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60th ANNUAL MEETING
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PRESIDENT’S MESSAGE
STRATEGIC PLANS
AND MORE

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ELECTIONS
2016-2017
ELECTION RESULTS

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TEN COST ESTIMATING OBSERVATIONS
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10 WAYS TO HAVE A BETTER CONVERSATION

CLICK to watch Celeste Headlee talk about “10 Ways to Have a Better Conversation” presented by TED.

When your job hinges on how well you talk to people, you learn a lot about how to have conversations — and that most of us don't converse very well. Celeste Headlee has worked as a radio host for decades, and she knows the ingredients of a great conversation: Honesty, brevity, clarity and a healthy amount of listening. In this insightful talk, she shares 10 useful rules for having better conversations. "Go out, talk to people, listen to people," she says. "And, most importantly, be prepared to be amazed."

Celeste Headlee hosts a daily news/talk show, On Second Thought, on Georgia Public Broadcasting. Headlee holds multiple degrees in music and still performs as a professional opera singer.

Outside the Box will be a standing column designed to introduce new ideas and concepts from other resources and professions that may help stimulate a new way of thinking about total cost management. The views and opinions expressed are those of the authors and do not necessarily reflect the official policy or position of AACE International. We invite Source readers to send suggestions on other sources to editor@aacei.org.
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In this month’s President’s Message, I will be discussing current AACE strategy implementation, our global certification review, and preparations for the Toronto Annual Meeting.

Strategy Implementation

Regarding Strategy Implementation—In June 2015, we performed a refresh of the AACE strategic plan and have since been hard at work to deliver operational plans for each strategic objective. The top strategies include implementation of new technology for a new website, new association management software system, in-house certification based training products, marketing plans for major industries, young professional engagement strategy, and Vision 20/20.

In 2016, we sourced and began system implementation of new Association Management Software. We hired a new Manager of Information Technology and developed a formal technology strategy. We began development of a new website that incorporates responsive web design best practices ensuring a consistent user experience across mobile and tablet devices. Work is also underway to develop certification-based modulated in-house course offerings. Recently, the Education Board purchased an E-learning software program and is developing the Certified Cost Technician course for beta testing.

Tactical plans for industry marketing are underway that are focused on a top down industry driven approach and targeting corporate membership firms by industry sector. A young professional engagement roundtable discussion is planned for the Toronto Annual Meeting. Participants are being recruited from the Board of Directors, TEC Board leaders, AACE Sections, and also key corporate member firms. The underlying goal is for roundtable attendance to be by corporate champions along with their young professional representatives. Section regional representatives are also sought. Both short term and long term strategic concepts will be discussed. Please contact me if you are passionate to participate in this strategic objective.

Hand in hand with the marketing strategies, there is an effort underway to understand and validate the member and stakeholder value perception of AACE. This strategy, Vision 20/20, is a project that will attempt to define and validate the member and stakeholder value perception of AACE. The goals of the project include developing a cohesive value-based public perception, identifying an image consistent with this perception, and engaging stakeholders with this modern and coherent image. In order to engage our members and stakeholders in the process, we invite you to attend one of our focus groups that we will be holding at the Toronto Annual Meeting. Additionally, we will be seeking feedback through surveys and interviews. Please monitor AACE’s website and Source magazine for additional information.

Global Certification Review

Regarding our Global Certification Review—The results for 2015 are available and they reflect that over 1,300 certifications were conducted across 47 countries using computer-based testing centers. This report has wonderful information for data mining. Reviewing the certification results by region shows where certifications are most popular.
• In Region 1, Canada—the most popular certification exams are the Certified Cost Technician (CCT), followed by Certified Cost Professional (CCP).
• In Regions 2-6, the United States—the most popular certification exam is overwhelmingly the Planning and Scheduling Professional (PSP), followed by the Earned Value Professional (EVP), and the Certified Cost Professional (CCP).
• In Region 7, the Middle East—the most popular certification exams are the Planning and Scheduling Professional (PSP) in Qatar, United Arab Emirates, and Saudi Arabia; followed by the Certified Cost Professional (CCP) in United Arab Emirates, Saudi Arabia, and Qatar.
• In Region 8, Asia and the Pacific Rim—the most popular certification exams are the Certified Cost Professional (CCP) in Indonesia, Australia, and India; followed by the Planning and Scheduling Professional (PSP) in India, Australia, Indonesia, and Malaysia.
• In Region 9, Europe and Africa—the most popular certification exams are the Certified Cost Technician (CCT) in South Africa; followed by Certified Cost Professional (CCP) in Nigeria and Denmark; and Certified Estimating Professional (CEP) in France, Norway, and Nigeria.
• In Region 10, Latin America—the most popular certification exams are the Certified Cost Professional (CCP), primarily in Brazil; followed by Certified Estimating Professional (CEP) and the Earned Value Professional (EVP).

2016 Toronto Annual Meeting

Regarding the Annual Meeting—We are well underway to deliver a fantastic Annual Meeting experience in Toronto. This year is particularly special as it is the 60th anniversary of AACE International. Please note that you must have a passport to enter Canada. Citizens of some countries also require a travel visa. Visit the Citizen and Canadian Immigration website at: http://www.cic.gc.ca/english/ to find out what you need.

Registration for the Annual Meeting is currently underway and performing ahead of pace compared to previous years. The Annual Meeting full technical program will be June 26-29, at the Sheraton Centre Toronto. Attendees of the full technical program will earn 1.8 CEUs/18 PDHs toward their professional development goals. Approximately 150 technical papers are currently under consideration by the Technical Board. These will be divided across 10 different tracks, including: Building Information Modeling (BIM), Claims and Dispute Resolution, Cost and Schedule Control, Estimating, Earned Value Management, Owner Issues, Project Management, Planning and Scheduling, Decision and Risk Management and Skills and Knowledge of Cost Engineering.

Tom Wujec, a Canadian native, is the keynote speaker. He is the author and editor of several books, a Fellow at Autodesk, an adjunct professor at Singularity University, a multiple TED conference speaker, and a pioneer in the emerging practice of business visualization. Tom will discuss how new disruptive technologies are permanently changing the way we conceive, design, manufacture, and sell products. Tom says this massive revolution to the model of process is not intimidating, but an exciting opportunity! Each industry is forced to adapt, learn new skills, and embrace this changing landscape. Tom will show us the way.

The Annual Meeting educational program, being offered this year, is quite impressive. Seminars are being offered Thursday-Friday, Saturday-Sunday, and Wednesday-Thursday. There are 17 potential courses in total. Please note that actual courses conducted depend upon the number of class registrations. These courses offer a wonderful opportunity to earn additional CEU’s in a classroom environment while learning essential specialized skills. For additional details, please refer to: http://www.aacei.org/am/2016/seminars/welcome.shtml

The industry emphasis this year is “Infrastructure” and John Haynes, Senior Program Manager of Hill International, is spearheading the effort. Industry panel topics will consist of: High Speed Rail, Water/Wastewater, Mass Transit, and Project Delivery Methods.

The traditional Tuesday Evening reception will be a Time Warp Reception and you won’t want to miss the festivities. Attendees are encouraged to dress in clothing from their favorite decade from AACE’s 60 year history for the event! We will share stories and plans for the future, and then dance the night away.

This is definitely a memorable Annual Meeting offering and I hope you can join us. I myself am looking forward to completing a great year and ushering in John Livengood, Esq., CCP CFCC PSP FAACE, as the new President! I just learned elections are complete and understand we will share results with you in this issue of Source magazine. For those of you that took the time to vote thank you for your participation in the election process.

Thank you for the honor to serve as your President. I hope to see many of you in Toronto. ✦

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.
Nominating Committee Chair Martin Darley, CCP announced the results of balloting for the 2016-2017 AACE International Board of Directors, in balloting that ended on March 15.

**PRESIDENT-ELECT -**

Charles E. Bolyard, Jr.,
CFCC CCM PSP FAACE

Charlie joined AACE in 1991, and has remained active for more than 24 years, and has been Vice President of Certification on the AACE Board of Directors since 2014.

**VP-FINANCE -**

Christopher W. Carson,
CEP DRMP PSP FAACE

Chris is Director of Program & Project Controls for ARCADIS. He has over 40 years of experience in educational, municipal, commercial, industrial, governmental, and residential projects/buildings, as well as infrastructure and site work; including projects with complex phasing and stringent time constraint requirements.

**VP-NORTH AMERICAN REGIONS**

Jacqueline T. Doyle, PE PSP

For the past 3 years, Jacqueline has been the Region 4 Director on the AACE Board of Directors. She has also served as the President of the Chicago-Midwest Section. Jacqueline previously served as the Program Committee Chairperson, Vice President, and President for the Chicago Midwest Section.

**DIRECTOR-REGION 1 -**

Les E. McMullan, FAACE

Les has been an AACE member and advocate throughout his career with close to 35 years experience in project controls and project management on capital projects.

**DIRECTOR-REGION 2 -**

Patrick M. Kelly, PE PSP

Patrick Kelly is an Associate Director in Navigant’s Global Construction Practice, and has more than nineteen years’ construction-related experience.

**DIRECTOR-REGION 4 -**

Harrison W. Staley

Harrison has been a member of AACE since 2013, and is currently the Secretary of the Chicago-Midwest Section.

**DIRECTOR-REGION 7 -**

Husain Ali Al-Omani,
CCP CEP DRMP EVP PSP

Husain has been an active member of AACE International since 2010. He is currently the President of the Arabian Gulf Section.

**DIRECTOR-REGION 9 -**

Sean T. Regam, CCP CEP FAACE

Sean served on the Education Board from 2003-2015. He served as a founder and a president of the Chornobyl Section (2001-2003), president of the Nevada Section (2008), and is a co-director of the Greater Russia Section (2007-present). He is a Senior Project Controls Manager for AECOM in Almaty Kazakhstan.
Dan Melamed, CCP EVP, became associated with AACE when several of his colleagues at the Department of Energy Environmental Management (EM) Program recommended that he look into joining AACE International. He became an AACE member in 2004, and attended the AACE Annual Meeting in Washington, D.C.

Melamed says, “The speakers presenting papers, as well as the members in the audience, had an unusual combination of qualities.” He lists these as:

- A capability to write clearly and with depth on a wide variety of technically difficult topics.
- An ability to provide clear and engaging presentations.
- An ability to provide thoughtful and straightforward answers to all questions.

Melamed believes, “This is not a combination easily found. Once I discovered this community, I wanted to become a member. I joined AACE with the goal to learn as much as I can and to participate as fully as possible.” He also explains that, “There was a general consensus between my colleagues that one of the better ways to articulate your case to management (both your immediate supervisor, as well as senior management for your organization) will be through a discussion that includes a reasonable treatment of project and program costs.” These were areas he knew membership in AACE International would provide networking, resources, and more. In fact, he believes the greatest strength of AACE International for its members is the, “access to a community of knowledgeable colleagues.”

He says, “I strongly believe that a career choice is unique, and that each individual must develop on their own. However, I will say that a thorough understanding of the technical, as well as the intellectual basis, for your field of study is the best grounding for a start. Also, I would add that what you learned and what you have experienced is much more applicable to future challenges in new and different areas than you might believe. After that, I would say that understanding the problems you face from a variety of perspectives will help regardless of the approach you may take to solve any particular problem. As a final point, I would recommend that any career path should include a capacity for flexibility and adaptability to adjust to an ever changing environment.”

Following through on his goal of participating as fully as possible lead Melamed to seek professional certification in two of the specialty certifications that AACE offers. He says, “I have two certifications, a Certified Cost Professional (CCP), and an Earned Value Professional (EVP). I believe that my certifications allow me to better perform my current job and help me to pursue opportunities when they arise.”

As a member of the AACE Technical Board, Melamed is involved with the peer review of papers submitted for the Annual Meeting, as well as the development of Recommended Practices (RPs). To accomplish these tasks, he says he, “seeks to ensure as broad a participation from as many professionals on both a local and association level. Whenever I attend an interesting talk at the Annual Meeting, I will seek to have that speaker make a presentation at the local section.” He also works to ensure that interesting papers presented at the Annual Meeting are forwarded to individuals who will benefit from the information and (hopefully) use it and incor-
porate it into best practices at their offices. Finally, he says, “I also encourage my colleagues at DOE to make presentations at local, regional, as well as the Annual AACE Meetings.” This has resulted in some interesting presentations on a variety of topics, such as: the challenges of environmental cleanup work, risk management value engineering, monitoring safety performance, applications of systems dynamics, and the applications of earned value management.

Turning his attention to the various products that are available from AACE International, Melamed says, “All of the AACE products have their unique strengths and applications. On those occasions where I am seeking straightforward technical direction on some aspect of total cost management, I will reference the most relevant Recommended Practices (RPs) that are available. If I have technical questions on a particular topic, I will seek to get an article from the online AACE library. If both the RP and/or the article are not sufficient, then I would seek out a colleague at either the local section or at the association level and discuss my questions with them.”

Melamed is employed as a program analyst with the United States Department of Energy. His job has many responsibilities, including: budget formulation, management and administration of project and program controls, project and program life cycle cost analyses. These include risk assessment for the project and program costs that are used to estimate the EM program’s contribution to the Department of Energy’s Environmental Liability Estimate each year. “My work requires thorough understanding of a wide range of technical, legal, and administrative challenges,” explains the program analyst.

Melamed believes that the success at each stage of his career can be attributed to a combination of skills and training. He says his first position in the federal government can be attributed to research he performed as a physical scientist at a DOE National Laboratory. He notes that, “each successive position has built upon the previous work I have done; either alone, but more often in collaboration with talented and capable colleagues.” He says these colleagues have been both employees of the federal government, as well as contractors. Stressing his belief in the benefits of collaborating, he says, “As part of a capable and diverse team we were able to solve problems far more effectively then as individuals.”

What does he find to be most rewarding about his job? He says, “I have always enjoyed the challenges of communicating the enormously difficult mission of my work involving the EM program. The work is always challenging on a number of levels, from a wide variety of approaches that require participation of many experts of varied skills.”

He notes that the EM program is confronted by a wide variety of problems that are difficult to summarize in a single sitting. “Our office has the responsibility to safely clean up the environmental legacy of the United States efforts involving all of the activities involving the development, testing and manufacture of nuclear weapons starting with the Manhattan Project through the end of the Cold War,” explains Melamed. Continuing, he says, “I personally have found AACE articles concerning environmental cleanup activities a good starting reference. I have recently gathered these articles into the Professional Practice Guide to Environmental Remediation and Decommissioning (scheduled to be released later this year).” He has also found that the RPs that were developed for risk management are a valuable resource, since environmental projects stand out as challenging due to a high degree of uncertainty. Lastly, AACE has recently issued a number of RPs on earned value management. Melamed says, “This is useful since many government projects require implementation of an earned value management system.”

After the Washington D.C. Annual Meeting in 2004, Melamed sought to participate in activities at work involving cost engineering (e.g., cost estimating, risk management and project controls). In addition, for the next two summers, he attended the AACE Annual Meetings. One of his goals was to take additional seminars in the cost engineering areas, either before or after the Annual Meeting. This was one of his preparatory goals toward obtaining his AACE certifications.

After several years, he presented his first paper on the area of cost engineering at the Nashville Tennessee Annual Meeting in the summer of 2007. He says, “I took the examination for my first certification before the Toronto meeting in 2008. Over the next several years, I had worked more in the area of earned value management which included participation in several earned value management certification reviews. After that experience, I worked toward obtaining the EVP certification that I obtained in 2012.”

Melamed grew up in New York City, in the Borough of Queens, a first generation American. He says, “I am married to a scientist I met while we were both starting work at the Department of Energy. We have one daughter who will be graduating from her undergraduate college later this year, majoring in mathematics with a minor in music.” He adds, “I am comfortable saying she is far smarter than her father who never did that well in math and has little skill in music.” He concludes, “When left about the house, my favorite pastime involves gardening.”

Melamed says, “I am grateful to work with so many capable and intelligent professionals for such a long time. I consider myself fortunate to be part of this organization. I hope I will be able to help my colleagues in AACE as much as the organization has helped me. I look forward to the possibility of continuing to grow professionally with my colleagues for years to come!”

AACE International Vice President-Technical, Dan Melamed, CCP EVP, is shown above with his wife, Sharlene, and their daughter, Colleen, who took this selfie photo in downtown Washington D.C., in front of the Folger Shakespeare Library.
Vice President-Education Board, James G. Zack Jr., CFCC FAACE, advice for those interested in a construction claims career, is to, “spend a good deal of time on sites learning how projects are put together—time, scope, cost, etc.” He adds that, “a study of technical issues such as project scheduling, cost estimating, cost accounting and construction claims will provide a good foundation.”

Zack became an AACE member in 1985, primarily because of the opportunities membership provided him for, “professional networking.” He then became a Certified Forensic Cost Consultant (CFCC) to “advance his skills.” Zack says he promotes AACE whenever he presents a technical paper or gives a presentation. Specifically, he says he refers listeners to AACE and to AACE Recommended Practices and the other technical resources the association offers.

Commenting on AACE products and services that stand out to him, Zack says his vote is for the TCM Framework, the Recommended Practices (RPs), the Professional Practice Guides (PPGs), and the certification study guides.

Zack is employed by Navigant Consulting as Executive Director of the Navigant Construction Services Division. At the 2015 Annual Meeting, James G. Zack Jr., CFCC FAACE, and Steven A. Collins, both shown above, presented a technical paper titled, “Changing Trend in Risk Allocation - Differing Site Conditions.” Zack, also serving as Vice President Education on the AACE Board of Directors, is a frequent presenter of technical papers at the AACE Annual Meeting and at other conferences and workshops.
Forum™. The Forum is a construction industry think tank that specializes in research, publication, and presentations concerning construction dispute avoidance and resolution. Zack explains that he was attracted to this job because, “it allowed me to take the lessons learned from 40 years of being involved in construction disputes and pass them along to others in the industry.”

Zack holds a Masters of Public Administration, specializing in Administrative Law, which initially got him into the role of a government grants and contracts officer. Multiple seminars concerning construction claims and disputes brought him into the claims and dispute resolution arena. He says, the most rewarding thing about his job is, “Helping owners and contractors resolve their disputes in a negotiation setting, rather than in an arbitration hearing room or a courtroom.”

When asked, “What are the most critical problems faced by people in your field and how can AACE assist in providing resources to deal with these problems?” The critical problem Zack sees within his segment of the industry is, “to remain objective and fact driven when performing a claim analysis.” He believes that, “more literature on construction claims analysis and resolution should benefit the AACE membership.”

Addressing his personal life, Zack says, “My wife, Yvonne, and I have been married for 45 years in October 2015. We were married in Hawaii, while I was on R&R from Viet Nam. After a five day honeymoon, I returned to combat for some 100 days.” He adds, “We have four children and seven grandchildren and have recently moved from California to Colorado to be near two of our children and four of our grandkids.” He says, “When I’m not traveling, I spend weekends with my wife, kids, and grandkids. I have been involved in the Boy Scouts for more than 30 years and am looking for a new position in Scouting in our new location.”

AACE International Vice President Education. James G. Zack Jr., CFCC FAACE, talks with AACE Vice President Finance Joseph W. Wallwork, PE CFCC PSP FAACE, at the 2015 AACE Annual Meeting.

AACE International Vice President Education, James G. Zack Jr., CFCC FAACE, talks with an attendee at the 2015 AACE Annual Meeting in Las Vegas.
Charles E. Bolyard, Jr., CCM CFCC PSP FAACE, Chairman and CEO of McDonough Bolyard Peck (MBP), is serving AACE International on the Board of Directors as the Vice President-Certification Board. Bolyard is also the 2016-2017 President-Elect of AACE International.

Bolyard, as MBP Chairman and CEO, has appeared on the cover of Engineering News Record. During his company’s 26 years of existence, MBP has consistently ranked in the ENR Top 100 CM-for-Fee list, as well as the Top Project Management Firm list, at 27 and 36 respectively in 2015.

Mr. Bolyard has been an AACE member since 1991. MBP was founded in 1989, and is based in Fairfax, Virginia. The company has additional offices in Florida, Maryland, Georgia, New York, Pennsylvania, Virginia, and North Carolina. A business snapshot by Bloomberg Business, indicates that, “McDonough Bolyard Peck, Inc., provides construction consulting services. It offers building information modeling, construction and program management, commissioning and retro commissioning, dispute resolution, facilities portfolio management, leadership in energy and environmental design program consulting, and training services. The company serves commercial, education, government, healthcare, power and energy, transportation, and water/wastewater market sectors.”

Members of the AACE International Certification Board are shown above at the 2015 certification reception at the AACE Annual Meeting. Shown from the left are: Hannah E. Schumacher, PSP; Bruce E. Bradley, CEP; Valerie G. Venters, CCP FAACE and Cert Board Chair; Jeff Goodman, PSP; George H. Ostermayer III, CCP CEP DRMP EVP PSP; Sagar B. Khadka, CCP DRMP PSP; F. Sam Griggs Jr., CCP; and Charles E. Bolyard Jr., CFCC PSP FAACE. Bolyard calls AACE certifications, “a stand out program.”
Bolyard says he first learned of AACE through Ozzie Belcher, President of Belstar, a Fairfax, Virginia, construction cost/project management company. Mr. Belcher served as AACE President from 2003 to 2004. Bolyard says he was interested in becoming an AACE member in order to improve his technical skills and knowledge through association with other professionals and through the educational, training, and certification opportunities offered by AACE. He adds that AACE membership has provided him with, “opportunities to develop relationships and network with other professionals.”

As VP of the AACE Certification Board, Bolyard naturally is very supportive of the association’s efforts and progress in providing quality specialty certifications in several areas associated with Total Cost Management. As proof that he believes in AACE certifications, Bolyard holds the Certified Forensic Cost Consultant (CFCC) and the Planning and Scheduling Professional (PSP) certifications. He explains that he personally became AACE certified, “to establish my skills, knowledge, experience, and competencies; and to support my qualifications when being considered as an expert witness.”

Not only does he support AACE certifications, but also the association in general. He says he routinely encourages other to become AACE members, he promotes AACE certifications throughout his firm and to other businesses. He tries to always mention AACE when interfacing with others and as he networks and participates in other professional associations.

With his Certification Board duties, it comes as no surprise that the AACE certification program is the AACE product or service that stands out for him. He calls AACE certification a stand out program because of what he sees as, “the rigors of the program and the credibility it brings to the certifications.”

He somewhat downplays his role as Chairman and CEO of MBP, saying he, “provides technical services to clients of the firm and manages business aspects of the firms operations.” However, he admits he likes his job and says this is primarily because of, “The opportunity and freedom it gives me to continue to work with my partners.”

Bolyard brings to his professional career, a BSCE degree in Civil Engineering. He says he built upon this with, “on-the-job experience and being trained and mentored by other professionals, and by taking seminars and other courses of study.”

Even though he sits in the senior management position, Bolyard says what is most rewarding about his job, what makes it worthwhile is, “the ongoing opportunity to work with and learn from other professionals.” He sees an increasing shortage in the number of skilled professionals as being the most critical problem faced by leaders in his business. He believes AACE International is well positioned to assist businesses and industries with this shortage by continuing to train and certify the next generations of professionals.

On a personal note, Bolyard says he has been very happily married for over 41 years. He enjoys watching NASCAR racing, and he also enjoys hunting and fishing. Asked about balancing work and life in a challenging and demanding career, he says, “On weekends, I am generally involved in projects at home.”

He explains his career choice and successful climb up the corporate ladder by saying, “my interest in the design and construction industry grew out of my family’s business and work in construction. I enjoy participating in building and construction projects.” He was most influenced by his dad. He says, “My father was my first mentor, a relationship that continues today.”

Concluding, Bolyard’s advice to the up and coming generation of total cost management professionals is simply, “Follow your passion. Work at something you enjoy.”

AACE International Vice President Certification, Charles E. Bolyard, Jr., CFCC PSP FAACE, welcomes an attendee at a Certification reception at the 2015 AACE Annual Meeting in Las Vegas.

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AACE International Vice President Certification, Charles E. Bolyard, Jr., CFCC PSP FAACE, and Vice President Technical, Dan Melamed, CCP EVP, participate in a visioning session at the 2015 AACE Annual Meeting in Las Vegas.

AACE International Vice President Certification, Charles E. Bolyard, Jr., CFCC PSP FAACE, welcomes an attendee at a Certification reception at the 2015 AACE Annual Meeting in Las Vegas.
Developing a comprehensive and well-defined project scope of work is absolutely critical to project success. It is impossible to accurately estimate the cost for, schedule the time for, and then subsequently control both cost and schedule for a project that has not been properly defined. The AACE International Total Cost Management Framework describes the process as Project Scope and Execution Strategy Development, which “translates the project implementation basis (i.e., asset scope, objectives, constraints, and assumptions) into controllable project scope definition and an execution strategy” [1]. Using a gas processing plant as an example, the process involves answering these questions:

**What is the physical asset to be created?**

The physical asset (e.g., a gas processing plant) must be decomposed into discrete components by establishing a Work Breakdown Structure (WBS), which identifies a hierarchical structure of discreet levels of physical component and project activities that can be effectively planned and controlled. Each element of the WBS will eventually be further broken down into more detailed components and activities to support accurate cost estimating and scheduling.

**How are the planning, engineering, procurement, construction and start-up activities going to be performed?**

The identification of a project execution strategy establishes the approach for how all of the activities required to build the gas processing plant will be implemented. It should identify which project activities will be performed in-house by the project owner and which will be performed by contracted resources. Strategies for such decisions as modular construction versus stick-built construction are identified in the project execution plans. The project execution strategy may also involve decisions as to where various project activities will take place (e.g., certain engineering activities will be performed in Europe, although the gas processing plant will be constructed in Canada).

**Who is involved in the planning, engineering, procurement, construction and start-up activities?**

All resources to support the planning, engineering, procurement, construction and start-up activities of the gas processing plant must be identified, which establishes an Organizational Breakdown Structure (OBS). The OBS is developed in accordance with the project execution strategy, and must be developed acknowledging any constraints and assumptions regarding availability of resources.

It is important to realize that the project scope of work goes beyond the technical and physical elements of the project (the physical scope of the gas processing plant in this example). Besides the physical equipment, piping, electrical components, etc., of the gas processing plant, the project scope of work must en-
BASIS OF ESTIMATE—
THE FOUNDATION DOCUMENT

Stephen M. Jacobson, CCP
Technical Board Member

When providing any cost estimate that can be used effectively, all stakeholders must be aligned on the work product delivered. The estimate must be characterized and communicated in a way that allows for each stakeholder to completely understand the context of the estimate and its’ intended use. Providing this context is the responsibility of the estimator and sound professional practice requires that it be done in a way that memorializes the estimates accuracy and validity.

The purpose of the Basis of Estimate (BOE) is to establish a common understanding that facilitates the estimates use. A complete estimate is always accompanied by a basis document and AACE International’s Total Cost Management (TCM) Framework identifies a BOE as a required component [1]. Estimates prepared without a BOE provide no common understanding, result in extremely difficult reviews and validation, a litany of questions from stakeholders, and no ability to apply BOE as a benchmarking tool for comparisons through a project lifecycle. When in need of guidance for preparing a BOE, AACE International’s Recommended Practice No. 34R-05: Basis of Estimate provides guidelines for the structure and content of a cost BOE [2].

The BOE can be defined as the one deliverable that clearly defines the scope of the project and ultimately becomes the basis for change management. When prepared correctly, any person with project experience can use the BOE to understand, evaluate, and apply the estimate independent of any other supporting documentation. A well-written BOE achieves those goals by clearly and concisely stating the purpose of the estimate (i.e., cost study, project options, funding, etc.), the project scope, methodologies applied (analog, parametric, quantity take off, etc.) and provides information to define allowances, assumptions, exclusions, cost risks, opportunities, and any deviations from standard estimating practices. This document also contains a record of pertinent communications and agreements that have been made between the estimator and other project stakeholders to completely capture all factors that have an impact on the project cost.

The BOE is a critical foundation document for the estimating effort and is instrumental in communicating the estimators’ knowledge of the project, alerting stakeholders of the estimates limitations and accuracy, and includes a record of all key communication and documents used in preparation. The information provided in the BOE establishes the initial baseline for project scope, quantity, and cost that can be used for facilitating review and validation, as well as future trending analyses. Finally, the BOE provides the critical in understanding of historical relationships between estimates throughout the project lifecycle.

In preparing the BOE, a concerted effort must be made to be concise, but also to include the information necessary to be factually complete. The BOE provides the supporting information to demonstrate the understanding of scope and what is known and unknown. The technical resources, tools, methods, data sources, other projects benchmarked, and team members participating need to be identified. The BOE should be developed and updated during the estimating effort as new information and scope clarifications are communicated. Additionally, identifying the areas of scope that are ambiguous, communicating exclusions and known/unknowns provide stakeholders a complete understanding of the estimate.

The BOE’s initial sections will provide end users a brief narrative description of the project inclusive of the intended use for the estimate. The narrative should be organized to correspond with the work breakdown structure used to prepare the estimate. This allows for end users to easily make the ‘cross-walks’ between context and the detailed estimate. Providing commentary on the intended use of the estimate safeguards how it can and will be used given its’ inherent accuracy and limitations. Methodologies employed are identified along with providing an estimate classification to communicate the accuracy and limitations of the estimate, which are determined by the amount of project definition available.

When projects are past the conceptual stage, it is typical that an approach to project delivery has been developed and
the BOE should include discussion on the project management, project schedule design/engineering, procurement strategy and constructability (work schedule, overtime, modularization or specialized equipment, etc.). Technical information regarding pricing, materials, labor productivity, craft mix, overhead and profit are critical to note when applicable. Finally, any below the line/soft cost items need to be characterized to allow for review and understanding of contingencies, escalation, and management reserves.

At first glance, the BOE can appear to be an overwhelming task added to the estimating effort. However, in preparing the estimate, all the cost factors documented in preparing the estimate should be completed and the BOE demonstrates the due diligence performed along with aligning stakeholders around a common understanding. The value of the BOE cannot be understated in answering questions before they are asked, producing clarity in scope and approach to the project, and ensuring the estimate is correct for its’ intended use.

When prepared completely, the BOE provides significant comparative benefits, during the lifecycle of the project, in establishing the baseline. The BOE calls upon others to make certain they have identified the project costs, opportunities and risks that may have been previously unidentified or uncommunicated. As project professionals we often hear it said, “It’s all about the scope,” the BOE provides the essential linchpin that links the scope to the estimate, to ensure that a common understanding is established and the estimate is used correctly with confidence.

REFERENCES
1. AACE Total Cost Management Framework: 7.3 Cost Estimating and Budgeting. AACE International, Morgantown, WV.
2. AACE International Recommended Practice No. 34R-05, Basis of Estimate. AACE International, Morgantown, WV.

2015 Salary and Demographic Survey of Project and Cost Management Professionals is Available

Christian Heller, Director, Technical Guidance

The 2015 AACE International Salary and Demographic Survey is available free of charge to association members, or available for purchase by non-members.

The purpose of the Salary and Demographic Survey is to enable project and cost professionals in different locations, industries, and work functions to compare their salaries, and to provide employers with information on prevailing wage rates among these professionals. About 1,200 people participated in this survey.

What follows are some compiled results and statistics based on the 2015 survey. All results are expressed in US dollars. The survey results and raw data used to compile these results are available to AACE members, free of charge, at: www.aacei.org/resources/salary.

Non-members may purchase the survey for $50 at: https://netforum.avectra.com/eweb/shopping/shopping.aspx?site=aace&prd_key=d0c76f25-d08c-417b-92ee-9179eef8d28

The survey shows that the average yearly base salary for all project and cost management professionals globally employed full-time in 2015 was $104,643; a 6.2 percent overall increase since 2014. Approximately 65 percent of respondents received a bonus in 2014. The average bonus was $21,774, or 22.1 percent, of the base salary. In the United States and Canada alone, these figures were $120,980 (+5.5 percent) with a bonus of $22,510 (19.6 percent).

The average respondent was male (85.4 percent versus 14.6 percent female), about 43 years old, with 19 years of work related experience, and an undergraduate or graduate degree in an engineering related field. About 81 percent of respondents indicated they were somewhat satisfied or very satisfied with their job. The average tenure with their current employer is 8.5 years. The typical workweek is 46 hours long with about 9.0 percent travel.

About 26 percent of respondents changed employers between 2014 and 2015. Those that changed employers voluntarily enjoyed a 10.9 percent overall base salary increase compared to 6.5 percent for those who changed employers involuntarily. The salary increase for those that remained with the same employer was 4.9 percent.

The majority of respondents indicated their job-function to be project control (25.8 percent) or cost estimating (20.3 percent). Other job-functions included: planning and scheduling (15.7 percent), project management (15.6 percent), cost engineering (12.4 percent), claims and dispute resolution (5.3 percent), decision and risk management (1.4 percent), and other (3.5 percent).

The majority of respondents work in the construction industry (29.0 percent), or oil/gas production (19.3 percent). 48.3 percent are located in the United States and 11.0 percent in Canada.

As this and previous surveys have shown, there is a very strong correlation between salary and years of experience. As such the data presented also includes salary data that has been normalized by years of work experience for that particular sample.
Chances are there will come a time in your life when you will experience some type of renovation. If you’re lucky it will be quick and easy and because you want it, not because you need it. For instance, I want to renovate our home to add a fancy porch; my husband says I don’t need it because we have lived perfectly fine without one for the past 30 years—but, I digress. However, when our basement was flooded due to an unusual amount of precipitation in 2013, destroying nearly everything in the family room, we had no choice—we needed to renovate. In either case, renovation disrupts your normal lifestyle and familiar routines; adjustment is inevitable.

As you may have guessed from my personal examples message—AACE certificants are about to enter a period of adjustment as we need to renovate our recertification program structure.

Here’s why:

In order to be aligned with industry best practices, our accreditation body—The Council of Engineering and Scientific Specialty Boards (CESB)—unanimously voted, during the March 2015 Board meeting, to change CESB Standard 8.0 Recertification to state that, “continued employment may count for no more than half (50%) of the required continuing development.” The standard previously allowed certifying bodies the freedom in weighting continuing professional employment compared to other applicable activities, which was not congruent with the most current best practice improvements throughout the credentialing industry.

Simply put, the new standard restricts AACE from granting more than 7.5 CEUs for continued employment (Category A: Employment of the recertification application) since the recertification program requires a total of 15 CEUs overall. In order to keep the current 9 CEUs for Category A: Employment, the Certification Board would be required to raise the total from 15 to 18 CEUs. That did not seem like a good renovation plan, as it would place additional encumbrances on AACE certificants to find more CEU opportunities; however, in order to be in compliance a renovation was still needed.

After months of planning, designing and re-structuring, our recertification renovation was finally finished on February 20, 2016, and we think you are going to love the results.

The program renovation consisted of:

- Reducing the total CEUs from 15 to 12.
- Reducing six categories to four, by merging similar or overlapping activities.
- Adjusting category CEU maximums for accreditation compliance and overall balance (See Figure 1).

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**Certification Corner**

RECERTIFICATION RENOVATION 1.0

Penny Whoolery, Manager, Certification

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Figure 1 – Comparison of Previous and Renovated CEU Requirements for AACE Certifications
Effective April 1, 2016, the recertification application will reflect the renovated program structure but will continue to follow the same fee structure and processes currently established (see Figure 2).

We apologize for any disruption or inconvenience this change may cause those in the midst of, or preparing for, recertification under the old structure. If you have recently purchased the older version and wish to use the new application, or have any questions regarding your CEU placement, please contact Amanda Bliss at abliss@aacei.org for assistance.

Renovating anything takes considerable planning and patience in order to ensure you end up the intended outcome—whether it is based on want or need. In this case, we feel as if we achieved both—and trust our certificants will feel the same.

If you have any questions or need assistance or further clarification, please contact certification staff at: certification@aacei.org.

By the way, my porch is currently under construction. ✧
Check Back With the Source for the Annual Meeting Brochure at the end of the issue.

We will be attaching the brochure for the Annual Meeting to this issue of Source. Once you read through this issue, make yourself a note to check back in a couple of weeks to see if the Annual Meeting brochure has been attached.

The brochure will give you lots of additional information about this year’s Annual Meeting, the technical program offerings, seminars, special events, the host city, and more. If you have any questions about this year’s Annual Meeting, you will probably find the answers within the pages of the brochure once it is completed and posted.

We hope you will take advantage of the savings offered with early registration, visit www.aacei.org and complete your Annual Meeting registration today. We look forward to seeing you in Toronto June 26-29.

If you have any questions, please call AACE Headquarters at 304.296.8444 or send an email to: info@aacei.org
TOTAL COST MANAGEMENT ROCKS

1993 July 11-14 - Dearborn - 37th
1994 June 19-22 - San Francisco - 38th
1995 June 16-28 - St. Louis - 39th
1996 June 23-26 - Vancouver - 40th
1997 July 13-16 - Dallas - 41st
1998 June 28-July 1 - Cincinnati - 42nd
1999 June 27-30 - Denver - 43rd
2000 June 25-28 - Calgary - 44th
2001 June 17-20 - Pittsburgh - 45th
2002 June 23-26 - Portland - 46th
2003 June 22-25 - Orlando - 47th
2004 June 13-16 - Washington DC - 48th
2005 June 26-29 - New Orleans - 49th
2006 June 19-22 - Las Vegas - 50th
2007 July 15-18 - Nashville - 51st
2008 June 29-July 2 - Toronto - 52nd
2009 June 28-July 1 - Seattle - 53rd
2010 June 27-30 - Atlanta - 54th
2011 June 19-22 - Anaheim - 55th
2012 July 8-11 - San Antonio - 56th
2013 June 30-July 3 - Washington DC - 57th
2014 June 15-18 - New Orleans - 58th
2015 June 28-July 1 - Las Vegas - 59th
2016 June 26-29 - Toronto - 60th

Celebrating Sixty Years of AACE
Network with your peers!
Ms. Anita Mann grew up in Gallipolis, Ohio. Her parents made spending time together as a family a priority. She earned her Bachelor of Science (BS) degree from Winthrop University in Rock Hill, SC.

Anita started her career in project controls nine months out of college, after having worked mainly in the banking industry. A very close friend was in project controls at a nuclear plant. The friend called to see if she would be interested in what she did. She replied “of course” and that is how her journey began.

She was very green to the project management world, but was very familiar with the utility industry. Growing up in southeastern Ohio, her father worked for a utility company at fossil and hydro plants. When she was in middle school, her dad would take her to the plant with him on occasion. They would walk the plant and check out the coal yards and barges down on the Ohio River. It was fascinating to Anita that all of this coal produced electricity for her whole community and beyond, and here they were right in the middle of it.

Fast forwarding to her project controls career, the first phone call she made after she accepted a position as a contractor project controls specialist at the Catawba Nuclear Station in York, SC, was to her father. Keeping the family tradition alive, she jumped in with both feet, learning as fast as she could. Project controls, at the time, was in the beginning stages at the plant. She was able to learn project controls from ground zero in all aspects. After spending three years at the Catawba Nuclear Station, she grew her knowledge, skills, and abilities at the McGuire Nuclear Station in Huntersville, NC. For both stations, she worked for major projects organizations. After another three years at McGuire, she received the opportunity to become a direct employee in the Project Manage-

At the Annual Meeting, Anita really enjoyed the experience learning and networking with people from around the world that are trying to accomplish the same things she was. Anita would encourage all women in project controls to go to the conference. It is a great opportunity to meet new people, make new contacts, and learn new technologies and ideas to bring back to their company.
Anita believes when you have confidence in yourself and encouragement from other women and peers in project controls, there is no stopping the accomplishments you can make.

Anita’s current position is a senior project controls specialist with Duke Energy. She enjoys the many interactions and inputs for a project and it is her job to analyze and report the good, bad, and ugly. She has had a couple really great mentors that have helped her more than once along her path.

This past AACE Annual Meeting in Las Vegas was her first. She really enjoyed the experience learning and networking with people from around the world that are trying to accomplish the same things she was. She’s gaining knowledge for future roads ahead and gave recommendations to others starting on a path that she was further down. Anita would encourage all women in project controls (member or non-member) to go to the conference. It is a great opportunity to meet new people, make new contacts, and learn new technologies and ideas to bring back to their company. She brought back several ideas on how to enhance her company’s project controls communication.

She presented a paper she co-authored, “On a Mission to Improve Project Performance.” This was a great way for her to show her organization’s ideas and processes to the project controls industry. She is thankful she did, it has now opened other doors for her professionally.

She didn’t realize the opportunities at the Annual Meeting until she attended. She feels fortunate to have had Cindy Whitmill as her room host and Cindy encouraged Anita to be a part of AACE Women in Project Controls, the mentoring program, and maybe even present a webinar. To have encouragement from other women in your field is a confidence booster. Anita believes when you have confidence in yourself and encouragement from other women and peers in project controls, there is no stopping the accomplishments you can make. One of her mentors told her, “All is good in the end and if it is not good, it is not the end.” You will have ups and downs in your career. We learn from the valleys and make great strides on the mountain. If we never experience valleys, you never learn to grow and overcome adversities.

Ciccarelli named an AACE Fellow

John J. Ciccarelli, PE CCP PSP FAACE, a Past President of AACE International, was named an AACE Fellow at the March Board of Directors meeting in Houston, TX. John is a Senior Vice President at Marsh Risk Consulting.

Ciccarelli was elected to and served on AACE’s Board of Directors as President Elect (2012-2013); President (2013-2014); and Past President (2014-2015). Prior to this, he served on the board as Director-Region 2 (2008-2010) and as Vice President Finance (2010-2012). He was previously recognized by the Association with the Outstanding Regional Director Award (2009). He joined AACE International in 2001.

He earned a Certified Cost Professional (CCP) designation in 2003, and a Planning and Scheduling Professional (PSP) in 2006. He holds a BCE from the University of Delaware and an MBA from Rutgers University. He has been a frequent author and presenter at AACE Annual Meetings. He was a contributing author to AACE Recommended Practice (RP) 29R-03: Forensic Schedule Analysis. He has been a regular contributor to the Claims & Dispute Resolution Technical Subcommittee since 2006.

John also served two terms as President of the New Jersey Section, as well as holding other positions of leadership on the section board. Congratulations, John!
Paul Villanueva Muñoz was born and raised in Piura, Peru, where he graduated with honors with a degree in mechanical and electrical engineering. He currently works as the Project Controls Lead for Planning and Cost Control for Graña y Montero S.A., the biggest Peruvian Engineering and Construction Company. Paul is a founding member of the AACE Peru Section. He is also one of the youngest engineering professors at UPC University in Lima, Peru.

His last year in college, Paul was selected as one of the 30 young engineers across the country for a prestigious trainee program at Graña y Montero Engineering and Construction Company. His first job was working as a project implementation engineer in the Project Management Office (PMO) of the company. He had to study, understand, and apply project control tools and techniques on mining and oil and gas construction projects. Paul excelled and quickly learned that planning and project controls were essential to success. He worked diligently to increase his skills.

He quickly rose within the company and was awarded the “Talent Award” in recognition of his high potential status. He was chosen to lead a company improvement project to strategically position the company for success with EPC (Engineering, Procurement and Construction) projects in the mining, oil and gas, energy and infrastructure industries. Paul’s team successfully implemented a new project management system embedded in all phases of the project life cycle; including initiation, planning, execution, control, and closure.

Now, Paul currently manages the Project Controls Office for the packages managed by Graña y Montero in the South Peruvian Gas Pipeline, one of the biggest projects in the history of the country (US$ 4.2MM). Both Graña y Montero and their partner, Odebrecht, have the challenge to implement an 1134 km pipeline and facilities through the jungle, sierra and coast in the south of Peru.

Paul credits his mother, Josefina Muñoz, as a key inspiration that encouraged him the most. Paul says, “My mother is the best example of hard work and character I have had in my life.” Her favorite phrases are: “If you want something with all of your might then you will get it;” and, “If you have the strong purpose to do something then nothing is impossible.”

I’m convinced that AACE International has the tools required to enhance the success rate projects in Peru. I have, as part of Peruvian Section, the responsibility to bring that knowledge to all Peruvian professionals.
Paul was introduced to AACE International in 2011, while he was working on a mining EPC project. He saw AACE International as an important source of resources to accelerate his professional growth, most especially because he was constantly seeking knowledge and dedicated to the field of planning and project control.

This quest for knowledge and a desire to share the benefits of AACE International with Peruvian professionals led him to be one of the Section founders and leaders of the AACE International Peruvian Section team. The Peruvian Section brought the first Cost Management Symposium to Peru in 2013, with 150 professionals attending at the Catholic Pontificia University. It was the first cost engineering symposium offered that delivered renowned speakers from around the world. The AACE International Peruvian Section continues the tradition annually to offer a cost engineering symposium to gather professionals from all over the country and renowned speakers from Peru and all over the world.

Paul attended his first AACE Annual Meeting in July 2015, in Las Vegas, Nevada. Paul and his partner and friend, Jeancarlo Duran, were technical speakers and presented their paper on, “Improving Productivity Through Lean Construction Implementation in a Pipeline Project.” This was the first time for Peruvian technical presenters at an AACE International Annual Meeting and a huge achievement for Paul.

Paul says, “I’m convinced that AACE International has the tools required to enhance the success rate projects in Peru. I have, as part of Peruvian Section, the responsibility to bring that knowledge to all Peruvian professionals.” Paul’s advice for other young professionals is, “Please remember that discipline will defeat intelligence.” He tells his students, friends, and colleagues that, “brilliance is not enough to success, but discipline, constancy, and hard work are the way to develop your talents and are the key to achieve unimaginable goals.”

Please remember that discipline will defeat intelligence. Brilliance is not enough to success, but discipline, constancy, and hard work are the way to develop your talents and are the key to achieve unimaginable goals.

Do Not Be an Excuse Enabler
Tracey C. Jones

During lunch break, a construction worker opened his lunchbox, “Not peanut-butter sandwiches again!” The next day, he opened his lunchbox, “Not peanut butter sandwiches again!” Day after day, the same: “Not peanut-butter sandwiches again!” Finally, after 13 days his coworker said, “If you don’t like peanut-butter sandwiches, why don’t you ask your wife to make you something else?”

“You leave my wife out of this,” he replied. “I MAKE MY OWN LUNCH!”

Negative elements often take root in our lives because we allow ourselves to get caught up in an endless cycle of excuses instead of taking action. Here are a few ways to take control of what’s in your lunchbox.

Prune the word but from your vocabulary: When you expunge but from your vocabulary an amazing thing happens: where you used to see unfairness and lost chances you will find fortune and opportunity. What you say and what you think affects your circumstances in a very real way. Changing what comes out of your mouth—and what you say to yourself in your head—can give you a whole new outlook. You can create a life of possibility and potential by avoiding a simple three-letter word.

Don’t be an excuse enabler: Excuses come in two categories. The first derives from things we will not do despite the direct negative impact of inaction, such as developing a healthier lifestyle or pursuing a more fulfilling career. These buts are insidious and pervasive when you just don’t care enough about yourself to take action. If you want it bad enough you’ll find a way; if you don’t you’ll find an excuse. The second category derives from things we will not stop doing. It could be an addiction, or allowing negative people to stay in your life. This but thrives on the guilt-and-fear excuse and an enabling personality. As much as we like to blame others, the fact is that you are the master of what goes on in your own head. That’s right, YOU. It’s that simple, and it’s that difficult.

There is nothing positive or productive to be gained by making excuses or by repeating them. Repetition gives them credibility and allows them to continue to drain you and others. Let’s face it; life is tough, even for the healthiest and wealthiest of us. Making excuses exiles you to a perpetual rut, while choosing to take responsibility for your happiness and your attitude frees you to move on to bigger and better things.

Learn to recognize cognitive dissonance: Oftentimes the only way to change is when the results become so positive or so painful that you are forced to take action. Psychologists refer to this as the Cognitive Dissonance Theory: either something brings you so much joy or causes you so much pain and sorrow that you have no choice but to change your behavior. If you keep repeating the same excuses rather than taking action then you aren’t at this point yet. It’s that simple.
TOTAL COST MANAGEMENT
dude

Celebrating Sixty Years of AACE
Network with your peers!
Ten Cost Estimating Observations
Joe Kabeiseman

Abstract: Cost estimating is a unique science that blends statistics, engineering, and business. Experience with numerous large projects has allowed for the development of some fundamental and critical observations, some of which have been learned the hard way. The need for a ‘good’ cost estimate to support a major project is often overlooked. Not doing a cost estimate properly can lead to misallocation of scarce funds, taking on too many and unknown risks, and missing the opportunity to apply lessons learned. Project managers and corporate leadership need solid information to make informed decisions. This article will review some commonly held misconceptions regarding cost estimates and provide insight into some “dos” and “don’ts.” Additionally, some real life lessons learned will be discussed to demonstrate how cost estimates provide management with actionable information. This article was first presented as EST. 1812 at the 2015 AACE International Annual Meeting in Las Vegas.

Quick and dirty should be used to describe the winner of a mud run, not a cost estimate. Even in a project’s early stages, a defensible methodology based on sound principles should be used. Various observations will be examined in this article and will offer the reader an opportunity to reflect on how cost estimates are generated and used.

Bottom line upfront: a cost estimate is a management tool and should be developed and used accordingly.

The Problem
One job of a cost estimator is to look constantly for ways to reduce the magnitude of differences between the estimate and the eventual actual cost.

Cost estimates are influenced by myriad items. These items may include, but are not limited to:

- Assumptions – Who will design, develop, build, and maintain the deliverable items?
- Design Maturity – Are components at different Technical Readiness Levels (TRLs)? How closely does the project resemble something that has been done before?
- Inflation – Domestic, foreign, in-house, government sanctioned, commercial?
- Timeline – Time allotted to develop the estimate, as well as the duration of the project itself.
- Locality – Greenfield or brown field? Domestic or foreign?

The above items, as well as others, can be used to perform sensitivity analysis. This is where many cost estimates fall short of their full potential and, as a result, do not afford management the opportunity to evaluate a project fully. The cost estimate is a management tool; it is not the answer.

Internal project cost estimates are frequently success-driven and optimistic. Additionally, they typically are created using a bottoms-up methodology and result in a “should cost” [1]. Most program managers believe they are above average and will perform better than those who have preceded them. While confidence and a positive attitude are admirable qualities for a leader, they have a tendency to taint one’s perspective. Large projects span multiple years and involve a wide range of diverse locations and labor forces. Assuming there will not be any labor disputes or disruptions and that the weather will cooperate on all fronts at all times is not realistic. Likewise, assuming all engineering models reflect reality and that there will not be a need for any redesign is not the most prudent approach.

Alternatively, an Independent Cost Estimate (ICE) is typically developed using a top-down approach. It falls more
in line with a “will cost” approach [1]. These types of estimates by their very nature are more risk inclusive and allow for more realism. Additionally, since the entity performing the ICE generally has a broad scope of experience, the ICE is more data-driven and based on a breadth of experience.

Communication is important. In order to communicate effectively, folks on both sides need to speak the same language and have the same definitions for the same words, terms, and phrases. Without a commonly agreed to and understood language, the results may prove to be catastrophic.

Let us look at the 10 cost estimating observations:

#10—Ground Rules and Assumptions Matter

In November 2013, while attending the Rice Global Engineering and Construction Forum monthly roundtable [2], a written survey question was asked:

“Please provide an estimate for the price of a gallon of gas on January 01, 2014.”

The typical roundtable attendees work predominately in the Oil & Gas (O&G) industry, and Rice University, location of the roundtable, is located in downtown Houston, Texas. Thus, most of the respondents to the question were intimately familiar with the trends and geo-political nature of the O&G industry. The forecasted estimate was for a date that was only six weeks in the future.

The shape of the distribution, shown in Figure 1, is log-normal. This distribution is seen quite often in the discipline of cost estimation. One major reason for the log-normal distribution is that there are far fewer things that typically go better than anticipated, which in turn lower costs, and a multitude of things that may occur which will cause costs to increase. Mistakes and omissions do not typically cost less. The survey results are shown in Table 1.

Either consciously or unconsciously, everyone who submitted a response made a set of assumptions. These assumptions ranged in subject from geographic location to provider (e.g., Shell) to grade (e.g., regular). In fact, one of the most basic assumptions was that the question referred to gasoline as opposed to Liquefied Natural Gas (LNG). Since the forum meetings always occur in Houston, TX, one would think it safe to assume this is the location about which the question was asked. Most folks use regular grade gasoline in their vehicles. Therefore, it would be reasonable to assume the question is referring to regular grade, but there are also other grades, such as premium and diesel. Then there are the various providers. On any given day, within a small radius of less than 10 miles, one can find quite the range in price for the same grade offered by different providers.

<table>
<thead>
<tr>
<th>Minimum</th>
<th>$2.50</th>
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<tbody>
<tr>
<td>Mean</td>
<td>$3.09</td>
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<td>Maximum</td>
<td>$4.50</td>
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<tr>
<td>Standard Deviation</td>
<td>$0.49</td>
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Table 1 – Survey Results Statistics

Another factor, which influenced the estimates, was the availability of resources. In particular, the resources of time and information were limited. The survey question was provided at the end of the meeting as folks were ready to leave. This provided an artificial sense of urgency. Additionally, the ability to do any form of research was limited to the respondent’s smart phone and their ability to access useful information.

It is common to have time constraints. Deadlines do help prevent analysis paralysis. Though, sometimes, an impractical time constraint may be imposed. A few years ago, the head of a cost shop phoned asking for the unit cost of a third generation missile. Straight forward enough except that the prototype of the first generation missile was still in development and the capability requirements of the second and third generation had yet to be defined. Then, he said, “the General needs this number in two hours; he is headed to the Hill to testify before Congress.” Being a former Army Ranger, the cost shop lead did not accept a “can’t
do it” attitude. Thus, the best estimate was provided given the circumstances. A drive around Chantilly, VA, and Houston, TX, on 01 January 2014, yielded the results shown in Table 2.

It is interesting to note that the mean of the estimate, $3.09, turned out to be the minimum of the actual price. Table 3 shows the actual gas price statistics.

The more clearly the ground rules and assumptions are stated and understood by all involved, the more useful and informative the estimate will be. If they are not provided, ask. If still not provided, state what was used. This may spark a much needed discussion.

#9—Multiple Potential Cost Drivers Should be Explored

Cost estimates need to be based on something. Worst case, engineering judgment may be used when there are no hard data available. Best case, a plethora of data (and time) are available for analysis. Typically, intuitive cost drivers may be found in the data. Drivers such as size and power are common. For a cost driver to be useful, it must also perform well temporally. Older data, based on older technology, may skew the data and lead to poor cost estimates.

Sometimes, however, a non-intuitive driver may exist. One should explore multiple possibilities. The typical differentiator for televisions is screen size. As screen size increases, so does cost. (Note: screen size is measured as the diagonal distance of the display). In Table 4, a summation of several televisions is provided. The costs have been normalized (adjusted for inflation) to 2013 dollars.

Interestingly, the intuitive cost driver of dollars per inch does not hold up. The 1958 RCA color TV with a 21-inch screen costs $127 per inch, whereas the 2013 Samsung 19-inch, close in size, costs only $13 per inch. One may believe this lower cost is attributable to advances in technology. But, when the 2013 Samsung is compared to the 2012 Panasonic, only a year apart, this metric still does not hold up.

It may be necessary to look at other cost drivers. Sometimes, the underlying technical data is not available and a proxy can be used. In this case, weight is examined. Not very technical but easily attainable. Television cost with weight statistics are shown in Table 5.

Remember, any number raised to the zero power equals one. This will cause the last part of the equation above, \((0.75)^{LED}\), to be inconsequential when estimating a non LED television and reduce the cost (by 25 percent) if the television type being estimated uses LED technology. This simple arithmetic approach has proven invaluable time and again.

#8—More Detail Does Not Mean More Accurate

Do not use a micrometer to measure a log and then cut it with a chainsaw. A cost estimate should reflect the maturity of the project it is estimating and the data behind the estimate. In a project’s early stage, a Rough Order of Magnitude (ROM) should be sufficient. As details and requirements of the project become more refined, so should the estimate. This does not mean a point estimate for a multi-million dollar project should be provided to the dollar.

### Table 2 – Actual Gas Prices

<table>
<thead>
<tr>
<th>Location</th>
<th>Provider</th>
<th>Grade</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Virginia</td>
<td>Shell</td>
<td>Regular</td>
<td>$3.43</td>
</tr>
<tr>
<td>Virginia</td>
<td>Shell</td>
<td>Plus</td>
<td>$3.63</td>
</tr>
<tr>
<td>Virginia</td>
<td>Shell</td>
<td>Premium</td>
<td>$3.83</td>
</tr>
<tr>
<td>Virginia</td>
<td>Shell</td>
<td>Diesel</td>
<td>$3.89</td>
</tr>
<tr>
<td>Virginia</td>
<td>Sunoco</td>
<td>Regular</td>
<td>$3.39</td>
</tr>
<tr>
<td>Virginia</td>
<td>Sunoco</td>
<td>Plus</td>
<td>$3.63</td>
</tr>
<tr>
<td>Virginia</td>
<td>Sunoco</td>
<td>Premium</td>
<td>$3.78</td>
</tr>
<tr>
<td>Virginia</td>
<td>Exxon</td>
<td>Regular</td>
<td>$3.47</td>
</tr>
<tr>
<td>Virginia</td>
<td>Exxon</td>
<td>Plus</td>
<td>$3.76</td>
</tr>
<tr>
<td>Virginia</td>
<td>Exxon</td>
<td>Premium</td>
<td>$3.89</td>
</tr>
<tr>
<td>Texas</td>
<td>Shell</td>
<td>Regular</td>
<td>$3.19</td>
</tr>
<tr>
<td>Texas</td>
<td>Shell</td>
<td>Plus</td>
<td>$3.48</td>
</tr>
<tr>
<td>Texas</td>
<td>Shell</td>
<td>Premium</td>
<td>$3.74</td>
</tr>
<tr>
<td>Texas</td>
<td>Shell</td>
<td>Diesel</td>
<td>$3.79</td>
</tr>
<tr>
<td>Texas</td>
<td>Phillips66</td>
<td>Regular</td>
<td>$3.29</td>
</tr>
<tr>
<td>Texas</td>
<td>Phillips66</td>
<td>Plus</td>
<td>$3.55</td>
</tr>
<tr>
<td>Texas</td>
<td>Phillips66</td>
<td>Premium</td>
<td>$3.65</td>
</tr>
<tr>
<td>Texas</td>
<td>Phillips66</td>
<td>Diesel</td>
<td>$3.79</td>
</tr>
<tr>
<td>Texas</td>
<td>Gulf</td>
<td>Regular</td>
<td>$3.09</td>
</tr>
<tr>
<td>Texas</td>
<td>Gulf</td>
<td>Plus</td>
<td>$3.29</td>
</tr>
<tr>
<td>Texas</td>
<td>Gulf</td>
<td>Premium</td>
<td>$3.49</td>
</tr>
<tr>
<td>Texas</td>
<td>Gulf</td>
<td>Diesel</td>
<td>$3.55</td>
</tr>
</tbody>
</table>

### Table 3 – Actual Gas Price Statistics

| Minimum | $3.09 |
| Mean    | $3.59 |
| Maximum | $3.89 |
| Standard Deviation | $0.24 |

### Table 4 – Television Cost, Dollars Per Inch

<table>
<thead>
<tr>
<th>Screen (inches)</th>
<th>1958 RCA Color</th>
<th>2013 Samsung</th>
<th>2012 Panasonic 3D Plasma</th>
</tr>
</thead>
<tbody>
<tr>
<td>21&quot;</td>
<td>$2,673</td>
<td>$250</td>
<td>$2,599</td>
</tr>
<tr>
<td>$/Inch</td>
<td>$127</td>
<td>$13</td>
<td>$47</td>
</tr>
</tbody>
</table>

### Table 5 – Television Cost with Weight

<table>
<thead>
<tr>
<th>Screen (inches)</th>
<th>1958 RCA Color</th>
<th>2013 Samsung</th>
<th>2012 Panasonic 3D Plasma</th>
</tr>
</thead>
<tbody>
<tr>
<td>21&quot;</td>
<td>$2,673</td>
<td>$250</td>
<td>$2,599</td>
</tr>
<tr>
<td>$/Inch</td>
<td>$127</td>
<td>$13</td>
<td>$47</td>
</tr>
<tr>
<td>Weight (lbs.)</td>
<td>60</td>
<td>64</td>
<td>69</td>
</tr>
<tr>
<td>$/Pound</td>
<td>$45</td>
<td>$39</td>
<td>$38</td>
</tr>
</tbody>
</table>

### Cost Estimating Relationship (CER) Equation 1

\[
\text{Cost} = (\text{Weight}) \times (41) \times (0.75)^{LED}
\]

Where:
- Cost = cost per pound of the television
- Weight = weight of the television
- LED = 1, if the television set being estimated uses LED technology, otherwise it equals zero.
A number of years ago, on a dark cold winter morning, a young cost estimator raced to a 6:30 a.m. briefing. The briefing was before a three-star admiral and was about an international program. As he drove to work, he rehearsed the briefing in his mind. However, he was never given a chance to show his work. The admiral saw an estimated total cost of $2,267,431 on the second slide and proceeded to offer some rather loud and direct feedback.

A point estimate of $2,267,431 is no different than $2,288,695 to the vast majority of people. Instead, $2.3 million is sufficient and conveys the message. By providing an estimate down to the dollar, it may instill a false sense of accuracy. Do not be misled by the detail provided by the tools used to generate cost estimates.

An independent look is more likely to include schedule and funding volatility. Additionally, an outside look will help validate assumptions and internal processes. If the ICE is remarkably different from the internal estimate, further investigation should take place. A reconciliation, wherein a detailed examination of all assumptions, data, and methodologies used, is a must. Crosschecks are a good thing.

The independent organization typically does a cross-discipline look and can provide best-of-breed comparisons. Furthermore, they may have access to a wealth of historical experiences, which can be used to help predict schedule growth or even software code growth.

Bad news is not pleasant. It is easier for an independent organization to provide bad news than for someone internal to a company. Being independent, they are outside the chain-of-command and seldom the recipient of retribution.

Managers and project leaders need to be open to receiving bad news. An uninformed or ill-informed decision is bad by its very nature. The first step to fixing something and addressing a problem is to know that something needs to be fixed. Encourage honesty in estimates. An independent look is a good first step.

**#6—Change is Constant**

Not all risks and uncertainties can be anticipated. There are known unknowns and then there are things that one does not even realize they do not know. A cost estimate is a snap shot in time. As time marches forward, situations change, forcing an update to assumptions and methods. Also, requirements may change.

Former Secretary of Defense Donald Rumsfeld summed it up nicely: “...as we know, there are known knowns; there are things we know we know. We also know there are known unknowns; that is to say we know there are some things we do not know. But, there are also unknown unknowns – the ones we don’t know we don’t know.” [3]

There may be a desire for an unanticipated technology insertion after a project has already started. This is especially common for large projects that span multiple years. Such a change can have a ripple effect throughout the project. From systems engineering and integration down to the availability of needed equipment. Computing power and computer memory are examples of things that change dramatically over time.
short periods of time. Though these can be anticipated, they can only be estimated and care should be used to place appropriate risk around them.

In Figure 2, several distributions are shown for the same project. They are shown over time with the initial estimate shown using a green line on the far left of the chart. As time progresses, things change which cause the distribution to change shape. Notice that as the project matures (time passes), the cost increases, but the probability distribution also narrows. This narrowing is a result of more certainty, as well as because some risks are being retired. A project’s cost estimate should be updated over time to allow for the communication of new information, which in turn will make possible better management decisions.

#5—Oops
A cost estimate needs to include all costs. There is a good chance that something was missed in the initial cost estimate. This is just the nature of large projects. Even when an analogy method is used to estimate the cost, something may be missed. No two projects are exactly alike.

Costs may be treated differently by different organizations. Different areas within an organization are responsible for different costs. When looking at a project’s cost, it is paramount to know what is included and what is excluded from the estimate’s scope. How and who handles investment costs? Commercial Off The Shelf (COTS) items are not free. Though there may be little to no development dollars associated with COTS items, there is always a cost to integrate COTS items. Additionally, reuse is not free. The space shuttle re-used its two solid rocket boosters. The cost of recovery from the ocean, transportation back to the factory, cleaning, and refurbishment needed to be considered. Integration costs are frequently omitted. This occurs at all levels since there is integration at all levels of a project, and large projects are really systems of systems. If neither of the systems takes into account the efforts required to integrate at both higher and lower levels, the cost estimate will be incomplete.

Keep the Work Breakdown Structure (WBS) product-oriented. This will help ensure completeness of scope and limit the chances of missing something. This will also help determine what items need to be integrated and at what levels.

Once it is realized that something was missed, let folks know. Do not hide the fact or delay communicating it. Bad news does not get better with time. Managers need to be willing to accept the occasional mistake, but at the same time learn from it. If folks need additional training, ensure they get it. If additional controls are needed, put them in place.

#4—The Magic Schedule
The first schedule estimate will cost the least. Think about it. For a given schedule, if you accelerate it, it tends to cost more as a result of the added resources required. If you stretch the schedule, it also tends to cost more as a result of tying up resources.
The schedule and cost estimate need to be intimately linked and integrated. As the schedule changes, so must the cost estimate. But, adding more resources does not necessarily mean a shorter schedule. For example, a pipeline Right-of-Way (ROW) acquisition was nearing completion. All of the courthouse work was complete and all of the landowners were known. The lease acquisition agents had approached all of the landowners and had succeeded in acquiring a signed lease from most of them. There were about 15 landowners who had yet to sign a lease and five acquisition agents actively working each of them. The project manager wanted to put an additional 10 agents on the project to speed things up. He was told it would be a bad decision and a waste of resources. A better decision was to ensure that the personality mix between the landowners and the acquisition agents was in-line.

Engineering takes time and money. It is generally less expensive and easier to get it right the first time than to go back and redesign something after the fact. Sometimes there are no second chances. NASA encounters this dilemma on its interplanetary missions. Because of the alignment and orbit of planets, certain missions have a limited window in which to be executed. If they get it wrong the first time, it may be many years before another opportunity arises.

#3—Do Not Point, It Is Rude
A point estimate is just a number, but a probability distribution is actionable information. As alluded to earlier, uncertainty is certain (i.e., change happens). The ability to quantify risk and uncertainty is a strategic advantage that should not be ignored. By rigidly examining the potential array of outcomes, not only are risks identified, but opportunities may be gleaned as well.

In Figure 3, a generic probability density function is shown. Marked on the chart are various points of interest.

Notice that for a log-normal distribution, the mean is greater than the 50th percentile. This is due to the long extended right-hand tail. A Monte Carlo simulation of an estimate that quantifies risk will help produce distributions.

Additionally, the distribution can be the basis for an Analysis of Alternatives (AOA). By varying the inputs (e.g., pipe diameter) to the cost estimate or the risk factors, numerous alternatives may be examined.

Cost does not equal price. A cost probability distribution also helps define the negotiation space. How competitive is the environment? Is the firm going to price to win? If so, how much risk is a comfortable amount?

#2—The Estimate Is Too High!
A complex project cannot be successfully delivered with a minimal budget no matter how proficient people are. The response that an estimate is too high has been uttered too often. Dismay is common. Sometimes people do not realize or comprehend the full scope of the project for which the cost estimate is provided. All too often cost estimators have been asked to go back and sharpen their pencil.

Large projects incorporating integrated autonomous systems of systems are expensive. Sometimes it is OK to push the envelope and have stretch goals. If management chooses to do this, they should be aware they are doing so (see previous section).

One should also keep in mind whose estimate is being reviewed. Different organizations will approach a cost estimate in different fashions and possibly include different scope. An example of different scope would be oversight effort. An in-house estimate can differ from an ICE merely based on the use of different historical data or different methodologies. Assumptions matter (see previous section). A subcontractor’s estimate may also be different as a result of a novel approach to the requested solicitation. Ask questions and be informed. Just because there is not enough budget available does not mean the project should cost less.

#1—it Is An Ongoing Concern
Companies have a fiduciary responsibility to their owners and shareholders. Most people work for an organization that is in business and plans to stay in business by making a profit. Even those who work for a government organization, or a non-profit, have a responsibility to be good stewards of the money they have been given.

Ways to help ensure continued success are to perform due diligence on projects to be undertaken, invest wisely, investigate viable options, and conduct independent audits and reviews. This last item is done all the time by accounting departments. Companies have outside firms take an independent look at the account books to ensure compliance with accounting principles and regulations. The goal is to achieve a clean audit. Why should the cost shop strive for something less?

Projects do not occur in a vacuum. Influences are encountered all of the time and will impact the cost estimate. Some of these dependencies are controlled by the organization and some are not. It is important to know the difference. The cost estimate should drive the budget, not the other way around.

Sometimes the right thing to do is to kill the project. If this option is selected, ensure a post mortem is done to learn from the experience. Try to determine when the project started deviating from the plan. Were there earlier warning signs that were missed? Do processes need to be adjusted? Are the right people in the right jobs? Cost estimators have a responsibility to themselves, as well as to others.

Conclusion
This article has provided some observations regarding cost estimates and the cost estimating process. Additionally, some real life examples have been offered. When generating a cost estimate, it is important to question everything; ensure a firm understanding of the scope and explicitly point out assumptions.

Some organizations may not have an established review and quality control process for cost estimates. The observations discussed in this article may be used to help generate a checklist as part of a quality control process. By no means are the observations discussed in this article all inclusive. The wide range of topics discussed may also help generate additional items to be added to the checklist.
A cost estimate should be provided as a probability distribution, not just a number. Management should be allowed to use the estimate as a tool. A project is a living thing and the cost estimate should march in lockstep. An estimate is never too high; perhaps some of the assumptions need to be revisited. If the schedule changes, so too should the cost estimate change. Never stop learning from both successes, as well as failures.

REFERENCES
2. Rice Global E&C Forum, Department of Civil and Environmental Engineering, Rice University MS 318, 6100 Main Street, Houston, TX 77005, www.forum.rice.edu.

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FOR OTHER RESOURCES
To view additional resources on this subject, go to: www.aacei.org/resources/vl/ Do an “advanced search” by “author name” for an abstract listing of all other technical articles this author has published with AACE. Or, search by any total cost management subject area 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.

New and Revised Recommended Practices are Available for Download
One new and two updated AACE International Recommended Practices have been released by the AACE Technical Board, announces AACE Director Technical Guidance, Christian Heller.

New Recommended Practice 33R-15, Developing the Project Work Breakdown Structure
This Recommended Practice (RP) describes the purpose, development, and management of a Work Breakdown Structure (WBS). This RP provides guidance regarding the use of a WBS on projects and demonstrates typical examples for a WBS. Additional project coding structures (e.g., organizational breakdown structures, risk breakdown structures) are covered in other recommended practices.

This Recommended Practice is intended to provide guidelines (i.e., not a standard) for development of a WBS based on the decomposition of the scope of the project Statement of Work (SOW). The intent of the RP is to document what most practitioners would consider to be good practices that can be relied upon and considered for use. The intended audience is project team members; including project managers, project controls professionals, and earned value practitioners who develop and use the WBS as a part of the project planning process. This RP applies to owner/operator firms, as well as to contractor firms.

At times, a program or portfolio WBS may contain additional hierarchical levels to indicate the relationship of projects within the program or portfolio.

This RP is aligned with the Total Cost Management Framework, as well as the Electronics Industries Alliance (EIA) - 748 Earned Value Management Systems (EVMS) guidelines (Guidelines 1 and 3).

For AACE members to review, or non-members to purchase, the full RP, go to: https://netforum.avectra.com/eweb/shopping/shopping.aspx?site=aace&prd_key=9afe5ae0-6316-4b9b-9db5-aff7ef6922e

Revised Recommended Practice 18R-97, Cost Estimate Classification System – As Applied in Engineering, Procurement, and Construction for the Process Industries
• This latest update includes both new and revised terms. Revision history may be found at: www.aacei.org/resources/terminology/revisions.shtml
• The full document is available at: www.aacei.org/resources/terminology

New and previously published AACE International Recommended Practices (RPs) are available at: www.aacei.org/resources/rp. Draft RPs are available at: www.aacei.org/forums. All RP’s are available free of charge to AACE members and are available for purchase by non members.
TCM FEVER

Celebrating Sixty Years of AACE
Network with your peers!
PEACE
LOVE
TOTAL COST MANAGEMENT

Celebrating Sixty Years of AACE Network with your peers!
For most members, AACE International membership is an individual experience. There are a few instances where a child is following in their parents’ footsteps, but it is rare to have more than one child who is also an AACE member. One exception is the Whiteside family, which in this article we are referring to the family as an AACE generational family.

James D. Whiteside II, a Professional Engineer (PE), has been a member of AACE since 2001. His volunteer service to AACE has included years as a member of the AACE Technical Board. He continues this service as the Director of Conference Quality for the Technical Program at AACE Annual Meetings. He served as the first Chair of the Technical Board’s Review Committee, and he established the Technical Paper Evaluation Criteria (TPEC) that is used to vet abstracts and technical paper submissions.

Jim was born in Virginia. His dad was in the Navy, so the family moved around frequently. As a result, Jim says, “I do not have a home town and I do not have childhood friends.” What impact did this have on the future engineer? He says, “I spent my time trying to figure out how things worked and how to make them better.”

The Whiteside family today includes, front and center: Ibra Brown and Suma Brown. Standing behind the children, from the left are: Greg and Amanda Whiteside; Ryan and Julie Richards, Andrew (holding Javi) and Shayna Brown and Jim and Sallie Whiteside.
Jim recalls one incident that particularly showcases this inquisitiveness. He says, “In third grade, I completely disassembled the carburetor of my dad’s work car because it had glass reservoirs which fascinated me. Mom was upset, but dad came out to the garage and asked if I knew how it went back together. I thought he had profound faith in my abilities.” Jim adds, “I found out recently [40 years later] that if I did not know, he was going to be highly inconvenient because he had no repair manual. At the time, he did not let on how much trouble he was going to be in, or me, for that matter.”

While from an early age Jim was showing interests beyond his years, he also had typical childhood interests. He says, “My interests were primarily related to model airplanes and anything electrical.” Jim explains, “I was always tinkering with both, creating and inventing. Failure was just part of everything I did. But, the experiences with failure gave me insights that cannot be found in text books. I found that failure in one area can result in success in another. Technology transference is something I figured out long ago.”

With these life experiences, what did Jim want to do when he grew up? He says, “Initially, I wanted to go into aerodynamics. However, in my first year at college, I discovered that the advanced math and physics in mechanical engineering fit my creativity better.” The people one associates with, or the activities and events of life, tend to influence the life path and career of each person. Jim says, “I was influenced by the science behind the space race.” This was the hot topic news event of his early years. He explains, adding, “I kept a scrap book of all the launches: Mercury, Gemini, Ranger series, Apollo, etc. Successes were ok, but the failures were absolutely fascinating, because the news would bring in scores of experts that would speak in detail of what it was supposed to do and what probably happened.” Jim further explains that, “Even before CNN, there would be hours of details by experts on TV. I then began to realize that everything they did was calculated. I realized that if math and science could be used to invent things, then math could be used to calculate abstract things.”

Jim’s life path took him through his childhood and teenage years, through elementary, middle, and high school years, and through the college years. Finally, he was ready for a career. He says, “I started out as a design engineer right out of college.” Building upon his childhood of exploration, taking things apart, putting them back together, and trying to make them better, Jim ended up securing six patents to his name. He explains, “I solved problems that eluded conventional reasoning. I create empirical models. For most people, the empirical models provide the “easy button” for their work. However, my empirical models are built to explore and assess phenomena that have a very low probability of occurrence.”

He continues, “Starting from a single mainframe computer terminal with cards, I developed databases and analysis that anyone could run. I developed relational databases before relational databases were available. I developed a database that would do design work for vessels, exchangers and relief valves, look up current fluid properties in each, display Material Safety Data Sheets (MSDS), and print out current protective protection equipment required for each.” Jim further adds, “Later, I helped install a CAD system with the first ever HP optical disk library. It used the CAD to generate drawings from the equipment database along with specification sheets. Essentially, the engineers and technicians only had to input data to the system and the program would design and print everything for them, as per the applicable design code.”

His career path included spending 18 years in Borger, Texas, where he was assigned to the design department, economics, and IT. After 18 years, he was transferred from Borger to Houston to become an estimator.

Jim says, “In Houston, I started using Aspentech’s KBase program to estimate. I discovered that I did not have to use their graphical user interface. I could write a program to alter their data input files. That lead me to create a cost database that I could interface to take an estimate and develop models for equipment based on design models I had previously developed. This lead to a cost analysis database that could assess low probability occurrences, based on actual historical and current market data, and improved estimating accuracy.” What did this do for Jim and his career? He says, “The success of this first lead to the company moving the database to an enterprise version, so that anyone in the company had access and this allowed me to focus on developing benchmarking full time. I changed the traditional cost estimating culture away from cost-only estimates to estimates based in quantities and hours.” For several years, he also taught a two-day seminar for AACE that was based on a theme of, “Estimating Has Nothing To Do With Cost.”

Some things become a career challenge and the passion can continue into retirement. Jim explains by saying, “Benchmarking was and still is a challenge. I was privileged to work alongside co-workers that understood actual data, math, and empirical modeling like I did. Our work changed the cost estimating culture away from cost-only estimates to estimates based in quantities and hours.” For several years, we wrote a paper for AACE: DEV-1634, “Benchmarking and a Methodology for Finding Causality,” based on the experiences we had teaching summer interns how to take the advanced math they learned in college and put it to meaningful work. Unfortunately, the “leaders” in benchmarking still promote data normalization and statistical analysis. Advanced benchmarking is based on causality and using data-driven em-
practical models to explain project performance. Industries will not improve benchmarking or project performance until they star collecting detailed data and creating programs based in the DEV-1634 paper.” He adds, “The same can be said for risk analysis.”

So, back to the generational basis of this article. Jim notes that his wife, Sallie, is an English teacher. “Initially, she edited my papers. While Shayna, my oldest, was in high-school, she started editing my papers and has been my principal editor since. She wrote a technical paper when she worked for Fluor. When Greg, my second child, started work, he would call with lots of questions since he was doing project work. I would send him AACE papers that I had reviewed and thought highly of the author(s). Then, Greg had questions and experiences that were common to new hires. Since there were no papers that I could identify, I encouraged him to write for those new to cost engineering. Finally, Julie, my youngest, started work and she did not think she had anything to contribute. Julie asked for a set of my papers to read. That lead to questions, and eventually, she decided that she needed to write an AACE paper to share what she is learning as a new hire about contract reviews.” What has having his children follow in his footsteps meant for Jim? He says, “The reward for me was not that they wrote papers for AACE. What I found rewarding is how they were received by other professionals that I admire. These seasoned experts asked them tough questions and they provided solid responses.”

Recalling passing the baton, Jim chuckles and says, “When my children went off to college, I told them that the goal of the next four years was for them to get a job after graduation and get off the payroll.” However, Jim quickly adds, “All of them attended Texas A&M University and majored in different things. Shayna is a communications major, Greg is a mechanical engineer (PE), and Julie is a marketing major. They all worked really hard and have become successful adults. They all got to overhear the challenges I faced at work. The influence they received is to welcome all challenges with faith, integrity, and facts. These three will eventually prevail despite any challenges they face. After they chose their career paths, I encouraged them to join AACE, write papers, and learn from others.”

When asked what has motivated his children to do Total Cost Management (TCM) work, Jim responds, “Dad said, “it’s like this, you’re going to do TCM work.” He adds, “I think it is the fascination with the work and contributing to improvements is what motivates them. Total Cost Management is a systematic approach to management of any business and is applicable to any industry.” To demonstrate this, Jim notes that, “before Julie’s current employer, she was in charge of advertising for the largest business category of a retailer. Much of TCM is relevant to that retailer and TCM is the basis to the principles for her business and marketing degree. She was doing TCM type work before she changed industries and became a project controls analyst.”

Returning to reflect upon his own career, that somewhat wrapped up with retirement in 2014, Jim says, “I have always worked for the same company. It started off as Phillips Petroleum, and then went through several downsizings and acquisitions to become ConocoPhillips. I have stayed involved with AACE because I have developed friendships over the years and AACE is still rewarding work. It is all about helping people with experiences I have had and improving their skill sets for solid analysis work.”

Since retiring, Jim has moved into building boutique tube circuits for blues harp players. Probably somewhat connected to his childhood experiences of enjoying taking things apart, putting them back together, and trying to make them better. He explains by saying, “I repair and customize small tube amps for
musicians. I consult regularly through email and post technical videos on YouTube. I run and trouble shoot sound boards, set up small orchestras, equalize speaker dynamics for rooms, and recently ran the sound system for a small rock concert. I do it because I understand the math. I write programs to analyze equipment and sound. I find that the filter math for amp controls is the same for filtering project cost data. Portfolio analysis for companies is the same as phase angle for sound systems. Fast Fourier Transforms can be used to determine the number of bins for risk assessment and for determining frequencies of a complex sound wave. All the advanced math in college (Laplace, physics, etc.) is applicable to just about anything, including my newest retirement interest of tube amps and sound systems. The same math that propelled me through my career is still applicable in sound systems.” He adds, “Three months into retirement I helped an equipment manufacturer identify a vibration problem. He sent me a .wav file and I identified the source of the problem. Data, analysis, and math lead to discovering causality and causality leads to solutions.”

What role has AACE played in all of this? Jim explains by saying, “I became a member of AACE because of Dr. Nick Lavignia, PE. He and I were having a discussion late one afternoon at another industry conference where I made a presentation on the importance of data granularity. He told me that I should consider investing in my professional development and share more technical presentations. AACE would be a great venue. He told me that this investment will have long term benefits, long after I retire. Therefore, I put together a presentation, sent it into AACE to be peer reviewed, and it failed. John Hollmann, PE CCP CEP DRMP, told me that he read the paper and would schedule it at the next Annual Meeting. I was confused. However, I made the presentation and it was well received and ranked in the top ten. I was really confused how a failed paper could be ranked so high. I attended all the presentations I could at that Annual Meeting, and collected all the papers for the remaining presentations. There were very few technical papers: a little more than a dozen. I figured that something had to change. There were professionals from all over the world spending up to $15,000 to attend a three-day conference and there was very little technical material to take home and review, or share with their co-workers and company.”

Jim continues, “I looked around at other technical annual meeting requirements (like IEEE) and made a proposal to the Technical Board that they should adopt a similar review and presentation standard. They agreed and asked if I would be interested in joining the Technical Board. I was given permission by my company to participate. Then I discovered that the Technical Board had a new job role for me. I was volunteered to start a technical review of all papers for the Annual Meeting. This eventually evolved into the current Technical Review sub-com-
mittee of the Tech Board.”

He says, “The Technical Review evolved starting with: ‘No Paper, No Presentation.’ A team of us agreed that the cost of attendance must be justified with tangible technical material. Initially, the call for papers barely resulted in enough papers to schedule enough presentations. The next step was a Technical Paper Evaluation Criteria (TPEC) that provided tangible feedback to authors. The goal is to mentor authors and improve their papers to meet the expectations of the AACE membership. This has been so well received that one university changed its tenure review policy to allow a TPEC from AACE to satisfy their requirement for a professional technical review.”

What has been the result? Jim says, “The second year into using the TPEC, the call for papers resulted in over 300 abstracts submitted for consideration and half of those resulted in papers. The next step in the TPEC was to implement a policy to schedule the highest scoring papers and include the other papers in the Annual Meeting Transactions. There are more papers than there are presentation openings; therefore, unscheduled authors are advised to ‘stand-by’ in case there is an opening. When I attended my first few AACE Annual Meetings, the amount of cancelations were significant. Currently, there are less than five out of 85-90 presentations.”

He believes, “The measure of success for the TPEC rests on other tangible benefits. When I first joined the Tech Board, we struggled to get one or two Recommended Practices issued each year. The reason was that it requires collecting technical papers for review on a subject to turn into a Recommended Practice. In the last several years, the Annual Meeting has harvested over 100 high-quality technical papers and the amount of Recommended Practices has sky-rocketed. The Recommended Practices support TCM and AACE is now a solid leader in current technical professional material.”

Needless to say, Jim has been and continues to be a strong supporter of AACE, one who believes in the association and promotes it to others. He says, “AACE is relevant to me because it is the only arena that I can learn and discuss cutting-edge technology and practices with other leaders in the technical profession. There is a lot of bias in other venues. Academia is focused on the theoretical, companies focus on generating reports, and other industry venues focus on the latest trends. None of these distinguish themselves as having experienced, proven practices like AACE.”

Having had an inquisitive childhood that lead him to a TCM career, Jim has advice for the next generation of AACE members and all those involved with Total Cost Management. He says, “I tell anyone that AACE is going to be important to success in their jobs. Companies are not well equipped to train cost professionals. The training that companies provide is basically focused on how to create and deliver prescribed reports. AACE provides a wealth of experienced and proven practices, along with networking opportunities.”

He continues, “AACE fulfills a deep experienced-based training forum where members are surrounded by recommended practices, training, and certifications which have been vetted by industry leaders. There is simply no other organization that does as much for the project professional to help them advance and maintain high-end certification and credibility inside their work places.”

Building upon his childhood passion of taking things apart, putting them back together, and perhaps most important, trying to make them better, Jim applies this same skill set to AACE. In looking at what AACE is doing right, what things have stood the test of time and should be continued basically as they are, as well as what things need to change, adapt, or expand to better position AACE as the Authority for TCM—Jim believes, “AACE needs to embrace more technology.” He says, “The adoption of the Annual Meeting app is a great example. Rather than expend money on CD’s, printing material, etc. the Annual Meeting app rolls out everything the attendee could possibly need. The notifications, biographies, papers, presentations, and meeting updates are the way the techno-savvy professionals are heading. AACE needs to get TCM into a fully virtual roll-out.” Further explaining this, Jim adds, “Personally, my job at ConocoPhillips was very aggressive in shortening the time it took to research and find assistance (literature, articles, ‘how-to,’ and industry professionals) provided a competitive and strategic advantage in our marketplace. Competitive advantage rests solely in the virtual information world.”

The second change he sees a need for is to, “advertise toward younger professionals. Many of the presentations at the annual conference are by older, more experienced professionals. That’s great, but there are not many papers for younger people or by younger people. I support the causes of the Young Professionals and Women in Project Controls because I would like to see those groups of people increase their technical competency and professional involvement.”

In the current AACE Member Profiles being published in Source magazine, the following question is asked: “Is there any one thing or things that keep you awake at night?” Asked this question, Jim responded, “There is nothing that keeps me up at night. I wish AACE would move faster in rolling out material in the virtual TCM world. ‘Tradition’ is fine for maintaining a level of excellence. However, ‘tradition’ is the death of any organization that will not embrace or puts off embracing change in this ever changing world.”

The importance of ‘family’ to the Whiteside family is one of the components that has made a generational experience with AACE what it has been not only for Jim, but also for his wife Sallie, and their children: Shayna, Greg, and Julie. Explaining this, Jim says, “We are a tight-knit family. All my kids have always got along. When the kids were in school, we took vacations to theme parks to ride roller coasters and other extreme rides. The mission was to find where the cameras were on the ride, compare notes, and then get a ‘family picture’ on the next ride. We noticed that the other riders in these photos never seemed to purchase the photo with us in them. When the annual conference was held near theme parks, we were able to add in a few days after the conference for these family vacations.”

Jim concludes, “We are a family of deep faith. We are willing to help others and are very supportive of one another. Volunteering is essential to bring about change. Change is going to happen with or without you. Therefore, if you want a voice in the change, you must volunteer, and make a meaningful contribution. Being part of AACE aligns with who we are and it is something we can do together as professionals.”

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(and everyone else.)

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UPCOMING AACE ANNUAL MEETINGS

- 2016 Annual Meeting - June 26 - 29
  Sheraton Centre  Toronto, Ontario, Canada

- 2017 Annual Meeting - June 11 - 14
  Hyatt Regency  Orlando, Florida, USA

- 2018 Annual Meeting - June 24 - 27
  Manchester Grand Hyatt  San Diego, California, USA

- 2019 Annual Meeting - June 16 - 19
  Sheraton  New Orleans, Louisiana, USA
The Australian Section was first established in 1974. It is the second largest AACE International section outside the US. It holds meetings in Sydney, Melbourne, Brisbane and Perth.

The section’s first event for 2016 was at Engineers Australia’s office in Sydney. It was attended by 77 professionals from client, contractor, and education organizations. These included: Liang O-Rourke, John Holland Group, Transport for New South Wales, City of Sydney, and the University of Technology Sydney. Following a few cocktails and networking, the meeting proceeded with Laurie Bowman, CCP DRMP EVP PSP, Chair for the Sydney Division of the Australian Cost Engineering Society, welcoming the attendees, thanking them for their support, and providing an overview of the Australian Section’s strategy and program of events for 2016. The theme for 2016 events in Australia is Total Cost Management and will include a suite of seminars, networking events and opportunities for certification preparation training throughout the year. Early plans are also underway for a project controls conference in Sydney in March 2017, similar to the annual Project Controls Expo in London – details to be confirmed in the near future.

Julie Owen, CCP PSP, AACE President, attended the February section meeting and provided an overview of AACE International’s current focus. This includes:

- Maintaining a clear vision, mission, and strategy for the association.
- Continuing the high growth levels already being achieved outside the US.
- Enhancing the member experience by improving access to online technical content for members.
- Modularization of learning modules for certification preparation courses.
- Engaging with the next generation of young professionals.
- Improving marketing.
- Working with some of the big corporations who are adapting AACE International’s TCM as part of their organization’s cost management policies and processes.

President Owen delivered a terrific presentation on implementing a PMO for LA Metro (USD$36B) that was full of great tips for anyone interested in delivering complex public Infrastructure program successfully. Her presentation was very timely for the Sydney cost engineering community as Sydney is currently experiencing a large surge in road and rail infrastructure projects. Road and rail projects are expected to grow in 2016 and beyond as a result of federal and state government plans to commence a number of major transport projects as shown in Figure 1.

The growth in major public infrastructure projects is particularly concentrated in Sydney and, as a result, Sydney has an enthusiastic and growing cost engineering community. Julie’s presentation drew the largest audience we have seen at an AACE International meeting in Sydney for over 10 years. Following the presentation, Julie spent time mingling and dining with attendees and members. It was a great night for all involved.

The next day, President Owen visited the Perth office of Engineers Australia (a comparable distance LA to NY). Julie’s presentation was well received in Perth as well, and helped re-invigorate interest in professional cost engineering certifications. Julie also took time out to visit the local Public Transport Authority.
AACE International President Julie Owen, CCP PSP, visited the Australian Section in January. She is shown above with members in Sydney. Some of these included: Sherry Moghadassi, College of Leadership and Management (CLM) Sydney Branch Board Member; Belinda Madin, College of Leadership and Management (CLM) Sydney Branch Board Member; Laurie Bowman, AACE / ACES Sydney Division Chair; Brendyn Williams, College of Leadership and Management (CLM) Sydney Branch Board Member; Ted Tooher, College of Leadership and Management (CLM) Sydney Branch Chair; Steven Bird, AACE / ACES Sydney Division Committee Member; Jason Dagher, AACE / ACES Sydney Division Committee Member; Stephanie Degueldre, AACE / ACES Sydney Division Member; Jonathan Shahady, AACE / ACES Sydney Division Member; and other members of the section.
AACE President Julie Owen, CCP PSP, is shown giving presentation remarks to AACE and ACES members and guests in Perth, Australia.

Martin Van Vliet, of Cost Engineering, is shown introducing TCM to Australian audiences at Engineers Australia in Perth.

Martin Van Vliet, of Cost Engineering, is shown introducing TCM to Australian audiences at Engineers Australia in Melbourne.
The following day Julie attended a breakfast and half day workshop delivered by Martin Van Vliet from Cost Engineering. The workshop was titled, “Introduction to AACE International’s Total Cost Management and Comprehensive Tooling.” These introductory workshops are the first phase of the Australian Section’s 2016 TCM program and are a key element of the section’s strategy to increase the recognition of AACE International in Australia and create a pathway for development of professional competencies for cost engineers.

The introductory sessions have also been conducted in Melbourne, and will soon be held in Sydney and Brisbane.

The Australian Section greatly appreciates the time, effort, and support of Martin Van Vliet from Cost Engineering and Julie Owen, CCP PSP, AACE President. For more information about the Australian Section, kindly visit www.costengineer.org.au or email abowden@alphalink.com.au.

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O’Reilly Promoted to Associate at Boston’s Rider Levett Bucknall

Michael O’Reilly, CCP, was recently promoted from Senior Cost Manager to Associate at Rider Levett Bucknall North America’s office in Boston, Massachusetts. O’Reilly has over nine years of experience in quantity surveying and cost consultancy, including four years of experience for a general contracting firm. Michael has extensive experience in developing construction cost plans and construction cost estimates. He has worked in various sectors including government, civic, healthcare, mixed-use commercial, transportation and hospitality projects. He holds the Certified Cost Professional (CCP) certification from AACE International.
**Houston Gulf Coast Section**

The February 9 Houston Gulf Coast Section presentation was on, “Women in Project Controls” Month. Alesia Roberts, Functional Cost Engineering Team Lead, from Shell Global Solutions, was the speaker. Her presentation discussed the different aspects of mentoring, including: the dos and don’ts of mentoring, bridging the age gap by learning from each other, and how diversity plays a major role in the process.

The January 12th presentation by Jason Kimbrell, cost engineer, and Ana Gayon, cost control engineer, both from Turner & Townson, was Young Professional’s Month. Their presentation, ‘From Dollars to Sense: A Practical Guide for Communicating Project Controls’ was welcomed by one of the section’s largest meeting attendances. Despite its myriad of numbers, dates, charts, graphs, histograms and probabilistic models, project controls is a communication field. The speakers talked about strategic advice on communicating project controls to a non-project controls team.

**Southern California Section**

The New Year provided an excellent opportunity for the So-Cal Section to get together for some fun in downtown Los Angeles. On Jan. 16, the section fortunate to have the Turner Construction Superintendent, Michael Marchesano, setup a tour and provide a walk-through of the soon to be tallest building west of the Mississippi River, the Wilshire Grand Hotel. The tour...
was led by a Turner Construction foreman who was truly professional and very informative on the construction site. He answered numerous questions, as well as pointing out engineering challenges they have had to overcome. These included wind, cranes, and mechanical structures. The Wilshire Grand is also one of the first hotels to have pre-fabricated bathrooms finished offsite and delivered as pods for installation. This was truly an amazing tour, especially as we went from the ballroom area all the way up to the 60th floor where there were only a few floors remaining for construction.

As stated in a CBS News column (21 Feb 2015), “… when completed, the Wilshire Grand will be 2.1 million square feet, soar 1,100 feet from ground to the top of the spire and be 73 stories tall with a sky deck that has a panoramic view … The top of the building, beneath the spire, will display the InterContinental Hotel’s logo. There will be hundreds of thousands of LED lights around it, prominently decorating the L.A. skyline ... 900 luxury hotel rooms, along with offices, restaurants and retail shops. It will cost roughly $1.1 billion to build.” Those who attended the tour highly recommend everyone visit the hotel when it is finished and enjoy the spectacular view of Los Angeles in the bar at the top of the hotel – the view is absolutely breathtaking!

Section President Raza Samia welcomed the section’s newest board member and Vice President of the Southern California Section, Paul Hara. He assumed the Vice President role at the beginning of the year. Raza also thanked Kevin Black for hosting a PSP Training seminar in Southern, California on Jan. 30. There were 10 folks who attended this training seminar.

The February Southern California Section’s dinner meeting was on Monday, Feb. 22, at the El Torito Grill. The technical program was about the Orange County Transportation Authority Measure M2 Program and Capital Action Plan. The speaker was Jim Beil, PE, Executive Director of OCTA’s Capital Program.

The Orange County’s Measure M2 transportation sales tax program is providing billions in transportation investments over a 30-year period. The Orange County Transportation Authority (OCTA) is aggressively implementing approximately $6 billion of freeway, railroad grade separation, rail, and transit facility capital improvement projects. The presentation provided an overview of the M2 program, highlighted key freeway and rail projects, and discussed OCTA’s summary level cost and schedule Capital Action Plan management tools.

**SOB or ESP: What’s your Communication Style?**

Tracey C. Jones

Texan: "Where are you from?"
Harvard Grad: “I come from a place where we do not end our sentences with prepositions.”
Texan: “OK—where are you from, smart-aleck?”

We are rapidly losing the art of communication. First and foremost, ask yourself: Do I communicate to serve myself or do I communicate to serve others? In other words, when you communicate, are you an SOB: (Self-Oriented Behavior) or do you use ESP: (Emotional, Spiritual, Personal)?

If you constantly feel the need to seize and to preach the “ministry of me,” then you are an SOB communicator.

SOBs exhibit the following traits in their communication:

- Aggression
- Seeking sympathy
- Manipulation
- Clowning or mocking tone
- Competition
- Domination
- Labeling
- Bullying/cyberbullying

If you are an SOB, you view communication as a battlefield. Your level of indignation grants you the right to go from silence to thermonuclear in your content and tone. You have a hard time with dissenting points of view.

The manner in which you connect is the most important factor in communication. ESPs exhibit the following traits in their communication:

- Individuality
- Respect
- The Golden Rule
- One-on-one
- Private
- Peace maker
- Acceptance
- Civility

The ESP communicator respects the other person’s emotions and personal beliefs and firmly believes that we are not to trample one another out of existence. Once you get serious about discussing, you’ll take your communication to a new realm.
Andy Padilla, ECCC FAACE  
1947 - 2015

Lights Extinguished for One of AACE International’s Strongest Promoters  
by William E. Kraus, PE CCP FAACE Hon Life – February 16, 2016

Andy Padilla, a member of the New Mexico Section and a Fellow of AACE International, passed away on February 25, 2015. It was nearly a year ago that we lost Andy.

I often am quoted when I say that I go to AACE meetings (annual and section) because that’s where I get to see my friends. Andy Padilla personified that. It was at an AACE International Board of Directors meeting that I first met Andy and got to know him. And it was at the 2014 AACE International Annual Meeting in New Orleans that I had the extreme pleasure of seeing Andy recognized as a Fellow of AACE International.

I was looking forward to seeing Andy at the 2015 Annual Meeting. Tom Barnhart and I had collaborated on an abstract that we had submitted and it was accepted. We were expecting to present the paper at the Annual Meeting until we received peer review comments that were contrary to what Barn and I could accept. We then decided to withdraw our paper from the Annual Meeting and submit it to other organizations in order to present it elsewhere.

When I called Andy to let him know that Barn and I weren’t going to attend the 2015 Annual Meeting, he had a response that was typical of Andy. “Well, Rosa and I will just visit you and your wife in Atlanta instead of attending the annual meeting.” Now that I’ve had a chance to reflect on the events of the last week, I’m not surprised. That’s a response that is typical of Andy.

Andy seemed to take some pleasure in telling the story about how AACE International brought us together as I heard the story from him several times. Andy and I both grew up in Albuquerque, New Mexico. He would tell the story about how we both graduated from high school the same year (1965) and from rival high schools whose territories bordered each other. He allowed as how if he had been brought up in a neighborhood just a couple of blocks north, we would have been classmates.

As it stands, we didn’t meet each other until many years later when we both served on the AACE International Board of Directors together. So he (and I) credit AACE International with bringing us together. The fact that we were good friends I attribute to Andy and his personality and ethics.

I have had the pleasure of reading comments from many people, most of them members of AACE International, since the fateful day when Rosa called me on February 26, 2015 and gave me the terrible news that one of the strongest supporters of AACE International I have ever known and a good friend had passed away.

A selection of these comments follows:

- Dan Melamed, Physical Scientist at U.S. Department of Energy: “Sad news, he was a good person who had a positive impact. I enjoyed my conversations with Andy and I extend my sympathies to his family, friends, and colleagues.”
- M. Manivarma, CCP EVP, Cost Controller, LO Service B. V. “Sincere condolence! Serving an institution like AACE is like giving back to the society. Leaving a legacy... May his soul RIP”
- Stephen Warhoe, PhD, PE, CCP CFCC CCM, Construction Program Management and Dispute Resolution Consultant: “One of the kindest and gentlest men I have ever met, as well as one of AACE’s biggest advocates has passed away. Andy could light up an otherwise quiet room with his smile, laugh and uninhibited nature.”

Many, many others have expressed their regrets and voiced dismay on hearing that Andy has moved on. We find some comfort in knowing that Andy was a Christian man and, indeed, he has left a legacy, one that should serve as a model for us all.

Walter Galt  
1937-2015

It is with profound sorrow that we announce the passing of Walter Galt after a brave battle with lung cancer. Those who knew Walter will not be surprised to know he fought this illness with remarkable courage, dignity, and determination. As per his character, Walter showed a deep concern throughout the last several months for his family who were beside him throughout this difficult time.

Born in Bowling, Scotland, to the late Agnes and John Galt, Walter is survived by his loving wife of 52 years, Ellen, and their children, Elaine (Martin), grandchildren Robert and Andrew; Carolyn (Adrian), step-grandchildren Sean and Vanessa, great-step-grandson Hunter; and his son Douglas (Frances). Walter will also be dearly missed by his sister Grace (Ian), nephews Eric, David, niece Yvonne, and his many extended family members and friends.

Walter came to Canada in 1962, and settled in North Vancouver, BC, where he married his beautiful wife, Ellen, and raised their family. Walter began his career as a Civil Engineer in training in Scotland and enjoyed a long and successful career as Manager and then Chief Estimator for the Estimating Department within the Forestry Division of H.A. Simons Ltd., Consulting Firm in Vancouver until his retirement in 2004. Following retirement, Walter continued his interest in the industry and did consulting work until fully retiring at the end of 2008. He loved his work, was highly respected by his peers, and valued the
many friendships he developed during his esteemed career. He especially enjoyed his 30 plus years working for H.A. Simons.

Walter was a gifted tennis and soccer player in his youth and carried his love of sport throughout his life. Walter showed a great love of music from an early age and became an accomplished pianist who enjoyed playing for family and friends. One of his great joys was looking after his flowers, growing vegetables and tending the fruit trees in his garden.

Walter often spoke of his life in Scotland and shared with us the many adventures he experienced there. We will all miss his wonderful storytelling.

The family would like to give special and heartfelt thanks to the North Shore Community Health Team, Dr. Paul Sugar, Dr. John Lebrun, Dr. Puneet Bains and the staff at Lions Gate Hospital for their extraordinary care.

A service for Walter was at 2 p.m. on Saturday, October 10, 2015, at St. Andrew’s - St. Stephen’s Presbyterian Church, 2641 Chesterfield Avenue, North Vancouver, BC. In lieu of flowers, donations may be made to the Dr. Paul Sugar Foundation.

Published in The North Shore News from Oct. 7 to Nov. 5, 2015

Thomas C. Ponder Jr., PE CCP
1944-2015

Word has been received of the death of Thomas C. Ponder Jr., PE CCP, on Nov. 13, 2015. He became an AACE member in 1975. He was a Registered Professional Engineer (PE) in Ohio and Texas. He served as Chair of the Energy Cost Committee in 1986-1987. Over the years, he presented numerous papers at AACE meetings. He was a founding member of the Dallas-Fort Worth Section and served the section as a vice president and director. He was Region 5 Director for 1987-1989. He held a 1967 Bachelor of Science degree in Chemical Engineering from the University of Texas at Austin.

During his career, he was the Western Regional Manager for PEI Associates, Inc., an environmental, energy, and cost consulting firm. His work included developing automated methods for improving cost estimating at Department of Energy facilities. He managed projects that provided construction cost estimating services to architect/engineers for defense and commercial construction. In addition to being a member of AACE International, he was a member of the American Institute of Chemical Engineers, the Society of American Value Engineers, and the National Association of Corrosion Engineers.

He began his career in Cincinnati, Ohio, with Proctor & Gamble as a packaging development engineer from June 1967 to March 1970. He worked in process research developing corrosion resistant aerosol packages and estimated package costs for toilet goods products. From March 1970 through August 1971, he remained in Cincinnati but worked as a consulting chemical engineer with Raphael Katzen. He worked on the design and on economic evaluation of chemical processes and equipment. His work was also in process design and cost estimating for a wide variety of industrial processes (pulp and paper, vanillin, furfural, and chlorinated solvent recovery). From August 1971 through September 1972, he worked as a power plant engineer for Celotex of Cincinnati. He handled power plant maintenance, estimated costs of capital improvement projects and supervised the installation of capital projects.

Next, he moved from Cincinnati to Harrison, Ohio, where he was Manager of Engineering and manager of aerosol production for Spray Dyne. His work included cost analysis of waste liquids for disposal. He was here from October 1972 through December 1973. Then he moved back to Cincinnati and became a project manager with PEDCo Environmental. He worked in manufacturing and maintenance for the Philip Carey Corporation.

He was with PEI Associates for more than 14 years. He developed several cost models for rapidly estimating environmental control costs on a wide variety of industrial applications. He developed automated methods of improving cost estimating at the Department of Energy (DOE) facilities throughout the U.S. He provided training in automated cost systems to approximately 200 DOE and contract cost estimating personnel. He also worked on a project to develop a computerized system for estimating the costs of different processes and technologies for hazardous waste cleanup projects. He managed projects that provided construction cost estimating services to architects/engineers for defense and commercial construction.

His father, Thomas C. Ponder Sr., was a past AACE International President 1965-1966.
**When Will Your Section News Submission Be Published?**

The digital *Source* magazine includes all “Section News” submissions. *Source* has a submission deadline of two months in advance of the issue date. Please review the following production schedule. It lists the submission periods for the six bi-monthly issues of *Source* magazine in 2014.

**2015-2016 Source Section News Submission Schedule**

- **February 2015**
  - Items submitted from Oct. 16 - Dec. 15, 2014

- **April 2015**
  - Items submitted from Dec. 16 - Feb. 15, 2015

- **June 2015**
  - Items submitted from Feb. 16 - April 15, 2015

- **August 2015**
  - Items submitted April 16 - June 15, 2015

- **October 2015**
  - Items submitted June 16 - Aug. 15, 2015

- **December 2015**
  - Items submitted Aug. 16 - Oct. 15, 2015

- **February 2016**
  - Items submitted from Oct. 16 - Dec. 15, 2015

- **April 2016**
  - Items submitted from Dec. 16 - Feb. 15, 2016

- **June 2016**
  - Items submitted from Feb. 16 - April 15, 2016

This production schedule is based upon production schedules at AACE headquarters, as well as our printer having two to three weeks production time to take our in-house files and convert them to the Nxtbook software for posting. Enhanced features like audio, video, website links, and more will be a part of each issue of the *Source*. Some technology features will require additional production time and earlier deadlines. The magazine is to be ready for posting by the first of the month.

Within 2 to 3 business days of submitting a “Section News” items, you should receive a return confirmation e-mail that your submission was received at AACE headquarters.

**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.]
APRIL 2016

6 CMAA Breakfast of Champions, The Southern California Section of the Construction Association of America (CMAA) City Club Los Angeles Los Angeles, CA Contact: www.cmaasc.org

8-9 Alaska Western Workshop, The Alaska Section of AACE International BP Energy Center Anchorage, AK Contact: www.aaceak.org

18-20 Risk Management for Oil and Gas Projects, Mobility Oil & Gas Limited Houston, TX Contact: http://mobilityoilandgas.com/

20-22 Petroleum Engineering for Non-Engineers, Mobility Oil & Gas Limited Houston, TX Contact: http://mobilityoilandgas.com/

21 CMAA SoCal 24th Annual Awards Gala, The Southern California Section of the Construction Association of America (CMAA) JW Marriott Los Angeles at LA Live Los Angeles, CA Contact: www.cmaasc.org

MAY 2016


13 Chicago Midwest Section Project Controls Showcase, The Chicago Midwest Section of AACE International, Maggiano’s Little Italy Oak Brook, IL Contact: http://chicago.aacei.org/

15-17 Financial Analysis, Modeling and Forecasting in the Oil and Gas Industry, Mobility Oil & Gas Limited Dubai, United Arab Emirates Contact: http://mobilityoilandgas.com/

JUNE 2016

26-29 AACE International’s 2016 Annual Meeting, AACE International Sheraton Centre Toronto, Ontario, Canada Contact: phone 304.296.8444 fax 304.291.5728 info@aacei.org www.aacei.org

Please submit items for future calendar listings at least 60 days in advance of desired publication.

AACE International, 1265 Suncrest Towne Centre Dr, Morgantown, WV 26505-1876 USA phone: 304-296-8444 fax: 304-291-5728 e-mail: editor@aacei.org website: www.aacei.org
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www.aacei.org/mbr/how2join.shtml
AACE International’s
60th Annual Meeting

JUNE 26-29
Sheraton Centre
TORONTO

Seminars
JUNE 23-26, 29-30

Celebrating Sixty Years of AACE 60

Don’t miss out on this excellent opportunity to network with your peers, earn CEUs, and attend the latest papers on cost, schedule and management at AACE International’s 60th Annual Meeting in Toronto, Canada!
“Hold my calls ... I’ll be at the AACE meeting in Toronto”

Celebrating Sixty Years of AACE Network with your peers!
The host hotel for this year’s meeting is the Sheraton Centre Toronto and AACE has a block of rooms at discounted rates available by reserving online [HERE](#).

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123 Queen Street West  
Toronto, ON M5H 2M9, Canada  

**June 20 - July 6 - Based on Availability**  
Single/Double Occupancy: CAD 249.00/night  
Triple Occupancy: CAD 279.00/night  
Quad Occupancy: CAD 309.00/night  

Rates do not include 16% sales tax per night.  
• complimentary high speed internet access throughout the hotel and meeting space  
• complimentary access to the cardio room

**AACE Annual Meeting Group Reservations Website**

**SPECIAL HOTEL DISCOUNT!**

Reserve in AACE International’s Block - Save US $100  

Earn a US $100 discount off your Annual Meeting registration for staying at the host hotel, Sheraton Centre Toronto. Use the link above to access AACE’s reservation website and retrieve the discount code to be used when purchasing your meeting registration.

**AIRPORT - DISTANCE TO HOTEL**

YYZ – Toronto Pearson International Airport  
16 miles / 26 km to Hotel

**GROUND TRANSPORTATION**

AIRPORT SHUTTLE/ TRAIN - [www.sheratontoronto.com/up-express-service](http://www.sheratontoronto.com/up-express-service)  
TAXI: CAD 60.00 - 70.00 one-way
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We have an array of cost-effective options that will enhance your image and visibility among 2016 Annual Meeting attendees. Our sponsorship opportunities are among the most cost-and time-effective means of capturing the Annual Meeting attendee’s attention while promoting your organization.

For more information on becoming an Annual Meeting sponsor and how it will benefit your organization, please contact Cassie LoPiccolo at clopiccolo@aacei.org or call +1.304.296.8444 EXT 122.
For more information on the 2016 Annual Meeting exhibitors, please visit [www.aacei.org/am/exhibit/](http://www.aacei.org/am/exhibit/).

Our exhibitors represent the best in our profession! Visit your favorite vendors at the AACE Exhibit Hall, and take advantage of being surrounded by the industry’s newest and hottest products and services. Exhibit Hall hours are as follows:

- **Sunday, June 26** – 3:45 PM – 8:00 PM
- **Monday, June 27** – 7:00 AM – 3:30 PM
- **Tuesday, June 28** – 7:00 AM – 3:30 PM

**CLICK HERE FOR THE EXHIBIT HALL FLOORPLAN**

Administrative Controls Management
ARES Project Management
ASTA Power Project
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University of Wisconsin – Platteville Online
Don’t Miss AACE International’s
TIME WARP RECEPTION

Dress up in the style of your favorite decade and join us
Tuesday, June 28th from 6-8 pm
The technical program represents the best and most current tools and techniques used in the industry today over a wide range of programs and projects. There are over 100 hours of presentations to choose from, over a four day period, organized in a variety of tracks such as: building information modeling (BIM); claims and dispute resolution; cost and schedule control; professional development; estimating; earned value management; global projects; IT/IM in project and cost management; owner issues; project management; planning and scheduling; decision and risk management; and skills and knowledge of cost engineering.

Please visit [www.aacei.org/am/2016/abstracts.shtml](http://www.aacei.org/am/2016/abstracts.shtml) for more information.

Please [CLICK HERE](http://www.aacei.org/am/2016/seminars/) for a complete description of the seminars.

**Thursday – Friday, June 23-24 (2 Full Days)**

A.1: CCP Certification Exam Review - Hastak - $1350 member/$1500 nonmember
A.2: CEP Certification Exam Review - Opfer - $1300 member/$1450 nonmember
A.3: PSP Certification Exam Review - Nosbisch - $1300 member/$1450 nonmember
A.4: DRMP Certification Exam Review - Terouhid - $1300 member/$1450 nonmember
A.5: EVP Certification Exam Review - Morrison - $1300 member/$1450 nonmember

**Saturday – Sunday, June 25-26 (1.5 Days)**

B.1: Cost Model for Offshore Fixed Platform - Yazdani - $1150 member/$1300 nonmember
B.2: Two Days with Fred - Plotnick - $1150 member/$1300 nonmember
B.3: How to Configure Primavera as an Enterprise Project Management System - El-Mehalawi - $1150 member/$1300 nonmember
B.4: Project Controls from the Owner's Perspective - Cabano - $1150 member/$1300 nonmember
B.5: EVM for EPC Projects - Nosbisch - $1150 member/$1300 nonmember
B.6: Soft Skills for Early Career Planners - Barnhart - $1150 member/$1300 nonmember
B.7: Estimating A to Z for the Process Industries - Leo - $1150 member/$1300 nonmember

**Wednesday – Thursday, June 29-30 (1.5 Days)**

C.1: Physical Progress Trend Analysis Based on Earned Schedule Performance - Abreu de Miranda - $1150 member/$1300 nonmember
C.2: Advanced Project Controls from the Owner’s Perspective - Williams - $1150 member/$1300 nonmember
C.3: Project Approval Decisions: Exploring Success Factors - Nada - $1150 member/$1300 nonmember
C.4: Advanced Management & Forensic Analysis of Variations & Disputes in International Construction - Zack - $1150 member/$1300 nonmember
C.5: Excellence in Project and Total Cost Management - Lavingia - $1150 member/$1300 nonmember
C.6: Improving Construction Productivity for Ensuring Project Success - Small - $1150 member/$1300 nonmember
C.7: Microsoft Project 2013 Hands-on Software Training - Woodrich - $1150 member/$1300 nonmember

Please visit [www.aacei.org/am/2016/seminars/](http://www.aacei.org/am/2016/seminars/) to register for a seminar.
**Take $100 off your registration fee for staying at the host hotel, the Sheraton Centre Toronto! Enter the discount code found at the Group Reservation Portal at check-out to receive the discount.**

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*All prices in US Dollars.*

**MONEY SAVING TIPS**

**TIP#1** - Take $100 off your registration fee for staying at the Sheraton Centre Hotel. Enter the discount code found on our Group Reservations Portal on the Sheraton Centre Toronto’s website at check-out to receive the discount.

**TIP#2** - Please note, register before the Early Registration Cut-Off Date of May 27, 2016, and save an additional $100!

**TIP#3** - If you are not a member of AACE, join now to experience the benefits of membership and save money on your meeting and/or seminar registration! Go to here and start your AACE International membership today!