Opening Keynote, Monday, 8-9:30am

Global Perspectives and the Future of Scheduling

Speaker: Matt Boot

Via media platforms such as LinkedIn, Twitter, blogs and online news portals; we are constantly told that industry is ripe for transformation through technology adoption. Technology has always influenced the way we deliver projects, but over the past five years the options available have notably increased and, along with those, the ideas for the future.

How will this impact the scheduler, the scheduling discipline and the profession as a whole? Are the policies, practices and training provided aligned with the direction that industry is taking?

The future of the discipline will rely on greater interdependencies, a key theme of this year's conference. These interdependencies will be driven by bringing multiple data sources together into new software applications. This will provide an environment for the evolution of the scheduler's role.

In this presentation, we will examine the key trends appearing around the world, discuss some current applications and consider where these may take the profession.

Scheduling 101a, Monday, 10-11:15am

Managing Troubled Projects

Speaker: George McLaughlin

The management of Troubled Projects provides a unique opportunity for improving Project Managers'/Construction Managers' performance as leaders and opportunities to overcome obstacles facing the industry. Experience has shown that Troubled Projects require unique and specialized managerial techniques. Fundamental causes include managerial mistakes, planning mistakes and external factors. Troubles can take many forms including: inadequate planning and baselines, missed deadlines, human resource management issues, poor cost control and/or poor time management. Early warning signs include poor change management and control, delayed decisions, high-tension meetings, poor project reporting, frequent crises, unrealistic forecasts and high personnel turnover.

This presentation offers techniques to develop leadership skills. With an emphasis on collaboration, the content offers proven successful managerial techniques for recognition, recovery and resolution of these Troubled Projects. Recognition is crucial and earlier is better. Recognition techniques and related project KPI's are discussed. Recovery techniques vary, depending of certain key factors. The factors are presented, and the most effective recovery approaches are coupled with the Troubled Project key factors. Since people and process are interconnected, selection of recovery techniques and/or recovery support team are addressed. Finally, resolution can take many forms and paths. Choosing the best resolution technique is essential. Resolution techniques as well as selection and implementation criteria will be presented. Case studies of successful management of Troubled Projects will be highlighted.

Troubled Projects can be successfully managed when the optimal managerial approaches are used. Troubles can be converted to success using techniques that are offered in this presentation.

Scheduling 101b, Monday, 10-11:15am

Fast-Track, Multi-Project Scheduler Training

Speaker: Ed Mahler

Most Microsoft Project [MSP] training provides descriptions of the rich collection of features and functions that have evolved in the product over years of refinement and the many ways the current versions may be used. Twenty-five years of using MSP to plan, track, control and report on multi-project portfolios on behalf of clients has incented me to find the most efficient and effective way to perform these functions to provide what my clients want and need, save myself work, save my clients money and have fun doing it.

Some clients with long running projects and budget pressures have asked me to train my replacement. Turns out, the 25-year MSP process is teachable to the totally uninitiated in just a few weeks. This talk will describe both the MSP process and the training required to implement it on your projects.

Scheduling 102, Monday, 1-2:15pm

Resolving Resource Overallocation

Speakers: Jesus de la Garza and Diana Franco

The baseline schedule is frequently used to track project performance. Indeed, the schedule is one of the top three performance measures included in contracts. Resources, as a key component of schedules, must also be monitored to prevent/mitigate any extension in the project completion time.

One of the challenges of resource allocation is resource availability because, oftentimes, the resource demand exceeds the supply. When resources are overallocated, activities are delayed until resources become available. Due to a project's size and complexity, schedulers use available software to resolve the resource conflicts of the schedule.

Microsoft Project and Primavera P6 are two popular scheduling software toolkits for construction companies. Based on specific priority rules, each software toolkit ranks activities to determine the order in which activities should be scheduled according to resource availability. The algorithm incorporated in each toolkit to solve resource overallocation is rarely fully documented by the developers. This lack of understanding limits schedulers when communicating the results to the project team.

This session will provide practitioners with the necessary technical skills for solving the resource overallocation of a project. Specifically, the authors will explain: (1) what Primavera P6 and Microsoft Project do to solve resource conflicts in the schedule, (2) how to mitigate the resource supply-demand problem in each software toolkit, (3) how to incorporate new priority rules in the software to solve the overallocation problem and (4) what output can be trusted to make decisions.

Claims 101, Monday, 1-2:15pm

Delay Methodologies – Your Choice Matters!

Panel Discussion: Bob Freas, Scott Hollingsworth, Clark Thiel, Meera Wagman

We all have heard that different schedule delay methodologies will yield different results. The practitioner needs to understand what's important about their selection and how it could affect the outcome of the delay claim under consideration.

The panel will review certain factors to consider when selecting and implementing a methodology as well as comment upon current industry views. Next will be a case study to demonstrate how different methodologies can yield different results. An interactive discussion with you demonstrating the strengths and weaknesses of the schedule delay methodologies presented will wrap things up.

Scheduling 103, Monday, 2:45-4:00pm

Complexity's Influence on Practice: The Soft Side of Project Management

Speaker: Mike Oliver

This presentation focuses on the phenomenon of how project schedule management practitioners' perception of complexity affects practice. The presentation is based on the presenter's doctoral research exploring two questions: First, how do project schedule management practitioners perceive project complexity? Second, how does that perception influence practice?

Proceeding from a theoretical orientation situated in reflective practice theory, data was gathered through interviews with project schedule management practitioners who possess the Project Management Institute Schedule Professional credential as a representative sample of the broader population of project schedule management practitioners. With respect to the research question about the perception of complexity, the study results revealed participants' exhibition of sensitivity to five forms of project complexity influencing schedule management practice: volatility, uncertainty, structural, technical and social. In response to the second research question, the study results revealed utilization of three iterative, non-linear strategies characterizing participants' response to their perception of project complexity: awareness facilitation, adaptive rigor and agent enlistment.

Although the results showed practitioners engaging in reflective schedule management practice, their response to social complexity's effect also exhibited practical application of actor-network theory. The insights from this study contribute to the project management theory-in-action research literature focused on advancing exercise of reflective practice as a response to increasing project complexity.

Claims 102, Monday, 2:45-4pm

The Future of Delay Claims and Construction Dispute Resolution

Speaker: Andy Ness

The processes used for resolving complex construction claims (and claims involving delays and scheduling issues by definition are highly complex) continue to evolve, seemingly at an increasing rate. This evolution encompasses all categories of resolution processes – trials in courts, hearings in arbitration, mediation processes, as well as other alternative dispute resolution methods. There is not only an ongoing quest for improvements but also an increased appetite on the part of disputing parties and their lawyers for experimenting with new techniques and ideas. This is driven first and foremost by the ever-increasing costs of dispute resolution, as well as dissatisfaction with the often-extended time and effort required.

This session will address the current construction dispute resolution landscape, the new ideas and concepts that are starting to appear in construction disputes, as well as the latest trends. It will also include a look into the future and what current trends portend for the coming years.

What will these changes likely hold in store for forensic scheduling experts? The current dispute resolution landscape is so diverse and diffuse that no one person can be on top of all the new twists and turns – please bring your own stories of unique and unusual techniques that you have experienced and share your opinions of whether they helped or hurt the overall process.

Scheduling 104, Tuesday, 8-15-9:30am

The Ethics of Scheduling

Panel Discussion: Tarek Bahgat, John Cook, Lelon Ginn

This panel discussion will highlight the College's newly adopted *Code of Ethics* and how it addresses obligations to clients, to colleagues and peers, to the professional scheduling community and to society at large. Perspectives of both practitioners and clients/owners will be considered including legal ramifications of the *Code*.

Claims 103, Tuesday, 8-15-9:30am

A Better Method of Performing Delay Analysis

Speaker: Brian Leach

Since spring of 2018, Steelray has been conducting research on the different methods of performing delay analysis and how software might be applied to the problem. We found flaws or bias in many of the methods that we examined. In this presentation, we will present results of our research into the use of software to answer these primary questions:

- When comparing the changes between two snapshots of the same schedule, how can software programmatically determine which changes have a negative (or positive) impact on schedule performance?
- Given a large list of changes that negatively (or positively) impact performance, what metrics can we use to quantify and prioritize the changes, avoiding the need to consider the entire list?
- Given a negative schedule trend (like a slipped milestone), how can software programmatically list all the schedule changes that explain the trend?

Using simple scenarios and animations, an algorithm will be presented that may clear a path for a more objective and accurate method of delay analysis.

Scheduling 105, Tuesday, 10-11:15am

Managing Schedule Risk in Aerospace and Defense Projects

Speakers: Ginny Harvey and Jacqui Nevils

This presentation will share insights from identifying and managing schedule risk on development projects in the aerospace and defense industry. We will address identification and quantification of schedule risk (1) using three-point assessments and Monte-Carlo analysis, (2) reviewing and analyzing the results and (3) discussing some of the options available to manage schedule risk. This will not be a hands-on demo or specific to any particular tool; rather, we will discuss the concepts and practical application of the results and how they are integrated into related program management plans.

Claims 104, Tuesday, 10-11:15am

What Is a Time Impact Analysis?

Panel Discussion: Mike D'Onofrio, Tom Fertitta, Joseph McFadden, Anthony Nedinsky

Time Impact Analysis [TIA] is a common industry term used to identify a schedule delay analysis methodology. However, a TIA is defined in many different ways and, in some cases, with different meanings.

How do you define a TIA? Is it only a forward-looking approach or is it a retrospective approach? What are the advantages and disadvantages of each approach? How is each approach received by courts and boards?

The panel will provide definitions commonly found in the industry and will provide a historical perspective and evolution of the TIA. In addition, the panel will provide examples of best practices to construct a TIA, both forward-looking and retrospectively, plus provide case studies using different approaches ordinarily found and, finally, share real life experiences.

Scheduling 106, Tuesday, 1-2:15pm

The Master Builder and Normal Evolution of Scheduling

Speaker: Tarek Bahgat

How were the ancient masterpieces built? How did the renaissance change the practice of architecture, construction and the development of design drawings? How did the Industrial revolution change the way we plan and schedule our projects? Why are we doing what we are doing now? What does the future hold?

All of these questions and more will be answered by a journey through the history of architecture on our quest to predict what the future holds for planning and scheduling our projects.

Claims 105, Tuesday, 1-2:15pm

Managing Risk and Resolving Schedule Delay Claims

Panel Discussion: Kristopher Berr, Christine Creammer, Rob D'Onofrio, Jason Spang

The panel will walk through a hypothetical Engineering/Procurement/ Construction [EPC] project from contract formation through performance and resolution of delay claims. Issues will include (1) how negotiated contract terms address schedule and risk of delay claims, (2) effect and risks of owner-designated subcontracts, (3) how interference with schedule provisions of the contract affect delay analysis, (4) resolution of competing critical paths and schedules during the project and (5) how resolution of delay claims after the project is complete circle back to shifting of risk in the contract negotiations at the start of the project.

Scheduling 107, Tuesday, 2:45-4pm

Productive vs. Non-Productive Labor: Models and Comparative Studies
Mitigating Risks to Achieve Successful Outcomes: 21 Steps to a Successful Project

Speaker: Bruce Stephan

What Owners want from their consultants is a successful project: on time, on budget, no one is hurt or killed. It achieves the quality specified, performs as expected for its full lifespan and provides the Owner good documentation of what was built. Every consultant's proposal claims they are going to achieve these goals, but few succeed. This presentation will explore how the probability of a successful program outcome can be enhanced though proactive and uncompromising application of best practices throughout the program lifecycle. The speaker will use the many mega-programs he has been involved in throughout his career to bring a real world perspective to the philosophical underpinnings of the best practices we all know but rarely use to their full advantage.

Claims 106, Tuesday, 2:45-4pm

Recent Legal Developments

Speakers: Mark Groff and Steve Hurlbut

This presentation will discuss recent federal and state court decisions discussing CPM and schedule impact and delay issues. The lessons learned from such cases can be an important guide to industry practitioners prosecuting or defending claims.

Scheduling 108, Wednesday, 8-15-9:30am

Spatiotemporal Scheduling Optimization for Building Projects

Speaker: Adel Francis

The arrival of building information modeling and four-dimensional (4D) simulation is forcing the construction industry to adapt its contractual, operational and technical modes. Currently, the 4D simulation model is either a bar chart or a linear diagram. Both methods are unsuitable for modeling building projects as showing the work sequence, circulation and supply flow between sites is difficult. Spatiotemporal planning is more suitable as a scheduling model as it considers activities, resources and spaces simultaneously. However, most of the optimization process based on space planning uses deterministic or stochastic optimization techniques, and these techniques are not viable enough to apply to building construction schedules. The number of parameters is too important for one to consider using algorithmic optimization only. Therefore, this paper proposes a hybrid solution based on spatiotemporal techniques that combine graphical, procedural and algorithmic aspects. The integration of spaces and operations ensures the continuity of use of spaces and teams as well as linear production; an approach that prioritizes the critical space on the critical path of activities.

Scheduling 108b, Wednesday, 8:15-9:30am

Activity Logic and Level of Detail

Speaker: Dave Gorski

A schedule is typically developed from the top down and is commonly defined in levels. A Level 1 schedule is a broad representation of work. As we proceed through Levels 2, 3, 4, …, more detail is represented by tasks required in support of a work deliverable. Often, the required level of detail is not represented in a schedule because additional detail requires additional work to track actual progress against the schedule.

This presentation will provide insight into supplying the desired level of detail by using start-to-start/finish-to-finish logic ties and summary/level of effort activities.

Scheduling 109a, Wednesday, 10-11:15am

Productive vs. Non-Productive Labor: Models and Comparative Studies

Speaker: Dave Halligan

Studies of productive vs. non-productive labor indicate that a significant portion of manual labor hours on a project are spent on activities that do not physically advance the work. However, the corresponding observation that this is idle or non-productive time is incorrect. Dave will present the results of a recent study he conducted on a very large chemical process facility. Are there steps that can be taken to improve the proportion of effort that directly advances the work? Is the proportion of hours spent on direct work indicative of production? Or productivity? How does one design and implement a study of productive vs. non-productive labor to assure statistical relevance? What are reasonable industry expectations? These and other topics will be presented and explored.

Scheduling 109b, Wednesday, 10-11:15am

Project Controls at a Glance: Managing Projects at Genentech

Speakers: Jason Partin and Aamir Vaid

Biotechnology and newer emerging tech companies in Silicon Valley are seeing the value of embedding a Project Control group within their larger organizations. Genentech is one of those companies. This presentation will provide a brief background on Genentech: who we are, what we do and its impact. It will discuss our matrix organization and include scheduling large projects as well as portfolio scheduling metrics and reporting, and how to adapt traditional project controls to a new, agile company.

Closing Keynote, Wednesday, 11:30am-1:00pm

A Walk Down CPM Memory Lane

Speaker: Dr. Miklós Hadju

CPM has been the scheduler's tool of choice decades. During these years its origins were forgotten, its meaning has been transformed and its practice has, oftentimes, been watered-down. For some of us, CPM means the original cost optimization model. For others, it is synonymous with deterministic network development with the objective of finding the shortest project duration (the critical path) and the corresponding earliest and latest dates for each network activity.

This keynote provides a critical, state-of-the-art overview of CPM scheduling and reviews the fundamental developments regarding activities and relationships to (1) greatly enhance the modeling capabilities of CPM, (2) discuss the calculation issues (time analysis) in connection with these developments and (3) introduce tools to better interpret the calculation results.
