Are you a control freak?

We hope so. We’ve built the deepest project controls capabilities into our software just for you. With our easy-to-use web interface, dive head first into variances, KPIs, S-curves and metrics that make less serious professionals cry at night. Eat portfolio analysis for breakfast and enjoy project complexity for dessert.

Embrace your control freak. We can help.

Planning & Controls Software for Projects, Programs and the Enterprise:
- Project Cost Management
- Capital Planning
- Budgeting & Forecasting
- Earned Value Management
- Portfolio Management
- Funds Management
- Resource Management
- Estimating

EcoSys EPC
Enterprise Planning & Controls

www.ecosys.net
WHY GOOD LEADERS MAKE YOU FEEL SAFE

CLICK to watch Simon Sinek talk about “Why Good Leaders Make You Feel Safe” presented by TED.

What makes a great leader? Management theorist Simon Sinek suggests, it’s someone who makes their employees feel secure, who draws staffers into a circle of trust. But creating trust and safety — especially in an uneven economy — means taking on big responsibility.

Fascinated by the leaders who impact the world, companies and politicians with the capacity to inspire, Simon Sinek has discovered some remarkable patterns in how they think, act and communicate. He explores the Golden Circle, “a naturally occurring pattern, grounded in the biology of human decision making, that explains why we are inspired by some people, leaders, messages and organizations over others.”

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.
President's Message
Happy Holidays

AACE International Elections
The AACE International 2015-2016 Slate of Candidates

Technical Board News
New and Revised Recommended Practices

Bonus Content - Technical Article
Use of Dynamic Progress Method (DPM) on Guaranteed Maximum Price (GPM) Contracts
1 **Outside the Box**
Why Good Leaders Make You Feel Safe

25 **Women in Project Controls**
Spotlight on Diana Nada

29 **Young Professionals in Cost Engineering**
Spotlight on Filipe Bonaldo Alves, CCP

43 **AACE International COMP Program Members**

46 Premium Partnership Program
48 The AACE International Bulletin
54 AACE International Contacts
55 Professional Services Directory
55 Index to Advertisers
56 Next Month in the *Cost Engineering* Journal

---

**MEMBER ONLY CONTENT**

If you would like to gain access to the Source’s exclusive member only content, then become a member of AACE International today at www.aacei.org/mbr/how2join.shtml
Cost or Schedule or Risk

WHY CHOOSE?

Polaris
The Integrated Cost & Schedule Risk Analysis Software

www.boozallen.com/Polaris

Booz | Allen | Hamilton
This time of year it is time to reflect on the highs and lows of the last 12 months.

I had opportunity to work with the Board to set the budget for 2015; that was a challenging process for all. The Association has grown in terms of reach and capability, but the reality of our world is the same as it is for many members with rising expenditures battling against static or declining revenue streams. In recent times, the Association has been able to work with deficit budgets with a level of confidence that revenue will probably increase and offset the additional expenditures. That scenario has changed. The Board rose to this challenge and has passed a balanced budget, one that enables the Association to deliver its core products and services, while retaining a healthy reserve.

I encourage all of you to support the Association in any way, shape, or form, as we navigate through this period. Ways to help the Association range from simple steps, including prompt payment of dues, actively encouraging membership through asking co-workers and others to join, and planning ahead for the Annual Meeting.

Arrangements for the Annual Meeting in Las Vegas are well in hand, the meeting will build on recent successes of featuring a particular industry as one special track. In DC, we had a focus on government; in New Orleans, it was energy. The theme for Las Vegas will be mining, details of which are already on your Association’s website.

The vitality of the Association is not in the custody of a few, but with all the members. The three Associate Boards continue to deliver quality products and services to the membership, including a radical update of the Skills and Knowledge of Cost Engineering, promised for 2015.

There is too much to list in my holiday message, but it would be amiss of me not to acknowledge the workload and commitment of the members of these Boards.

There is much talk of the ‘crew change’ in our industry, and we are experiencing that first hand in the Association. We have seen a seamless transition in staff as a result of retirements, and with the publication of slate of candidates, the election of new officers will soon be on us. We have strict protocol around campaigning for election which prevents members or section promoting a particular candidate. I applaud all the candidates for offering themselves for leadership in association and thereby ensuring a vibrant association. I encourage all to participate in this important process and cast your vote. Electronic voting will open February 1, 2015, and run through 4 p.m. Eastern US time on March 15.

My term as President is now at full throttle, in addition to the mechanics and logistics of the managing the affairs of the Association through the Board and Executive Committee, I have also been able to visit the staff on two occasions. First as part of the handover of Executive Director from Dennis Stork to Charity Golden; what an acquisition she has been for the organization, and secondly, to participate in the Certification Board meeting. We often take for granted that we have a quality staff dedicated to the greater good and well being of the Association, so I take this opportunity to thank them for all the dedicated work they do on our behalf. Noah Kinderknecht is to be married on the Winter Solstice; everyone wishes him and his wife a wonderful life together.
I have been fortunate to meet many members at regional events. I have given SOTA (State of the Association) addresses at the 2nd Simposio de Ingineria de Costo, Peru, the SoCal Fall Symposium in San Diego, the International Total Cost Management conference in Bangkok, and the 2nd Simposio de Latinoamericano de Engeharia de custos, Brazil. I have continued my support of my local section, Houston Gulf Coast, and also been able to leverage my work travel to visit the UK Section. Representatives from the Association have extended our affiliation with other organizations, with the signing of a Memorandum of Understanding with AICS (Associazione Italiana di Ingegneria Economica), and the China Task force visit to Beijing and Shanghai to reinforce the agreements with the CECA (China Electricity Council) and SSCA (Shanghai Construction Consultants Association). And, we congratulate Alexia Nalewaik, chair of the Interorganization Committee, as she is now President of ICEC (International Cost Engineering Council).

Many of us travel, and visiting a section while doing so is a nice alternative to hanging around a hotel lobby. Our sections are very active; details of their events are on our website, the section webpages, or by simply contacting the section leadership. In the New Year I will be at as many events as my calendar and resources will allow, and look forward to meeting many more members, and converting guests into AACE members.

Wherever you are in the world and how you chose to celebrate the holidays, and passing of the old year and welcoming the new, — I wish to share my holiday greeting to you, your families, and your communities, as we look forward to a new and exciting 2015. — Martin.

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 Forums at www.aacei.org/forums.

MINING INDUSTRY FOCUS TRACK
CREATED FOR THE 2015 AACE INTERNATIONAL ANNUAL MEETING

A “Mining Industry Focus Track” has been designed for the 2015 AACE Annual Meeting in Las Vegas, Nevada. The track was designed by AACE International in conjunction with Turner & Townsend representatives. The 2015 Annual Meeting will open June 29, 2015, in Las Vegas, Nevada. This track is specifically created to address cost engineering issues impacting the mining and metals sector.

The Track Topics will include the following:

- Quality/Accuracy of Study Estimates
- The Effectiveness of the Stage Gate Process
- The Owner’s Role and Organization for Mining Projects
- Lessons Learned From the Latest “Mining Cycle”
- Developing Standards for Mining

Add-on Software for P6/EPPM

Introducing PROJECT WATCH™

The only software program that shows the P6 or EPPM System Administrator everything that is happening in real-time.

- Monitor All Projects & Users
- Coordinate Access
- Analyze Operations

Schedule Analyzer Enterprise™

The affordable solution for your Baseline and Update Reviews guaranteed to reduce your review time to less than half!

- Direct to Database
- Hundreds of Analyses
- Built-In Report Writer

Find out more at http://ScheduleAnalyzer.com
Seeing half is not enough.

Trust ARES PRISM to give you the complete picture.

Relying solely upon a CPM schedule puts your project at risk. You need integrated cost management. PRISM G2 is the industry’s best integrated cost management software that simplifies projects controls by delivering dependable forecasts and accurate views of project performance so you can make informed decisions.

- Seamlessly aligns your schedule with project budget
- Streamlines changes from request to work authorization
- Utilizes a flexible coding structure to simplify performance management
- Delivers real-time analysis and data validation through precision reporting

www.aresprism.com/completepicture
Finding accurate, real world techniques and practices that will make a difference in your total cost management career can be like finding a needle in a haystack.

AACE International makes life simple by consolidating peer-reviewed information and resources at your fingertips with our Virtual Library, Visual Total Cost Management Framework, Online Learning Center and many other online resources.

We gather the wheat, so you don’t have to sift through the chaff!

For more information about AACE International and our career enhancing resources, educational programs and certifications, go to www.aacei.org
Included in this issue of Source magazine is the slate of candidates for the 2015-2016 administrative year. Election guidelines allow candidates to have published or posted up to one column of biography and goals and objectives for their respective offices. 2015-2016 election information and the candidate submissions are published on this and the following pages.

Annual AACE International elections are conducted electronically. AACE International has contracted with Votenet Solutions of Washington, DC, to provide the needed software and electronic voting expertise. Members will be able to link to the voting site through the AACE International website at www.aacei.org. Once at the voting site, members will use their member identification number and password to access the ballot and vote. All candidate bios, goals, and photos will be easily accessible for review at the electronic site. All AACE International members eligible to vote in the 2015-2016 election are urged to read and review the biographies of each candidate, along with their goals and objectives for the office they seek, before they complete their ballot.

Campaigning is Prohibited
The Association Board recognizes that the professional reputation and experience of candidates for Association office are ample testimony to their qualifications and ability to serve. Further, it is believed that these credentials do not need amplification and that campaigning for office by, or on behalf of, candidates is unnecessary, undesirable, and unprofessional.

After nomination, campaigning is defined as organized oral or written solicitation of votes or support either by a candidate or by an individual member or Section on behalf of a candidate. A proven violation of this policy shall be considered as prejudicial to the best interests of the Association and a breach of professional ethics. Such conduct will be subject to disciplinary action as provided for in the Association Bylaws. Further, a proven violation(s) of this policy by an aspirant to office, after due hearing in accord with the Bylaws, shall disqualify said individual from holding Association office.

The AACE International Canons of Ethics also states that, "Members will not campaign, solicit support, or otherwise coerce other cost professionals to support their candidacy or the candidacy of a colleague for elective office in a technical association."

Members Must Vote Electronically on or Before 4 P.M. Eastern US Time on March 15, 2015

Election of Officers and Directors will be by use of an electronic ballot. The official election ballot for Officers will be posted and available to each member and associate member on February 1, 2015. Each voter shall properly signify on the ballot the voter’s choice for the various officers. A security feature of the electronic voting system allows members and associate members to vote only once. A voter can print out a receipt that will include an individual verification number as proof of having voted.

For election of Directors-Region(s), these candidates will be listed as a continuing or additional page for members or associate members in the Regions electing candidates during the 2015 election. Each voter shall properly signify on the ballot the voter’s choice for the Director.

Any member or associate member with questions or other concerns is asked to contact Headquarters for assistance.

Electronic voting will end as of 4 p.m. eastern US time on March 15, 2015. The electronic system will block any voter from casting a ballots after 4 p.m. on March 15, 2015.
Nicholas Kellar, CCP EVP PSP
AACE International Activities: 1989 joined AACE - Active member for 25 years. 1996, Certified CCP. 1997 Certification Board Member. 2000 - Developed examination database to streamline test process, Conducted first web-based examination prototype, Created first in a series of AACE specialty certifications. 2005, Chaired development of EVP Certification - Recipient of the O.T. Zimmerman Founder’s Award. 2008, Alaska Section Board Member, helped reactivate section. 2010, AACE Director Region 6. 2012-current, VP of Administration. Education: BA in Business Administration; MS in Environmental Engineering; and MC in Government Contracts. An advocate for education in the workforce. Nick has helped hundreds of colleagues prepare for cert exams in the US, Europe and the Middle East. He works as the Regional Project Services Manager for BP Alaska/leads a team of 36 project services professionals.

Goals and Objectives:
AACE has made some cornerstone changes, allowing accessible training, professional growth, and industry connections. We’ve grown in membership and a focus toward directly serving members. A key component to our future success will be effectively leveraging technology. Some concrete steps I would take in this regard are:

• Accessible Training: Put relevant education materials where people will find them and in formats that support downloads to pads and other devises.
• Professional Growth: Bring lecture and course content back from our annual meetings, deliver materials in ways that will enhance local training.
• Industry Connections: Create stronger ties with international sections. Understand how barriers through technology can be reduced/eliminated. Provide technology to sections to help host electronic meetings and allow remote member participation.

I am proud of where we are heading and grateful to have played a small part in these advancements. As President, my primary goal will be to maintain this momentum by helping to set clear and simple goals with the other officers, and working hard to ensure that your association and its staff serves you.

My philosophy is:

• If you look for the good in people, you will find it,
• Give what is needed without expectations; your returns will be far greater than imagined,
• Take the time to teach and you will be wiser for it.
Goals and Objectives:

I’m a great believer in AACE. AACE thrived during 6 years of worldwide economic troubles. With recovery achieved in many areas, it is time for AACE to invest in efforts to maintain and expand membership. AACE’s underlying strengths are its vibrant and successful certification programs, detailed and progressive education activities, and industry leading technical offerings. AACE’s strategic plan outlines the important work ahead of us. To provide greater service, we need to implement this strategic plan to expand AACE’s leadership role as the PRE-MIER organization in the world for TCM. I am dedicated to continuing my service to AACE. As President, I will:

- Implement the new Goals and Objectives adopted by the Board of Directors in the Spring of 2014.
- Expand AACE’s membership diversity.
- Reinforce efforts that have made AACE certifications the essential credential for cost management professionals.
- Work to expand educational, training, and certification programs to members & services to corporate supporters.
- Expand our web-based educational offerings.
- Work with VP of Intl. Regions, staff/volunteers to expand intl. presence through regional growth initiatives.
- Expand AACE’s worldwide name recognition through the Regional Conferences, Government Roundtable, etc.

Goals and Objectives:

- Creating greater collaboration and partnership with global communities like industry, academia, and governments.
- Reactivating dormant sections and launching new sections.
- Developing “Brand Ambassadors” through an effective leadership development program for AACE Volunteers.
- Providing superior value to stakeholder ecosystem: members, practitioners, partners, industry, academia, and governments.
- Spreading the value of “TCM” in less project management influenced sectors like manufacturing, services etc.
- Developing and executing a strategy for increasing international visibility of the Association within Professional Communities and across Corporate Circles.
- Integrating the plans & thoughts of all board members and HQ leadership for a medium to long term vision for AACE.
- Developing and executing a strategy for increasing international visibility of the Association within Professional Communities and across Corporate Circles.
- Facilitating more events at region and section levels to effectively reach out to professional communities.
- Making the association more agile to the changing global markets/competition from other professional organizations.
- Initiating a special drive to encourage industry and business to specify AACE certifications as in their Job Descriptions.
- Specifying AACE certifications as essential credential for cost management professionals.
- Reactivating dormant sections and launching new sections.
- Creating greater collaboration and partnership with global communities like industry, academia, and governments.

Goals and Objectives:

- Providing superior value to stakeholder ecosystem: members, practitioners, partners, industry, academia, and governments.
- Reactivating dormant sections and launching new sections.
- Developing “Brand Ambassadors” through an effective leadership development program for AACE Volunteers.
- Spreading the value of “TCM” in less project management influenced sectors like manufacturing, services etc.
- Developing and executing a strategy for increasing international visibility of the Association within Professional Communities and across Corporate Circles.
- Integrating the plans & thoughts of all board members and HQ leadership for a medium to long term vision for AACE.
- Making the association more agile to the changing global markets/competition from other professional organizations.
- Initiating a special drive to encourage industry and business to specify AACE certifications as in their Job Descriptions.
- Specifying AACE certifications as essential credential for cost management professionals.
- Reactivating dormant sections and launching new sections.
- Creating greater collaboration and partnership with global communities like industry, academia, and governments.

Matched content:

- Implement the new Goals and Objectives adopted by the Board of Directors in the Spring of 2014.
- Expand AACE’s membership diversity.
- Reinforce efforts that have made AACE certifications the essential credential for cost management professionals.
- Work to expand educational, training, and certification programs to members & services to corporate supporters.
- Expand our web-based educational offerings.
- Work with VP of Intl. Regions, staff/volunteers to expand intl. presence through regional growth initiatives.
- Expand AACE’s worldwide name recognition through the Regional Conferences, Government Roundtable, etc.

- Reactivating dormant sections and launching new sections.
- Developing “Brand Ambassadors” through an effective leadership development program for AACE Volunteers.
- Providing superior value to stakeholder ecosystem: members, practitioners, partners, industry, academia, and governments.
- Spreading the value of “TCM” in less project management influenced sectors like manufacturing, services etc.
- Developing and executing a strategy for increasing international visibility of the Association within Professional Communities and across Corporate Circles.
- Integrating the plans & thoughts of all board members and HQ leadership for a medium to long term vision for AACE.
- Making the association more agile to the changing global markets/competition from other professional organizations.
- Initiating a special drive to encourage industry and business to specify AACE certifications as in their Job Descriptions.
- Specifying AACE certifications as essential credential for cost management professionals.
- Reactivating dormant sections and launching new sections.
- Creating greater collaboration and partnership with global communities like industry, academia, and governments.
John L. Haynes, PSP

AACE International Activities: John is a certified Planning and Scheduling Professional (PSP) since 2002, and the current Chairman for the Western Winter Workshop. John has served as Chairman and Executive Director of the WWW for 14 years. Past President of San Francisco Bay Area Section (two-terms), Served as VP, Secretary and Treasurer of the SFBA Section. Served as AACE Director – Region 6 in 2010 – 2011 and is currently the Director of Region 6. Education: B.A. Music, Musicians Institute, Professional Experience: Project Controls Manager for Hill International, Inc. Duties: Currently John is the Program Schedule Manager for Los Angeles World Airports (LAWA). Past Projects include Project Manager for Bay Area Toll Authority oversight of a $256M Caltrans/Bay Area Toll Authority project, DPM for the BART Earthquake Safety Aerial Structures Retrofit contract. John has served as a Project Controls Engineer for construction of Civil/Industrial, Transportation, Information Technology and GSA contracts for over 27 years running, with a TIC valued at over $9.3 billion.

Goals and Objectives:
I will ensure a smooth transition from my predecessor. I will work to increase the enthusiasm brought to this association during these past two years. I promise to help sections across the globe grow their reach by rolling out opportunities to get the word out to both private and governmental concerns. To help those sections and regions create conference and workshop forums, similar to the Western Winter Workshop, ITCM, and Annual Meeting. The VP-Administration must be responsible while providing guidance for the new approaches of the incoming Board of Directors. As VP-Administration, I would facilitate AACE growth by:
• Providing professional administrative support for the AACE Executive Director, President and staff to ensure that we advance and enhance our message.
• Develop new ways to grow our profitability and our educational business for the new technologies and advancement of the outreach to students and faculty.
• Work to create new incentives for attracting members and opportunities for section and regional growth.
• Perform needed review of the Association’s admissions, constitution, and by-laws.
• Maintenance and oversight of the Association’s Organization Manual and legal correspondence.
• Reach out to the sections and regions regarding Fellow awards, ensuring that service to the Association is remembered, offered, and granted.
• Act as Corporate Secretary of the Association. Provide more access. Reach out to Regional Directors and sections using visitation, conferencing, and mentoring.
• Work with the VP-Finance and the Board to find new ways for growth in scholarship funding and outreach.
• Finally and most importantly, I will do all I can to help get our message out to state and federal agencies for adaptation of the fundamentals of “Total Cost Management,” with the certified/recommended practices developed over the past 58 years. I truly appreciate your consideration and this opportunity to serve the Association.

James E. Krebs, PE CCP FAACE

AACE International Activities: Jim has been an active member of AACE International since 1986, all as a member of the Great Lakes Section having served as President, various board positions, and is currently in his third separate term as the Section Vice President. For his dedication to the Great Lakes Section, Jim was given the Charles V. Keane Distinguished Service Award and achieved the rank of Fellow in 2012. Jim served on the Association Board of Directors as the Director of Region 4 in 2008 and 2009, and has presented papers and training sessions at AACE annual meetings and quarterly board meetings.

Jim is the Senior Vice President of Administrative Controls Management, Inc., a firm renowned for its project/program management consulting services to the engineering, construction, utility, institutional, manufacturing, automotive, and pharmaceutical industries. He has over 28 years of project management, project controls, and construction experience including planning, scheduling, estimating, cost controls, claims analysis and testimony, field supervision, and administrative services. His experience includes automotive, heavy construction, nuclear power, light manufacturing, refinery, and industrial projects. Beyond traditional project management, Jim has developed and implemented a computerized application for integrating cost and schedule control for a large engineering department; provided expert witness testimony for claim; written a project controls procedures manual for a major construction project; and prepared data for utility rate cases.

Goals and Objectives:
During my 28 years as a member of AACE, I have developed my skills as a Cost Engineer, gained leadership skills, made great friends, and found an avenue to give back to the profession I love. At every step along the way, AACE has provided the direction and opportunity. The strengths of the Association are the members, the technical and educational products, and the certification program. For the members to be fully served, for the technical and education products to be developed and propagated, and for the certification program to thrive, the Association needs strong, effective, and efficient administration.

As the Vice President – Administration, I will:
• Work closely with the Executive Director, staff, and the Board of Directors to support and strengthen effectiveness and efficiency of the Association; Fulfill my duties as the corporate secretary, legal officer of the Association, and administrator; Oversee the administrative functions of headquarters; Continue to promote AACE International and the Cost Engineering profession; Continue to be an advocate for active membership, annual meeting attendance, technical and educational product development, and certification advancement; Work with the Board of Directors to ensure the Association is serving the membership; Strive to give back to the members and the profession the same benefits I have received for almost three decades.
Aldo Mattos

**AACE International Activities:** Aldo is an engineering project manager/director and consultant with large international experience. Based in Brazil (home country), he is a nationally recognized expert in construction cost estimating, planning and management. He also holds a Law degree and Master’s degree in geophysics from Bahia Federal University. His international experience spans multiple industries, including power plants, renewable energy plants, transportation and public housing, in Brazil, Peru, US, South Africa, Mozambique, Egypt, Spain, Costa Rica and Trinidad & Tobago, both working for general contractors such as Odebrecht, Acciona and Isoluz, and as an independent consultant. His experience includes the role of owner’s rep at the Salvador airport expansion project in Brazil. He is the author of three books on construction cost estimating, planning and real estate policies. He is an active lecturer on a wide range of construction-related topics (7,000+ attendees): bidding, public contracts, field supervision, earned value technique, construction claims, disputes resolution, planning, scheduling, cost estimating, project management, etc. He often presents papers at international events and writes articles for technical publications. At the 2012 ICEC meeting in South Africa, his presentation was elected the best of the conference. In 2014, he won the “Cost Engineer of the Year” award from IBEC (Brazilian Institute of Cost Engineering). As a consultant, he has assisted public entities and private companies in cost control, estimating, planning scheduling, feasibility studies and disputes resolutions. He is very skilled in training and motivating teams. In his many projects as general contractor, owner’s rep and consultant, he has been exposed to negotiations with international funding agencies and different types of contract. He is currently Director of Region 10 and is a Certified Cost Professional (CCP) by AACE. He was previously President of Brazil Section for two consecutive terms. He signed the petition to create Brazil Section. During his terms, the number of member raised from 28 to 108. Brazil Section hosted a Latin American Cost Engineering Symposium in Dec. 2013, with a high attendance of 180 professionals. He taught the CCP preparatory course in Sao Paulo and Danmark for 40 students with a high degree of success.

**Goals and Objectives:**
Mr. Mattos will work to strengthen the existing sections, rather than creating new ones. He believes short events, such as 1-day seminars with international and local speakers, is the easiest way to show the power of AACE as a generator and diffusor of technical knowledge. Awareness of AACE purposes and membership would come as a natural consequence. This experience had satisfactory results in Chile, Peru and Brazil. ITMC needs to be reformatted to attract more attendees, exhibitors and sponsors. It seems more logical to hold ITMC in countries with a more solid base of members to have more mouth-to-mouth advertising. It is important to foster the production of more “international” material, because AACE is deemed very North American-centered in the many countries.

Philips Tharakan Mulackal

**AACE International Activities:** Philips has been an AACE member since September 2005. He has been a Certified Cost Professional, (CCP) since June 2006. Active volunteer of AACE International since the beginning of his membership, including:

- 2014-15: Board Advisor, UAE Section
- 2014: ITMC Conference Chair;
- 2012-13: UAE Section President
- 2010-12: Director Region – 7
- 2011: Recipient of Outstanding Regional Director Award
- 2010: Recipient of TCM Excellence Award
- 2009: UAE Section President
- 2008: Regional Director for UAE Chapter under AGS section.
- 2006: Technical Director of AGS-UAE Chapter.

Initiated to organize AACE’s first International Marketing event at Dubai in 2008, in coordination with International Marketing Committee. Again, initiated the discussion and involved in every step of the first International Total Cost Management Conference at Dubai in 2012. Served two terms in Nomination Committee, Actively participated in AEP technical committee, contributed as a technical paper evaluator, CCP exam refresher course facilitator, promoter of TCM to various professional organizations and industry. Also holds certifications or worked with RICS, PMI, USGBC, IFMA, IE and Toast Masters International.

Established and maintaining good relationship with local, regional and international leaders, HQ staff and our most valuable members and past members. Always available for the support of the members. Twenty Three years of project management and Operations Management experience merged with business development in small to medium size MEP projects. Active promoter of Life Cycle Cost right from the initial stages of the career and taken major procurement decisions based on Life Cycle Cost. Presently working as an Operations Manager in Johnson Controls a MNC with around 160,000 employees’ worldwide in their Dubai office.

**Goals and Objectives:**
- As international certification growth mainly depends on the availability of well trained instructors to guide and facilitate potential AACE certification exam candidates. Will work with International board and AEP Committee to establish a system to rate AEPs and promote AEPs. Propose and debate in board a system to qualify CCP, PSP, CEP, DRMP and CCT instructors.
- Lobby 3 HR agencies per quarter to specify AACE International certifications for positions they advertise in relevant fields.
- Lobby any 3 of the leading EPC, Engineering, QS, PM&C companies per quarter to formally recognize AACE International certifications and make some of them mandatory for promotions to specific levels.
- Communicate personally with each RD on a bi-monthly basis and half yearly to section leaders.
- Gather section reports from RDs on a quarterly basis and aim to achieve a minimum 75% active participation from sections.
- If board allows, organize one International TCM Conference with guaranteed financial return.

SOURCE DECEMBER 2014  13
Asoka K. Pillai, CCP EVP FAACE

AACE International Activities: Asoka has over 25 years of experience in Project Control and Project Management in both the US government and Private Sector. Asoka has worked in several leading EPC industry firms such as Bechtel Power Corporation, Westinghouse, Washington Group and Bechtel Mining & Metals. Currently, he is working as a professional consultant in Project Management/Project Controls arena for the Savannah River Remediation LLC for the High Level Liquid Waste Division at the Savannah River Site, a Department of Energy Facility located in Aiken, South Carolina. Prior to holding this position, he served various positions like project controls manager, principal project controls and cost controls manager.

He joined AACE in 1994. He became a Certified Cost Professional (1996) and an Earned Value Professional (2006). He was an Executive Board Member of the Central Savannah River Area (Section) for several years. He served as President, Vice President, Programs Director, Communications Director, and Treasurer. He has been a volunteer instructor for the CCP reparation courses, and was instrumental in setting up CSRA Section’s EVP/PSP Certification Courses. In 2007, he was named an AACE Fellow. From 2008 to 2010, he served as the Director-Region 3, on the Technical Board and on the ITCM Conference Committee. He was Chair of the EVM Committee and used he served as an EVP exam evaluator. While on his foreign assignment with Bechtel Australia Mining and Metals Business Unit, he served one year as the Director-Region 8 from 2013 to 2014. Asoka holds a Bachelor of Science Degree in Mechanical Engineering and a Master of Science Degree in Project Management from the George Washington University. He also holds memberships in various professional organizations.

Goals and Objectives:

As the Director of Region 3, I would support all the grassroot efforts of the Sections that eventually contribute to the overall growth of the AACE. My specific actions and plans will include:

• Improve communications by being a conduit between the AACE leadership and the leaders of various sections in the Region. Communicating the Board plans and objectives clearly and directly to the Sections and to understand their concerns and procure assistance from home office, where necessary.
• Encourage sections on increasing memberships, help members obtain certifications, and achieve recognition awards.
• Support efforts of the Sections in arranging joint meeting opportunities with other professional associations/societies.
• Recognize sections organizing certification/education workshops and regular monthly meetings with effective speakers.
• Help to establish new sections and student sections in the region, where there are opportunities for growth.
• Share best practices among sections for continued growth. Help share webpage and newsletter information.
• Solicit section volunteers for AACE committee and board service and encourage annual meeting attendance.
• Help to make the AACE experience, a rewarding one for every member from each section in the region.

Bryon L. Willoughby, PE

AACE International Activities: Bryon has been a member of AACE since 2008 and served as the Catawba Valley Section President for 2012/2013 and 2013/2014.

Mr. Willoughby has over 32 years of heavy civil and highway construction experience and holds a Bachelor of Science Degree from The Ohio State University and is registered as an Engineer in North Carolina, South Carolina, Maryland and Ohio.

Bryon resides near Lake Norman just north of Charlotte, North Carolina, and owns and operates Willoughby 2000 PLLC, a consulting firm founded in 2000 and located in Davidson, North Carolina. Willoughby 2000 provides CPM scheduling services, cost estimating, contract claim evaluations and expert testimony. Mr. Willoughby has provided expert testimony associated with such topics as project delays, construction costs, means and methods and lost productivity. Prior to launching a consulting career, Mr. Willoughby worked to two contracting companies performing project management and cost estimating work.

Goals and Objectives:

If elected, Mr. Willoughby will endeavor to promote interest and participation in local AACE sections by encouraging the Sections to provide presentations and training comporting with the interests of the Section members. Further, communication between Sections and sharing of successful ideas, presentations and events will be encouraged.

Note: Because of prior Board roles as Regional Director, Mr. Ashok Pillai, CCP EVP FAACE, is limited to serve one year as RD3 and will have to be replaced per the Constitution and By-laws.
Christopher Caddell

**AACE International Activities:** Since first becoming involved at AACE in 1999, Chris Caddell has been very interested in working with others to identify and develop industry leading practices for cost engineering. He has authored or co-authored 6 technical papers on cost engineering related topics, served as the primary author of a Recommended Practice, served on the task force to develop the DRMP certification, and is currently serving as the Chair for the Decision and Risk Management subcommittee. Chris was previously recognized with the Technical Excellence Award in 2012, and Outstanding Subcommittee Chair Award in both 2013 and 2014.

Chris is currently a Senior Vice President for Turner & Townsend, a project management consulting firm and is responsible for its Houston office support to the energy industry. He received a Bachelors of Science in Civil Engineering from Rice University and an MBA from the University of Texas at Austin. He worked for 8 years with a general contractor, before moving into consulting, which he has practiced for 18 years.

Chris has worked in multiple industries, including commercial, institutional, governmental, military, aviation, transportation, manufacturing, oil and gas, alternative energy, chemical, and pharmaceutical. His work has taken him to many countries around the world, allowing him to understand practices in different regions and cultures.

**Goals and Objectives:**
- To uphold AACE’s Constitution and Bylaws and actively assist the Board of Directors in pursuing the Association’s Strategic Plan.
- To continue the work of the previous Director in addressing the needs and objectives of the Members and Sections in Region 5.
- To support Sections with attracting new members through visits to regional Section meetings and helping promote AACE in local organizations and corporations that employ a number of cost engineering staff.
- To help identify and support members in the Region that are interested in becoming more involved in AACE, with a focus on developing future leaders.
- To work with local Sections to develop local training sessions and workshops based on TCM and Recommended Practices to both promote AACE and industry leading practices.
- To work with local Sections, corporations, and other Regions to promote AACE certification programs and the value that this certifications can provide to individuals and the companies that employ them.

B. John Hartman, PSP

**AACE International Activities:** John has been an active member of AACE for more than 10 years and is the current President of the Rocky Mountain Section. John previously served in roles of Committee Member, Vice President, and President for the Section.

John has a B.S. in Industrial Studies/Construction Management from Moorhead State University (MN) and is a Certified Planning & Scheduling Professional (PSP) with AACE. Mr. Hartman has been a project controls professional for over 20 years and has led project controls teams in both the public and private sectors of the Architecture/Engineering/Construction industries.

John is currently the Director of Project Controls Automation for CH2M HILL in their Enterprise Delivery Excellence (EDE) organization. This group is tasked with developing and implementing standard processes, policies, tools and systems to provide a comprehensive and robust technology platform to support enterprise wide project and program delivery needs. Previously, John has worked for consultants/engineers, contractors and owners, which has provided him with extensive experience throughout the project lifecycle from early conceptual planning, through design/engineering to construction and operations of the asset.

**Goals and Objectives:**
As Regional Director, I will strive for the following:
- Build upon the momentum created by predecessor Region 5 Director.
- Act as a liaison between members, sections, and the Board of Directors by being accessible and responsive to the region.
- Work with each section to understand their needs and concerns and provide assistance where necessary.
- Assist struggling or inactive sections to become reinvigorated.
- Enhance regional membership retention statistics.
- Promote section growth by increased section activities.
- Increase awareness of AACE certifications.
- Plan a cycle of visitations to all Sections during my tenure.
**Aniekan Usoro, CCP**

**AACE International Activities:** Aniekan has been an active AACE member since 1990 (24 years). He is a CCP, and holds a PMP from the Project Management Institute, and AVS from the SAVE International. Aniekan has over 25 years of broad and solid experience in project controls and program management. He holds a B.S. degree in Civil and Construction Engineering from Iowa State University. Currently, he is the Deputy Executive Director of Project Controls and Value Engineering at Sound Transit, a regional transit Agency where he oversees the program control and management functions for the planning, design, construction, and Startup of the Agency’s Capital Programs. In the AACE Seattle Section, he has served in the Directorship positions; as Vice President; and President. Under his leadership, membership and member participation, enthusiasm, and interest in the section activities have significantly grown. Aniekan is also an active member of the Project Management Institute (PMI), SAVE International, and the American Society of Civil Engineers (ASCE).

**Goals and Objectives:**
Facilitate growth and professional development among cost engineering professionals in the region, raise awareness about AACE International activities, certifications, technical resources, and educational opportunities. I will work closely with local sections and regions to share resources and experiences. I will work to improve communication among local sections and regional groups. I will work to promote significant membership growth, partnering with industry peers and encouraging the establishment of student chapters in local and regional universities.

As Director for Region-6, I plan to pursue the following initiatives to achieve my objectives:

- Promote membership growth through outreach to local and regional employers, universities, and local colleges.
- Enhance recognition, awareness, and prestige of AACE International, cost engineering profession, and benefits to business, academic, and professional communities in the region.
- Partner with industry peers and encourage corporations to make AACE certifications a job requirement.
- Promote cost engineering program as a rewarding career to university and college students and increase student membership through mentorship, scholarships and industry.
- Support cooperation and mentoring initiatives at both member, section levels, and in the region to promote knowledge development in cost engineering, and total cost management skills.
- Support local section operations through regular meetings and established feedback.
- Promote inter-sectional cooperation by supporting and encouraging regional seminar and conferences.

---

**Colm Tully**

**AACE International Activities:** Colm has been actively involved with the San Francisco Bay Area Section of AACE International since joining in 2008. He has held the position of Secretary, Vice President and is currently serving as President for the 2014/15 term. He is a regular attendee of the Western Winter Workshop (WWW) and the Annual Meeting. In addition, he has served on the planning committee for the WWW for the past two years and acts as a mentor for the AACE mentoring program.

Colm is a Certified Cost Professional (CCP) and a Planning and Scheduling Professional (PSP) with over 10 years of construction cost estimating and scheduling experience. He graduated from Dublin Institute of Technology with a first class honors degree in Construction Economics and Management (Quantity Surveying) and worked in Ireland as a QS before moving to San Francisco and joining Arup in 2008. He is the Cost Engineering leader for the Americas Region providing cost, schedule and constructability advice on a multitude of large scale building and infrastructure projects throughout the US and abroad. His experience spans across numerous sectors including aviation, commercial buildings, education, energy, healthcare, highways, rail, science and industry to name a few. Colm also has experience working in Lender’s Technical Advisory roles advising on construction cost estimates, schedules and risk analysis. Notable projects he has worked on include California and Texas High Speed Rail, Presidio Parkway, Sanford Underground Research Facility (previously DUSEL) and Tappan Zee Bridge.

Colm believes that a good work life balance is very important and when not working, he keeps active by participating in team sports such as Soccer, Gaelic football and Australian Rules football as well as snowboarding in the winter.

**Goals and Objectives:**
As Region 6 Director, I will strive to fulfill all the duties set out in the association’s Organizational Manual to the best of my ability. In particular, I will:

- Act as liaison between the Sections, the Region and the Vice President-Regions on the activities and health and welfare of the Sections within the Region.
- Focus on membership growth and retention with a strategic focus on student outreach.
- Promote the importance of AACE credentials to both clients/owners and members.
- Promote technical activity within the Region through encouraging more member participation at regional and national workshops and conferences.
- Engage and coordinate with other professional associations such as RICS, ASPE and CMAA to hold joint events at a local level.
- Support section leadership and assist in resolving any issues that may be affecting section performance.
- Use social media to enhance member communication and publicize section events.
**Ghulam Mujtaba Shaikh**

**AACE International Activities:** Ghulam is an active member of AACE for more than 12 years. In the past, he has primarily served in US, where he started his professional career. He was involved with Southern California Section in several positions, including as President. He led numerous outreach events at universities; taught CCP certification classes; and started the Southern California’s successful Annual Spring Symposium. He regularly attends and has presented at Annual Meetings. He also attended first leadership and ITCM conference, and worked closely with Diversity and Young Professionals Task Forces. He moved to Pakistan in 2011, and has been active in introducing AACE in the region. He was selected to serve as RD7 for a year and again as RD8 - a role that he currently serves. He has been working in engineering/construction industry for over 13 years and has extensive experience in managing infrastructure, buildings, transit, and transportation projects. His experience spans all project phases - concept, planning, construction, commissioning, and close-out. He has developed expertise in project controls and claims, and has made several publications and presentations at different forums. His key projects in US include San Francisco Rapid Transit Extension, Los Angeles Bus Rapid and Light Rail Projects, LAX Improvements and I-405 Freeway, and in Pakistan/Middle East BT Icon Tower-Karachi, Pakistan Deep Sea Container Port, Riyadh BRT, and Karachi Circular Railway. He holds a BS in Civil Engineering from NED University, Karachi and an MS in Project Management from UC, Berkeley. He is a professional engineer and holds PMP certification.

**Goals and Objectives:**

Region 8 is one of the largest regions and is key to AACE growth. With the addition of South Asia, this region represents target areas for the AACE growth. Countries like China, India, Australia, Malaysia, Singapore, Japan, and others in the region have huge potential. I plan to raise awareness about AACE activities, certifications, technical resources, and networking opportunities. My goals are:

- Promote the vision and mission of AACE.
- Work closely with all sections to focus on growth.
- Strengthen sections to build up on their success and increase their deliverables, noticeably sections in Australia, China, South India, and Japan.
- Formalize new sections—Central India, North India, Malaysia, Korea, Pakistan, and Singapore.
- Use web, VOIP, and social websites for collaboration.
- Visit 2-3 sections every year and increase momentum.
- Use section newsletters to reach potential new members.
- Focus on certifications; use AACE Seminar in a Box.
- Work with industry peers and recruiting firms to make AACE Certifications a requirement.
- Institute a plan with colleges and universities for scholarship and certification awareness. Institutes in Japan, India, Thailand, and Singapore shall be the focus.
- Support the 2014 Bangkok ITCM Conference and carry its lessons for improvement to future ITCM conferences.
- Tap AACE for mentors/guidance to regional sections.

---

**Jaimin Mehta, CCP PSP**

**AACE International Activities:** Jaimin Mehta has been an active member of AACE for over 13 years, and has continuously served on local AACE sections, St. Louis and Southern California, including President of Southern California. He has assisted in teaching PSP and CCP certification courses and has led the student outreach programs at various universities, organized Western Winter Workshops and Spring Symposia. He has also worked with the Mentoring Committee and Young Professional Taskforce, and has attended several Annual Meetings over the years. Jaimin’s education includes Civil Engineering from India, followed by Bach. of Construction from Bradley University and MS in Construction Management from Washington University in St. Louis. He holds CCP, PSP, and Six Sigma (GB) certifications. Following his passion for building, he has spent most of his 17 years of experience working with ENR Top 20 National and Global General Contractors in the field of Project Controls.

For a couple years, Jaimin has been in India on work assignments. At present, as a Director with AECOM, India, he is working on the management of design, engineering and construction of the first and biggest Integrated Smart City of India. Working in India has led him to understand the strengths and weaknesses of application of TCM in the region. Starting from the grass root level, he plans to engage students in universities and influence the client organizations with AACE’s vision and depth of its expansive knowledge bank.

**Goals and Objectives:**

- Share success formulas and lessons learned between sections.
- Identify and mentor Sectional Task Force leaders, and help establish a new section in the region.
- Promote AACE at universities, training institutes, international banks, local and multinational corporations, governmental agencies, etc.
- Develop an online/teleconference platform, where industry experts from around the Globe can volunteer some time to a group of section members.
- Understand and address concerns of current members in each section.
- Convince employers that taking certification tests, using recommended practices and participation can promote better professional practices.
- Promote the mentoring program, Women in Project Controls and Young Professionals Committee.
Marcos Eduardo Ganut

AACE International Activities: Marcos Ganut is a Partner in Capital Projects Consulting in the São Paulo office of Deloitte Financial Advisory Services. He is head of Capital Projects Consulting and Tangible Asset Solution, which is part of the Valuation Group, and has worked for Deloitte since 1997.

Marcos has extensive experience in the coordination and execution of capital projects consulting services, including claims consulting, risk management internal controls, cost control, and cost assessments, auditing, and other services. Marcos is responsible for leading this service line of capital projects and infrastructure in Brazil and in supporting Latin America and Africa.

With over 17 years experience in industrial assets consulting and audit of construction projects, Marcos has acquired a comprehensive knowledge of equipment and maintenance, material codes and project management in several industries, such as power energy, mining, steel, chemical and petrochemical, foods and infrastructure. He is responsible for coordinating a team of 100 engineers. Marcos is a mechanical engineer and has an MBA degree with an emphasis in project management and corporate finance. His education also includes a B.S. degree in Mechanical Engineering, from Mackenzie University; the MBA in Corporate Finance and Strategic Management; FGV – Fundação Getúlio Vargas and an MBA in Project Management – FGV - Fundação Getúlio Vargas.

Goals and Objectives:

As a Director in the Brazilian Section of AACE, he was an important part of launching and disseminating information about AACE within Brazil, and he is committed in sharing AACE knowledge in the biggest companies in Brazil and South America.

At this moment, the most important step to disseminating information about AACE in South America is showing the importance of all AACE certifications as how they assist in developing a cost professional’s career.

As part of my plan, I intend to:

• Share best practices and promote events in South America to disseminate information about AACE
• Participate personally in meeting with the top 30 companies in South America to promote AACE
• Personally attending AACE meetings in Brazil and the Annual Meeting in the US.
• Support South America Regions in growing 10-20% increases in the number of AACE certified individuals.

Glenroy London

AACE International Activities: Glenroy is a founding member of the Caribbean Section established since 1994. Served as president of the Caribbean Section and is still active on the Section BOD as the current past president. Assisted past president Stanley West in making arrangements for and proctoring CCP examinations in the Caribbean Section.

He played an active role in networking and promoting TCM to the key stakeholder organizations in the energy sector of Trinidad and Tobago. Worked to rekindling membership growth and development. Volunteered as an AACE mentor. He is a well accomplished Energy Sector professional with over 30 years tenure in the local, regional and international sectors. His diverse energy sector expertise spans projects across the broad spectrum of regulatory, downstream, mid-stream and upstream. He is a proficient mechanical engineer who graduated from the University of the West Indies. He also holds an MBA in finance and marketing and MSc in production engineering and management from UWI at At. Augustine, Trinidad. He is versed in production engineering and management concepts. He has an MSc degree in strategic planning from the Edinburgh Business School, Heriot Watt University, Scotland, UK. He is currently completing his DBA in Strategic Focus with Edinburgh University, Heriot Watt University, Edinburgh, Scotland, UK. He has demonstrated an in-depth knowledge and understanding in the applications of investment strategy, project financing, as well as mergers and acquisition.

Goals and Objectives:

As Region 10 Director, I intend to passionately further the drive for excellence in TCM to create opportunities for members to participate in major global capital projects earmarked for the region by the following initiatives:

• Build upon the momentum created by my predecessor.
• Engage technology via social media and ICT to provide a platform for greater collaboration and communication.
• Injection of energy and passion to assist struggling or inactive sections to become reinvigorated.
• Enhance regional membership retention and growth.
• Promote section growth through increased section cultural, sporting and social networking activities.
• Emphasize the value proposition of the TCM concept, citing the correlation between AACE certification and improved employee development, and performance.
• Guide and promote increased levels of AACE certification in alignment with talent and competence acquisition.
• Establish clear and concise pathways to transformational leadership attributes to develop existing Section leaders.
• Schedule outreach to each Section in the Region.
• Promote that AACE International as an engine of opportunity, growth and driver of sustainability in the region.
The AACE International Recommended Practices are one of AACE’s most popular technical products. Each year, AACE continues to review and update existing RPs, plus introduce new RPs that address additional areas of total cost management. Published below is information on five new, two revised, and two RPs issued for public review.

- New and previously published AACE International RPs are available at: www.aacei.org/resources/rp.
- Draft RPs are available at: www.aacei.org/forums.

(NEW) 78R-13, Original Baseline Schedule Review – As Applied in Engineering, Procurement, and Construction

This recommended practice (RP) for baseline schedule review addresses two aspects of the schedule development process. First, it is intended to provide guidelines for the engineering, procurement, and construction scheduler to create a professional, useable baseline critical path method (CPM) project schedule by making him/her aware of the criteria by which the schedule is to be reviewed. Second, and the focus of this RP, it provides guidelines for the reviewing scheduler to evaluate that baseline schedule for acceptance by the owner or client. This recommended practice is associated with Section 7.2, Schedule Planning and Development, of the Total Cost Management (TCM) Framework.[10]

The accepted initial schedule is often referred to as the baseline schedule. The baseline schedule establishes the activity dates (and possibly budgeted costs) that forms the basis of the original project execution plan. It will be used to compare the original planned dates, durations, logic sequence, and costs against the actual as-built progress. This usage of the term, baseline schedule, in this RP is different from the same term used by several software companies to indicate any saved copy of a CPM schedule or its updates.

This recommended practice is to assist both the creator of the baseline schedule (scheduler) and the person (reviewer) who receives the submitted schedule and reviews it for acceptability on behalf of the owner or client. It may also assist owners in the development of their scheduling specifications. The use of the term owner also includes the work performed by their agents such as contractors, subcontractors, or a project manager acting as the owner’s representative.

Most contracts require the contractor to submit a baseline schedule. The baseline schedule is a model of the contractor’s project execution plan, and is the standard by which project performance is measured.[11] The schedule should be a reflection of the contractor’s intent to achieve project completion while integrating all contractual scope and requirements. For the purposes of this RP it is assumed that the schedule is originally created and updated by the contractor, however, the guidelines may apply to other contractual relationships. The baseline schedule serves as a common basis for assessment of project progress and
performance.

Reaching agreement on a baseline schedule is often difficult, frequently requiring team effort, negotiation, and perseverance. During the initial stages of developing the baseline schedule, meetings between the contractor and the owner to discuss expectations and requirements can go a long way towards assuring timely completion, review and acceptance of a useful and effective baseline schedule. A lack of timely agreement on the acceptance of a baseline schedule can result in confusion, disagreements, loss of productivity, extra work, and unresolved issues that may afterward lead to claims or disputes. It is in the best interests of all parties to achieve an accepted baseline schedule in a timely manner.

This recommended practice is intended to address the evaluation of critical path method (CPM) original baseline schedules. This RP does not apply to a revised baseline plan or to a schedule update review where project progress/status is of primary concern.

The focus of a baseline review is on the overall quality and completeness of the original project schedule and overall plan; it is not an assessment of current progress or subsequent project schedule changes. A baseline schedule review focuses on the following issues that are not normally considered in a schedule update review:

- Inclusion of the entire project scope.
- Sequence and work flow.
- Constructability.
- Timing and phasing.
- Adherence to legal and contractual requirements.
- Unambiguous and clear descriptions of the work.
- Resource usage and balance.
- Level of detail.
- Design and coding of activities and project organization (i.e. organizational breakdown structure (OBS) and work breakdown structure (WBS)].
- Highlighting key or critical areas of risk.

Contributors:
- Ronald M. Winter, PSP (Author)
- Rumi Jamal Ansari
- Delbert E. Bearden, PSP
- Christopher W. Carson, CEP DRMP PSP
- Brian Celeste, PSP
- Dedhia B. Devang, PSP
- Frank DiCianni
- David H. Doughty, PSP
- Ricardo Garcia da Roza
- Robert Haskell, CCP PSP
- David M. Keffer, PE PSP
- Patrick M. Kelly, PE PSP
- Paul Levin, PSP
- Dr. Win G. Li, PE CCP PSP
- John C. Livengood, CCP CFCC PSP
- Praduman Maraj, PE
- Donald F. McDonald, Jr. PE CCP PSP
- Mark F. Nagata, PSP
- Jose Noe
- John P. Orr, PSP
- Glen R. Palmer, CFCC PSP
- Hannah E. Schumacher, PSP
- Peter W. van der Schans, CCP PSP
- Dr. Stephen P. Warhoe, PE CCP CFCC
- James G. Zack, Jr. CFCC

(NEW) 79R-13, Level of Effort Planning and Execution on Earned Value Projects – Within the Framework of ANSI EIA-748

This Recommended Practice (RP) describes the purpose, application, measurement and control of level of effort (LOE) work in projects that operate with an earned value management system. It provides explanations of use and management of LOE work as it pertains to EVM implementations that may not be contained in the Total Cost Management (TCM) Framework.

This RP is intended to provide guidance for planning, managing and reporting performance of LOE tasks that most EVM practitioners would consider to be sound practice for managing and claiming performance related to work that is not considered to be measureable. The target audience for this RP is project managers, control account managers (CAMs), and project staff responsible for planning projects and managing and measuring project performance. It is also considered to be beneficial to EVM analysts who want a clearer understanding of LOE task management and measurement.

This RP is aligned with the TCM Framework, as well as the American National Standards Institute (ANSI) Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines. (Guidelines 27 entirely, and components of Guidelines 22-26)

This document provides additional details that are not included in the ANSI EIA-748 standard such as the use of estimated completion date (ECD) metrics to help compare the schedule completion date against what is shown on a project’s working schedule. It also provides some additional aspects of EVM that are not covered in the TCM Framework, such as to complete performance index (TCPI) and earned schedule (ES). As with all AACE International recommended practices, this document is not intended to be a standard, rather it is intended to provide general guidance.

This RP will address the fundamental attributes used to develop an EAC or forecast, both from a cost perspective and from a schedule perspective. It will also address common independent EAC calculations used to compare and validate the EAC provided by the control account managers and/or project management.

Contributors:
- Thomas W. Jaeger, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumer, EVP

(NEW) RP 80R-13, Estimate at Completion (EAC)

This Recommended Practice (RP) explains what an estimate at completion (EAC) is, and considerations to use when developing an EAC for both cost and schedule components of the performance measurement baseline (PMB).

This RP is aligned with the Total Cost Management Framework, as well as the American National Standards Institute (ANSI) Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines. (Guidelines 27 entirely, and components of Guidelines 22-26)
Contributors:
- Eric Marcantoni, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumery, EVP

(NEW) 82R-13, Earned Value Management (EVM) Overview and Recommended Practices Consistent with ANSI EIA-748

This Recommended Practice (RP) applies to contracts employing the American National Standards Institute (ANSI) Earned Value Management Systems (EVMS) guidelines or the equivalent. It takes precedence over other TCM Framework guidance when ANSI EIA-748 is required. It provides an overview of the concept of earned value and its application in accordance with the ANSI EIA-748 earned value management system (EVMS) standard. ANSI EIA-748 contains 32 principles that are interrelated. This RP provides an overview of the ANSI EIA-748 guidelines 1-32 and provides a comparison with the Total Cost Management (TCM) Framework.

Contributors:
- Kimberly Meyer, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumery, EVP

(NEW) RP 85R-14, Use of Decision Trees in Decision Making

This Recommended Practice (RP) of AACE International defines the use of decision trees in evaluation of alternatives around project strategy in the presence of uncertainty and their potential implications. A large part of the risk management process involves looking into the future, trying to understand what might happen and determining whether it matters to an important decision we need to make.

The decision tree technique can be applied to many different uncertain situations. For example:

- Distinguishing the costs or benefits of using a low-price bidder when delivery time and quality are uncertain.
- The relative costs or benefits of adopting a state-of-the-art technology or staying with the proven technology.
- The relative attractiveness of building a greenfield plant or retrofitting an existing plant.

Decision tree techniques involve determining the objective (e.g., maximizing profit, minimizing cost), specifying the objective (e.g., choosing among bids for the EPC contractor) and creating a decision tree that distinguishes between choices to be made (decision nodes) and potential consequences (chance nodes). The cost of taking a particular path to the end point (e.g., project completion) and the probabilities of specific uncertain outcomes are key data inputs into the decision and are applied to the decision tree model.

This recommended practice shows the application of decision trees for two types of organizations: one is risk neutral and the other is risk averse. The decision process used for both types of organizations is to maximize the expected utility. This recommended practice then looks at two different approaches to expressing the organization’s utility. These approaches are generally those of a risk-neutral organization or a risk-averse organization:

- Maximize utility based on the expected value of a linear function of monetary value, which is a hallmark of a risk-neutral organization.
- Maximize expected utility based on the expected value a non-linear function of monetary value, which is the appropriate measure of merit for a risk-averse or a risk-seeking organization.

The results (e.g., which contractor to choose) are examined using sensitivity analysis to decide whether it is worth gathering more data since improving the accuracy of the data could result in changing the decision. This decision depends on the accuracy of the existing data and whether a reasonable variation in the numbers could change the decision.

Finally, continuous distributions of the uncertain variables usually approximate reality better than selecting and representing alternative outcomes using a limited number of discrete outcomes. Uncertain future outcomes can be represented by the use of Monte Carlo simulations of continuous distributions.

Contributors:
- Dr. David T. Hulett (Author)
- Shahin Avak
- David C. Brady, P.Eng. DRMP
- Christopher W. Carson, CEP DRMP

(PREVIOUSLY) RP 75R-13, Schedule and Cost Reserves within the Framework of ANSI EIA-748

This Recommended Practice (RP) describes the definition, purpose, management, and control of schedule and cost reserves on projects being implemented under American National Standards Institute (ANSI) Earned Value Management Systems (EVMS) guidelines with a focus on Federal Acquisition Regulation (FAR), required for projects funded by the United States government. This includes contingency, management reserve (MR), schedule margin (SM), undistributed budget (UB), and authorized unpriced work (AUW). Overall use of management reserve for programs and portfolios are not within the scope of this document. This document elaborates and provides additional detail that is consistent with however not included in the ANSI EIA-748 standard. It is intended to provide general guidelines from the owner and contractor perspectives. As with all AACE International recommended practices, this document is not intended to be a standard.

This RP starts with contingency as defined in common usage in RP 105-90, Cost Engineering Terminology. It specifically provides guidance regarding the management and use of management reserve and undistributed budget on projects being executed using earned value management (EVM) techniques consistent with the ANSI EIA-748 standard. This RP defines the non-time-phased components of the contract budget baseline (CBB), and may be used when project management consistent with EVMS tenets is implemented and practiced in a...
disciplined manner.

In this RP the cost contingencies are mitigated through the use of management reserve and schedule contingencies in schedule margin. Also, undistributed budget is defined as the amount of the budget of the performance measurement baseline that has yet to be allocated either to control accounts or to summary level planning packages.

This RP covers the scope of ANSI EIA-748 Guidelines 14 and 15 entirely and components of ANSI EIA-748 Guidelines 8, 28, 29, 30 and 32 regarding revisions and change control (as listed in the National Defense Industries Association (NDIA) Program Management Systems Committee (PMSC) Earned Value Management Systems Intent Guide).

Contributors:
- Kimberly A. Hunter, EVP (Author)
- Ronald L. Clendenon, EVP (Technical Advisor)
- Robert Loop, EVP PSP (Technical Advisor)
- Donald F. McDonald, Jr., PE CCP PSP
- Dan Melamed, CCP EVP (Technical Advisor)
- Dr. Stephen P. Warhoe, PE CCP CFCC

(REVISED) RP 10S-90, Cost Engineering Terminology

The following changes have been made in the latest revision:
- ACTUAL TIME (AT) (new)
- APPORTIONED EFFORT (revised)
- EARNED SCHEDULE (ES) (new)
- ESTIMATE AT COMPLETION [EAC(t)] (new)
- INDEPENDENT ESTIMATE AT COMPLETION [IEAC(t)] (new)
- LEVEL OF EFFORT (LOE) (revised)
- PLANNED DURATION (PD) (new)
- PLANNED DURATION OF WORK REMAINING (PDWR) (new)
- SCHEDULE PERFORMANCE INDEX [SPI(t)] (new)
- SCHEDULE VARIANCE [SV(t)] (new)
- VARIANCE AT COMPLETION [VAC(t)] (new)

(PUBLIC REVIEW DRAFT) RP 86R-14, Variance Analysis

[Available for public review and comment until December 22, 2014]

This recommended practice (RP) describes the purpose, application, measurement and control of variance analysis in projects executed under American National Standards Institute (ANSI) Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines.

This RP is intended to provide guidance (i.e., not a standard) for planning, performing, managing, and controlling the variance analysis process. Earned value management (EVM) practitioners would consider this guidance to be advisable for analyzing earned value (EV) metrics and addressing any potential negative influences to project execution. The target audience for this RP is anyone with a need or desire to understand how to prepare an EV variance analysis and perform a root cause analysis.

This RP is aligned with the Total Cost Management Framework, as well as the American National Standards Institute (ANSI) Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines (Guidelines 22-26). This document also provides further explanation of the intent and application of level of effort (LOE) that is not contained in the ANSI/EIA-748 standard and the National Defense Industries Association (NDIA) Earned Value Management Systems Intent Guide.

As with all AACE International recommended practices, this document is not intended to be a standard, but provides further clarification of recommended EVM practices as they apply to planning, implementation, and reporting a variance analysis performed under the ANSI/EIA-748 standard.


(PUBLIC REVIEW DRAFT) RP 87R-14, Cost Estimate Classification System – As Applied for the Petroleum Exploration and Production Industry

[Available for public review and comment until December 22, 2014]

As a Recommended Practice (RP) of AACE International, the Cost Estimate Classification System provides guidelines for applying the general principles of estimate classification to project cost estimates (i.e., cost estimates that are used to evaluate, approve, and/or fund projects). The Cost Estimate Classification System maps the phases and stages of project cost estimating together with a generic project scope definition maturity and quality matrix, which can be applied across a wide variety of process industries.

This addendum to the generic recommended practice provides guidelines for applying the principles of estimate classification specifically to project estimates in the petroleum exploration and production industry. This addendum supplements the generic recommended practice (17R-97)[1] by providing:

- A section that further defines classification concepts as they apply to the petroleum exploration and production industry
- A section on the geopolitical nature and investment regulation of petroleum exploration and production projects that impact the estimating process and its basis definition deliverables
- A chart that maps the extent and maturity of estimate input information (project definition deliverables) against the class of estimate

As with the generic RP, the intent of this addendum is to improve communications among all of the stakeholders involved with preparing, evaluating, and using project cost estimates, specifically for the petroleum exploration and production industry.

The overall purpose of this recommended practice is to provide the petroleum exploration and production industry definition deliverable maturity matrix which is not provided in 17R-97. It also provides an approximate representation of the relationship of specific design input data and design deliverable maturity to the estimate accuracy and methodology used to produce the cost estimate. The estimate accuracy range is driven by many other variables and risks, so the maturity and quality of the scope definition available at the time of the estimate is not the sole determinate of accuracy; risk analysis is required for that purpose.

It is understood that each enterprise may have its own project and estimating processes and terminology, and may classify estimates in particular ways. This guideline provides a generic and generally acceptable classification system for the petroleum exploration and production industry that can be used as a basis to com-
This addendum should allow each user to better assess, define, and communicate their own processes and standards in the light of generally accepted cost engineering practice.

As a final note regarding purpose, users must be aware of the industry’s well documented history of challenges with overruns of feasibility estimates. Intent of this RP is to help improve upon this past performance.


THANK YOU TO RECOMMENDED PRACTICE CONTRIBUTORS

Throughout the years, AACE International has been known for its solid technical content, with widely accepted and recognized Recommended Practices (RPs), frequently quoted and referred to in all facets of industry. All RPs have been recommended for use by the AACE International Technical Board after having undergone a rigorous review process, not only by our members but by the general public as well. We believe that because of the importance of these documents, this review and development process needs to be as transparent as possible, in order to provide the best value and to truly represent a consensus of as large of a section of total cost management professionals as possible.

None of these documents would have come to fruition had it not been for the numerous professionals who have volunteered their time and expertise over the years to author and contribute to the profession and to the main technical foundation for total cost management.

Thank you!

- All published AACE International Recommended Practices are available at: www.aacei.org/resources/rp.
- Recommended practices that are under public review and subcommittee review may be found at: www.aacei.org/forums.

The following is a list of contributors to the Recommended Practices that were published in 2014.

- Eric Marcantoni, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumery, EVP

- Kimberly Meyer, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumery, EVP

**RP 79R-13, Level of Effort Planning and Execution on Earned Value Projects – Within the Framework of ANSI EIA-748, 2014/10/24 (2014/10/24)**
- Thomas W. Jaeger, EVP (Author)
- Robert Loop, EVP PSP (Technical Advisor)
- Dan Melamed, CCP EVP (Technical Advisor)
- Richard C. Plumery, EVP

- Ronald M. Winter, PSP (Author)
- Rumi Jamal Ansari
- Delbert E. Bearden, PSP
- Christopher W. Carson, CEP DRMP PSP
- Dr. David Hillson
- Maryam Nejad, DRMP
- Rashmi Prasad, DRMP
- Dr. Harry Saunders
- John R. Schuyler, PE CCP DRMP
- W. James Simons, EVP PSP
- Ronald M. Winter, PSP

**RP 74R-13, Basis of Estimate – As Applied for the Software Services Industries, 2014/05/02 (2014/05/02)**
- Ton Dekkers (Author)
- Hans Bernink
- Marten Eisma
- Measurement Association International Network
- Netherlands Software Metrics Association
- Ray Sadal
- Jelle de Vries
Over recent months, AACE certificants have sent feedback asking for improvements and upgrades to the recertification process now in place. In order to offer a better, more efficient and upgraded process, the Certification Board unanimously voted to increase recertification fees by $60.00, resulting in $295.00 for members and $385.00 for non-members, effective January 1, 2015.

The basis of this increase is not only the continuing rise of cost to effectively administer and maintain a program of tremendous growth, but also providing the updated tools to streamline the process.

Since the implementation of the first recertification enhancements in 2012, the Certification program has been successful at reaching two main objectives: an increased retention (<60%); and a decrease in incomplete or erroneous recertification applications.

Recertification is on target to exceed 62% retention for the past three years. The first six months (January – June of 2014) reflect a 63% rate; with the remaining 6 months -- on target to exceed the past three-year average.

To successfully implement updated/upgraded tools and processes into the current recertification structure, the Certification Board has developed the following preliminary phased Recertification Transformation Plan:

Phase One – (Effective December 1, 2014):
- An online, self-reported recertification activity tracker for certificants to record recertification related activities during the course of certification.
- Content can be submitted on demand or saved until ready to submit; more detailed information regarding this tool will be released in a future article.

Phase Two –
- Effective January 1, 2015: Fee increase of $60.00 ($295.00 for members and $385 for non-members).
- Effective by September 1, 2015: An online recertification application that allows:
  - Submissions on demand or content to be edited and saved until you are ready to submit.
  - Supporting files and documentation can be attached to your application upon submission.
  - Automatic CEU calculation based upon contact hours or years entered in the specified category.

Phase Three – (Effective December 1, 2015)
- A recertification toolkit to help promote your continued professional certification.
- An annual recertification report from HQ to summarize your recertification activities to assist in gauging your CEU total before expiring.

According to Valerie Venters, CCP, Certification Board Chair, “The Certification Program is pleased to implement several, much needed program enhancements for our certificants. Recertification is an integral component of the certification program and the upgrades being implemented over the next year will give our certificants greater access to their CEU progress toward recertification. The Certification Board will continue to address each area of the Certification program, including Recertification, to ensure it is aligned with other professional associations committed to professional best practices and industry standards of credentialing.”

If you have any questions regarding this article or certification related issues in general, contact the Certification Department at certification@aacei.org or 304-296-8444, ext. 110.
Diana Nada is a specialist in advisory, project management, and management consulting services related to front-end and due-diligence decision making in capital project approval at early project planning and AFE (appropriation for expenditure) justifications. Diana was born and raised in Cairo, Egypt. Throughout her life she worked and studied in Dubai, London, and currently in Calgary.

Diana started her career with an interest in planning and scheduling, focusing on project management related electives during her undergrad studies. Upon completion of a master’s degree, Diana worked for five years in project controls and planning for several international project management consultancies, as well as construction real estate developers in Dubai, UAE. During this time, Diana discovered her passion for project controls. She had access to all project participants, in addition to the client and other consultants as part of stakeholder management. This gave her an opportunity to get engaged and oversee many items related to both internal and external aspects of the project, as well as direct contact to the project manager/director. Diana’s project management experience and communication elements related to project documentation, and project execution plans, were further enhanced while working closely with the various project participants.

Diana acknowledges how blessed she is to have had encountered several mentors during her career. In particular, two mentors, who motivated and supported Diana throughout her career. Back in Dubai, her boss encouraged her to pursue a PhD and always encouraged her to excel in work. In Canada, her second mentor, Professor Francis Hartman, became Diana’s PhD advisor. Diana remembers how Professor Hartman always steered her toward creative work and told Diana to follow her passion. He was her inspira-
Diana acknowledges how blessed she is to have had encountered several mentors during her career. In particular, two mentors, who motivated and supported Diana throughout her career.

Her doctoral research focused on exploring success factors of project approval decisions made by executives and project managers in both the oil/gas and construction/real estate industries. In particular, Diana’s research provided insights for outlining success factors for capital projects related to AFE approval decision making, project selection, and stage gate process at early management of project front-end planning, due-diligence and early execution as part of front-end business development. The recommendations included client and stakeholder management, including facilitating communication and decisions, as well as managing a typical disconnect between project managers and corporate executives with respect to the information shared.

Diana’s educational background is both impressive and consistent with the goals she set to achieve. She completed and defended her PhD degree in project management (PM) with specialization in the Civil Engineering Department at the University of Calgary (UofC) in Canada. She received her Master of Science degree in engineering management from Brunel University in the UK. She attended both The American University of Sharjah, UAE (AUS) and the American University in Cairo, Egypt (AUC) for her undergrad/bachelors degree in civil (construction) engineering.

While at UofC, Diana participated in academic and volunteer related work at the university. She worked as a teaching assistant at the department of Civil Engineering, and was the Graduate Student Association department representative for the years 2008 to 2010. She also served as the Vice President for External Affairs in the department’s student society during the same years. Diana received an AACE International Canadian Scholarship competition award in 2010.

During her undergraduate tenure, she was the civil engineering alumni representative of the AUS ABET accreditation process and the founding Vice President of the ASCE student chapter. She was also a teaching assistant for freshman to junior level courses. Diana remains to be an active AUC alumni member titled as, "Loyal for Life AUCian." She is an AACE International member and also a PMI, PMI-South Alberta Chapter member.

Diana went to several AACE International seminars and presentations, both in Dubai and Calgary. She attended her first AACE International Annual Meeting in June 2013 in Washington, DC, where she presented part of her research doctoral findings. Her technical paper was one of the top scoring Annual Meeting presentations and will be considered for future publication in the AACE International Cost Engineering Journal. Attending the AACE International Annual Meeting gave Diana an opportunity to network and talk to many colleagues in her field. She made new friends, met people she knew in Calgary, and had a great time. Some of her newly met colleagues were Women in Project Controls (WPC) Committee officers that she got the opportunity to meet in person and stay in touch with after the meeting.

Diana currently volunteers as a WPC officer, and would like to leave this message that she learned from Professor Francis Hartman, for all members of WPC Committee: “Follow your passion. Always look to stand out. Be innovative and stay focused. Think outside the box. The impossible can always be possible. Always learn from your lessons learned.”

WOMEN IN PROJECT CONTROLS PRESENTS WEBINAR  
DECEMBER 3, 2014 AT 12:00 PM

A 30-minute free webinar, "Mentors, Champions, and Role Models" with presenter Dr. Alexia Nalewaik, CCP FAACE, is being offered at noon eastern US time on Wednesday, Dec. 3. Much has been said about the role of mentoring for professionals; at the outset of the 21st century much effort was put into developing mentoring programs within companies and professional associations. Some mentoring programs have a special focus, such as women, younger members, and diversity.

However, a decade later, it is becoming clear that the function of the mentor is not enough. Individuals may look to role models for inspiration throughout their lifetime and career, and their role models may change over time as their aspirations evolve and they encounter setbacks or challenges. Others are able to find champions within their organization, to help them up the career ladder.

This presentation focuses on the characteristics of mentors, champions, and role models. It also discusses how each is applicable during different phases of life and career, and how to identify individuals who can serve in those capacities. Special attention is paid to importance for project controls professionals and specifically women in project controls. Register at https://www2.gotomeeting.com/register/630495506 for the free WPC Presents webinar.

Dr. Alexia Nalewaik, CCP FAACE is Principal Consultant of QS Requin Corporation. She is a project controls director and quantity surveyor with over 20 years of risk management, owner representation, and cost management experience.
Recruiting qualified professionals has never been easier.

The AACE Career Center offers:
- Quick and easy job posting
- Quality candidates
- Online reports provide you with job activity statistics
- Simple pricing options

About AACE International
Since 1956, AACE International has been the leading-edge professional society for project managers, schedulers, cost estimators, cost engineers, and project control specialists. AACE International is the authority for total cost management. Promoting the planning and management of projects, programs, and portfolios, AACE International is the largest organization serving the entire spectrum of project management professionals. AACE International is industry independent, and has members in over 80 countries.

*In order to qualify for this incentive, your company must advertise an employment position with AACE International's Career Center for at least two months. Once you hire a person for that position, regardless of the source, AACE International will give you the option of either having that new person's membership paid for the balance of the year or a $150 credit toward registering for an AACE International credential such as CCP, CEP, CFCC, EVP, or CCT.*
In today’s complex, litigation-prone business environment, individuals with the proven capability to assess risk and guide organizations to the best decision possible are in high demand. AACE International’s new Decision and Risk Management Professional™ (DRMP™) certification program establishes credentials that recognize professional expertise, skills and knowledge in the decision and risk management area of practice within cost engineering.

If you desire to be recognized for strong skills and knowledge in decision and risk management as it relates to project management, the DRMP certification was made for you.

Candidates may include but are not limited to risk managers, decision and risk management consultants, capital program managers or planners, project managers, value engineers and any cost engineering professionals focusing on asset and project decision and risk management.

Skills and knowledge range from analytical (e.g., statistics and modeling) to socio/psychological (e.g., risk elicitation and communication) to management (e.g., risk response planning and management).

For more information about the new AACE International DRMP certification, go to www.aacei.org/cert
Filipe Bonaldo Alves was born and raised in São Paulo, the largest city in Brazil. Filipe holds bachelor’s degree in industrial engineering at Escola de Engenharia Maua and completed his master’s degree in business administration at Fundação Getúlio Vargas.

He started very young in his career as an intern in a company, which manufactured industrial refractories. After some years, he moved to Deloitte Touche Tohmatsu where he was constantly exposed to new challenges in different projects he had the opportunity to work on. Driven by enthusiasm and dedication, he was able to study and stay committed with his profession. He is now the capital project manager of Deloitte and was able to get the Certified Cost Professional (CCP) certification during the Annual Meeting last year.

Since his university years, he had to study subjects related to statistical analysis, as well as project management. He said that he always found it interesting how project management can influence the company’s results and success. When he started working at Deloitte, he was able to realize that capital project management was a very strategic area for the company; however, there was still room for improvement. For that reason, he decided to dedicate himself to find possible alternatives to fulfill some gaps—that was when AACE played an important role in guiding his fast and efficient growth. This was the start of his involvement in project controls.

Since then, he realized the number of great opportunities that he must give his contribution to help improve the practices of managing projects in his company. He said that he reinforced his beliefs and, right at that moment, he wanted to pursue work in the area of project controls.

Filipe is very thankful working with Marcos Ganut, his direct manager and mentor. He said, “Marcos always encourages me to study and improve my project control capabilities.” Moreover, he also gives credits to his colleagues and friends at Deloitte who have always been help-
AACE International made a difference in his professional development. He said that, AACE is very assertive when leading with training. It works with renowned professionals involved in project management and it also offers tools for a rapid growth, as well as opportunities for improvement for people starting their careers.

Filipe also shared his experiences in attending AACE Annual Meeting. He mentioned that the Annual Meeting provides a unique opportunity for the participants to exchange knowledge and interact with the most updated people and professionals in the area of capital projects and project controls in the world. “It is the fastest way to access information and to understand the new practices the market is applying worldwide,” he added.

AACE International made a difference in his professional development. He said that, AACE is very assertive when leading with training. It works with renowned professionals involved in project management and it also offers tools for a rapid growth, as well as opportunities for improvement for people starting their careers. “The fact that I have the CCP certification has assured the clients that I have an advanced knowledge of capital project management aligned with the best world practices. The certification certainly boosts the career of any professional. I suggest everyone make good use of the tools and resources offered by AACE, such as the discussion forum, Total Cost Management book, technical papers, Source magazine and the Cost Engineering journal, training programs and seminars just to mention a few. This material will be of great help along your career in project management and controls,” he added.

When asked on his advice to other young professionals in the industry, he replied, “To me, the world of capital project management has been, is, and always will be in a process of development. Therefore, it offers opportunities for everyone interested not only in learning but also in contributing to a better performance of practices, and, as a consequence, better results of investments made by the company. This depends on each one of us, it depends on how much dedication we apply and how strenuously each one works to reach higher and to overcome the legacy left to us and to make a difference in our work environment in capital projects.”

◆

The AchieveLinks® rewards program is now available to all AACE International members. AchieveLinks is the unique rewards program created exclusively for associations. Just by making the same purchases you already make for your business and personal life, you’ll earn valuable LinksSM reward points that can be redeemed for exciting rewards, including family vacations, great merchandise, and once in a lifetime experiences.

AchieveLinks maximizes the value our members get from their membership while increasing their engagement with AACE International. AchieveLinks rewards members for purchases they make every day whether for personal or professional reasons. The AchieveLinks reward points can really add up—and be redeemed for an impressive array of rewards. With hundreds of merchants to choose from, the options literally range from A-Z with members being able to buy from companies as wide ranging as Adidas to Zales. Not only do our members benefit with rewards points, but the Association will earn non-dues income to help diversify income sources for future benefits.

To learn more about this unique membership benefit provided at no cost to our members, or see a list of earning opportunities and reward options, visit www.achievelinks.com.
Putting together a successful career as a practitioner in Total Cost Management can be a challenging puzzle. Thousands of motivated individuals throughout the world find themselves in need of advice and guidance from more experienced professionals. Rather than allowing young professionals to flounder, AACE International embraces a structured Mentoring Program to match experienced TCM professionals with the protégés who need them the most.

Isn’t it time you put it all together?

Become an essential part of the AACE International Mentoring Program
Learn more at www.aacei.org/career/mentor
Use of Dynamic Progress Method (DPM) on Guaranteed Maximum Price (GMP) Contracts

Mark P. McDowell, CCP PSP, Barry B. Bramble, and J. Chris White

Abstract: Project owners and contractors continue to be challenged when developing competitive Guaranteed Maximum Price (GMP) contracts. The purpose of this article is to introduce project owners and contractors to Dynamic Progress Method (DPM) tools available to them when developing or evaluating trade contractor proposals required for GMP development. This article will overview traditional GMP development and evaluation techniques and then introduce more advanced DPM techniques. All of the information and recommendations provided by this article will equip owners, owner’s representatives, and contractors, to exercise increased and varying degrees of diligence when advancing projects through the design, preconstruction and construction phases of a GMP project. This article was first presented as RISK 1330 at the 2013 AACE International Annual Meeting in Washington, DC.

Key Words: Contracts, contractors, design, DPM, GPM, owners, and projects

Project owners and contractors are frequently challenged in developing and evaluating pricing, schedules, proposals, and terms for Guaranteed Maximum Price (GMP) contracts and projects. Some of the key challenges that the parties face on GMP projects include:

- The project design often is not fully developed.
- Responsibility for any cost overruns or time delays.
- Who is to benefit from any cost or time savings and under-runs.
- Less competition for the various elements of the work leading to uncertainty about the tendered prices and time components. And, how to deal with major scope changes [1].

Compounding these challenges are factors such as team members inexperienced in GMP contracting, shortage of seasoned project control specialists, and the failure to properly develop or understand the commercial terms of the GMP contracting scheme. Given these challenges and risks on GMP project, the parties to the GMP process may benefit from the powerful analytic project control tool known as the Dynamic Progress Method (DPM) to help evaluate and sort out these challenges and risks.

What is GMP?

GMP is a type of contracting for construction projects where the GMP contractor is paid its actual costs, plus a fee subject to a ceiling price. In many circles, GMP is known as a not-to-exceed pricing or open book contracts. GMP is a type of cost-plus a fee contract, where often times, after the design is developed to a certain stage, the owner and the GMP contractor will negotiate final pricing for certain aspects of the work [1].

Many owners who are contemplating the use of GMP contract on their projects are surprised to learn that the management of GMP contracts requires significantly more owner resources than traditional design-bid-build projects. This increased owner investment represents the effort to reduce project cost and schedule uncertainty before and after construction has commenced on the GMP project. The overall owner effort during early phases of the GMP project will allow owners and stakeholders to understand the potential project outcomes without placing the entire project budget at risk. The application of
these early additional resources will allow the owner and stakeholder on a GMP project to take advantage of informed decision-making when it can impact the project outcomes the greatest. This may be true on more traditional design-bid-build projects. This is reflected in what has become known as the, “cost influence curve.”

On GMP projects, there are four primary project phases that often overlap and are not in the same sequence as in more traditional design-bid-build projects. The four conceptual phases often employed on GMP projects include:

- Preconstruction;
- Negotiation of the GMP (preliminary, initial and finalization of the GMP);
- Construction (early start of construction and full-scale construction); and,
- Project closeout and move-in [1].

Thus, this four-phase GMP process results in subtle modifications to the cost influence curve when compared to the customary sequence of traditional design-bid-build.

These four conceptual GMP phases provide opportunities for owners and contractors to apply enhanced efforts to evaluate and ascertain final cost and schedule outcomes of their GMP projects before and after construction has commenced. Project cost, schedule and quality are the key to project success during all phases of project development and the primary focus of this article will be cost and schedule.

The project controls tool known as the Dynamic Progress Method (DPM) will often enhance project owner cost and schedule awareness, through the testing of assumptions and combination of assumptions. These include the evaluation of the GMP contractor’s

---

**Figure 1**—Project Influence Curve On Traditional Design-Bid-Build Projects

**Figure 2**—Project Influence Curve On Traditional Design-Build Projects
pricing and schedules, the trade contractor bids, and the evaluation of combined GMP contractor’s and the trade contractors’ approaches to achieve the most economical design and construction solution. DPM serves as a tool that helps achieve the most optimal project result for both the owner and GMP contractor.

What is DPM?

The Dynamic Progress Method (DPM) is a new approach to planning, estimating, and managing projects that uses the increased power now found in personal computers, applying a different type of model than is currently used in most tools. The underlying algorithms in many project management (PM) tools are simplified because they were developed at a time when there was very little computational power on desktops [2].

The goal of DPM is to address the following three shortcomings of other current project controls tools, such as critical path method and PERT scheduling.

- **Task Duration is an Input**—In reality, many factors (e.g.,

---

Equation 1 — Duration With 100% Productivity and 8 Hours/Day

\[
\text{Duration} = \frac{\text{Amount of work to do}}{\text{Work completed per day}} = \frac{80 \text{ hours}}{(1 \text{ person}) \times (100\% \text{ productivity}) \times (8 \text{ hours/day})} = 10 \text{ days}
\]

Equation 2 — Duration With 100% Productivity and 6 Hours/Day

\[
\text{Duration} = \frac{80 \text{ hours}}{(1 \text{ person}) \times (100\% \text{ productivity}) \times (6 \text{ hours/day})} = 13.7 \text{ days}
\]

Equation 3 — Duration With 50% Productivity and 8 Hours/Day

\[
\text{Duration} = \frac{80 \text{ hours}}{(1 \text{ person}) \times (50\% \text{ productivity}) \times (8 \text{ hours/day})} = 20 \text{ days}
\]

Equation 4 — Effective Labor Hours

\[
\text{Effective Labor Hours} = (\text{Number of Resources}) \times (\text{Actual Labor Hours})
\]

Example: “Effective” Labor Hours = (1 person) * (8 hours/person) = 8 hours
availability and productivity of resources, dependencies among tasks, hours worked by employees) affect the duration of a task. Thus, in the real world, task duration is actually an output.

- **Productivity Impacts are not Considered**—In current PM tools, labor can be added to or removed from a task with no impact on the productivity of labor. This assumes all resources are equal. Yet, we know they are not. Also, in current PM tools crews can be scheduled for overtime with no impact on their productivity. However, numerous industry studies have confirmed that productivity decreases as a result of fatigue. Lastly, throwing more people at a task often makes the task fall further behind schedule as a result of the lower labor productivity.

- **Corrective Actions are not Captured**—Actual management decisions and actions during a project are not included, but these corrective actions can significantly influence progress. Current tools only match resources against task assignments. As a result, current PM tools allow for static planning, but not dynamic reaction and re-planning. The current tools do not help the project manager actually manage the project, but only allow the PM to develop multiple, static plans with no insight.

DPM begins with a fundamental re-evaluation of how input information is used and how the project is represented as a “simulation” on a computer. Resources (rather than durations) are the fundamental consideration, including the productivity associated with these resources. And, the project is represented with an operational simulation that mimics real-world actions, so that task work can be represented through the application of resources and management policies can apply corrective actions to the project to alter performance, as needed.

DPM’s resource-based estimating is an alternative approach to traditional duration-based estimating methods (e.g., CPM). Figure 3 is a representation of how input information is used in both of these approaches. In CPM, the user inputs the estimated duration of each task. No resource information is required. An experienced project manager may use actual knowledge of resource usage for the duration estimate, but that is not necessary. In fact, in many rough-order-magnitude (ROM) estimates used on GMP, resource information is rarely used as approximate estimates are being developed, not detailed estimates. Often there is no consistency with the duration estimates because of the planner’s underlying assumptions. One planner can estimate it at 10 days and another estimate it at 15 days. None of this information is captured in the duration-based estimate.

In DPM, specific information related to the amount of work expected, the expected allocated resources, the expected level of productivity for the resources, and the expected availability of the resources are used as inputs. Duration is not an input. In figure 3, the task represents 80 hours of work, one person is allocated to the task with a
productivity level of 100%, and the availability of the person is 8 hours/day. This gives a duration estimate of 10 days: (See equation 1).

At this point, the resource-based approach of DPM and the duration-based PERT/CPM seem to be equivalent, 10 days. The additional value of the resource-based approach comes from including the real-world elements. For duration, these are resources doing work. In DPM, duration is an output, just as it is in the real world. This additional resource information becomes valuable when changes to the resources occur. For example, the estimated duration for the task in figure 4 is 10 days, which assumes the resource availability and productivity as shown. If the resource is available for only 6 hours/day, then the duration is shown in equation 2.

This change in the duration cannot be accounted for in CPM’s duration-based approach. As another example, if the resource for the task in figure 3 is not available and a junior-level person is assigned with a productivity level of 50%, compared to the original resource, the expected duration is shown in equation 3.

By just changing resources, a completely different duration is obtained.

DPM has an underlying operational model that mimics the actual actions and processes of a project. Figure 3 provides a schematic diagram of the task execution portion of the DPM model. DPM begins with a “bucket” of work that will be done for a task (Work To Do). As resources are allocated, work is done (Completion Rate) and work moves from “to do” to “complete” (Completed Work). The rate at which work is completed is based on how many resources are allocated (Number of Resources) and how many hours per day those resources work (Actual Labor Hours). Then, see equation 4.

By changing the number or resources allocated to a task and/or the number of hours the resource is available, the rate of work completion can be changed. The graphics in the lower right of figure 4 indicate that completion of work for a task may depend on the progression of work on preceding tasks. For instance, Task 2 may require that Task 1 is 100% complete before Task 2 can start. The term EV/status calculations at the top of figure 4 indicates that at any point in time the status of the task relative to its expected schedule and cost can be determined. This shows whether a task is ahead/behind on schedule and over/under on cost.

Where DPM adds value is shown in figure 5 in gray. One new element that DPM uses is resource productivity. Sometimes there is a “learning curve” associated with a project. DPM adds this productivity component. Next, in the real world, status information (e.g., earned value calculations) may drive a project manager to apply corrective actions to get a task back on course such as: (1) add/remove resources, or (2) add/remove work hours. However, in the real world there are consequences and there may not be a 1-for-1 return. DPM incorporates this impact and it is shown by the red line with “fatigue.” Similarly, there may be an “optimum” number of people to work on that task to maximize productivity. DPM incorporates this impact, also, and it is shown by the red line with “over-manning.”
Benefits of Using DPM

DPM has several major benefits over the current PERT/CPM approach, including the following [4].

- **Proactive Approach**—DPM allows PM’s to review and challenge assumptions and plans before problems arise, increasing the probability of success.
- **Better Baseline Plans**—DPM can help PM’s launch projects with more defendable and achievable baseline plans.
- **Better Corrective Actions**—DPM can guide PM’s on which corrective actions are most effective under certain conditions such as overtime, acceleration, or adding resources.
- **Real-World Consequences**—Productivity can suffer when too much overtime or too many resources are applied.
- **Better Risk Management**—DPM highlights risks inherent in baseline or midstream estimates from changes in resources.
- **Project Acceleration**—DPM shows realistic options for “accelerating” a project, with cost and labor trade-offs. DPM can quantify the shortest possible duration for a project.

### Traditional GMP Development and Evaluation Techniques

The GMP delivery process requires a greater effort by an owner to manage the project. The owner team must be properly staffed in order to review, challenge, and resolve assumptions, estimates, and schedules prepared by the contractor and subordinate trade contractors. It is important to memorialize all of these assumptions as a record of negotiations.

The preconstruction phase commences with the inception and refinement of a concept for the project and its feasibility. The conceptual feasibility may be done formally through a systematic study, or informally with a “back of envelope” evaluation. The concept may include involvement of an architect or other design professionals in the assessment and mitigation of risks with the skills of their respective disciplines, and hopefully experienced in GMP.

During the preconstruction phase, the design begins with a conceptual design and proceeds to schematic design, and the design development with the issuance of Design Development (“DD”) documents. With the DD documents, the owner can effectively begin to negotiate the GMP, which is a process unto itself. While the design may not be finalized until after construction has begun, the design stages on a GMP project require combined in-house skills and knowledge of the owner through its staff, the lead architect, additional consulting staff, and culminates with the input of the GMP contractor and its trade contractors.

During the negotiation of GMP phase, the contractor seeks estimates, bids and updates from trade contractors that perform the cost reimbursable components of the work. The estimating and bidding typically commences upon evaluation of the GMP contractors and continues through the finalization of the GMP.

Historically, GMP contractors are required to obtain a minimum number of bids for each trade contract and recommend approval by the owner. The criteria for selection is usually price and time, however, pre-qualification of trade contractors is often required. Upon receipt of trade contractor bids, the GMP contractor conducts a cost analysis and de-scopes each trade contract. This is to fully understand what is included and also to develop the assumptions, clarifications, and exclusions document for the finalization of the GMP. The award is often made to the lowest responsible bidder that meets all project execution objectives. It is not unusual that the GMP contractor conducts some level of risk analysis regarding cost and schedule and uses that analysis to forecast the required contingency to that trade contract, and also to the overall GMP contract. It has not been standard practice to conduct any modeling or simulations that would evaluate and compare different trade contractor strategies and combinations that could potentially yield improved results.

The GMP negotiation phase is one long and incredibly detailed negotiation. Traditional risk mitigation is accomplished by developing a detailed record that will serve as a tool for later project decisions. During this phase, trade contractors are considered and evaluated on qualifications, price, execution plan, and other variables. As the project advances through this phase, the owner’s project team is provided several opportunities to evaluate design, estimates, schedules, and also assess and update the risks identified. These predetermined milestones, represented by the “go-no-go” decision points, provide the owner’s team an opportunity to status progress and forecast the uncertainty in the project. It also offers a closure point in the event the project is suspended. During GMP negotiation, the owner will select one entity to serve as the lead GMP contractor. This selection will likely be a cost-based contract that will be later finalized. Although the owner may engage in negotiations with several different bidders, it must make a procurement decision and enter into some type of GPM agreement with one entity.

Thereafter, construction on certain portions of the construction can begin ("early start of construction"). Depending upon the completeness of the design and the terms of the GMP agreement, the "early construction" may include site work, excavation, and foundations, while the other aspects of the project design are being completed. Also, GMP negotiations can continue for the balance of the construction of the project while the early construction work is underway, usually on a time and materials or not-to-exceed pricing for these early construction activities.

The finalization of the GMP is a critical milestone in the GPM process. During the GMP negotiation, the parties exchange terms relating to pricing, timing, scheduling, and quality. Various iterations of these terms may be agreed upon in preliminary, initial, and on-going GMP estimates. However, it is incumbent on the owner to enter into a final GMP agreement, otherwise the construction will continue to be priced on time and materials, and the owner will be deprived on the benefit of the limitations on pricing and time incumbent to a GMP contract, and without any incentives to minimize the costs of construction. The final GMP is more in the nature of not-to-exceed
price rather than a fixed price, although the GMP contractor has the benefit of being paid its actual costs and a fee subject to a ceiling price [1]. It is only after the design is well-developed that the GMP contractor is able to accurately develop its GMP price and terms. Historically, GMP contracts have been finalized as early as 60% design, but may wait until after full-scale construction has begun, but this is not advisable [1]. It is not uncommon that the finalization of the GMP never takes place. It is recommended that owners have a plan in place in the event that the GMP does not get finalized.

Full-scale Construction Phase
The full-scale construction phase of a GMP project includes procurement of the remaining trade contracts and managing the project to completion. Skilled project administration, quality management, cost and time management is essential to project success. The owner team must be actively involved and totally engaged in order to achieve cost, time, and quality requirements. The administration of change orders represents great challenge and risks on a GMP project and, thus, capable management of the change order process, by both the owner and the contractor, is essential. It is critically important that changes process and pricing terms be explicitly and precisely defined in the GMP contract. Changes that include modifications to the owner’s program requirements are conventionally additive change orders to the contractor and paid through owner contingency. Changes may increase the GMP amount. Changes that are a product of advancing the design after the GMP is executed are not change orders to the GMP contractor, but may be a change order between the GMP contractor and trade subcontractors. These types of change may be paid through the contractor’s contingency.

Prior to the start of the full-scale construction, the owner and the GMP contractor should have set the terms, procedures and requirements for the owner’s move-in and occupancy of the project, as well as the terms of the project close-out and documentation. As the construction work nears completion the parties will begin to implement these terms and the project close-out and move-in phase begins.

Use of DPM in the Development and Evaluation of GMP Projects
DPM is an enhanced tool that allows owners to evaluate the planning, design, and construction of GMP projects. The commitment to DPM will require additional sacrifice by owners, stakeholders, and project team members. However, that investment will return greater certainty in project outcome estimates throughout the project development cycle. It will also assist in the development of project metrics during construction and overall evaluation at project completion. DPM is a project control tool that will allow GMP contractors and owners the opportunity to improve the quality of trade contractor evaluations. The use of DPM techniques provides greater insight into the performance of trade contractors independently and collectively. By combining and matching different trade contractors through the use of DPM techniques, an optimum trade contractor mix may be obtained. The consideration and testing of resource availability and productivity provides the GMP contractor the ability to fine tune trade contractor selection. Further, the use of DPM in the development and evaluation of GMP proposals allows owners and GMP contractors to fully consider resource uncertainty. During the evaluation of the trade contractors, GMP contractors consider a number of variables including recent experience, past history, project type experience, management philosophy, but also employ intuition to a large degree. The consideration of resource uncertainty will allow the GMP contractor to explore the proposed performance of the trade contractors more objectively and to make a more informed selection.

The DPM tool allows project estimators and schedulers to input probability distributions, rather than definitive estimates into pricing and schedules, and this accommodates the uncertainty project that teams face during the development of GMP projects. Competing trade contractors enrich this process because they provide different perspectives on how they intend to execute the work.

GMP Costs and Budget Evaluation
Cost and budget evaluation begins at project conception. Feasibility analysis including order of magnitude estimates will determine if the project goals are achievable and reasonable at a pre-concept level. DPM evaluation techniques include capacity factored, parametric models, and other estimating methodologies. A conceptual budget will be formed and used to manage the advancement of design and construction.

The GMP contract includes five major cost components and each provides both opportunities and risks to be managed by owners [3]. The five components include:

- general conditions;
- fee;
- reimbursable costs;
- allowances; and,
- contingency.

General conditions represent the indirect project costs incurred by the GMP contractor while performing the work. General conditions costs include such items, including but not limited to, administration, supervision, specified home office costs, field office costs, etc. What is critical to owners is that the general conditions costs be precisely defined as to what they include, as well as specific items that they do not include, such as executive and employee bonuses, vacations, and home office per diems [3]. Lack of definition has been the basis of numerous construction contract disputes. Additionally, a line item accounting of each cost item and its basis for payment may reduce future disputes and uncertainty during the construction phase. Payment procedures may specify whether general conditions are billed at a monthly rate or percentage complete.

The GMP contractor’s fee is affected by a number of factors, including marketplace competition, the targeted design status for GMP approval, abundances of allowance items, proposed contingency, and quality of assumptions and exceptions. The fee may also be impacted by the options available to the parties in the event that no GMP agreement is reached. Other considerations include whether the fee gets paid on changes and how payment
is achieved (monthly, pro-rated, or percentage of costs incurred). Ultimately, the GMP contractor will be compensated based on the outcome of his or her performance.

Reimbursable costs represent the bulk of the GMP and includes: subcontractor billings, materials, equipment, and other support services such as trailer or equipment rental not included in the general conditions. If the GMP contractor self-performs some work, this may be considered reimbursable. When a GMP contractor elects to self-perform, the owner team must be aware that a more detailed monitoring effort will be required to segregate self-performance activities from general conditions and supervision activities. This represents a potential cost risk to the project in the event that self-performed work experiences change order work [3].

Allowances represent one of the more risky GMP components. However, prudent owner management can apply the resources to properly manage these uncertain work components. Allowances traditionally represent work that is expected but not properly defined. During the preconstruction and design phases it is imperative that all assumptions be precisely documented in order to establish the basis of any existing allowance at the time of GMP contract agreement. The cost control exercise at the time when an allowance is converted to a detailed scope of work that can be defined by labor, material, and equipment estimates becomes one of simplified cost reconciliation rather than a disputed change order.

Contingency represents two different cost accounts in a GMP contract. Owner contingency is provided for design errors and omissions, changes in requirements, and changes in the owners program. These types of contingency cost items are referred to as “outside the GMP” or “above the line contingency.” Contractor contingency is part of the GMP contract price and used to cover overruns in trade contract procurement [3]. It is common that when trade contractors submit their actual bids, they are higher than what was anticipated in the GMP line item for that work. This contingency item is also used to fund remedial and punchlist work, as well as unanticipated escalation not covered in the corresponding trade line item. When all contractor contingency has been exhausted through scope gaps, it is expected that the GMP contractor will absorb all additional costs through its fee or general conditions. It is at this point where project relationships typically take a new direction.

The development of the GMP cost components takes place during the preconstruction, GMP negotiation and construction phases of the project. Each component achieves additional definition as the project design advances and more trade contractors provide input into the constructability of the project. As the design advances through schematic, design development and construction documents, the estimates will take on greater complexity as undefined and contingency items become defined labor, material, and equipment cost components. The build-up of the GMP cost components are illustrated in figure 6.

The application and use of DPM techniques will provide owners with greater certainty for each of the GMP cost components.

**DPM in Preconstruction Phase**

In the GMP preconstruction phase, the project owner has the opportunity to examine the cost benefit of a project at the most basic level and make a
determination to proceed or discontinue the project. If the owner chooses to proceed, additional professional resources will likely be required to advance the project through the next phases of design. These resources include architects, engineers, and professional project managers. The extent of this staff argumentation will be predicated upon the existing staff and capabilities of the project owner. The sequence of which an owner procures these professional resources will also reflect the overall priorities, goals, and objectives.

During preconstruction phase, the GMP contractor is hired on a cost reimbursable basis where his or her role is to support and defend the interests of the owner in an attempt to remove uncertainty from project cost and schedule. The sooner the owner hires a construction manager or GMP contractor the better. The areas of focus include cost, quality, and schedule. DPM tools can support the estimating, scheduling, and constructability efforts of the owner, the GMP contractor, and others through the design phases of the project.

During the preconstruction phase, the owner and GMP contractor interact with trade contractors to seek out competitive advantages to executing the work. Competing trade contractors will most likely offer different approaches to the work and the GMP contractor can base selection of the approach that is most advantageous to the project team, goals and objectives.

The design effort during the preconstruction phase represents both risk and opportunity to the owner and proper management of this risk will allow for a beneficial outcome of the overall design and subsequent construction. It will be critically important to procure an architect and engineer with successful GMP experience and DPM tools may help in this regard. One of the performance qualities unique to GMP and fast-track design and construction is the ability of the architect to multi-task throughout the design and construction periods. The early design packages will be in construction when subsequent design packages are advancing through design development. It is critically important that the architect has the available resources to facilitate this workload, as well as achieve the design milestones established in the GMP contractor’s schedule.

The use of DPM scheduling techniques will allow project owners to evaluate the potential of qualified GMP architects during design procurement and also to calculate confidence intervals when memorializing project milestones. If an owner requires an 80% probability of success, then the architect will be required to dedicate the resources to achieve that level of confidence. Additionally, when progress does not go according to plans, DPM techniques will allow responsible and accurate recovery plans to be developed and implemented.

DPM in Negotiation of GMP Phase

The negotiation of the GMP commences upon selecting the GMP contractor. During the earlier periods of the project, the GMP contractor may be working on a cost reimbursable basis. The main goal is to achieve cost and schedule certainty at the earliest opportunity. As the design advances and more of the contingency and allowances are converted into labor, material, and equipment line items, the certainty of cost and schedule becomes more certain. The finalization of the GMP is when the owner and GMP contractor agree on a final guaranteed maximum price for all labor material and equipment required to construct the project. This price will include general conditions, GMP fee, and reimbursable costs (trade contracts).

During the negotiation of GMP, the owner and GMP contractor pre-qualify and evaluate several competing trade contractors for each scope of work to be procured. Each of the trade contractors may bring their own unique methods and competitive advantages in some form. It will be important for the GMP contractor to shake out all of these variables in order to properly evaluate the bids and how each approach affects the overall balance of the work. DPM scheduling techniques will allow the GMP contractor to conduct more in depth analysis into the performance of each trade contractor and how their approach will impact the overall cost and schedule of the project. DPM can also test the overall potential of each trade contractor as they are impacted by project risks that are unknown to them at the time of bidding. Additionally, DPM can be used to identify the optimum trade contractor mix that may achieve reduced project schedule and overall project cost.

DPM During Construction Phase

GMP contracts are very common when fast-tracking construction. Fast-track construction will experience design activities taking place concurrently with early construction activities. Like all construction projects, whether fast-tracked or not, there will always be a critical path that represents the longest path to construction completion of the project. Close attention must be paid to the critical and near critical paths in order for the project to meet schedule. DPM scheduling techniques allow the GMP contractor to test scheduling and productivity assumptions, as well as validate the overall construction schedule. If the project falls behind or misses a milestone, the owner may direct recovery and DPM will facilitate that effort by allowing the GMP contractor to input reliable resource variables into the schedule and forecast the outcome more accurately. The use of earned value and associated reporting provide dependable historical data for DPM input. These tools will develop more confidence in the scheduling effort.

DPM During Close-Out Phase

At the completion of construction, the GMP and associated trade contractors will be required to perform many administration responsibilities including providing guarantees and warranties, operation and maintenance manuals, attic stock and facility training for occupants. Unfortunately, close-out phase includes other administration submittals such as claims for equitable adjustment and other types of unpleasant correspondence. Claims can include a variety of allegations and associated damages. However, each claim has two major parts. The entitlement section typically includes a detailed description of actions and inactions of the party whose relief is sought entitling the claimant to
compensation, and the damages section sets forth the calculations and the support for the compensation claimed.

DPM scheduling techniques can be used to refute or validate performance and productivity claims by comparing and contrasting claimed damages against historical project data and/or industry performance data. The first step in proving a productivity claim is determining whether the original estimate and schedule durations were reasonable. DPM techniques provide a tool to conduct this evaluation. Unless the schedule was cost and resource loaded, DPM allows the claim analyst to retrospectively validate activity durations in the schedule against the estimate that was provided for each scope of work line item. If the estimates and related schedule durations were reasonable, and performance was disrupted, DPM will assist the analyst in determining the extent of the damages more accurately.

Conclusion

The application and use of DPM during preconstruction and GMP negotiation phase allows owners and GMP contractors to evaluate the potential performance of competing trade contractors and also test different combinations of trade contractors that offer significantly different approaches to performing the work. The application of earned value on cost and resource loaded construction schedules will monitor and control the progress of the work, as well as to validate the planning assumptions regarding the uncertain productivity and resource availability made during schedule development. During construction, DPM offers advanced methods to evaluate schedules, costs, and changes.

REFERENCES


ABOUT THE AUTHORS

Barry B. Bramble, is with Barry Bramble Attorney at Law. he can be contacted by sending e-mail to:
barrybramble@comcast.net

J. Chris White, is with the Viasim Solutions Corp. he can be contacted by sending e-mail to:
jcwhite@viasimsolutions.com

FOR OTHER RESOURCES

To view additional resources on this subject, go to:
www.aacei.org/resources/vl/ You can do an “advanced search” and search by "author name" for an abstract listing of all other technical articles this author has published with AACE. Or, you can search by any total cost management subject area of interest to you and retrieve a listing of all available AACE articles on your area of interest. AACE also offers pre-recorded webinars, an Online Learning Center and other educational resources. Check out all of the available AACE resources.

END OF YEAR ACTIVITIES AND HOLIDAY CLOSINGS ANNOUNCED

Members are reminded that the AACE Headquarters offices will be closed December 24-26 for the Christmas holiday and on January 1, 2015, for the New Year’s Day holiday. Members may experience some phone and internet contact interruptions during December as renovation work occurs at Headquarters. We ask your patience and follow-up contact should occur within a day or two of submitting requests.

Another Association year is drawing to a close. Members are reminded that dues expire December 31. Members can pay 2015 dues online anytime at the AACE website, www.aacei.org.

A slate of candidates for the 2015 AACE election has been presented. Members have the option to add candidates by petition, but the submission deadline is Dec. 15. Voting will open Feb. 1 and close at 4 p.m. Eastern US time on March 15, 2015.
Becoming a **Certified Cost Professional** is a proven way to enhance your value to employers and clients by providing an impartial endorsement of your knowledge and expertise.

Earning your **Certified Cost Professional (CCP)** shows your professional commitment and ability to your peers, supervisors, and clients, and may give you that competitive “edge” when being considered for a promotion or future opportunity. In addition, AACE International salary surveys reveal that **Certified Cost Professionals** earn more at all steps throughout their career than those without certification.

**RECHARGE YOUR PROFESSIONAL BATTERIES**

Become a Certified Cost Professional.

For more information go to [www.aacei.org](http://www.aacei.org)

*Previously known as the Certified Cost Consultant/Certified Cost Engineer*
COMP is a comprehensive package of benefits designed to encourage companies to develop the skills of their total cost management employees through AACE membership.

Administrative Controls Management, Inc  
www.acmpm.com

Altran  
www.altran-na.com

AMEC Oakville Mining & Metals  
www.amec.com

ARCADIS  
www.arcadis-us.com

ARES Corporation  
www.aresprism.com

B&W Technical Services Y-12 LLC  
www.y12.doe.gov

Ball Aerospace & Technologies  
www.ballaerospace.com

Barrick Gold Corporation  
www.barrick.com

Basrah Gas Company  
www.basrahgas.com

Belstar Inc  
www.belstar.com

Benchmark Estimating Ltd  
www.benchmarkestimating.co.uk

Black & Veatch  
www.bv.com

Brasfield & Gorrie LLC  
www.brascfieldgorrie.com

Brown and Caldwell  
www.brwncld.com.com

Burns & McDonnell  
www.burnsmcd.com

Caixa Economica Federal  
www.caixa.gov.br.sinapi

Canadian Natural Resources Ltd  
www.cnrl.com

Cargill, Inc.  
www.cargill.com

CB&I  
www.cbi.com

CH2M Hill Inc  
www.ch2m.com

Chevron Corporation  
www.chevron.com

ConocoPhillips  
www.conocophillips.com

Construtora Andrade Gutierrez S.A.  
www.andradegutierrez.com

Crawford Consulting Services  
www.crawfordconsultingservices.com

Delta Consulting Group, Inc  
www.delta-cgi.com

Department of Energy/National Nuclear Security Administration  
www.energy.gov
Want your company to be a member of COMP?

Contact Garth Leech, Business Development Coordinator at gleech@aacei.org or 304-296-8444 or go online to www.aacei.org/mbr/csp/
You're Invited

AACE International’s
PREMIUM PARTNERSHIP PROGRAM

Exclusive Membership Opportunity
The AACE International Premium Partnership Program is designed to promote and reward our most loyal and dedicated partners by offering a tiered list of benefits for Platinum, Gold, and Silver Partnership levels.

**PLATINUM PARTNERSHIP LEVEL**

- First choice of Exhibit Booth spaces for our Annual Meeting and ITCM Conference.
- First choice of Exhibitor Showcase timeslots if Premium Exhibit Package is purchased.
- First choice of Sponsorship opportunities for all AACE events.
- Full page advertisement in Final Program of Annual Meeting, and ITCM Conference.
- Recognition on all AACE marketing materials as a Platinum Partner.
- Use of the Platinum Partner Membership Seal.

**GOLD PARTNERSHIP LEVEL**

- Choice of Exhibit Booth space before Silver Partners and general exhibitors for our Annual Meeting and ITCM Conference.
- Choice of Exhibitor Showcase timeslots before Silver Partners and general exhibitors if Premium Exhibit Package is purchased.
- Choice of Sponsorship opportunities before Silver Partners and general sponsors for all AACE events.
- Recognition on all AACE marketing materials as a Gold Partner.
- Use of the Gold Partner Membership Seal.

**SILVER PARTNERSHIP LEVEL**

- Choice of Exhibit Booth space before general exhibitors for our Annual Meeting and ITCM Conference.
- Choice of Exhibitor Showcase timeslots before general exhibitors if Premium Exhibit Package is purchased.
- Choice of Sponsorship opportunities before general sponsors for all AACE events.
- Recognition on all AACE marketing materials as a Silver Partner.
- Use of the Silver Partner Membership Seal.

For more information on a Premium Partnership Program and how it will benefit your organization please contact Garth Leech at 304.296.8444 or gleech@aacei.org.
Arizona Section

The Arizona Section meeting presentation for September was titled, “Do you know your PUE?” Joe Burnsworth, founder and president of Power Quality Professionals, informed attendees that PUE stands for Power Usage Effectiveness and it is rapidly becoming a number to know. In the past, data center managers were simply asked to provide enough space, power, and cooling to support the IT equipment. Now, the same managers are being asked to do it efficiently. PUE can be a helpful benchmark. PUE is additionally defined as: the total facility power consumed divided by the total IT equipment power consumed. The total facility power is measured at the utility meter for data centers. For estimators whose purview encompasses data centers, or any medium to large facility requiring uninterrupted power supply, this presentation proved both informative as well as educational. Joe went on to provide some specifics that were greatly expanded at the meeting.

For mixed-use facilities, containing a data centers, only the power needed for the computer room should be measured or estimated. The facility power includes everything that supports the IT equipment including power, cooling, lighting, etc. The IT equipment power is the load associated with servers, storage, networking, work stations, etc., that are used in the data center. Of course, the total facility power will always be greater than the power required by the IT equipment. So the PUE calculation will always be greater than one; but how much greater? A PUE of 1.0 would be an ideal situation: no power distribution losses, no chillers, pumps or fans, etc. While that is not possible, industry innovators at businesses such as Microsoft and Google are planning for PUE’s of 1.2 or better, which would be best-in-class. Today, according to the Uptime Institute, a typical data center has an average PUE of 2.5. However, it is not uncommon to have a PUE of 3.0 or greater. This means only 1/3 of the power is consumed by the IT equipment. Or, put another way, 2/3 of the power (and the utility bill) is wasted!

Mr. Burnsworth has a wealth of experience in his field of power use efficiency and encourages anyone needing to perform this type of estimates to contact him for further information. He can be contacted by calling his office at 480-984-8801, or e-mail: Joseph@powerqualityprofessionals.com, or visit his website at: www.powerqualityprofessionals.com.

Atlanta Area Section

October’s Atlanta Area Section meeting presentation was by David Headrick, Vice President of LANDAIR Surveying Company. The topic was 3-D laser scanning.
While England is ahead of the US in the use of 3-D scanning, the US is catching up rapidly. New technology for capturing building design and measurements is providing quantum leaps resulting in saving valuable professional time for architects, engineers, designers and constructors. Unlimited applications.

3D high definition laser scanning offers many benefits in the construction industry: Linkage of information between architects and engineers, reducing costs; building and site modeling; 3D scanning replaces traditional surveying methods to provide more information; permanent 3D representation of site; grading volume calculations and verifications; Early measurement and verification of foundation structure, reducing errors and costs; verification of adherence to engineering specification, reducing errors and costs; building height measurements (crane collision avoidance).

3D high definition laser scanning offers many benefits and unique implementations in the architectural and engineering industry: 2D and 3D drawings of building facades; all elevations; roof conditions scans capture all areas in need of repair in electronic or hard copy prints; all 3D images are presented with registered coordinate points x-y-z axis. All scans have extremely high precision and accuracy with a tolerance of ¼” per 1,000 feet; provides linkage of information between architects and construction; 3D laser scanning generated in AutoCAD, Micro Station and CAiCE; blush control for piping; building and site modeling; 3D scanning replaces traditional surveying methods; aids in environmental engineering and verification of construction adherence to engineering specification.

The BIM tools can include 3D digital laser scanners that collect digital survey data at a rate of 1,000,000 points per second. Digital levels that can consistently level to .001’. 3D spherical photography on platforms that overlay photography with precisely registered digital survey data or point clouds.

3-D scanning was used on underground storm piping at the Little Rock, Arkansas airport. The drainage system did not have adequate as-built, so a 3-D scan created a record of pipe sizes, routing and elevations.

While scanning costs are dependent on the complexity of the project, Mr. Headrick included costs and time related to performing different tasks. Open spaces are less expensive with below ceiling scanning in a building more complex and above the ceiling or mechanical spaces quite a bit more complex. 3-D scanning leads to project cost savings by indicating design errors before construction, eliminate extra site trip for information gathering and can show design changes. Drones photos are now competing with REVIT modeling. Rough costing includes $3,000/day for a scanner crew; $1,500/day for a DISTO guy (hand held laser distance meter). The Georgia Tech Basketball Coliseum was done in a day and a half at a cost of $10,000.

A sidebar after the meeting included a conversation on how this technology is currently being used by law enforcement professionals to not have to depend on a jury’s imagination. Look at a crime scene from any direction; See what a witness or victim, would have or could have seen; Take measurements while studying the scene; Understand how incidents may have occurred.

The September 2014 technical program is an update on the construction of Plant Vogtle Unit #3 and Unit #4 nuclear reactors. Presenter Todd Terrell made the original presentation two years ago and followed up on the construction progress and financial updates at September’s meeting.

Construction of Unit #3 is slated for completion in 2017 with Unit #4 completion in 2018. While the completion dates are a year later than originally projected, the actual construction has not been delayed. The delay has come from the US federal government not issuing the necessary licenses when anticipated.

The project continues to be the best economic value over available alternatives. The project impact to customer electric rates is an increase of approximately 6% to 8% with approximately half, or 4%, already imposed. Currently, the project is the largest job producer in the state of Georgia with 5,000 people working. Why the Southern Company can build a new nuclear reactor is attributed to its customer base – assets; financial strength ‘A’ rating; nuclear experience and constructive legislative and regulatory framework – integrate resource planning and construction work in progress (CWIP). Senate Bill #31 CWIP was enacted in April 2009, allowing the recovery of financial costs during construction and not having to wait until the project was completed. The project has a five member elected Public Service Commission and a third party “Construction Monitor” making monthly reports. Every six months a report is published with schedule, budget, and construction activity detailed that the Commission verifies. With early incentives, potential reduced cost benefit from savings as a result of loan guarantees $250 Million, tax credits $800 million, CWIP Amendment #3 $500 million (shared risk with supplies – Westinghouse) and interest savings $750 million. The total benefit is a savings of approximately $2.3 billion.

While most of the component fabrication is in North America, components are manufactured worldwide, including Korea and Japan. Some fun facts include that 22 million cubic yards of dirt were moved, the derrick crane is higher than the Washington Monument, the concrete on the project could build a sidewalk from Miami to Seattle – approximately 3,375 miles, with nuclear power, the carbon footprint is reduced, equaling one million cars.

### Aurora Edmonton Section

The The Aurora Edmonton Section organized the 9th Annual Skills and Knowledge workshop starting Sept.13 and wrapping up Oct. 4. The workshop was organized each Saturday over four weekends as a daylong event from 9 a.m. to 4 p.m., including lunch for the attendees and the instructor; a total of 11 professionals attended the workshop from various companies. The workshop covered topics in basic engineering economics, advanced engineering economics, basic planning, advanced planning and scheduling, estimating basics, advanced estimating, progress and performance and cost control and management.

The event was extremely successful and all the attendees appreciated the workshop from the Aurora Edmonton Section.

The section had a Sept. 17 dinner meeting and the technical program was titled, “Analytical Program Management: Using Advanced Analysis to Ensure Quality of Project Control Artifacts.”

Eric Druker, senior manager of the strategic consulting team at
Booz Allen Hamilton, presented the technical program at the University of Alberta Faculty Club. This event was a joint event between the AACE Section and the American Society for Quality (ASQ). The program started with an introduction speech from the Aurora Edmonton Section president, Mohamed Abdelgawad, on AACE and the Aurora Edmonton Section. He mentioned section activities and invited the members of ASQ to join AACE. This dinner meeting was one of the most successful in the recent past with a total attendance of 59, with 35 AACE Edmonton Aurora Section attendees and 24 from ASQ. The dinner meeting concluded with a vote of thanks for the presenter and attendees and a brief on the future events at the section.

The Aurora Edmonton Section and the University of Alberta Aurora Edmonton Student Section joined together Oct. 2 and Oct. 9, for site visit to Queen Elizabeth Way II. The Construction, Estimating, Planning and Control (CIVE 2014 UA class) included 91 undergrad students, plus 6 grad students, and was attended by Pranab Deb on Oct 2, and Robin Mao, on Oct. 9, and UA faculty representative, Dr. Ming Lu, a very active member of AACE.
**Nevada Section**

A Planning & Scheduling Professional (PSP) Certification Course was offered Nov. 15-16, by the Nevada Section.

The Nevada Section also had a fall 2014 section meeting on Tuesday, October 28, at Sierra Gold, located at 6615 S. Jones Blvd., in Las Vegas. The meeting was in the VIP room between 6 p.m. and 8 p.m. Section President, Drew Ray, introduced the newly elected 2014-2015 Board of Directors, as well as raised awareness of the other AACE International events this coming year. The Section provided finger foods for members and guests during the event.

**Southern California Section**

The Southern California Section’s 2014 Fall Symposium was Nov. 7-9 at the Hilton Bayfront Hotel, San Diego, CA. Sponsors included DR McNATTY, Tecolote, Jacobs, Hill International, O’Connor Construction, Lydon Solutions, Motive Power, and Simplex Solutions.

On Oct. 22, the Southern California Section had a joint meeting with the Los Angeles Chapter of American Society of Professional Estimators (ASPE). Mike Doucette, Deputy Executive Director for the Los Angeles Airport (LAX) Capital Development Program, was the guest speaker. He spoke on the LAX Master Plan Overview – Trend for Delivering Projects. Mike was in charge of the just completed the $1-billion Bradley Terminal and Concourse Gates Project and talked about the complexities of delivering a project with an unrelenting schedule demand, as well as up-coming projects associated with the Midfield Satellite Concourse. In addition, Mike shared some insights into the current trends for contracting work at LAX. AACE had 16 members and guests attend.

On Sept. 16, the Southern California Section had a dinner meeting with Peter Forsythe, Deputy Chief Harbor Engineer at the Port of Long Beach, speaking on the Capital Program Update for the Port. Peter explained the capital improvement program at the nation’s second-busiest container seaport. The Port is modernizing and improving to the tune of $4B this decade and is building to increase trade and dramatically reduce environmental impacts. Advanced Technologies, new efficiencies and the ongoing commitment to customer service and environmental sustainability will strengthen the Port of Long Beach’s competitiveness for decades to come. A total of 24 members and guests attended the dinner presentation.

**Utah Section**

The first meeting of the year was at the Williams office in Salt Lake City on Sept. 2. Fourteen people were in attendance with one member joining by phone. Section president, Dan Green, reported on the annual meeting in New Orleans, discussed plans for the upcoming year, and presented a brief technical demonstration of Monte Carlo risk analysis.

The second meeting was on Oct. 7, also with 14 people in attendance. Max Shoura, PE PSP, of Hill International, presented, “Reducing Risks in Managing Cost with Use of Integration and BIM Data.”

Meetings of the Utah Section are at noon on the first Tuesday of the month at the Williams building, 295 Chipeta Way, Salt Lake City, UT 84108. The room is reserved starting at 11:30 to allow time for networking or to grab some lunch from the building cafeteria. Virtual attendance is being offered on a trial basis this year.◆
How to Submit Text and Photos

Please submit any and all text as a part of the e-mail or as a Microsoft Word file attachment. Please submit any photo or photos as individual attachments in tiff or 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). We can convert large 72 dpi submissions into the required 300 dpi. This process shrinks the size of the original submission. We cannot use photos taken on cell phones. For photos to be published, they must be in focus, of print quality, and wide enough to fill the width of the column layout.

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. Do not list the Section officer first unless he or she is photographed on the left with guest speakers on the right.

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. Never refer to the Section as a chapter.

Contact AACE Concerning 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.

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.

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.

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.)
2015 Western Winter Workshop

Presented by the San Francisco Bay Area & Southern California Sections

February 5 - 8  Hyatt Regency Lake Tahoe

www.aaceisf.org
**AACE INTERNATIONAL BOARD OF DIRECTORS**

**PRESIDENT**  
Martin Darley, FRICS CCP  
713.372.2426 / president@aacei.org

**PRESIDENT-ELECT**  
Julie K. Owen, CCP PSP  
213.922.7313 / preselect@aacei.org

**PAST PRESIDENT**  
John I. Ciccarelli, PE CCP PSP  
609.497.2285 / pastpres@aacei.org

**VICE PRESIDENT-ADMINISTRATION**  
Nicholas Kellar, CPP EVP PSP  
907.830.5217 / vpadmin@aacei.org

**VICE PRESIDENT-FINANCE**  
Joseph W. Wallwork, PE CCP CFCC PSP  
916.477.7383 / vfinance@aacei.org

**VICE PRESIDENT-TECHNICAL BOARD**  
Dan Melamed, CCP EVP  
202.586.6239 / vptechboard@aacei.org

**VICE PRESIDENT-EDUCATION BOARD**  
James G. Zack, Jr., CFCC PSP FAACE  
949.660.8232 / vpedboard@aacei.org

**VP-INTERNATIONAL REGIONS**  
Madhu P. Pillai, CCP  
966.5.700179621/vpregions-intl@aacei.org

**VP-NORTH AMERICAN REGIONS**  
Maria Cristina Baltazar, PE PSP  
410.654.3790 / vpregions-na@aacei.org

**DIRECTOR-REGION 1**  
Cindy L. Hands, CCP  
403.383.7374 / dirregion1@aacei.org

**DIRECTOR-REGION 2**  
Calvin J. Speight, Jr., CCP  
703.294.9539 / dirregion2@aacei.org

**DIRECTOR-REGION 3**  
Mark G. Cundiff, PSP  
770.315.0486 / dirregion3@aacei.org

**DIRECTOR-REGION 4**  
Jaqueline T. Doyle, PE PSP  
630.613.7170 / dirregion4@aacei.org

**DIRECTOR-REGION 5**  
David A. Norfleet, CCP CFCC DRMP  
303.932.7450 / dirregion5@aacei.org

**DIRECTOR-REGION 6**  
John L. Haynes, PSP  
415.757.2390 / dirregion6@aacei.org

**DIRECTOR-REGION 7**  
Mohammed Rafiuuddin, CCP PSP  
+966.13.8079303 / dirregion7@aacei.org

**DIRECTOR-REGION 8**  
Ghulam Mujtaba Shaikh, PE PMP  
1818.74592101 / dirregion8@aacei.org

**DIRECTOR-REGION 9**  
Garvan Gerard McCann  
+27.11.5188214 / dirregion9@aacei.org

**DIRECTOR-REGION 10**  
Aldo D. Mattos, CCP  
55.11.967973058/dirregion10@aacei.org

**EXECUTIVE DIRECTOR**  
Charity Golden  
304.296.8444 / cgolden@aacei.org

**AACE INTERNATIONAL HEADQUARTERS STAFF**

**EXECUTIVE DIRECTOR**  
Charity Golden  
+1.304.296.8444 x102  
cgolden@aacei.org

**MANAGER, CERTIFICATION**  
Penny Whoolery  
+1.304.296.8444 x104  
pwoolley@aacei.org

**ADMINISTRATOR, CERTIFICATION**  
JoAnn Metzler  
+1.304.296.8444 x110  
jmetzler@aacei.org

**CREDENTIALING ANALYST**  
Valerie Smith  
+1.304.296.8444 x112  
vsmith@aacei.org

**MANAGER, FINANCE**  
Janice L. Johnson  
+1.304.296.8444 x107  
jjohnson@aacei.org

**ACCOUNTING ASSISTANT, ACCOUNTS PAYABLE**  
Donna Williford  
+1.304.296.8444 x101  
dwilliford@aacei.org

**ACCOUNTING ASSISTANT, ACCOUNTS RECEIVABLES**  
Kayla Smith  
+1.304.296.8444 x118  
ksmith@aacei.org

**STAFF DIRECTOR, TECHNICAL OPERATIONS**  
Christian Heller  
+1.304.296.8444 x117  
cheller@aacei.org

**TECHNICAL OPERATIONS COORDINATOR**  
Greg Carte  
+1.304.296.8444 x116  
gcarte@aacei.org

**STAFF DIRECTOR, MEMBERSHIP MARKETING, AND MEETINGS**  
Jennie Amos  
+1.304.296.8444 x106  
jamos@aacei.org

**ADMINISTRATOR, MEMBERSHIP & SECTION SERVICES**  
Sharon Hardman  
+1.304.296.8444 x105  
shardman@aacei.org

**BUSINESS DEVELOPMENT COORDINATOR**  
Garth Leech  
+1.304.296.8444 x122  
gleech@aacei.org

**MEETINGS COORDINATOR**  
Teri Jefferson  
+1.304.296.8444 x120  
tjefferson@aacei.org

**MANAGING EDITOR**  
Marvin Gelhausen  
+1.304.296.8444 x115  
mgelhausen@aacei.org

**ART DIRECTOR**  
Noah Kinderknecht  
+1.304.296.8444 x109  
nkinderknecht@aacei.org

**www.aacei.org**

1265 Suncrest Towne Centre Dr  
Morgantown, WV 26505-1876  
800.858.COST  
fax - 304.291.5728
INDEX TO ADVERTISERS

ARES Corporation  page 7
Booz Allen Hamilton  page 4
D.R. McNatty and Associates  this page
Eastwood Harris  this page
Ecosys  Inside Cover

Infinitrac  this page
ipe  this page
Ivan Devall  this page
Management Technologies  this page
Ron Winter Consulting  page 6

For additional information about the listed advertisers or about advertising with us, please phone Garth Leech at: +1.304.2968444 x 122, or e-mail him at gleech@aacei.org.
Next month in the Cost Engineering Journal

Articles announced for publication in the Cost Engineering journal are subject to change.

Technical Article
Integrated Project Reporting Using Dashboards

Technical Article
Forensic Schedule Analysis Methods: Reconciliation of Different Results

Technical Article
Risk Analysis at the Edge of Chaos

Technical Article
Soft Skills are Vital for Good Project Controls

Membership Benefit
Subscriptions to the Cost Engineering journal are included with AACE International membership. For full membership benefits and discounts, become an AACE International member today, by visiting:

www.aacei.org/mbr/how2join.shtml