Planning 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Delbert E. Bearden, PSP *Linesight*

Abstract: This paper presents a comprehensive guide to resource and cost loading methodologies for maximizing schedule effectiveness in engineering, procurement, and construction projects. It examines the advantages of resource and cost loaded schedules, including enhanced project performance indicators, improved resource management, and better decision-making capabilities.

The study compares two primary approaches for integrating resources and costs into schedules: using the official project estimate with its task-based breakdown and utilizing the schedule of values (SOV) with its specification section breakdown. It explores the challenges and benefits of each method, as well as techniques for combining these approaches to create accurate resource-loaded schedules.

The paper discusses best practices for integrating the work breakdown structure (WBS), schedule, and cost estimate, ensuring consistency across project control documents. It covers schedule optimization techniques, including resource leveling and critical path analysis in resource-constrained environments. The study also delves into the process of estimating activity durations using various methods and formulas derived from estimates or SOV.

Detailed sections on resource and cost loading methodologies provide step-by-step guidance, including the use of lump sum cost resources and the implementation of cost accounts. The paper addresses the challenges of aligning detailed estimates, SOV, and schedule activities, offering strategies for reconciliation and maintenance.

Through practical examples and case studies, the paper demonstrates the application of these methodologies across different project phases. It also covers advanced topics such as schedule validation, change management, and the use of earned value management for forecasting and trend analysis.

The final sections focus on data visualization techniques, providing guidance on creating effective resource histograms and cost charts, including cumulative S-curves and earned value charts. While examples are primarily based on Primavera P6, the paper emphasizes the applicability of these concepts across various scheduling software platforms.

By offering a comprehensive examination of resource and cost loading methodologies, this paper aims to equip project controls professionals with practical knowledge to enhance project performance, promote accurate forecasting, improve resource management, and increase project success rates in complex project environments.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(PS-4607) Implementing Duration Overrun Analysis for Schedule Review and Reforecasting

Time | Room: MON 4:35-5:35 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 6.4. Forensic Performance Assessment 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis U.S., Inc.*
Antoine Bechaalani, PSP *Arcadis U.S., Inc.*
Shreyas Raghavendra *Arcadis U.S., Inc.*

Abstract: Evaluation of activity duration overruns serves as a crucial measure for evaluating efficiency and productivity in project schedules, offering valuable insights into the comparison between actual performance and planned durations. This was originally introduced to the industry as a software package called “Tipper” as slang for “TPR” (time performance ratio) and the authors have since reproduced the concept in independent calculations.

This paper provides a comprehensive guide on TPR calculation and showcases its practical significance in schedule analysis and modeling. This research emphasizes the utility of TPR in assessing productivity challenges, effects of delays, and modeling schedule projections. Further, this paper also provides a comprehensive guide, along with examples, for calculating TPR from completed activities on the critical and near-critical paths, averaging the TPR for each trade, bid package, area or location and applying this to the remaining critical path activities enabling accurate forecasting of project completion dates and identification of time saving opportunities.

The inclusion of case studies illustrates how TPR enhances project forecasting, aids in recovery efforts, optimizes critical path scheduling, and improves overall project efficiency. Focused on practical relevance, the paper aims to empower project managers, schedulers, and forensic analysts with a structured approach to incorporating TPR into project control processes, leading to more informed decision-making, proactive risk mitigation, and greater schedule optimization.

(PS-4630) The Evolution of Scheduling Practices: Gantt Charts to CPM and Beyond!

Time | Room: TUE 1:45-2:45 | Orange County Ballroom 1
Skill Level: Basic
TCM Section(s): 0.0. General Reference
Author(s)/Presenter(s):
Christopher W. Carson, CEP DRMP PSP FAACE *Arcadis*
Teja Pulla, CCP CEP EVP PRMP PSP *Princeton University*
Dr. Vijayeta Malla *Bantrel*

Abstract: Project scheduling has evolved significantly since its inception from fundamental visual tools to advanced systems. This paper traces the methodological progression, beginning with early 20th-century scheduling innovations such as the Gantt chart for task management. The mid-20th century introduced the critical path method (CPM) and program evaluation and review technique (PERT) to identify critical tasks and optimize timelines. Advancements including building information modeling (BIM) and artificial intelligence (AI) which further refined scheduling practices allowing for dynamic project planning and predictive analysis. This paper explores historical developments, technological advancements, and future trends while identifying the needs driving development, demonstrating how the evolution of project scheduling practices has improved project outcomes and efficiency.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4644) Complexities of Evaluating Recovery Schedules in a Forensic Delay Analysis

Time | Room: TUE 11:20-12:20 | Orange County Ballroom 1
Skill Level: Advanced
TCM Section(s): 6.4. Forensic Performance Assessment 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Eric Schatz, PE CFCC PSP *FTI Consulting, Inc.*
Phillip Kenny *FTI Consulting, Inc.*
Haswanth Venkatavijayan *FTI Consulting, Inc.*

Abstract: The preparation of a recovery schedule during construction is a critical process with significant implications. The decision to revise the as-planned schedule to reflect considerable changes in a project's timeline, sequencing, and resources can cause later complications when evaluating delays after the fact. This paper is intended both for those preparing a recovery schedule, to be aware of potential unintended future implications, as well as those evaluating delays forensically on a project that includes recovery schedules. As is the case with many forms of forensic analyses, corroborated, contemporaneous documentation is essential for a complete evaluation.

Ultimately, if a contractor does not achieve its recovery plan for a variety of potential reasons, the question arises whether the delays and responsibility should be measured from the original plan, the recovery schedule, or some other approach. In other words, does a recovery schedule erase the sins of the past? When performing a basic contemporaneous period analysis, the answer may appear to be yes. This paper explores various scenarios to help navigate the complexities of validating recovery schedules in forensic analysis, including the impact of timing, actual progress, and sequencing.

(PS-4652) Effective Management and Scheduling of Working Day Contracts

Time | Room: TUE 4:35-5:35 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 10.1. Project Performance Assessment 7.2. Schedule Planning and Development
Author(s)/Presenter(s):
Avi Sharma, PSP *Delta Consulting Group*
Matthew G. Nichols, PSP *Delta Consulting Group*
Diego Melchert, PSP *MasTec CE&I*

Abstract: This paper provides an overview of key considerations in the implementation and management of working day contracts. It begins by examining the fundamental purpose of such contracts and their associated language, including illustrative examples from the Colorado Department of Transportation (CDOT) and the Illinois Department of Transportation (IDOT). This paper then examines scheduling aspects of working day contract projects, including the alignment of the baseline schedule with the contract and updating progress schedules. It further explores the challenges encountered in the implementation of working day contracts, like consistent application of day-charging standards, keeping records of charged days, and managing schedule acceleration. Additionally, it covers the analysis of working day contract schedules, focusing on identifying the critical path. Lastly, this paper offers practical recommendations from the authors for effectively implementing working day contracts.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(PS-4656) Bridging the Divide: Integrating EPC Schedules to Minimize Delays in Complex Projects

Time | Room: MON 1:45-2:45 | Orange County Ballroom 1
Skill Level: Intermediate
TCM Section(s): 7.2. Schedule Planning and Development 11.5. Value Management and Value Improving Practices (VIPs)
Author(s)/Presenter(s):
John Coker, PSP *Delta Consulting Group*
Khaled Aziza, EVP PSP *Delta Consulting Group*
Evan Lee *Delta Consulting Group*

Abstract: This paper introduces the common engineering, procurement, and construction (EPC) contract structures and the risk allocations for project parties through different project phases. The paper also explores the challenges and practices for aligning EPC schedules in complex projects involving multiple contractors. While schedule misalignment may not directly cause delay, it significantly complicates the quantification and assignment of delay responsibilities. Issues such as inconsistent design timelines and unaccounted-for material deliveries exacerbate these challenges, often leading to disputes and inefficiencies. Through a case study, this paper highlights the critical importance of early schedule alignment and provides practical recommendations and lessons learned to project stakeholders for enhancing schedule integration and reducing the risk of delays.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4481) Quantitative Schedule Risk Analysis for Upstream Strategic Plan

Time | Room: SUN 10:00-11:00 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management
Author(s)/Presenter(s):
Rodrigo Maia Francisco da Costa *Petróleo Brasileiro S. A.*
Raphael Seixas dos Santos *Petróleo Brasileiro S. A.*
Adalberto Marques da Costa *Petróleo Brasileiro S. A.*
Fabio Martins de Rezende *Petróleo Brasileiro S. A.*

Abstract: The objective of this work is to conduct a quantitative schedule risk analysis (QSRA) on several Subsea Tieback Projects from a major oil company. Previously, the company relied on a deterministic start-up production date as an input for key performance indicators in the Annual Strategic Plan. To enhance the predictability of this plan, the authors initiated QSRA for the major projects in the company's portfolio.

As a result, the company experienced several outcomes and benefits. Firstly, the physical schedule became more robust, ensuring a more reliable timeline for project completion. Secondly, the authors identified the activities that impact project start-ups most, enabling prioritization and allocation of resources more effectively. Additionally, the predictability index of project planning, in terms of schedule and net present value, improved significantly.

Furthermore, this analysis provided clear visibility into the portfolio's project contingency, allowing for better risk management. Lastly, it contributed to cultivating a stronger project-planning culture within the company.

This work highlights the value of adopting a realistic approach to identifying project risks and uncertainties. Moving forward, in the next cycles, projects should focus on implementing action plans to address the root causes of the main risks identified.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4494) Statistical PERT™ Analysis Applied to Contingency and Comparative Results with Data for Mining and Energy Projects

Time | Room: SUN 12:00-1:00 | Newport Beach/Rancho Las Palmas
Skill Level: Advanced
TCM Section(s): 7.6. Risk Management 7.3. Cost Estimating and Budgeting
Author(s)/Presenter(s):
Victoria Tillous *Hatch Ltd.*
Katherine Wong-Cameron, PEng *Hatch Ltd.*
Murray Pearson, PEng *Hatch Ltd.*

Abstract: Historically the construction industry has experienced a poor record of delivering projects within their sanctioned budgets. Such capital cost estimate (CAPEX) overruns are well documented in media and industry publications [1 ,2 ,3]. Large projects often run 15% to 20% over budget, risking approximately $1.5 billion US of capital each year through 2030 [4, p4]. To improve CAPEX ranging analysis, the authors propose creating a model for Statistical PERT® analysis to be applied during prefeasibility studies. The historical data used to support the research is sourced from published feasibility studies and publicly released capital costs for completed projects. The projects of interest were completed between 1997 – 2024, where project elements were analyzed to determine the distribution representative for mining and energy projects. A statistically significant sample of 50 projects were selected to test the Statistical PERT® analysis by comparing the model simulation to final outcomes in two case studies.

The research allowed development of realistic risk profiles compared to assuming a normal distribution of risk (i.e. traditional Monte Carlo analysis), to improve insight of elements with dominant interdependencies. The proposed approach is a cost-effective early assessment tool that can be used prior to investing in a qualitative risk analysis (QRA). The results also highlight areas of influence to be considered in conjunction with early execution planning to provide transparency on potential causes and measures to mitigate CAPEX overruns.

(RISK-4514) Comparison of Quantitative Risk Methodologies for Program and Portfolio Risk Analysis

Time | Room: SUN 1:10-2:10 | Newport Beach/Rancho Las Palmas
Skill Level: Basic
TCM Section(s): 7.6. Risk Management
Author(s)/Presenter(s):
Rachel A. Fleming *MBP*

Abstract: This paper examines and compares various quantitative risk analysis methodologies within program and portfolio environments. The study evaluates methodologies and combinations of expert judgment, predetermined guidelines, parametric, simulation analysis (expected value and critical path method), analytics (artificial intelligence and machine learning), and reference class forecasting to analyze their applicability. The paper highlights the strengths and limitations of each approach in terms of suitability for application to program and portfolio analyses. Through a review of existing literature, including relevant AACE recommended practices (RP), the paper proposes evaluation criteria for selecting and integrating these methodologies to enhance risk analysis in support of better decision-making. The findings aim to guide project managers and risk professionals in choosing the most suitable quantitative methods for analyzing risk in program and portfolio settings, contributing to more resilient and successful program outcomes. This will also help frame potential future RP development plans.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4522) The Risks in Project Risk Management: An Assessment Using a Fault Tree Analysis Framework

Time | Room: SUN 2:50-3:50 | Newport Beach/Rancho Las Palmas
Skill Level: Basic
TCM Section(s): 7.6. Risk Management 10.1. Project Performance Assessment
Author(s)/Presenter(s):
Justin Jacobsen, PRMP PSP *MBP*
Christopher J. Payne, CFCC PSP *MBP*

Abstract: Project risk management in construction involves systematic processes to identify, assess, treat, and monitor risks that could impact project objectives. This process is inherently scalable, allowing it to be tailored to the size and complexity of projects—from small renovation projects to large infrastructure undertakings. Formal risk management documentation provides a structured and transparent approach, enhancing accountability and enabling thorough analysis. Through this process, projects should realize a much higher likelihood of success in achieving project objectives and reduced exposure to costly budget and schedule overruns.

From a project owner's perspective, there is occasional hesitation in implementing formal risk management due to the perception that formally addressing risk only brings additional risk to the project. Whether this stems from the ineffectiveness of risk treatments, inefficient use of time for busy project staff, or the perception that added focus on project complexities and uncertainties will increase the likelihood of a dispute or adverse claim, this lack of support compromises the benefits offered by using a formal risk management approach.

This paper intends to use fault tree analysis to identify these potential compromises of the project risk management system and further explore types of failure using failure mode effects analysis. These failure points will be assessed qualitatively to determine their impact on the project objectives. After structuring the problem this way, the paper will describe a hypothetical case study to further extend the analysis, discuss potential outcomes, and describe mitigation approaches. The analysis identifies five key themes or categories of failure that could counteract the effectiveness of a risk management system and suggests mitigation measures for each. Though formal risk management is not without its own risks, the authors believe the benefits will outweigh any potential inherent exposure. Acknowledging potential failures and taking care to implement mitigation measures should lead to a robust system that is able to provide the intended benefits to project outcomes.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4572) Fuzzy Set-Based Analysis of Productivity Variations

Time | Room: SUN 4:00-5:00 | Newport Beach/Rancho Las Palmas
Skill Level: Advanced
TCM Section(s): 10.1. Project Performance Assessment 11.3. Information Management
Author(s)/Presenter(s):
Dr. Ashraf Salem, PEng *WSP Canada*
Elsayed Salem *Purdue University*
Dr. Emad Elwakil, PE CCP *Purdue University*

Abstract: Throughout all project stages, including planning, implementation, and operation, the dependability and efficiency of an analytical tool are vital. Realistic operational designs and strategic planning can be developed through a thorough assessment of productivity and project performance; early identification of inefficiencies and system bottlenecks helps guarantee the timely implementation of corrective actions in a methodical and prioritized way. This paper offers a methodical approach to performance assessment using a model based on fuzzy set theory to evaluate deviations between actual and intended productivity. The developed assessment model consists of two tiers of assessment and analysis modules. A productivity-monitoring technique based on low-optimum-high (LOH) fuzzy sets is presented in the first module. These three states:low, optimal, and high. These states are used to assess productivity. Each stage's upper and lower bounds vary depending on the organization or project management. Therefore, each organization can estimate each fuzzy attribute's lower and upper bounds (e.g., Low) based on their experience. The second module provides early warning decision support initiated based on the productivity assessment module. This study fosters multidimensional construction, mining, and transportation project management applications. A case study is represented to demonstrate the applicability of the developed model. The results obtained highlight the accuracy of the developed model in recognizing the variations in productivity.

(RISK-4593) Calculating Project Risks Like Financial Market Pros

Time | Room: SUN 5:10-6:10 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management
Author(s)/Presenter(s):
Austin M. Spina *Cabot Corporation*

Abstract: In an effort to reduce the cognitive human biases that influence the underestimation of project risks, this paper describes and implements a process to account for duration based risk on a project. This process algorithmically increases the amount of risk contingency on a project. The paper presents a simplified version of the Black-Scholes stock option model for application in the field of project risk management. The simplified equation calculates a factor to adjust individual project risks to account for their time of risk exposure (TORE). The TORE is defined as the duration of time where a risk could occur. The paper then explores various applications of the TORE factor in existing project risk management practices.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4615) Simulation-Based Risk Allocation in Collaborative-Based Projects

Time | Room: MON 10:10-11:10 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management 9.2. Progress and Performance Measurement
Author(s)/Presenter(s):
MennatAllah Hammam *Concordia University*
Dr. Mohammadjavad Arabpour Roghabadi *Hatch Ltd.*
Dr. Osama Moselhi, PEng FAACE *Concordia University*
Sohiel Hassan *Hatch Ltd.*

Abstract: Effective risk management, particularly risk allocation, is essential for the successful delivery of collaborative-based projects. While there is extensive literature on risk assessment and quantification, research on dynamic risk allocation methods in collaborative environments remains limited. This paper introduces a dynamic framework for probabilistic risk allocation that supports fairness and efficiency for determining risk ownership by continuously adapting to project conditions, stakeholder capabilities, and behavioral dynamics. The proposed framework introduces a risk evaluation process for different project phases, enabling the end user to make data-driven decision making for determining the best suited party for managing risks. Rooted in collaborative project delivery systems, this approach ensures that risk allocation remains flexible, responsive, and aligned with stakeholder capabilities. By integrating findings from literature, case studies, and lessons learned, the framework provides a structured simulation-based methodology for enhancing risk allocation by reducing subjectivity and bias as the project progresses. An illustrative numerical example is presented to showcase the practical application of the framework.

The following sessions are scheduled for the technical program.
Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4616) Checklist for Integrated QRA Modeling

Time | Room: TUE 3:25-4:25 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management
Author(s)/Presenter(s):
J. Gustavo Vinueza *The Ferryfield Group*

Abstract: Effective risk management is essential for project success but can be complex, especially for beginners. This paper simplifies integrated cost and schedule risk management (ICSRA) through a practical, accessible checklist. Using a representative case study, it demonstrates how uncertainty and risk events affect project timelines and budgets, helping practitioners apply QRA with confidence across industries and project types.

The focus will be on creating an intuitive checklist that participants can apply in any industry, project size, or level of complexity. The goal is to help practitioners navigate risk management and equip them with the tools they need to effectively manage uncertainty in their projects. The paper explains how practitioners can connect theoretical concepts to practical applications, making risk management not just a checkbox activity but an integral part of successful project planning and execution.

This checklist will serve as a foundational tool that helps participants manage uncertainty effectively, providing them with the confidence to approach any project with a structured and proactive risk management mindset, using a versatile, easy-to-use framework.

This session is ideal for project managers and professionals at the start of their risk management journey, looking to gain a practical, hands-on understanding of managing uncertainty with confidence. Whether working in construction, technology, finance, or any other field, the principles discussed in this session will adapt to specific context, helping take immediate, actionable steps toward better risk management.

Main Takeaways:
A versatile, easy-to-use mental checklist for quantitative risk analysis. This tool will help participants manage uncertainty effectively, providing them with the confidence to approach any project with a structured and proactive risk management mindset.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(RISK-4672) Premeditatio Malorum: A Stoic Approach to High-Impact, Low-Probability Risk Managment in Major Projects

Time | Room: MON 1:45-2:45 | Newport Beach/Rancho Las Palmas
Skill Level: Intermediate
TCM Section(s): 7.6. Risk Management 8.1. Project Control Plan Implementation
Author(s)/Presenter(s):
Dr. Manjula Dissanayake, CCP *Newmont*

Abstract: Major capital project execution is plagued with cost and schedule overruns across the globe. Substantial efforts are invested in planning and preparing projects, including the identification and mitigation of risks and uncertainties through qualitative and quantitative risk models. Despite these efforts, residual uncertainties remain and are often a major contributor to overruns. These include both 'known unknowns" and 'unknown unknowns" that are difficult to incorporate into typical risk models and project controls approaches. These uncertainties tend to be high-impact, low-probability (HILP) events. They are typically overlooked or impact is underestimated and not adequately prepared for.

This paper presents an approach to HILP risk management using a timeless Stoic practice called premeditatio malorum, a Latin phrase meaning "the premeditation of evils," to plan and prepare for HILP events to improve predictability.

(TCM-4546) Constructability Study Model for a Theme Park Hotel

Time | Room: TUE 1:45-2:45 | Orange County Ballroom 2
Skill Level: Basic
TCM Section(s): 7.5. Value Analysis and Engineering 11.5. Value Management and Value Improving Practices (VIPs)
Author(s)/Presenter(s):
Lan Zhang *CENTURY 3 Shanghai Inc.*
Yi Fang *CENTURY 3 Shanghai Inc.*
Weijia Yang *CENTURY 3 Shanghai Inc.*

Abstract: A constructability study (CS) is typically performed during the early stages of a project to ensure that the programming and design are practical and executable, while also highlighting challenges and risks. A poorly executed CS can result in unforeseen risks that delay the project and increase costs, emphasizing the need for an effective CS model. This study begins with a general analysis of a theme park hotel's major elements, including construction sequence, technical risks, and logistic arrangements, to develop a robust CS model. The model is then presented and validated through a case study. A comprehensive CS model should include an executable milestone schedule, a detailed logistic plan, a thorough analysis of technical risks, and project-specific recommendations to minimize design and construction changes at later stages. This model contributes to project risk management by mitigating potential issues early in the planning phase, helping to prevent significant delays and cost overruns.

The following sessions are scheduled for the technical program.

Subject to change. Rev. June 9, 2025 at 19:44

(TCM-4606) The Project Controls Manager's Playbook: How to Thrive in the New Era

Time | Room: TUE 3:25-4:25 | Orange County Ballroom 2
Skill Level: Intermediate
TCM Section(s): 0.0. General Reference 2.4. Project Control Process Map
Author(s)/Presenter(s):
Leslie E. McMullan, FAACE *Hatch*

Abstract: Project controls and project management methods have been established for many decades. Leading organizations and associations, such as AACE International and the Project Management Institute (PMI), have developed bodies of knowledge, training, and certifications. The basic concepts of cost engineering and project control remain sound; however, we are entering a new era as the world is being affected by transformative technologies revolutionizing how we work and drive data-driven forecasting. Other trends continue to impact the industry, such as greater project complexity, shortages of Industry human resources, globalization, evolving contract types and risk distribution, and various external influences.

This paper builds on the previously published Project Controls Manager's Survival Guidebook to look more closely at the hard and soft skills required and how the role of the project controls manager continues to evolve with digital project delivery and artificial intelligence (AI) as part of the Project Control Manager's Playbook for a new era.

Corporate values, remote work, team management and communication, and the perception of the project controls manager's role at both the project and portfolio levels will be discussed, along with a roadmap for becoming a project controls manager in the digital age.

AACE and its body of knowledge are key factors in bridging the gap between academia and Industry for the current and next generation of project control managers and professionals.

(TCM-4660) The Benefits of Incorporating AACE Best Practices (In the Age of the Nuclear Renaissance)

Time | Room: SUN 1:10-2:20 | Los Angeles / La Jolla
Skill Level: Intermediate
TCM Section(s): 2.2. Total Cost Management Process Map 3.2. Asset Planning
Author(s)/Presenter(s):
Shoshanna Fraizinger, CCP FAACE *Shoshanna Fraizinger Consulting Inc.*

Abstract: As nations strive to meet their 2030 decarbonization goals and governments look for opportunities to invest in infrastructure projects, one can see the nuclear industry coming into a renaissance period. More countries across the globe are looking to invest in new nuclear build, refurbishment, and advanced small modular reactors to solve their green energy transition and future energy growth problems.

The paper guides organizations investing, planning, managing, or executing nuclear projects by outlining the strategic benefits of adopting AACE International's recommended practices (RPs). It highlights the role of AACE-certified professionals whose proven expertise contributes to improved cost predictability, schedule adherence, and risk-adjusted decision-making. These factors, in turn, support successful project execution and promote long-term financial sustainability.
