A CHANGE IN PERSPECTIVE

2019 Resolution:
Get Certified,
Stay Certified

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Companies are counting on their future leaders to manage with more speed, flexibility and trust than ever before. But how can middle managers climb the corporate ladder while also challenging the way things have always been done? Leadership expert Elizabeth Lyle offers a new approach to breaking the rules while you’re on your way up, sharing creative ways organizations can give middle managers the space and coaching they need to start leading differently.

Source: www.ted.com

Outside the Box will be a standing column designed to introduce new ideas and concepts from other resources and professions that may help stimulate a new way of thinking about total cost management. The views and opinions expressed are those of the authors and do not necessarily reflect the official policy or position of AACE International.

We invite Source readers to send suggestions on other sources to editor@aacei.org.
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The Top 10 Reasons
To Join AACE International

Ready to advance your career and begin enjoying the advantages that our members enjoy? Whether you are an experienced cost engineer or a student, we have a membership ready for you.

1 Time
Gain access to a wealth of resources that will save you time and money! You’ll stay informed about the complexities of the cost and management profession - plus you’ll have access to discounts on educational programs, publications, and more!

2 Information
Locate thousands of technical papers and publications in the Virtual Library. AACE’s database is keyword searchable for quickly locating appropriate reference articles.

3 Career
Members can post resumes at no additional cost in our Career Center and keep your career on track through information sources such as our annual Salary and Demographic Survey of Project and Cost Professionals.

4 Learning
We offer numerous online learning courses on estimating and project management. The Approved Educational Provider program helps maintain high quality development courses and providers. AACE also holds many seminars throughout the year.

5 Resources
Starting with the TCM Framework and Recommended Practices that are available for free only to members to our bi-monthly publication Cost Engineering featuring articles for cost professionals around the world. Through the AACE International website, the Cost Engineering journal is a great current resource for members and as a member, you gain access to an archive of past issues.

6 Technical Development
Increase your knowledge and expertise by joining one of AACE International’s many technical subcommittees, subcommittees, and Special Interest Groups (SIGs) at no additional cost to members. Discuss industry problems with your peers or help experts develop new and improved techniques and practices for the profession.

7 Networking
By attending a local section or our Annual Conference & Expo for interesting speakers, informational tours, social dinners and much more. The online Membership Directory is an excellent source for a list of contact information on thousands of members. Join one of our many technical subcommittees and participate in the AACE Forums - a great way to tap into the collective wisdom and experience of our world-wide membership.

8 Excellence
Our certification programs are independently accredited by the Council of Engineering & Scientific Specialty Boards. AACE certifications are a recognized credible standard in the cost management field. A recent study shows that individuals with an AACE Certification earn 17.4% more than their counterpart without a certificate.

9 Discounts
On products and services ranging from AACE International Conference & Expo registration fees, archived webinars and presentations, certification examination registrations, and more!

10 You!
We are your professional partner bringing you information and support you can trust. Join and become part of a unique network of individuals who are dedicated to improving the cost and management profession.

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A Change in Perspective

BY DR. ALEXIA NALEWAIK, CCP FRICS, President, AACE International

For the past year or more, I have been teaching a graduate-level course in engineering economics. A major assignment in the course is a full-scale cost-benefit analysis of a project. Each semester, I have a handful of students who approach the analysis as a one-dimensional sales pitch for their project. I can’t say this is unusual or unexpected; plenty of organizations around the world do this to get their pet projects approved. As project controls professionals, we can’t complain; such projects keep us steadily employed.

As professor, it is my job to help the students look at the whole picture. During the course of the semester, I work with my students, teaching them how to identify stakeholders, risks, and opportunities. I constantly remind them that a truly well-rounded cost-benefit analysis should include consideration of an alternative, even if the alternative is just not doing the project. But, most of all, I spend my entire semester teaching them to practice critical thinking, helping them to recognize bias, and prompting them to look at problems from the perspective of various categories of stakeholders.

By the end of the semester, those same students are amazed by how their analysis has evolved. Some have even changed their conclusions, selecting an alternative as the best choice instead of the original project. From one dimensional to multi-dimensional, a change in perspective makes a huge difference.

These skills aren’t just the key to success in the course; they are also the key to success in projects, in organizations, and in leadership. We become so accustomed to moving through the world in our own little bubble, often surrounded by people who support and amplify our narrow perspective, that we really “see” only a fraction of said world … yet we believe the small portion we see is the only truth there is, and we constantly seek confirmation of that. The combination of limited perspective, bias, and lack of critical thinking prevents us from learning and evolving. It obstructs discourse, and limits not just us but our organizations.

In the spirit of the lesson, here is your assignment for the week. Go outside, and find a tree. Look at it. Take a picture of it, if you will. Really consider it. Look at the leaves (or lack thereof), branches, roots, inhabitants, and the way the sunlight or moonlight filters through. Then move a quarter of the way around the tree. Look at it again, and note what is different from that view. Repeat, until you have walked all the way around the tree. Try doing so again, at a different time of day, or during a different season. What did you learn about the tree, by changing your point of view? ©

If you would like to contact our current president with questions or comments about The President’s Message please address your e-mail to president@aacei.org. To engage in other discussions, check out AACE International’s online Communities at communities.aacei.org.
Timely Time Extensions

BY JOHN ORR

Construction contracts typically specify that an owner will grant time extensions for excusable delays, and courts and contract appeal boards have added an implied obligation requiring the owner to grant these time extensions in a timely manner. A time extension does not benefit or provide relief to the contractor from the impact of a delay until additional time has been incorporated into the current project schedule; and a contractor cannot coordinate his remaining work with an inaccurate, distorted schedule. Project control is lost when a change (either increased scope, or reduced time, or frequently both) occurs, but adjustment for the impact of the change is not incorporated into the schedule. A project with a growing list of unprocessed time extension requests indicates potential scheduling disputes and subsequent litigation. While the facts of each case may differ, an owner who waits until substantial completion to “settle all the time issues,” has opened herself or himself to a potential liability for compensable costs of acceleration.

But, despite the obligation to grant time extensions in a timely manner, owners frequently fail to do so for various reasons. Lack of expertise in schedule time impact analysis, misunderstanding of float, inability to take concurrent delays fully into account, low confidence in the schedule’s accuracy (including suspicions about the critical path logic sequence), or a belief that the project will recover on its own (what Samuel Johnson called, “the triumph of hope over experience”), can prevent owners from addressing time extensions promptly. Contractors, seeking to protect their interests, can be tempted to initiate a steady flow of change requests and claims; while the owner, aware that he or she owes something, just not everything, will defer or deny most of these requests.

The project management team, including both owner and contractor representatives, must therefore make a proactive effort to break this all-too-common and destructive pattern. Even though the contract specifications govern the methodology and format for preparing and reviewing changes and time impact requests, the team must take advantage of all available resources and involve experienced schedulers from both the owner’s and contractor’s staff. If the specifications require a Time Impact Analysis (TIA) (following AACE Recommended Practice 52R-06), both sides must realize that this is a method for prospectively calculating time impacts. A TIA evaluation that is performed after the conclusion of the delay, using estimated schedule durations rather than actual known durations, can be compared to using old weather forecasts rather than actual data to determine last month’s rainfall. This is why the RP 52R-06 TIA methodology is not recommended for retrospective evaluation without adjustments to constraints, durations and/or logic.

Duration variances of non-impacted work and ongoing contractor mitigation efforts (reflected in changes to logic or durations in the schedule updates) can further cloud the results, reducing confidence in the accuracy of the forecast and the calculation of an equitable time impact. Experienced schedulers will recognize this and will use additional methodology (including retrospective forensic schedule review techniques, such as “Progress-Only” update information) to evaluate the impact of delays and determine an equitable time extension in a timely manner.

Editor’s Note: This is part of a continuing series of short articles provided by members of the AACE International Technical Board.
SAVE THE DATE!

June 16-19, 2019
Sheraton New Orleans
New Orleans, Louisiana, USA
2019 Resolution: Get Certified, Stay Certified

BY PENNY WHOOLERY

Making a New Year’s resolution is a common pastime for people in all walks of life. It can be a great way to strategize our lives. While we start out energized and completely committed to improving, achieving, starting or stopping something for a positive outcome, studies have shown that 80-90% of people give up by February. The reasons may vary but disappointing all the same.

When it comes to resolutions for getting certified or recertified, AACE can help to make sure you achieve your goals in 2019!

Certification staff are available to answer your questions and assist you in making an application. We also provide a number of online tools to help you navigate through the certification process:

The Certification Hub – a centralized outlet for Information, Guidance and Assistance

Certification Tutorials – a collection of short videos to guide you through the application process

Glossary of Terms Handbook – a guide to provide definitions for terms used for the process of AACE certification and recertification.

Recertification Handbook – a useful guidebook to help you easily maintain your hard earned credentials; you can get a complimentary 2nd edition just released on our website.

While we can’t help you to lose weight, exercise more, save money, travel, or make new friends, we can help you to get the certification you’ve been thinking about (for too long) or retain the credential(s) that you worked so hard to achieve.

So, what are you waiting for? Let’s do this in 2019.
Without trying too hard, it’s easy for many managers to compile a long list of reasons not to meet with the people they supervise. But, the volume of reasons does not outweigh the value and importance of a regularly scheduled tête-à-tête with a direct report.

**BENEFITS OF REGULAR ONE-ON-ONE MEETINGS**

If used correctly, over time managers and employees can enjoy many benefits by meeting one on one. Consider the following benefits:

- **Visible appreciation:** Time is currency. If managers carve out time for their people and are prepared when they meet, they show they value their direct reports.
- **Better thinking:** Regular one-on-one meetings give managers and employees space to step away from the urgent and immediate and to think more holistically and strategically about work, goals, and development opportunities.
- **Stronger results:** Accountability tends to improve when people have an opportunity or a requirement to report on their progress.

**THE PERFECT ONE-ON-ONE**

Once a manager has bought into the value of one-on-one meetings, the next step is to execute them in a way that works for the manager and the employee. Good one-on-one meetings are not one-size-fits-all activities. That said, there are a few guidelines that can make a one-on-one meeting successful:

- Pick a schedule and stick to it. One-on-ones shouldn’t regularly disappear from the calendar simply because something else suddenly comes up.
- Choose a frequency that makes sense. For some people meeting once a month may be enough. For others, meeting weekly may be more appropriate. Every relationship is different. Furthermore, circumstances evolve. Depending on what’s happening inside and outside of the organization, an employee’s needs could change drastically. If the rate of meetings is correct, managers and employees should not routinely find themselves with no reason to meet.
- Follow a written agenda. Well-run one-on-one meetings are not free-for-all conversations. They follow an agenda just as any other good meeting does. A one-on-one meeting agenda might include such topics as current projects, progress on yearly development goals, current challenges, and so forth.
- Put employees in the driver’s seat by having them manage and document the agenda. As a manager, you may create the initial agenda format. But once you do, your employees should take ownership of the documents associated with their one-on-one meetings.

**TROUBLESHOOTING**

One-on-one meetings rarely go from nonexistent or dysfunctional to perfect overnight. For that reason, managers should prepare to overcome a variety of obstacles.

**Obstacle 1: Employees question the new meeting**

Solution: Reduce the surprise factor. If a manager has never held one-on-one meetings, they might come as a surprise to employees. To avoid feelings of uncertainty, confusion, or worse, socialize the idea before loading the calendar with unexpected surprises. “This year, I would like to focus more on individual development. Within the next week or two, please expect to see a meeting request from me on your calendar. I believe we will all benefit if I spend time with each of you individually at regularly scheduled intervals. How often we will meet will depend on each of your needs and what we decide together.”

**Obstacle 2: An employee doesn’t take charge of the meeting**

Solution: Show them how. A good agenda can go a long way toward making the conversation flow. Although employees should have ultimate responsibility for keeping the agenda, this may take time. In the beginning, managers may have to model what they want to see. “For our first few meetings, I’ll prepare the agenda. Once we’ve found our groove, my plan is to turn it over to you to own. This means you’ll add to it between meetings and bring a copy for you and me when we meet.”

**Obstacle 3: An employee gives short or general answers to questions**

Solution: Get specific. The more focused a manager’s questions are, the better the conversation tends to be. For example, instead of asking, “what are you working on,” a manager might say, “tell me about the project that is going best right now and why that is.”

**Obstacle 4: An employee seems unresponsive.**

Solution: Leverage silence. When managers don’t get immediate feedback, they sometimes mistake silence for non-responsiveness. It’s important for managers to remember they already know the questions. The employee is hearing them for the first time and may need some time to digest and think about what’s being asked. Instead of rephrasing questions that don’t produce an immediate answer, managers need to get comfortable with letting silence sit in the room.

**REEVALUATE FROM TIME-TO-TIME**

Like anything, one-on-one meetings can get stale. It’s important to look at the format and frequency from time to time and to solicit feedback regarding what’s working and what isn’t. If you’ve fallen out of the habit of holding regular one-on-one meetings, or if you’re not getting all you could from them, now is the time to take another look. After all, can you really afford not to?

Kate Zabriskie is the president of Business Training Works, Inc., a Maryland-based talent development firm. She and her team help businesses establish customer service strategies and train their people to live up to what’s promised. For more information, visit www.businesstrainingworks.com.
Three AACE International members attended, and/or presented technical papers, at the October 10 China Electricity Council (CEC) Conference at the Wuzhen Waterside Resort in Wuzhen, China. Wuzhen is a village situated two hours from Shanghai, along Yuyang Lake. A typical remote Chinese village, Wuzhen was remodeled and has water canals and bridges traversing it. Wuzhen also has a conference center and hotel.

On Oct. 9, Past President Julie Owen; Associate Membership Board Director-Region 8, Laurie Bowman; and China Section President, Feng Shen, travelled to Wuzhen. The following morning, Oct. 10, the three participated in the CEC Conference. The CEC is the government run power utility for all of China. CEC is a large organization. CEC has been an AACE corporate member for the past six years. Over 600 leaders from the Asia Pacific region attended the CEC Conference which had a theme of, “Inclusion, Innovation, and Sharing the Future.”

The conference started with a variety of presentations exploring how to collaborate, generate benefits from technological advancements, and make positive changes for the sustainability of the earth’s ecosystem. Following the opening ceremony, CEC leaders delivered several thought-provoking presentations celebrating CEC’s progress in leading the world in reducing the amount of energy generated from fossil fuels, increasing the use of renewables, and the effective application of advanced generation 3 Nuclear Power. The CEC leaders are working toward sustainable development goals through greater use of clean energy and by driving industry reforms in the right direction. The CEC speakers expressed a desire to pass on this heritage to future generations and to share the future.

CEC presentations outlined a desire to improve openness, become more global while at the same time meeting social responsibilities. CSC outlined a talent initiative supporting getting their employees certified, developing greater professionalism, having a greater use of quantitative models, a reduction of disputes, and calling for the delegates to join hands and roll up their sleeves.

Julie Owen delivered a presentation titled, Program Management Information Systems for the Los Angeles Metropolitan Transportation Authority (LA Metro). Her presentation provided a case study from LA Metro and described the initial system needs analysis and design criteria portions of the case study. She then described revised architecture that resulted from simplifying cost control, document control, and contracts, using Unifier software. The solution included an integrated schedule management strategy using P6 enterprise schedule organization with control level schedules to track overall program performance and lower level contractor detailed schedules, as well as Level 1 master schedules for executive level reporting of project status. The solution incorporated Ecosys for cost and resource reporting. The changes incorporated a collaboration interface, portfolio metrics, and included risk reporting.

Laurie Bowman delivered a presentation titled, Risk Management and Governance on Complex Projects. The presentation outlined that, as human beings, we are naturally biased and often go on “gut feel.” He explained that this approach is fine if you are being chased by a lion, but in the complex world of project management, where there are multiple sources of data, the right course of action is not always so obvious. The presentation outlined how technology can play an invaluable role by tracking and measuring key things that are important to an organization, namely the strategic purpose and cultural values. Bowman told attendees that putting these guiding principles at the heart of every significant decision made will prevent bias and keep the compass
pointing firmly in the direction of overall goals. To do so effectively, he suggested there are several key enablers to consider, including measuring what matters, making it safe to fail, mixing up the team, using virtual models to analyse scenarios, educating and influencing project stakeholders.

The AACE members said both presentations were well received. During a break between conference sessions, Laurie and Julie viewed a virtual site tour of a power transformer station. Following the conference, Laurie, Julie, and Feng attended a dinner with conference delegates. The three were invited to participate in ongoing information exchanges and technical workshops on a range of technical topics with CEC in the future.

On Oct. 11, Julie, Laurie, and Feng participated in a tourist day, sponsored by Wang Heshan and Jessica Yan from the Janjing Investment and Consultation Co., Ltd. This entity is also an AACE International corporate member from Hangzhou. Hangzhou, the capital of China’s Zhejiang province, is the southern terminus of the ancient Grand Canal waterway, which originates in Beijing. Its West Lake, celebrated by poets and artists since the 9th century, encompasses islands (reachable by boat), temples, pavilions, gardens and arched bridges. On its south bank is a five-story Leifeng Pagoda, a modern reconstruction of a structure built in 975 A.D. West Lake is a UNESCO World Heritage Site and one of the most popular attractions in China. The three and their hosts toured West Lake, the silk museum, and were treated to an amazing dinner and fantastic show on the West Lake called, “Impressions.” It was truly spectacular, notes Owen.

On Oct. 12, the three travelled to Shanghai, via high speed rail, and met with representatives of the Shanghai Construction Consultants Association (SCCA). The three had lunch and dinner with SCCA executives and Laurie taught a two-hour technical course on governance and risk management to 200 professionals from SCCA.

On Friday evening, SCCA hosted Laurie for a river cruise up the Huangpu River. He said, “It proved to be an excellent way to admire Shanghai’s skyline views of colonial architecture and modern skyscrapers along the river. The cruise highlighted the contrast between the classical European buildings and soaring modern skyscrapers on either side of the Huangpu River.”

He added, besides offering a privileged view of the bridges that span the Huangpu River, the cruise also offered an excellent view of the famous colonial-era buildings that make up the Bund on the eastern bank, as well as buildings such as the Peace Hotel and the Customs House. The western bank was a bustling metropolis full of modern skyscrapers and towering buildings, such as the Oriental Pearl TV Tower, and Shanghai World Financial Canter.

On Oct. 13, SCCA hosted Laurie for a tour of Shanghai Tower. The tower is a skyscraper that integrates the essence of Shanghai culture while having been built using Western building technology. It stands 632m tall, with 127 floors above ground and five below. Shanghai Tower is considered a “Megatail” skyscraper, as it is over 600m tall and is one of only three Megatails in the world. Shanghai Tower was the first project in China to use Building Information...
Modelling (BIM) technology to control the cost throughout the entire asset lifecycle. BIM technology played an important role in the installation of the curtain walls, the Mechanical Electrical and Plumbing (MEP) systems and the structural systems. The tower’s lift is the world’s fastest with a cruising speed of 18m/s.

It is the world’s tallest green building and the first high rise to have its own cloud computing data center. The building uses 43 green building technologies to achieve a five percent overall energy saving and a 25 percent water savings. The rainwater collection system captures over 20,000m³ annually and the grey water system uses about 235,000m³ of water annually. Shanghai Tower connects power, water, and services to an integrated energy management center that uses multiple smart systems to monitor the running of all mechanical and electrical devices, creates good indoor air quality and a well illuminated environment. The building includes a 1000 ton tuned mass damper, with an Eddy current damping system, reducing building sway in strong wind and increasing the comfort level. It stands on a solid foundation, with the granite bedrock from 288m deep and dated to 110 million years ago. It is a place where Western and Eastern culture coexist harmoniously.

Julie Owen and Laurie Bowman are very grateful to several organizations and people for organizing this tour of China and the invitation to participate in the CEC Conference. They expressed thanks to China Section President, Feng Shen; CEC Executive President, Yang Kun, and his team, for excellent support; to Wang Heshan and Jessica Yan from the Jianjing Investment Consulting company for their hospitality and support, and SCCA for organizing the risk training session. Bowman and Owen hope there will be more information exchanges, more training opportunities, and more collaboration in the future.
Students at the Russia Business Forum participated in PM.wave, the start of an all-Russian competition for young new generation project management specialists. The starting point of the competition was an open meeting with experts, practitioners, and project managers.

Development for the PMSOFT group of companies. Pujanova continued, “This year we talked about the importance of uniformity of the methodology of project cost management within the company, the optimal starting point of a project, the need for young professionals to be trained, and adapting programs to domestic specifics.” He concluded, “The topics of creating a flexible educational forum, the use of digital platforms and technologies, as well as the development of future competencies have become cross-cutting for all the threads of the Forum.”

According to the organizers, the forum has become a significant instrument of influence on what is happening among specialists of Russian project-oriented enterprises. Forum attendees participated in survey as a part of the business program. The survey results indicate that the most valuable practices of cost engineering for Russian companies have changed significantly, shifting emphasis from a resource method of cost estimation and from cost estimation by accuracy classes toward an application of the methodology of mastered volume and functional cost analysis.

Students at the Forum participated in PM.wave, the start of an all-Russian competition for young new generation project management specialists. The starting point of the competition was an open meeting with experts, practitioners, and project managers. Participants tried their hand at solving case problems, got acquainted with the trends of the future, and learned more about the competition. To date, a pool of participants has been formed, who are waiting for meetings, quests, and of course prizes. Updates on the contest will be published on the website: https://pmwave.ru and in social networks of Vkontakte, Instagram, Facebook, and Telegram.

Representatives of organizations, such as RusAtom overseas, LUKOIL-engineering, UK pole, Stroytransgaz, Arctic LNG 2, Novolipetsk steel, United Aircraft Corporation, United Shipbuilding Corporation, Russian Railways International, GAZPROM NEFT, Sevmash, NIPIGAS and many others took part in the 2018 forum.

As a cost engineering professional, I find volunteering for AACE a complete and fulfilling experience. Born in the pink city of Jaipur in Rajasthan, India, I was raised in various cities in Eastern and Western Rajasthan in diverse landscapes and cultures. Diversity therefore is in my roots and I cherish the natural approach it provides me to adapt to people, surroundings, and situations.

I graduated in 1982 with a degree in mechanical engineering from DEI Engineering College Agra, the city of Taj Mahal in India. Soon after my graduation, I was successful in an all India level competition to qualify as graduate engineer trainee to join HPCL Mumbai Refinery management staff. I still recall HPCL’s graduate engineer training program as one of the best training one can have to groom oneself technically and personally.

Moving quickly in HPCL from core mechanical engineering lien in plant maintenance, engineering and projects, I was given duties in managing budgets and costs for HPCL Refinery modification projects. From then on, my professional duties crystalized into project controls functions, primarily project planning and cost management. In 2000, I was hired as a budget control engineer for the Qatar Petroleum Refinery’s new expansion project and was entrusted to build a new cost engineering and estimating department with advance systems, procedures, and software capable of producing accurate and reliable benchmark corporation estimates. During my tenure with QP for over a decade, I achieved many milestones in saving costs by negotiating contracts from benchmark estimates, exploring, evaluating and installing CLEOPETRA estimating software, building cost libraries and database, ensuring compliance through internal audits and training teams to excel in their tasks.

In 2012, we migrated to Canada and a new chapter in advancing my professional knowledge, experience and skills unfolded. I was hired by Bantrel, the then largest EPC house in Calgary, as lead estimator for structuring the cost of mega oil sands projects of Canada, Suncor Voyager, Husky Sunrise to name a few.

With-in the next year, I was offered a very challenging job by Shell Canada as an expert estimator to build the estimate for Carmen Creek project at Peace River, Alberta. Here, I earned appreciations for building owner’s cost of over $2 billion on my own with my leadership and communication skills requiring massive coordination and support from Shell functionalities.

Later, Shell Canada hired me directly to head project estimating function for the Scotford Refinery near Edmonton, Alberta. The challenge was to create a new infrastructure for estimating refinery projects to Shell global standards and implement new procedures. I would recall this phase of my career as the most enriching in elevating my learning and leadership skills. I underwent numerous advance trainings in Shell Project delivery methods and was given to lead teams in my function, as well as in safety.

My association with AACE is since 2005 when I first became member and started to explore opportunities in learning. I earned my CCE (now CCP) certification that facilitated my migration to Canada. In Canada, I started to take more active interest in exploring opportunities to volunteer for AACE and earned special recognitions as a technical paper grader. Meanwhile, many aspirants especially from the student community in Canada, were looking to me for advice in enhancing their learning and career through AACE certifications. Mentoring came as a natural choice to extend my helping hand to them.

Presently, I am engaged with AMEC Foster Wheeler as a project management consultant to forecast and control costs for a new refinery construction project at Kuwait. This task is even more challenging and interesting since it requires communication skills to coordinate with global teams based in Europe for planned and incurred expenses.

Initially, I thought that mentoring is just about providing a few answers and links to the right references to the questions from mentees. Very soon, I realized it is better to check personally with the mentee if he/she is satisfied with what I provided.

It turned out mostly that neither the questions nor the answers were exactly what was sought. From then on, I made it a point to first ensure that objectives are clear and are fully addressed. Mostly my mentees connected to me primarily seeking advice on AACE certifications, but they always had questions.
This helped me earn their invaluable trust and respect. There can be no reward, however lucrative it may be, higher than earning someone’s trust and respect.

Throughout my career, I have realized that whatever you are, your job, your expertise or your skills, it ultimately the people whom you need to address to succeed. That’s where the AACE Mentoring Program attains value in providing wonderful opportunities to us professionals to learn, to hear, to understand and to figure out what exactly to share to meet the objectives of those in need. It’s truly an invaluable opportunity, zero investment, but with countless returns in terms of satisfaction.

In my experience in mentoring, I have often realized that true knowledge is selfless and happens both ways. As mentors, we testify whether we have done enough with our knowledge, experience, and skills to benefit those who seek our advice.

Editor’s Note: This is part of a series of Spotlight on Mentoring profiles of AACE members who are currently participating in the AACE International Mentoring program. If reading these profiles inspire you to want to become a mentor, contact the AACE Committee for Mentoring Excellence, by sending an e-mail to: mentoring@aacei.org.

Happy New Year!

BY MARVIN GELHAUSEN, MANAGING EDITOR

Having wrapped up the first month of 2019, our thoughts turn to the upcoming annual Conference & Expo that is scheduled June 16-19, at the Sheraton New Orleans in New Orleans, LA. You can register anytime for the 2019 AACE International Conference & Expo by visiting the AACE International website at web.aacei.org.

And, welcome to the first of six issues of the 2019 Source magazine. Each issue features a bonus technical article, various profiles, Section news and other AACE association news, as well as a calendar of upcoming events.

ADDITIONAL AACE RESOURCES

All technical papers presented at the annual Conference & Expo are included as a part of the annual AACE Transactions. Full conference attendees receive a pdf download of the Transactions and others can purchase the current and prior year Transactions through the AACE store at the website at: (https://www.pathlms.com/aace/courses/3266).

Another option is to purchase a bundle of the actual recordings of conference technical paper presentations; visit: (https://www.pathlms.com/aace/product_bundles). These collections are the recordings of the presentations given at the conferences, exactly as presented, with audio overlay of the slides as shown to the audience. Each collection typically contains about 70-100 hours’ worth of material on various topics.

If you need to earn CEUs toward AACE recertification, each one of these presentations you watch will earn you 0.1 CEUs. If your interests lie mainly on specific technical topics (for example estimating, risk, claims, or scheduling), then the conference series may be the right option for you. Each series contains conference recordings bundled by topic.

AACE policy is that all technical articles published in either the Cost Engineering journal or Source magazine must first be presented at an AACE Conference & Expo. Therefore, the process toward journal or Source publication begins with the submission of an abstract for a potential Conference & Expo technical paper. We only accept abstracts each July and August for the next year’s Conference & Expo. The AACE Technical Board meets and reviews the abstracts. Authors who have their abstracts selected, then have until Jan. 31 to complete and submit the full technical paper. A review committee conducts a peer review of each paper and works with the authors to improve any deficiencies. Each technical paper must pass review committee oversight before it is scheduled for a presentation time slot at the annual conference & expo.

Attendees at the Conference & Expo presentations also evaluate and rate each technical paper presentation. The Review Committee believes the input from industry professionals attending the conference presentations helps ensure that each technical paper meets real world industry standards and shows applicability to a variety of day to day on-the-job industry situations. A combination of the scores from the review committee evaluation, combined with the attendee evaluations allows conference organizers to rank the papers.

This list is then presented to the AACE International Publications Department and the top scoring papers are then considered for publication. Generally, three top ranked technical papers are published in each issue of the CE journal and one bonus technical article is published in each issue of Source magazine.

USE THE SOURCE MAGAZINE TO RECRUIT YOUR COWORKERS TO BECOME AACE MEMBERS

Happy New Year! The AACE International Publications Department is excited with the arrival of another New Year and the opportunity to bring you, our readers, six more issues of the Source magazine over the course of 2019.

Source magazine was rolled out in February 2012, as a bi-monthly AACE International association news product. We remind our readers that you do not have to be an AACE International member to view the current and prior issues of Source magazine. Use this link: https://web.aacei.org/resources/publications/magazines.

The Source is posted by the first of the month in February, April, June, August, October and December. All prior issues are also posted at the AACE website (web.aacei.org). Each issue of Source includes a bonus technical article which will give non-members an idea of the quality of technical articles that they could access once they make application and become an AACE member.

In addition to Source magazine, AACE International publishes the peer reviewed Cost Engineering journal for its members. A new issue is posted by the first of the month in January, March, May, July, September, and November. You must log in with your username and password to access the journal.

At the AACE website is our Virtual Library. You can do an advance search by subject, author name, article title, etc. Non-members can see abstracts on what is available, but one has to be a member to access and download pdf’s of full articles.
Jessica Yan

Jessica was born in Beijing, China. She loved reading as a child and spent most of her time reading books. She was always curious about various subjects, so she would read to seek out the answers. Jessica came up with ideas all the time. Most of them were innocent, but some of them were just like a lamp to light her up. She always kept memos. From those memos, she could trace back her childhood and this allowed her to know herself better.

Her father was a construction engineer and she would see him always drawing and calculating, of course during that time engineers’ tools were only pencils and calculators. He was absent most of her childhood because he was always at the work site. She loved her father, but she hated his job. She asked thousands of times why he must be an engineer, why he couldn’t be with her when she needed him. Before she went to college, she disliked the field and never dreamed that someday she would become an engineer herself.

Jessica attended one of the top ten universities in China, Wuhan University, where she earned her bachelor’s degree in civil engineering. Her first experience with project controls was during her college major studies. She had an assignment about cost auditing for a sample road project. This is where she first learned how important summary reports were to a project. The biggest problem was that all the documents for the project were a total mess. Her team had to spend a lot of time reorganizing the paper work before they could start working on their reports which left little time to work out the reports. They learned skills of project management and that organization was the key to a successful project.

After she received her bachelor’s degree, she decided to extend her learning path, and was accepted into Nanyang Technological University, Singapore. At Nanyang Technological University, she had the opportunity to build on her project control knowledge system. She had a lot of assignments and group discussions to analyze real projects and help to solve problems. She went to the site to see how a project manager makes sure their on-site work can match the schedule. She attended the meetings to listen how different groups of people can finally come to an agreement. All of these things helped her make the decision to get into project controls work. After Jessica earned her master’s degree in international construction management, she started her career with a local engineering company as a quantity surveyor.

Jessica’s current position and employer is as a general manager assistant of the Jianjing Investment & Consultation Co., Ltd. She chooses project controls work not only because of her major, but also because of the influence of her father. She is now starting to understand why her father was absent during her childhood. She believes project control work can save a lot of time and a better organized time line can save a lot of money. In project controls, Jessica states that, “We should always be thinking about how to be faster, better and stronger. Unlike the past, we now use cutting-edge software to build up models, analyze big dates to work out the best schedules and mechanize the site work to use more precast components. There is more concern about environmental protection. These are all related to project controls work.” Project control is a comprehensive work and it requires an all-around ability to catch up with today’s project requirements.

Jessica likes challenges, high requirements inspire her. She wants to make a difference in this field, and she can see all the possible ways to achieve that goal with project controls work.

Doris C., her first superior, has been a mentor to Jessica and she considers her a bridge from school to society. She has taught her how to make measurements on site condition, how to bargain with sub-contractors, how to convince clients to give up unreasonable requirements. She is an alumnus, graduating ten years before her. Doris is a very hard-working leader and patient mentor, she has answered thousands of questions and very seldom complained.

Jessica hopes to attend the AACE International annual Conference & Expo in June of 2019. Jessica’s advice to others is; “Remain true to your original aspiration, continue to explore and finally you will make success.”
SPOTLIGHT ON
Scarlet Thwe

Scarlett Thwe is an immigrant citizen, born in Burma. Both her parents are from Burma and she grew up in Burma and Singapore before migrating to the United States.

Scarlett attended college in Los Angeles and graduated with a Bachelor of Science in Business Administration (BSBA), with an accounting emphasis. Her first job out of college was as a staff accountant and that’s where she learned about organization, time management, commitment, communication skills, and attention to detail.

In 2015, Scarlett began working for Los Angeles Metro as a Transportation Associate. She was assigned to the Crenshaw/LAX Transit Project, valued over $2 billion, to assist the project controls team with cost management for the US federally funded project. The project team loved her positive attitude, good communication and responsiveness. Her hardworking skills earned her a promotion in 2016.

Scarlett currently works at Metro as a Cost/Schedule Assistant and supports planning, scheduling, and cost control on a variety of transportation projects. She loves working in a public agency like Metro because she is contributing to improve people's lives in Los Angeles and enhancing their mobility throughout the county.

Each month Scarlett prepares cost and trend reports, analyzes changes to the cost forecast, and notes anomalies from prior months. She manages project contingency and predicts potential changes and risk events that could impact the project financial forecast. She actively works with project management to ensure cost threats are communicated, reported, and mitigated.

Scarlett was introduced to AACE International by Metro management. Over half of the Program Control department staffs are AACE members. Metro regularly uses training material from the AACE on-line learning library and offers monthly project controls best practice webinars to staff. Staff enjoys using AACE educational content, learning from the AACE Recommended Practices and using them as a resource.

Scarlett enjoys attending association events and attended both the AACE Conference & Expo at San Diego and the Western Winter Workshop. She enjoyed the great variety of technical presentations and panel discussions. She appreciated the networking experience to learn more about AACE and meet project control industry experts.

Scarlett is committed to continuing her education and is pursuing a Construction Management certificate from the University of California Los Angeles (UCLA) Extension. She is also studying to obtain AACE International certification for Certified Scheduling Technician (CST).

Scarlett’s advice to others following in her footsteps is, ‘Don’t be afraid to fail. Learning from failure, hard work and persistence will lead you to success.’

“Don’t be afraid to fail. Learning from failure, hard work and persistence will lead you to success.”

— SCARLETT THWE
Elizabeth Harrison honored posthumously in 2018 with North Florida Section’s “You’re a Star” award

ORLANDO, Fla.—It has become a tradition of the North Florida Section, at its annual holiday meeting, to announce the Section’s most prestigious honor, the North Florida Section “You’re A Star” award. This award goes to a member who has made significant and outstanding contributions that have made a positive difference to the programs and activities of the Section.

At the December Section event, Section President John Orr announced that the 2018 North Florida Section “You’re a Star” award was being posthumously awarded to the Section’s late administrator and At-large Section Board of Director member, Elizabeth V. Harrison. She became an AACE member and North Florida Section member during the time her husband, Dave Harrison, was serving as Section President. Dave filled this role from 2005 until his untimely death in a car wreck in 2012. He had assigned Elizabeth to be the section’s newsletter editor and section administrator. After her husband’s death, she continued in these roles until her own passing in October 2018. Orr said the 2018 “You’re a Star” award was in honor and in memory of both Elizabeth and Dave.

The award was presented to: Lynda and Bob Miller, daughter and son-in-law of Elizabeth and Dave Harrison. In presenting the award, Orr said, “Following the death of her husband, who was our former Section President, she provided continuous expert service as our administrator and made many highly significant contributions both as an active administrator and as one of our most dedicated leaders and supporters. Her experience running non-profit organizations has served to enhance our Section, and the enthusiasm, love, and degree of detail and effort she provided is unsurpassed!” Orr continued, “I can personally attest that she has always provided input, clarification and instruction throughout my entire experience as section president. We have nominated her several times in the past for this award, and she has always fiercely declined (refused and overruled, really!) all the attempts that we made to honor her. The Board had to race her every year to make sure that we paid her annual membership dues before she did it herself; she never would have accepted reimbursement! So, it is with a great sense of sadness, but with a firm conviction that there is a no more deserving candidate for this award than Elizabeth V. Harrison.” Speaking to Lynda and Bob Miller, Orr said, “I am honored to present the “You’re A Star” award to you this evening in honor of Elizabeth V. Harrison, Section Administrator and Board Director At-Large!”

Present for the award presentation was John Philbrick, Director – Region 3, serving on the AACE auxiliary Membership Board. Mr. Philbrick said, “David and Elizabeth Harrison both greatly helped the North Florida Section. David provided capable leadership as this Section’s President from 2007 to 2012. Elizabeth was truly remarkable in her support of the section as our administrator, lining up speakers, producing newsletters, delivering announcements of section events, helping to produce our meeting webcasts, and performing an assortment of other tasks. As I have been a part of the North Florida Section since 1995, I have been the beneficiary of both David and Elizabeth’s faithful support of our section for years. In 2017, I became AACE’s Region 3 Director. My previous involvement with AACE had never included serving as president of a local section, so it was helpful for me to be able to draw upon Elizabeth’s experience, as she provided advice about the impact that any of our decisions at the board or regional director’s level could have on the local sections. We wish to express our gratitude for David and Elizabeth’s willing, expert, and sacrificial service to AACE.”

President Orr noted that the 2018 Awards Committee was comprised of: Marlene Hyde, Eric Cannon, Fernando Villanueva, and Sam Griggs. He asked each of the committee members to pay tribute to Elizabeth with remarks.

AACE International Past President Marlene Hyde, CCP EVP, who served during 2012-2013, and has been a member of the North Florida Section since 2007, said, “Our North Florida Section is truly indebted to both David and Elizabeth for their many years of dedicated service to AACE. David served as president of the section beginning in 2005, keeping the section going with interesting programs, awarding scholarships, and leading certification seminars. His wife, Elizabeth, was a partner throughout, keeping things on-track from an administrative standpoint. I moved to Orlando in 2007 and was pleased that the section was thriving. After David’s sudden death in a car accident in 2012, John Orr was elected President of the section and Elizabeth continued to dedicate her time to serving AACE as before. She handled all the administrative details, contacting speakers and following up with them, publishing the monthly newsletter, keeping track of all the myriad details of the section and compiling them into the annual submittal to headquarters which has resulted in the North Florida section continuously winning awards as a Gold or Platinum Section. Elizabeth Harrison passed away in late October 2018 and it has taken a number of our board members and president to step in to it.”
fill all the roles that we had learned to depend on Elizabeth for. In recognition of her long service, the North Florida Board voted unanimously to award Elizabeth Harrison the “You’re a Star” award for 2018. She had been voted to receive this award several times, but always, very modestly, turned it down. We are pleased to be able to award this posthumously tonight.”

Eric Cannon said, “I have been with the section for a little over 8 years and never met Elizabeth but only spoke to her either by email or telephone to get her suggestions or help. She has been the ‘glue’ in making this one of the most successful sections. I can’t say enough thanks for her endless service. God rest your soul, we will miss you dearly.”

Fernando Villanueva opened his remarks by asking, “Who was Elizabeth Harrison?” He said, “I didn’t know Elizabeth, I never had the privilege of meeting her in person and this is unfortunate. However, I knew Elizabeth as the spark plug that maintained our vibrant section. I knew Elizabeth as a tremendously organized lady that would not leave any rock un-turned until she got a task completed. I knew Elizabeth as that mysterious personality somewhere in the background of our AACE section that guided me and coached me until, ultimately, I received the Canaveral Council of Technical Societies (CCTS) award in 2014. I knew Elizabeth as the director and organizer of our section meetings, making provisions and making certain everything was detailed and in good shape for our meetings. I know that Elizabeth was a great and remarkable lady. Come to think about it, it turns out that I did know Elizabeth, she was everywhere the North Florida Section was, she touched many of our lives and now I know that I suffered a loss, I will sorely miss her. May she rest in peace.”

F. Sam Griggs said he felt a special kinship to Elizabeth because they shared an interest in genealogy. “When she learned that my mom’s maiden name was “Howard” and her mom’s maiden name was “Lavender,” her research showed that there were South Carolina marriages between the two clans, so indeed we might have been distant cousins,” noted Griggs. He added, “We worked very well together. I was always impressed with her energy and her versatility. She had all the traits that we look for in AACE. Plus, she had worked as an English teacher, an events planner and coordinator, as well as working with other professional organizations. A very versatile lady was she!”

He said Elizabeth could handle anything. She handled a myriad of duties including the section newsletter, website development, notifications to speakers, management, as well as preparing reports that are required by HQ. Griggs said, “It seems we need a committee to handle the tasks that Elizabeth had been doing and had been doing very well.”

He continued, “During her tenure, our local section received the Gold Section Recognition Award and was recognized at the AACE International Conference & Expo in San Diego. Griggs said, “While our section has very good leadership that was instrumental in earning the award, it is also understood that Elizabeth was the “glue” and a major driving force in helping our section earn the award. She was the one who maintained the records and submitted the reports and generally handled all the admin details.”

In the beginning, when Dave started working at Siemens as an electrical estimator/cost engineer, Griggs said he recruited Dave to become a member of AACE. Griggs added, “we got a bonus when Elizabeth moved to Orlando and joined her husband, our Section got Elizabeth and the rest is history.” Griggs shared a few personal stories about Elizabeth that he believes shows her “attention to detail” and her versatility.

He said over the years he has made presentations to the section. He noted, “In each case, I found Elizabeth to be very helpful and a stickler for detail. She would always send out reminders to make sure that we were on schedule for our presentations. She had been an English teacher, she had great eye for detail. I would send her an advance copy and she would make helpful suggestions. Once, when she proof-read my presentation and suggested minor revisions, I told her that It was like being back in school again and I told her that she must have been an excellent teacher.”

After joining AACE, Griggs says Elizabeth became familiar with the association and its unique “rule book” of procedures, bylaws, and association rules. He said, “She had an eagle-eye for detail, and she had a good sense of humor.”

Griggs favorite memory is that Elizabeth was super-efficient. He says Dave told him that when they were about to buy their house in Deland (while she was still in Connecticut) that she was the one who took care of all of the details and reviewed the closing statements, the deed inspection, etc. Griggs said, “I had asked Dave if he had hired a real estate attorney to review the transaction, since they were from out of state, and Dave responded, “I don’t need an attorney, I have Elizabeth.” Griggs noted, “I will never forget that statement. Thought that was a neat compliment. And she even found a couple of errors in the closing papers and the purchase of the house had to be postponed until they (the real-estate people and title company) could fix the paperwork. You know, everything in the closing papers had to be correct. When they were not correct, Elizabeth pounced on the errors. Everything had to be fixed and repaired before the house purchase could be closed.” He said, “Elizabeth had familiarized herself with the real estate and title ‘rule book’ and saved them money and time by being knowledgeable of the rules and details. Griggs believes Elizabeth was the epitome of efficiency and excellence! He said she was a lovely gracious lady.

After Penny Whoolery, Manager of Certification, and Val Smith, Senior Credentialing Analyst, from AACE Headquarters, presented a video-remote program for the Section, Griggs volunteered to hand deliver certificates of appreciation from the Section to the two AACE staff members. The Certification Board was meeting the next week in Morgantown and Griggs is a Cert Board member. Griggs said Elizabeth was detail-minded and efficient. She had arranged the presentation for the section. He notes, “Right before I left, I received a nice email from Elizabeth thanking me for volunteering to hand-carry the certificates. He added, “Being Elizabeth, she wanted to make sure

“[Elizabeth’s] experience running non-profit organizations has served to enhance our Section, and the enthusiasm, love, and degree of detail and effort she provided is unsurpassed!”

— JOHN ORR, North Florida section president
Dennis Eugene Van Kirk passed away peacefully at Peace Health SW Medical Center in Vancouver, WA on December 5th, 2018 at the age of 77.

Dennis is survived by his wife of 54 years, Jo Ann Fielding Van Kirk; his children: Erik C. Van Kirk and wife Stevie, Marta L. Van Kirk, Jeanne M. Whitaker and husband Joseph; his grandchildren: Dylan Kodad, Lauren Turner, Blake Whitaker, Brandon Whitaker, Dustin Whitaker, Katelyn See, Kameron See, Kaleb See, and Danielle See; his brother, Chuck Van Kirk and wife Joseph; his sister, Linda Pierce. He is preceded in death by his parents, Roy M. and Laura L. Van Kirk of Juneau, AK.

Dennis was born on November 3, 1941, at Tacoma, WA. He graduated from AC Davis High School in Yakima, WA and earned an Associate’s degree at Yakima Valley Jr. College. Dennis married his love Jo Ann Fielding in 1964. Dennis and Jo Ann began a family in 1965 and had their son Erik and then daughter Marta in 1967. He began as a draftsman in Yakima and eventually became a cost estimating engineer. After returning from the Vietnam War he moved his family to Juneau, Alaska, where his parents resided and then had their daughter Jeanne in 1971.

In 1975, Dennis and family moved to Renton, WA, and Dennis continued his estimating career with CH2MHIll in Bellevue, WA. Dennis and family then moved to Kent, WA in 1982. At their final residence in Vancouver, WA, Dennis retired from Carollo Engineers as an estimator and began his own business from home.

Dennis was accomplished at playing the accordion, painting, and was an avid reader. Being a combat veteran was very important to him. He took much pride in his country and what it stands for. He was a loving husband and father. His children remember him as a determined, hard-working man who always provided for his family and encouraged them to pursue their goals.

His funeral was at 11:30 a.m. on December 17, 2018, at the Marlatt Funeral Home in Kent, WA. Internment followed at 1 p.m. at the Hillcrest Burial Park with full honors. Condolences can be sent to 17146 SE 23rd Dr. #39, Vancouver, WA 98683.
A Practical Guide to Successful Program Scheduling

By Christopher W. Carson, CEP DRMP PSP FAACE; Vishu Divvela; and Gino Napuri, EVP

Abstract
While practitioners recognize that there is a difference between program and project scheduling, all too often, program scheduling is treated the same as a large project. Multi-prime projects are much closer to programs when it comes to the scheduling needs and usage. A fully integrated program schedule, encompassing all projects’ scope, schedules, updated, and analyzed as a single schedule, is an extremely valuable and effective tool, but done poorly, will allow serious negative ramifications. Claims avoidance is one of the primary drivers in the need to coordinate and manage a program schedule, at least partially due to contract limitations between each contractor and the owner. If one contractor is impacted by another contractor, the delayed contractor only has recourse against the owner, so coordination of projects can help the program succeed, or it can result in cost and time overruns, some of which could be huge. This effort also enables allocation of shared locations such as lay-down areas, parking, and overlapping construction zones so appropriate language can be included in contracts. Large programs often have large failure rates due to the inability to coordinate and control these risks. This article demonstrates a practical approach to successful program scheduling. The authors, working for an ENR Top 50 Program Management Firm ranked at #16 in June 2017, have experience in large program scheduling, with multiple prime contractors, and have developed a workable and efficient method of handling the program, following the AACE TCM Framework and Recommended Practices.

Introduction
Risk is a major concern in today’s projects and programs. Looking at program scheduling from a risk perspective elevates the need to perform program scheduling effectively. From a CMAA publication, Figure 1 for the level of risk for the owner based on the project delivery method shows how strikingly high...
While some programs can be managed similarly to projects, multiple prime programs are very different, and the difference is related to the multiple contractors with competing interests who are working directly for the owner. In a project, the general contractor has contracts with each of the trade contractors, and the trade contractors have contractual requirements to cooperate, so the general contractor has a large amount of power over the subcontractors, and thus has a larger measure of control over inter-trade conflicts and actions. Single contractor programs act in a similar way and can be managed in much the way a project is managed. However, multiple prime programs are very different; the owner carries all the individual contracts with general contractors who each have their own set of subcontractors.

DIFFERENCES BETWEEN PROGRAMS AND PROJECTS

While some programs can be managed similarly to projects, multiple prime programs are very different, and the difference is related to the multiple contractors with competing interests who are working directly for the owner. In a project, the general contractor has contracts with each of the trade contractors, and the trade contractors have contractual requirements to cooperate, so the general contractor has a large amount of power over the subcontractors, and thus has a larger measure of control over inter-trade conflicts and actions. Single contractor programs act in a similar way and can be managed in much the way a project is managed. However, multiple prime programs are very different; the owner carries all the individual contracts with general contractors who each have their own set of subcontractors.

SCHEDULING DIFFERENCES

Project schedules primarily address the scope of work required for the specific project, with limited reference to other projects and influences. While the project schedule might, and it is recommended that it does, include responsibilities of the owner and third parties, this rarely happens. Program schedules generally address multiple projects, as well as owner needs and responsibilities such as design and procurement of contractors, third party influences, and other supporting or enabling projects like relocation of tenants or demolition to release a space.

CONTRACTUAL DIFFERENCES

Project contracts primarily address the scope of work required for the specific project with limited number of other projects, so the contract between the owner and contractor can be fairly simple. Programs do not have separate program contracts, so all contracts are typically between the owner and each individual project contractor. This limits each contractor’s ability to pursue remedies for delay and interference to the owner alone, and not the other contractors. Even when the owner provides for one of the contractors to include in their services some sort of coordination between the contractors, there is still a legal limitation for that coordinating contractor to pursue claims against other contractors and they have minimum power to effect change in those other projects.

VALUE OF AN INTEGRATED PROGRAM SCHEDULE

The main areas of risk on programs that are different from projects are related to the conflicts between the multiple contractors and this is where many delays, cost overruns, and claims originate. The risks of unforeseen conditions are similar to projects so typical detailed technical project monitoring suffices in this area. But the multi-prime conflicts offer the greatest opportunity for claims and a structured program can drastically reduce the risks of those claims. Individual contractor schedules and the milestones, in the stand-alone version, are generally different from those same schedules once they are integrated into the program and the progress of other projects influence dates and float values. A stand-alone critical path for a project will be different from the critical path for that same project once it is integrated into the program and activities are driven by and drive activities in other projects. Only with the schedules integrated into the program schedule can the network calculations provide accurate milestone dates, identify the drivers for critical and near-critical path work, and identify potential conflicts between project construction limits and other shared spaces.

EARLY NEED FOR SCHEDULE MANAGEMENT PLAN

Since coordination is so vital to a program schedule, there is a heightened need for a schedule management plan, as part of the project controls plan, to plan and manage the schedule components. This schedule management plan, as a subsidiary plan for the project or construction management plan, provides direction in areas such as:

• Responsibility, Approval, Support, Consult, or Inform (RASCI) charts used to determine the areas of responsibility
• Schedule specifications language specific to programs
• Organizing components
• Inter-project dependency identification, management, and control
• Integration of risk management
• Integration of Building Information Management (BIM)
• Progress and performance measurement methodologies
• Assessment and analysis
• Forecasting
• Change management
• Historical database management
• Communications
• Reporting, and
• Deliverables

STANDARDIZED SCHEDULE REQUIREMENTS IN CONTRACTS

The program schedule specifications must contain language to require all contracts to adhere to a standard set of requirements that facilitate import and review of schedules. The overview list of standard requirements that are necessary for program schedules includes:

• Data date to ensure all schedules calculate from the same basis
• Activity codes that are set aside for program use as well as specific activity
codes necessary for common use and allowance for custom codes
• Work Breakdown Structure (WBS) levels that are set aside for program use, as well as specific levels necessary for common use
• Basis of schedule details
• Resource submission needs
• Specific milestones for the program
• Specific milestones for interactions or potential conflicts with other contracts
• Contractual constraints for interdependencies
• Liquidated damages or incentives associated with the milestones
• Notification requirements for potential impact events from other contracts
• Mitigation process when requested
• Delay language to be used when delays are anticipated but not yet absorbed into the schedule, requiring compliance with Recommended Practice (RP) No. 52R-06, “Time Impact Analysis” [3]
• Delay language to be used once delays have been absorbed into the schedule, requiring compliance with RP No. 29R-06, “Forensic Schedule Analysis” [1]

BASELINE SCHEDULE
Developing a program schedule as detailed as possible is the foundation for a successful program. Following AACE RP No. 91R-16, “Schedule Development” [5] and No. 78R-13, “Original Baseline Schedule Review” [4], to build and provide quality control for the schedule not only guarantees that the schedule is sound and acceptable, but also that all the stakeholders understand what to expect from the baseline schedule. This article does not attempt to replicate the information in those RPs but provides higher level program schedule development recommendations based on experience and assumes that the RPs are the best practices used in scheduling services or reviews. In order to assure compliance with the RPs, these requirements should be included as contractual references.

DEVELOPMENT OF INITIAL PROGRAM SCHEDULE
Usually the first program schedule is part of a proposal or plan at a very high level and a program controls team is not very involved in the proposal development. Regardless, having vetted reasonable expectations in the proposal schedule would allow for a better transition and integration by the program team following contract award, and Notice to Proceed (NTP).

The initial program schedule serves three purposes; first, to establish a reasonable program duration; second, to provide placeholder project schedules with enough detail to allow use in identifying interdependencies between contracts; and third, to represent all program level tasks to ensure the program plan is implemented.

The list of stakeholders, roles and responsibilities should be part of the written program plan upon approval. This document is the essential guide for the project controls team to understand how to coordinate the work ahead. Additionally, it is essential to have established communications channels at the early stages of the program.

The development of the program baseline schedule is a team effort and cannot be done in silos. Just receiving the scope of work and a request to develop a schedule just detailed enough to establish the interrelationships between key deliverables and trade contractors, called an AACE Level 2 schedule [2, page 3] will not be enough for any scheduler to build a comprehensive Level 2 schedule, and if the scheduler does develop a schedule without any feedback, the schedule would likely need to be revised multiple times, creating delays in approval.

The best approach is a schedule development kick-off meeting in which key stakeholders discuss the level of detail and their other expectations for the schedule, including understanding the program acronyms and defining key milestones in the program. This might be considered “overkill” by some but understanding and communicating the team's expectations earlier is fundamental for success.

Once the program controls team is confident that the information needed has been acquired from the key stakeholders, then the true development of the baseline schedule can proceed.

LEVEL OF DEVELOPMENT OF INITIAL PROJECT SCHEDULES
At a minimum, a Level 2 schedule should be developed for initial distribution within a short time after NTP. The Level 2 schedule should contain a comprehensive work breakdown structure and activities that define the work at least at a high level.

Now, the program work should be progressively elaborated in better detail while the placeholder contractors’ schedules should be included in enough detail to ensure appropriate durations and identify interdependencies, with the expectation that the contractors would submit their construction schedules to be integrated into the program schedule and replace the placeholders.

After receiving feedback from the first distribution of the Level 2 program schedule, the program controls team should plan to develop the complete program schedule up to the agreed-upon level of detail. This is the most time consuming and strenuous task of any program schedule. Getting support from the program stakeholders at this stage is vital to the successful use of the program schedule. Thus, there is a need for the program controls team to have the appropriate skills to manage all the stakeholders' expectations and the need to have the key stakeholders involved in the development of the program schedule at the early stages of its development. This is an ongoing effort that requires tact and persistence, as most program stakeholders, especially the Subject Matter Experts (SMEs) are very busy and assisting in schedule development is often not high on their priority lists. However, it is vital that these other stakeholders are committed to supporting the development of the program schedule.

SIZE OF INTEGRATED PROGRAM SCHEDULE
The number of activities in the integrated program schedule can be a concern among the stakeholders who do not understand program scheduling. Modern software has few restrictions on number of activities and the power to maintain short calculation times even with large schedules. No one should be using the full program schedule with all activities in a single view as it is not useful; all reports should be customized for the user, with extraneous data filtered out so only the important and relevant data is displayed.

This is an important issue as attempts to limit the size of the schedule will reduce the value, and lessons learned by the authors show that weak program schedules showing up in claims are often managed without integrating all the projects and program work. This can result in much smaller schedules, but the lack of detail and integration of all potential driving activities will limit the usefulness of the scheduling effort.

The reports related to the entire program are summarized such that there are few activities showing in those reports, even though they are rolled up from much more detail but it’s the detail that allows good analysis, monitoring, and predictions of completion and potential delay. With the right amount of detail, the program schedule
will be a large schedule, but the reports will be much shorter and targeted to the users.

**INTEGRATION OF PROJECT SCHEDULES INTO PROGRAM SCHEDULE**

Integrating the contractors’ schedules into the program schedule could be complicated. A detailed protocol should be in place to confirm that importing the contractors’ schedule into the program does not affect other activities or aspects of the program schedule. A partial example of a typical protocol is shown in Figure 2.

**IDENTIFICATION OF INTER-PROJECT DEPENDENCIES**

The most crucial information in a program schedule is the identification, coordination and management of inter-project dependencies. Any locations, materials or resources that are needed by more than one contractor within the same area must be coordinated in detail. The program controls team should continuously check in with the responsible parties of every identified inter-project dependency to confirm that the agreed-upon schedule is being kept and, if it changes, a protocol must be in place to coordinate the change.

It is understandable that some of the inter-project dependencies might not be completely accurate as not all details may be available for a complete plan, but at least logging these dependencies and tracking them in the schedule to produce a custom report from the schedule identifying these activities should be a priority for the program control teams from the initiating stages of the program. A typical interdependency explanation for use in coordination and avoidance of potential claims due to delays to milestones is shown in Figure 3.

**IDENTIFICATION OF SHARED PROJECT SPACES**

A crucial sub-category of the inter-project interdependencies is the identification and management of the shared project spaces. Laydown areas, parking, and road access could become very difficult to manage when two or more contractors need space to complete their projects during the same period. Identifying and managing all the possible spaces where multiple contractors might encounter each other ahead of time reduces the risk of delay because of accessibility issues by the contractors.

A typical graphic of shared laydown areas for use in coordination is shown in Figure 4.

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**FIGURE 2** Protocol Narrative for Schedule Integration

**FIGURE 3** Inter-Project Interdependency Explanation
A clear and detailed approach to the periodic (most often monthly) updates to the program schedule is necessary and vital. There will be multiple internal program stakeholders providing update information in addition to the contractors for each project. These must be coordinated with the same data date and time period in order to provide an accurate program schedule update.

**BASELINING OF ORIGINAL PROGRAM SCHEDULE**

Only after the program schedule baseline has been reviewed and approved by all key stakeholders, and procedures are in place on how to maintain the schedule and integrate the contractors schedule into the program schedule for period updates, can the program schedule be baselined. Progressing a program schedule before receiving approval can cause complications, but in the absence of approval, it is necessary to maintain an updated version, maintained in a separate scenario for historical data and only imported once baseline approval is received.

The value in baselining the original program schedule is for it to act as the repository of cost and time, so the program always has a benchmark showing the official contractual durations and costs of all projects and program. This baseline will need to be re-baselined each time the contracts’ cost or time change, adding activities to each project to document the update with additional cost and/or time. The re-baselined schedule can then be used as a target for the contract cost and time. It is not to be used for any analysis of any sort, but simply a holding tank for the contract information. All analysis must be done in the contemporaneous schedules to be appropriate, accurate, and take into account the changing nature of the critical path.

**SCHEDULE UPDATING**

A clear and detailed approach to the periodic (most often monthly) updates to the program schedule is necessary and vital. There will be multiple internal program stakeholders

**INDIVIDUAL PROJECT SCHEDULE REVIEW**

The program scheduler will receive each contractor’s schedule submission, import it to a dedicated location in the database separate from the program schedules, open the schedule and provide a review of important issues to confirm that the project schedule is appropriate within the constraints of the project, including, for example:

1. Correct data date
2. Schedule sequencing and details align with the written narrative
3. Resource total and concurrent need plan is reasonable and achievable
4. Critical and near-critical path is reasonable and appropriate, and not falsely driven by constraints and other schedule settings
5. Non-critical path work is trending properly
6. Accurate WBS
7. Accurate activity codes
8. Appropriate contractual milestones and constraints

Once this brief review is complete, the program scheduler will compare it to the construction manager’s (CM) schedule review, and inform the program manager of any deviations that might require discussion with the CM. If the project schedule is not acceptable, it will need to go back to the CM and contractor for edits – whenever possible the program scheduler will make the corrections necessary to allow immediate import into the program schedule to enable the integrated program schedule analysis to proceed. It is important not to allow the import, analysis, and publication of the program schedule reports to be delayed, as the analysis provides important information needed by the program managers and CM to manage.

**IMPORTING OF PROJECT SCHEDULES**

Once the stand-alone project schedules have been briefly reviewed and found acceptable, the program scheduler can import the approved schedules into the program schedule and verify all logical relationships, ensuring that those between each project schedule and other project schedules, as well as the program schedule are maintained or established.

**IMPORTING OF PROGRAM DATA FROM INTERNAL STAKEHOLDERS**

Program level progress and performance should be collected by the program scheduler from the designers, the program managers, the Project Management Office (PMO) and any other stakeholders and used to update the program portion of the program schedule. Once all project schedules have been imported into the program schedule and all logic relationships are verified or established, the program schedule can be re-calculated.

All constraints previously established should be tagged with an activity code or maintained in a separate log in order to facilitate review of those constraints during the updates. The constrained dates are often a function of a failure to fully review or plan separate needs, such as property acquisition or vacating existing property needing demolition. It can be very difficult to acquire this updated information on a regular basis, so constraints and the dates carried in the schedule must be an item for meeting discussions. An example of the internal update data is shown in Figure 5 (see following page).

**EVALUATION OF INTEGRATED PROGRAM SCHEDULE**

The program scheduler will analyze the integrated program schedule first by running comparison reports of all contractual milestones to identify any slippage. Then comparison reports of the coordination WBS conflict milestones will be run and any slippage identified. Next, the program
scheduler will identify level-of-effort dissipation concerns about the conflict milestones, and then follow with more detailed trending analysis using earned value, missed starts and finishes, and original duration overruns. An example of the program milestone report is shown in Figure 6, noting any slippage to the milestones.

**INTERACTION WITH PROJECT CONTRACTORS**

Most programs have project owners, who might be CMs, project engineers, or program managers, who are responsible for all communications with the individual project contractors. This can add another layer of communication needs, so the program scheduler must reach out to the relevant project owner with appropriate information that must be communicated to the contractors.

**TYPICAL SCHEDULE REVIEW FEEDBACK**

The project owner, likely the CM, typically has the responsibility to review the individual contractors’ schedules, on a stand-alone basis, ensuring that they meet the contract requirements. If the program was able to include specific inter-project dependencies in the contracts as required milestones, these should be verified to ensure compliance. Failure to achieve these milestones is often a precursor to claims so this is a high priority review requirement.

**FEEDBACK FROM INTEGRATED PROGRAM SCHEDULE**

Once the program scheduler has identified any issues, risks, or concerns related to ramifications of the projects’ integrated schedule performance, the program scheduler communicates the concerns to the program manager. After discussion and analysis of mitigation needs, the program manager communicates those needs to the CM, and works with the CM to ensure resolution.

**NEGOTIATIONS WITH PROJECT CONTRACTORS**

If all the milestones related to inter-project dependencies and concurrent space usage are included in the project contracts, each contractor will be bound by those contractual terms. This makes negotiations for delays much easier and eliminates many conflicts since there is a contractual requirement for the contractor to mitigate these delays. However, it is not unusual for a program to issue project contracts without including all the necessary milestones, or before all milestones have been identified.

When a contractor shows delays that cause an interdependency milestone to slip, if the delay is contractor responsibility, he must mitigate and recover the delay, understanding that he has liabilities for liquidated damages. If that milestone is not contractually mandated, the CM will need to negotiate with the contractor to mitigate the delay, recognizing that the effort may be an acceleration effort which could cost additional money. It is typically better to negotiate with the delaying contractor to mitigate the delay than to attempt to negotiate with the delayed contractor to mitigate the delay that was driven into his project by the other contractor. However, should negotiations with the delaying contractor breakdown, achieving mitigation from the delayed contractor is a backup option that can be considered.
When negotiating with the delaying contractor, the program scheduler should prepare a draft analysis of potential mitigation effort suggestions. It is also important that the delaying contractor is requested to prepare a mitigation plan. The program’s request should specify which interdependency activity must be mitigated and how much mitigation is required. This protects the program from any claim that it is dictating means and methods and allows for a program review of the submitted contractor mitigation plan. The requirement must be a schedule-supported mitigation plan, showing in detail the trades involved, and the successful advancement of the appropriate milestone. The request must also require a breakdown of costs from each subcontractor to achieve the mitigation shown in the submitted schedule.

Once the program receives the mitigation plan and schedule from the delaying contractor, the analysis must be quick and thorough, ensuring that the plan is attainable. It is also vital that the analysis identifies the amount of mitigation achieved by each trade participant in the effort. With this mitigation quantum established, a simple chart can be developed showing the mitigation per trade along with the cost per day per trade. The authors have found that it is not uncommon for selected trades to provide very small mitigation results at a very large cost per day. The analysis would display these in a table and provide a review of the value of the trade-based mitigation. Often, the more expensive and lower mitigation gain trades can be excluded from the mitigation strategy, saving millions of dollars. When the high-priced trade is excluded, it is generally due to the limited number of days of mitigation expected, and thus does not factor very strongly into the overall mitigation effort. And when the rest of the trades are accelerated in the approved mitigation plan, the high-priced trade often is pulled along by the more aggressive schedule.

The process should be similar to the flow chart shown in Figure 7, used on a $3B international airport development program [7, page 3].

**Program Reports**

There are a number of valuable reports that should be considered as standard reports, organized in a log of reports that specifies the name of the report, the contents, filters, audience, and meetings in which the reports will be supplied. This accommodates batch printing of reports and establishes standard reports. Whenever a stakeholder wants a slightly different version of any standard report, it should be entered in the log as a new standard report. This prevents the program scheduling team from print offhand different reports without an understanding of the purpose and audience. Most programs are so large with so much data that program confusion occurs when stakeholders attempt to glean information from a report that is not customized for their purpose.

The internal program requirements for design, procurement, site acquisition, and other milestones to ensure projects can start and proceed as designed will require several separate standard reports. These may be individual reports, such as an engineering design progress report, a procurement report for contractor bids, or property management reports to track site acquisition or lease terminations. Each report should be standardized and entered into the log, so the program scheduling team knows the

**Managing Program Reports**

The report log specifies which meetings require the reports, along with the schedule of meetings so standard reports can be run, validated, and printed in time for the stakeholders to gain familiarity with the reports before their meetings. The program scheduler should solicit feedback from the stakeholders as to the usefulness and value of each report and modify them as necessary to provide continuous improvements and value.

**Program Critical Path**

While one of the standard reports should be the program critical path, this report is rarely of high value. Most program managers seem to expect this report, especially if they are project-oriented, which is where a project critical path report is of value. The CMs should be monitoring each contractor by review of the project critical path, which is a standalone report meeting their contract requirements before integration into the program schedule. Once the contractors’ schedules are integrated into the program schedule, the update process will change the dates in the project schedules, based on how it is logically tied to the rest of the program.

Generally, the program critical path will show a limited, and not very useful, series of data. It will contain the last project in the program, the largest project in the program, and the series of constraints in the program and in the integrated project schedules. There is little value in this data, but many program managers are more project-oriented so will expect this report.

A better choice for a standard program schedule report, outside the specifically designed program stakeholder reports, is to filter the longest path for each project along with all the dependencies between projects. This is the most valuable report, and the next most valuable report is to use an appropriate definition of near-critical path along with the interdependencies. This will identify a “cluster” of the activities that provide the best monitoring ability, as well as display the activities most likely to cause delay.
Interdependency Reports
As noted earlier, a valuable claims avoidance report is the interdependency report, which shows each project and the activities in that project that are driving or being driven by an activity in another project. This report should be issued to each program manager and CM who are responsible for each project and contractor. This report should show the activities that are logically connected and a Level-of-Effort (LOE) activity that simply measures the time between each of the connected activities, each of which is in a different project schedule. As the LOE activities is reduced in duration by progress, it requires greater scrutiny as it is trending toward a conflict delay. As the duration approaches zero, the program is in a delay situation and requires additional monitoring, analysis, and likely, a mitigation request. A sample of this report is shown in Figure 8.

Shared Space Reports
Shared spaces can be overlapping limits of construction, lay-down areas, worker parking, or shared/overlapping access roads. These spaces should have been identified early in the project and are modeled in the schedule. The report for these situations allows the program team to identify which contractor should “own” the space for some period of time. These reports are used to provide input to the contracts and then to monitor the usage so there are no failures to hand over a space which result in a delay. One useful way to handle this report is to set up each of the shared spaces as a resource, and then load those resources into all activities that require them, some of which may be mobilization or demobilization activities. An example of this report is shown in Figure 9.

Trending Reports
The other important reports relate to the trending analyses. Trending is a vital analysis technique since past performance does typically influence future performance. Trending is performed using a number of techniques, from earned value to actual duration overruns (called “Tipper” from the original software by a manufacturer no longer in business, which calculated time performance ratios). Trending in a program is even more important than trending in a project, so it should be part of the standard analysis approach.

The Value of BIM in Program Scheduling
The use of Building Information Modeling (BIM), particularly using 4D modeling with the schedule linked directly to the 3D objects, allows much more intuitive view of reports, especially those showing the interdependencies and shared spaces. With this approach, the 4D model can be advanced to the appropriate date, rotated for clarity, and used to display the pending conflicts in interdependencies or shared spaces. A sample of a BIM report for interdependency conflicts, which could replace or supplement the report shown in Figure 8, is shown in Figure 10.
This graphic above shows how the fence structure from one contract is scheduled to be installed at the same time as the bridge pier which will not work – the bridge pier should be installed first and then the fence structure can be installed to abut the pier, but the fence cannot be installed prior to the pier. With this 4D model, adjustments can be made to advance the bridge pier and/or postpone the fence structure, so the sequencing works without disrupting either contract.

A sample of a BIM 4D model report for shared spaces conflicts, which could replace or supplement the report in Figure 9, is shown in Figure 11.

The green and pink colored features are replicated in the dated chart in Figure 11, and that shows the extent of the period of overlap of the two features. This graphic is powerful and easily understandable for the program managers, making it easier to spark the discussion about mitigation of this shared space conflict.

CONCLUSION

A well designed and managed program schedule which integrates all program data and individual project schedules is the best approach to minimizing claims and completing a multi-prime program on time. There are so many moving pieces, conflicting priorities, and competing contractors that a single failure to make a milestone can ripple through the program and create huge delays and cost overruns, possibly costing mitigation efforts while still completing late. With the right program schedule and process, an educational approach to the team, and managing expectations, there is a much greater probability that programs can be completed on time, on budget, with no claims.

REFERENCES


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AACE International is pleased to announce the promotion of Valerie Smith to Senior Credentialing Analyst, effective January 2, 2019. Valerie began her AACE International career in 2010 as a temporary administrator, which ultimately lead to her being hired permanently as the Credentialing Analyst due to her exceptional organizational, technical, communication, and customer service skills.

In her new role, Valerie will manage and supervise the day-to-day operations of the certification program. We are fortunate to have Valerie on the AACE Team and are thrilled to recognize her dedication and contribution to the association. Join us in congratulating Valerie and wishing her great success as Senior Credentialing Analyst.
GREATER CAIRO SECTION
Throughout November and December 2018, the Greater Cairo Section engaged in a variety of events, including participation in and attendance at the Kuwait Section Conference in Kuwait on Nov. 27-28, 2018, commenting on the public draft of AACE Recommended Practices Nos. 98R-18 and 99R-18, initiating and spearheading a MENA region potential technical paper and contacting two universities in Cairo to organize the section’s first events in a while, which are planned in February 2019. Outreach activities and events are planned to take place during the months of January and February 2019.

Above: Representatives of the Greater Cairo Section attended the Kuwait Section Conference Nov. 27-28 Kuwait on 27-28, 2018. Shown above from left to right are: Haya Saleh, President of the Jordan Section, Lucia Vernon, President of the Qatar Section, and Waleed El Nemr, President of the Greater Cairo Section.
HAWAII SECTION
On Saturday Dec. 8, 2018, the Hawaii Section combined forces with the CMAA in a community service event to clean up the beach at Sherwood Forest in Waimanalo. Twenty volunteers braved the stormy weather and completed the clean up quickly! Unfortunately, the planned BBQ lunch was cancelled because of the inclement weather. Mahalo to all who volunteered their time on a wet Saturday morning!

On Nov. 1, 2018, twenty members and guests left no pins standing at the Hawaii Section’s social event at the Aiea Bowl!

JORDAN SECTION
Haya Saleh, President of the Jordan Section reports that the section recently participated in an October 2018 International Cost, Procurement & Risk in Engineering Sector (CPR) UAE Conference, the November Kuwait Section Conference and at the December Jordanian Construction Contractors Association.

Above: On December 8, 2018, the Jordan Section offered a series of free awareness sessions to Jordanian contractors at the Jordanian Construction Contractors Associations. The topic of the first session was Contract Administration During the Bidding and Pricing Stage.

Far left: Haya Saleh, President of the Jordan Section, receives a certificate for presenting on the topic of “Strengths and Weakness in Construction Claims at the October 2018 International Cost, Procurement & Risk in Engineering Sector (CPR) UAE Conference.

Left: Haya Saleh, President of the Jordan Section, receives a certificate for presenting on the topic of “Strengths and Weakness in Construction Claims at the November 27-29, 2018 Kuwait Section Conference.
ST. LOUIS SECTION

At the St. Louis Sections’ January monthly meeting, Alex Brandt, the Project Controls Manager for Alberici Constructors, gave a presentation on the Neutrino Project to the St. Louis Section. In July 2017, Alberici and joint venture partner, Kiewit, broke ground on the Deep Underground Neutrino Experiment (DUNE), a massive project that could change human understanding of the visible universe. In a unique groundbreaking ceremony held a mile below the earth’s surface at the Sanford Underground Research Facility in Lead, South Dakota, a group of dignitaries, scientists, and engineers from around the world celebrated the beginning of this landmark project.

The Long-Baseline Neutrino Facility (LBNF) will house the international Deep Underground Neutrino Experiment (DUNE), which will be built and operated by a group of roughly 1,000 scientists and engineers from 30 countries. When complete, LBNF/DUNE will be the largest experiment ever built in the United States to study the properties of mysterious particles called neutrinos. Unlocking the mysteries of these particles could help explain more about how the universe works and why matter exists at all.

The U.S. Department of Energy’s Fermi National Accelerator Laboratory, located outside Chicago, will generate a beam of neutrinos and send them 800 miles through earth to Sanford Lab, where a four-story-high, 70,000-ton detector will be built beneath the surface to catch the neutrinos. Scientists will study the interactions of neutrinos in the detector, looking to better understand the changes these particles undergo as they travel across the country in less than the blink of an eye. Ever since their discovery 61 years ago, neutrinos have proven to be one of the most surprising subatomic particles, and the fact that they oscillate between three different states is one of their biggest surprises. That discovery began with a solar neutrino experiment led by physicist Ray Davis in the 1960s, performed in the same underground mine that now will house LBNF/DUNE. Davis shared the Nobel Prize in physics in 2002 for his experiment.

DUNE scientists will also look for the differences in behavior between neutrinos and their antimatter counterparts, antineutrinos, which could give us clues as to why the visible universe is dominated by matter. They will watch for neutrinos produced when a star explodes, which could reveal the formation of neutron stars and black holes and will investigate whether protons live forever or eventually decay, bringing us closer to fulfilling Einstein’s dream of a grand unified theory.

The Kiewit/Alberici joint venture is serving as construction manager/general contractor under contract to Fermilab and the U.S. Department of Energy. To create the caverns that are large enough to contain the neutrino detectors as well as the support tunnels, the joint venture must excavate 875,000 tons of rock – roughly the equivalent of eight aircraft carriers or 2.5 Empire State buildings – while coordinating with ongoing scientific research at Sanford Lab.

Progress on this 10-year project is being tracked by the Synchro Pro 4D Digital software which pulls information from multiple sources. This program gives teams a medium to create, analyze, edit, report, and manage the project through a single visual interface. An animation shows how the physical space changes over time.

Left: St. Louis Section’s Marvin Woods is shown above left presenting a speaker’s certificate to Alex Brandt, project controls manager for Alberici Constructors, who talked to the Section January 8 about the status of the ongoing Neutrino Project. When completed, it will be the largest experiment ever built in the US.
The Southern California Section held a holiday gathering on Dec. 12, 2018, at the Golden Road Brewery. This event celebrated the SoCal Section’s successes in 2018 and provided a great atmosphere for networking and lively discussion. The meeting was followed by the second monthly webinar, on Dec. 14, 2018. The SoCal Section is now offering the webinars as an additional means to connect with its members in a large demographic area. The topic was “Turning Around Problem Projects” by Joseph A. Lukas, PE, CCP. This webinar was attended by attendees from Honolulu, Alaska and neighboring sections. The Southern California Section is looking forward to events already planned in 2019, which includes the Western Winter Workshop, more monthly webinars and technical meetings. Check out www.aace-scs.com for upcoming events and webinars if you wish to attend.

Above: The Southern California Section’s annual Fall 2018 student outreach was at the University of Southern California (USC) on Thursday, Oct. 25, 2018. The presentation was a huge success and well attended with over 20 construction management graduate students. The section members who participated in the outreach were Devang Dedhia PSP (Port of Long Beach), George Lozano CCP, PSP (Burns & McDonnell) and USC alumnus Kristina Pascoe EIT (Secretariat). The next student outreach is scheduled to take place on the campuses of Cal Poly Pomona and Cal State Long Beach. Please contact George Lozano at (949) 697-3449 or gmlozano@burnsmcd.com if you would like to get involved at one of the upcoming student outreach events. The Southern California Section would like to thank all participants of this successful event and look forward to other members volunteering at the next outreach.
India Section asked by company to conduct training session

L&T Institute of Project Management (L&T IPM), the training arm of L&T ECC, an engineering and construction company undertaking heavy engineering and construction works in India and other countries, recently asked the India Section to conduct a day-long orientation training on Oct. 23, 2018. The training was centered on the TCM Framework and strategic asset planning to introduce the subject to L&T IPM’s selected project staff. This was the very first training program delivered by the newly consolidated AACE India Section.

Ramapriya L. Valmiki, CCP, an independent project and cost professional and an active member of the South India Section, was chosen to deliver this day long orientation program to the L&T IPM personnel.

Apart from the TCM Framework orientation, L&T IPM also requested the trainer to provide an overview on CCP Certification and useful insights on writing the CCP technical paper to the students of L&T IPM with an aim to achieve successful CCP certification by its project staff during the upcoming certification events.

The program started at 9 a.m. with 22 L&T IPM trainees. The students were introduced to the concept of the Total Cost Management Framework and strategic asset planning. The program was split into four sessions of two hours each, with adequate lunch and tea breaks to help the students assimilate the concepts better. Initially, the program attendees were introduced to the AACE International, its programs and memberships. The main program covered concepts such as:

- Definition and introduction to TCM Framework, terminologies used
- TCM process model and PDCA cycle
- Introduction to TCM process map and project control process maps
- Strategic asset planning, process map
- Recommended Practices used

The program included adequate breaks and one-to-one interactions. The participants were encouraged to raise questions and share their experience, and challenges during their project work and some scenarios were provided for possible solutions using the TCM process model.

CONCLUSION AND FEEDBACK

The last hour was used to introduce the trainees to the various requirements of the CCP certification with emphasis particularly on the CCP technical paper writing. The program concluded as scheduled. Participants feedback was collected for further improvements and enhancements in future modules and trainings.

TOP The India Section recently provided Total Cost Management training to project staff of L&T ECC, an engineering and construction company undertaking heavy engineering and construction works in India and other countries. ABOVE Ramapriya L. Valmiki, CCP, an independent project and cost professional and active member of the India Section was the instructor for a day-long training session for project staff of L&T ECC, an engineering and construction company undertaking heavy engineering and construction works in India and other countries.

Overall, the participants have provided good feedback about the program and have also provided suggestions for further enhancements.

L&T IPM was established in 2008 by L&T at Vadodara in the heart of L&T’s 115-acre campus, known as L&T Knowledge City. The aim is for L&T IPM to be a centre of excellence in project management. L&T IPM’s education program aims to train L&T’s project functional managers, project managers, construction heads and project directors by creating and delivering structured project management programs pertinent to the changing needs of the practice.
SUBMITTING SECTION NEWS  We invite all sections to submit news and updates to be included in the International Bulletin section of each Source issue. Please submit any and all text as a part of the e-mail or as a Microsoft Word file attachment. Please submit any photos as individual attachments in JPG formats. Do not embed photos in Microsoft Word files. For photos to be used, we require either large original files or print size photos at 300 dpi (dots per inch). For photos to be published, they must be in focus, of print quality, and of sufficient resolution.

Please include the names and titles of each person shown in any photos. Please list names from left to right or refer to those shown as being above left or right. For group photos please list names from left to right, beginning with the front row and working to the back. All submissions should be e-mailed to editor@aacei.org. Please use the official name of the Section as approved by the AACE Board when the Section’s charter was approved. Within 2 to 3 business days of submitting a “Section News” item, you should receive a return confirmation e-mail that your submission was received at AACE headquarters.

MISSING SUBMISSIONS  Generally, all submissions received in the above scheduled times will be published in the listed issue. Items are not held because of space restrictions. There is no waiting list and no preference is given to one Section over another. Questions about incomplete submissions or failure to follow these submission guidelines could delay publication. Text will be published without submitted photos if the photo does not meet the listed quality requirements. AACE reserves the right to edit all submissions and/or to refuse to publish any submissions determined by the Managing Editor or the Art Director to not meet the standards of the journal. Any appeals of these decisions will have a final decision determined by the Executive Director.

If a submission is not included in the designated issue, please e-mail or call the Managing Editor to ensure that it has not been lost or misplaced. Call or e-mail if you do not receive a confirmation e-mail within 3 business days of submission.

Source has a submission deadline of two months in advance of the issue date.

Submission Dates  Publication Date
By Dec. 31  February
By Feb. 28  April
By April 30  June
By June 30  August
By Aug. 31  October
By Oct. 31  December

Any Section representative with questions is advised to e-mail editor@aacei.org or call the Managing Editor during regular business hours, 9 a.m. to 5 p.m. Eastern Standard Time, Monday-Friday, except holidays and special closings.
Get Ready To VOTE

The 2019 AACE International election will be conducted electronically from Feb. 1 through 4 p.m. on March 15. Mark your calendar to be ready to cast your ballot when voting opens.

Biography and Goals/Objectives of each candidate can be viewed at:
web.aacei.org/about-aace/structure/elections/slate-of-candidates

THE 2019 SLATE OF CANDIDATES

AT A GLANCE

PRESIDENT-ELECT
Christopher Caddell, PE CCP DRMP
Mohammed Rafiuddin, CCP PSP

VP-ADMINISTRATION
Scott A. (Gator) Galbraith, CFCC
Sandra Mejia-Villegas

DIRECTOR-REGION 3
Eric Cannon, PSP
Katrina Washington Knight, CCP

DIRECTOR-REGION 5
Jason Audette
Ashley Garza

DIRECTOR-REGION 6
Mike Bensussen
Roger Nelson, PE PSP

DIRECTOR-REGION 8
Abhijnan Datta, CCP
Sankar Subrahmaniyam, EVP

DIRECTOR-REGION 10
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12 VIP BREAKFAST, Jim Beil speaking on the OCTA Capital Program Update
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