

**2019 Professional Development
& Training Workshop Preview**

**Money Changes Hands...
...A Good Book Changes Minds**

IOEAAWorld

The magazine for the International Cost Estimating & Analysis Association



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2019 Professional Development & Training Workshop**

International Cost Estimating & Analysis Association
Professional Development & Training Workshop



May 14~17, 2019

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& Analysis Association**

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The Magazine for the International Cost Estimating & Analysis Association

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The International Cost Estimating and Analysis Association is a 501(c)(6) international non-profit organization dedicated to advancing, encouraging, promoting and enhancing the profession of cost estimating and analysis, through the use of parametrics and other data-driven techniques.

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Letter from the Editor

Joe Wagner, ICEAA World Editor

March 2004. My first “Letter from the Editor” appeared in the *SCEA Estimator* magazine. 15 years ago, to the month, I first communicated with our membership as the new editor of the cost professional’s magazine. In the intervening time, I have thoroughly enjoyed my participation in the history of both the cost profession, its professional organizations, and its publications. The capstone to this experience came this past June, when I was honored with the 2018 ICEAA Association Service Award. The preceding comments lead to this conclusion - as of this issue, I am taking my leave as Editor of *ICEAA World* and am retiring from active participation in the ICEAA International headquarters staff.

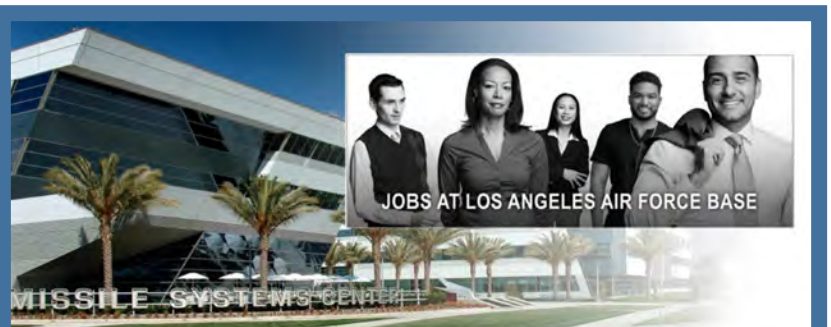
With an overwhelming need to say so many things, but without trying to name too many names, I will simply thank those with whom and for whom I have worked over those many years. I must thank most sincerely my office mates - the team that makes the Association a smoothly running organization for its members. Those are **Chelsea Torres**, our member services specialist, **Sharon Burger**, the certification and financial management specialist, and most of all, **Megan Jones**, our Executive Director who guides and inspires, and does everything else that comes along.

To address the endless list of friends and professional associates I have known in SCEA, ISPA, ICEAA, and other organizations over the years, I will mention just one person from the beginning of my association with cost professional organizations, and one from the present.

In the mid- 1980’s I was Technical Director of Cost at HQ Air Force Systems Command near Washington, DC. One day I was presented with an Air Force reserve officer who had been assigned to work for me during his active duty time. His name was **Hank Apgar**. Many of you know that for decades, Hank was a driving force in the International Society of Parametric Analysts (ISPA).

It was probably thanks to Hank that I attended my first professional conference, held by ISPA, in Boston if I recall. At the other end of my career, I have had the great pleasure of working with the gentleman who was both my boss at MCR, LLC., a good friend, and now our current ICEAA President, **Paul Marston**. Hank and Paul exemplify the countless hundreds of great people who have been part of the professional organizations I enjoyed and worked with over the decades.

Finally, thanks to the many who emailed their regards after the announcement of my departure. Your thoughts and well wishes are a great sendoff.



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President's Address

Paul Marston, ICEAA International President



While thinking about the next edition of *ICEAA World*, my mind wandered to how cost estimating has changed during my career. I distinctly remember driving past the frozen fields of Huffman Prairie on the way to Wright Patterson AFB for the first time in the middle of winter in February 1986. Arriving at my first assignment on the cost staff at what was then called the Aeronautical Systems Center, I discovered our group had one desktop computer to share. When I was put on the ATARS Independent Cost Estimating (ICE) team, my job was to consolidate the team's estimate in a Visicalc spreadsheet because I had used it in college. My first cost model was about 20 lines long and consisted of little more than summing the various individual estimates of each Work Breakdown Structure element. Actually, I was also asked to estimate System Engineering Program Management as a percentage of Prime Mission Product, something we exotically called a factor. Of course, as the consolidator of the estimate, I was able to see in detail how my teammates developed and documented their estimates. A great learning experience for a lieutenant new to the field.

When the ICE team started to brief the estimate up the Air Force chain of command, I was the designated "chart flipper." And, when I say chart flipper, I'm talking about plastic view graphs using an old-fashioned projector. At our grand finale brief at the Pentagon, I will never forget the crazy projection system in the backroom with a huge projector and lots of mirrors and one tiny light to signal when to flip to the next slide – within minutes I was imagining flashing lights every few seconds; needless to say, our team leader wasn't very happy with my performance. What I really remember from my first ICE was the debates and discussion about the estimate's risk and how much management reserve was appropriate. While a lot of thought and energy went into the risk assessment, there was no statistical analysis, no Monte Carlo simulation, no correlation

matrices. Frankly, it was little more than a 10 percent factor applied to key elements of the hardware and software.

Yet, within a couple years, every analyst had a computer armed with MS Excel and PowerPoint. In a blink of the eye, our cost models became very complex, dynamic, and flexible. The ability to quickly perform What-if exercises was transformative for cost estimators, budget analysts, and program managers. When tools like Crystal Ball and @Risk came along, risk analysis took a quantum leap and our point estimates transformed into range estimates. Now the debates became about what percentile should we fund major programs. Unfortunately, it took awhile for the underlying statistical theory to catch up with our computing power. Luckily, we had Steve Book to save the day by explaining why it was a bad idea to simply add up all the risk of individual cost elements and later to consider the correlation of the elements.

Which brings me to ICEAA. It is almost inconceivable to understand where the state of our profession is today without the work of ICEAA members. I would submit that almost every major advance in how we perform our work was developed, presented, and advocated in an ICEAA conference paper or journal article. All of that original thought and creativity is certainly solely due to the work of talented analysts, but ICEAA sets the stage by facilitating the exchange of ideas. I really don't think the importance of ICEAA to the development of the cost community or the practice of our profession can be underestimated. When I reminisce on my career and how cost estimating has changed, I can't help but marvel at where we've all been, where we are today, and what may await the profession tomorrow. I also know that the amazing talent that comprises ICEAA will keep us at the forefront of the next wave of creative growth.





Business Office Update

Megan Jones, ICEAA Executive Director

It's that time of year again, when the dead of winter makes a gal yearn for sunshine, beachy breezes, and the Professional Development & Training Workshop! Get yourself in that Florida state of mind with our special 2019 Workshop section and find out all that's in store for us in just a few short months!

What am I doing. I'm going to miss this when it's gone, so allow me to rephrase:

Listen here ye groggy landlubbers! When the biting cold of old man winter is but a memory, we'll be full flank to the fine port of Tampa. Yer captain and crew have been battening the hatches to secure smooth sailing and ample booty for our voyage. If ye haven't enlisted yet, there's still plenty of time to get on board. A vast ye to the website and don't get laid up or left behind!

Much better.

While the International Business Office is in full conference-prep mode, there have been other ships on our horizon (I swear I'll stop), since our last issue.

Our first CCEA® Finishing School in November was a great success! Those who attended raved about how much more prepared for the exam they were with the two-day course to top off their study. ICEAA's plan for the Finishing School all along has been to make it modular and portable, so chapters can host one in their area, giving our members around the country more access to in-person training. If you would like to see a Finishing School in your area, contact your Chapter President and/or me to make it happen!

I'm sure your holidays were far less jolly without the third *ICEAA World* issue in 2018, but with the Workshop a month earlier, we decided to revamp the magazine schedule for 2019. You can expect your second issue in the mail over the summer and an email with the PDF for issue 3 in the late fall.

Something else you can look forward to is an email from us asking to confirm your mailing address and whether or not you wish to continue receiving the hard copies or are happy to read the online PDFs. The trees will thank us for saving their brethren from using paper only to have it tossed away, and our feelings won't be hurt if you prefer the PDF.

While you're looking out for emails from our office, be on high alert on **March 1** for the 2019-2021 International Board of Directors ballot! We will be emailing all current ICEAA members their ballot to the email marked as primary on your ICEAA profile. Voting will be open until April 1, so if you don't see it right away and have checked the usual hiding places, let us know and we'll send you another one.

You won't only be voting for the board positions this time: the 2017-2019 Board recently agreed to some recommended edits to the ICEAA Constitution that in order to officially take place, need to be approved by the entire membership. Most of these changes are to tidy up some language, clarify explanations, or restructure topics so that they better correspond to the bylaws. Your ballot will feature a section that explains the rationale and impact of each change for you to review before voting.

And last but certainly not least, we've been busy making videos! During the 2018 Workshop, we shot around 3 full hours of your fellow members talking about what they do, how they got where they are, and what it all means to them. Thanks to **Chelsea Torres**, the Spike Jonze of the ICEAA Business Office, we boiled them down into three short-and-sweet videos that can be found on our YouTube channel that are great for recruiting, explaining what it is you actually do for a living, and why it's been so rewarding.

If you're enjoying these videos and want to see more like them, Like and Share and don't forget to subscribe!



Certification Corner

*Peter Andrejev, CCEA®, PMP®
ICEAA Director of Certification*



Software Cost Estimation Training and Certification Programs

As you should know by now, ICEAA and Nesma (an independent international organization focused on software metrics and software measurement) with participation from the International Function Point Users Group (IFPUG) and the Common Software Measurement International Consortium (COSMIC), have been undertaking the development of a training and certification program for software cost estimation and analysis. Those who attended the 2018 Professional Development and Training Workshop in Phoenix had the opportunity to attend the pilot offerings of 14 of the 18 modules expected to comprise the foundational Software Cost Estimating Body of Knowledge and serve as the testable topics for the software cost estimating certification program. The titles and additional details on the sessions presented at the Phoenix Workshop are at iceaaonline.com/phx18training

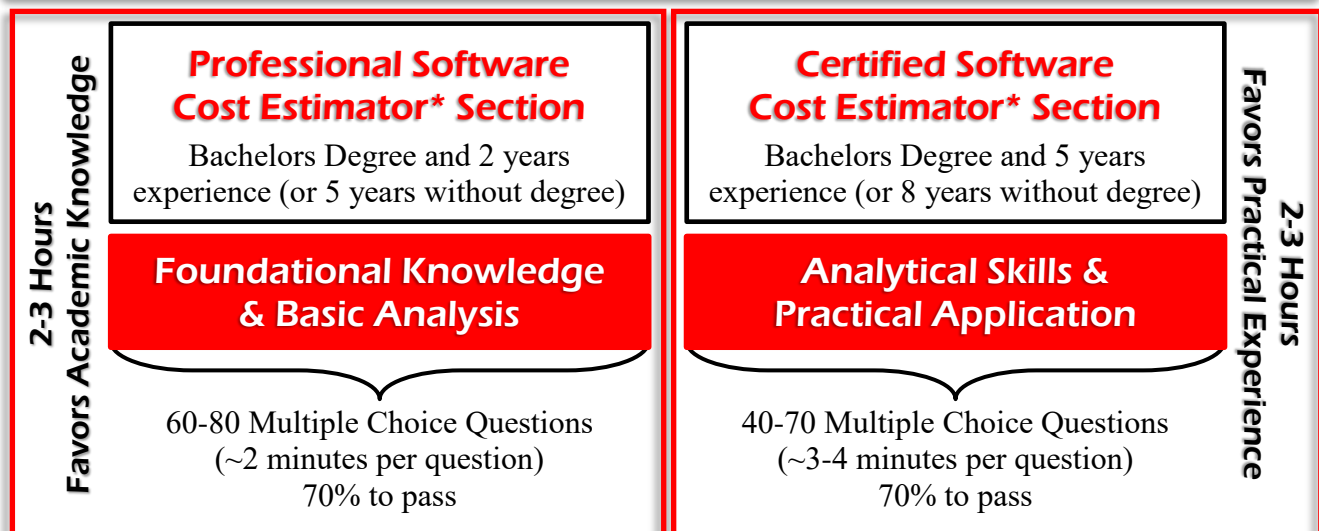
Like the CCEA® program, we intend to offer the Certified Software Cost Estimator (tentative name) examination in two sections. The first section will test the applicant's command of foundational knowledge and basic analysis, and confers the

intern-like designation of Professional Software Cost Estimator (tentative name). This designation will last for 3 years and is non-renewable (except through retesting), thereby encouraging practitioners to attain our primary Certified Software Cost Estimator designation.

The second section of the Certified Software Cost Estimator exam, which will likely feature additional Software CEBOK modules, tests the applicant's practical skills and analytical abilities and confer the highly esteemed Software Cost Estimator designation. This certification will be renewable through recertification points received by demonstrating continued work experience, participating in the cost estimating and analysis community, and sharing knowledge on topics related to software cost estimating and analysis. The below exhibit identifies our first order design principles and tentative naming conventions. As always, we seek your input and efforts to help craft this new training and certification offering. Feel free to contact the International Business Office; **Brian Glauser**, Chair of the Software CEBOK Development Committee; or me directly with your thoughts and questions.



Software Cost Estimator Certification



100-150 questions in 4-6 hours



Ask an Analyst

Edited by

Joseph W. Hamaker PhD, CPP®, CCEA®

Q:

My boss came up to my desk today and excitedly stated that our company was part of a team that just won a new systems engineering and technical assistance (SETA) support contract with a DoD agency. He said our role on the team would be providing our cost analysis and estimating expertise to the agency office associated with conducting source selections for primarily ACAT 1 or 2 level program acquisitions. Having never supported any source selection efforts before, how could my 5 years of experience in collecting cost data and building cost models be useful for this new SETA customer?

For an answer, I turned to Mr. **Kirk Hoy**, MEng, CCEA® and Senior Systems Engineer and Business Analytics currently at CENTRA Technology, Inc., a noted expert in this subject. Across his 35-year career as a cost analyst and estimator, Mr. Hoy has supported a myriad of space to underwater advanced technology projects as an employee of Management Consulting & Research (MCR), Naval Engineering Logistics Office (NELO), The Analytic Sciences Corporation (TASC), Summit Engineering Group (SEG), and Defense Acquisition University (DAU). His answer is:

Great question! Congratulations on your company's success in winning a new contract, as they are the lifeblood of long-term viability for any business and enabling career growth. As such, this is an excellent opportunity for you to make significant contributions to this new customer through leveraging your valuable experiences in collecting cost data and building cost models. I hope that you also considered earning the Professional Cost Estimator/Analyst (PCEA®) and Certified Cost Estimator/Analyst (CCEA®) certifications offered by the International Cost Estimating and Analysis Association (ICEAA) since they, respectively, demonstrate your progress in mastering cost estimating and analysis knowledge, skills, and judgment.

Before I specifically address the cost role emphasis of your question, it is also important to understand source selection expectations and any restrictions you may have as a support contractor, since each Government organization may have slightly different interpretations of what constitutes "inherently governmental functions."

In general, federal law (FAIR Act 1997) and policy (OMB Circular A-76) state that

inherently governmental functions are those activities "...so intimately related to the public interest..." Some examples of these include binding the United States (US) by contract, determining military actions, significantly affecting interests of private persons, and controlling US employees or US property or US funds.

However, the FAIR Act also indicates that gathering information for or providing advice, opinions, recommendations, or ideas to federal officials is not an "inherently governmental function." Nevertheless, please be mindful that some federal organizations may not be inclined to use contractors in a role of providing advice, opinions, recommendations, or ideas related to their source selections. I am glad to hear that your new DoD customer embraces the use of SETA contractors to enhance its source selection efforts.

...it is also important to understand source selection expectations and any restrictions you may have as a support contractor...

So what is a 'source selection'? As per Defense Acquisition University (DAU), a 'source selection' generally refers to the process of evaluating a competitive bid or proposal to enter into a Government contract. Different parts (e.g., 13, 14, 15 and 31) of the Federal Acquisition Regulation (FAR) may apply. However, your source selection support situation

continued

would most likely leverage FAR Part 15 (Contracting by Negotiation) since you mentioned supporting ACAT (Acquisition Category) 1 or 2 programs in which there may not be many separate proposals submitted for each solicitation issued by that organization. Per DoDI 5000.02, ACAT 1 means a Major Defense Acquisition Program (MDAP) that are greater than \$480M RDT&E or \$2.79B procurement or a Major Automated Information System (MAIS) that is greater than \$520M for all increments (all constant fiscal year 2014 \$). Likewise, ACAT 2 programs are less than the ACAT 1 thresholds, but projected to have at least \$185M RDT&E or \$835M procurement (constant fiscal year 2014 \$).

The Defense Procurement and Acquisition Policy (DPAP) published comprehensive guidance on source selection procedures in April 2016. The new DoD organization that your SETA team is now supporting will most likely have more specific guidance on how it conducts source selections as well. You will want to be familiar with these documents.

I suspect that the ACAT 1 or 2 programs for this DoD organization would typically follow a formal source selection, where someone other than the procurement contracting officer (PCO) would be the source selection authority (SSA). Regardless of who is the SSA, the ultimate goal of each source selection is to obtain a fair and reasonable price (meaning not too low or too high given market conditions) for the proposed scope of work across the period of performance. This is especially important since about 70% of the total fiscal year DoD budget (e.g., ~\$686B for fiscal year 2019) is tied to contracted efforts.

In addition, many DoD organizations may have a range of solicitations in its acquisition queue depending on the life-cycle stages of the programs in their portfolio. This means your new DoD customer could have a mix of concept development, technology maturation and risk reduction, engineering manufacturing development, procurement, operating and support, SETA support, etc. related solicitations being addressed at any one time. You normally can obtain the latest DoD organizational long-range acquisition forecasts (1 to 3+ years ahead) used to inform the industrial base on these potential opportunities. These contracting opportunities should align with the timing of appropriations (RDT&E, Procurement, O&M, etc.) in the DoD budget needed to fund any planned contract awards.

As a SETA contractor, your role in the DoD organization's source selection process could include

providing assistance in: (1) drafting the acquisition plan; (2) constructing the source selection plan; (3) determining the contract type (fixed cost, cost plus, T&M, etc.); (4) gathering the Request for Proposal (RFP) documentation; (5) generating an Independent Government Cost Estimate (IGCE); (6) conducting cost/price analyses to assess cost reasonableness and cost realism of each proposal submitted; (7) consolidating clarification and fact-finding questions; (8) creating a negotiation position; and/or (9) documenting the final negotiation position in the price negotiation memorandum (PNM).

Getting back to your source selection cost role question, I will focus on the skills for conducting the cost/price analyses mentioned within (6). I am assuming one or more cost proposals were received for a solicitation by your DoD customer and that they require support in conducting critical cost/price

analyses by your company as a member of their overall SETA team. However, depending in what phase of the DoD program life cycle the solicitation is addressing, there could be only one proposal received due to a sole source situation. Even so, you would still undertake tailored cost and/or price analyses.

The requirement for obtaining certified cost or pricing data can drive whether or not you need to conduct a price analysis or a cost analysis. As of July 2018, DPAP raised the threshold to \$2M in lieu of the \$750K contained in FAR 15.403-4 for obtaining certified cost or pricing data. The Truth in Negotiations Act (TINA) originally passed in 1962 requires that contractors furnish cost or pricing data before an agreement on price for most negotiated procurements. TINA was renamed "Truthful Cost or Pricing Data" in May 2013 under 41 USC 35. The consequences of a bidder failing to provide accurate, complete and current cost or pricing data may be substantial since the Government uses the data to determine price reasonableness.

Typically, a price analysis (under 15.404-1(b)) examines and evaluates only a proposed price without evaluating its separate cost elements and proposed profit level. You would do a price analysis if received an adequate number of competitive bids, have previous historical prices and representative parametric data or certified cost or pricing data was not required due to the proposed price is below the new \$2M threshold.

Please note that the FAR does not define a 'fair and reasonable price'. Instead, you are to ensure that the

The requirement for obtaining certified cost or pricing data can drive whether or not you need to conduct a price analysis or a cost analysis.

continued

proposed price reflects fair market value of total allowable cost by a well-managed, responsible contractor plus realistic profit. In addition, you will need to verify that each bidder can realistically satisfy the terms of the contract within the proposed price. In terms of price, is it what a prudent buyer would pay considering market conditions, requirements alternatives and any non-price factors?

For a cost analysis (under FAR 15.404-1(c)), you would instead review and evaluate the separate cost elements and profit or fee in a bidder's cost proposal in order to determine whether the proposed price is fair and reasonable. Key areas of a cost analysis include verifying that: (1) cost or pricing data was provided; (2) proposed costs are necessary and reasonable; (3) projected cost trends are based on historical data; (4) BOEs, including those based on parametric models and cost estimating relationships (CERs), are applicable and applied properly; (5) application of indirect rates, labor rates, cost of money factors utilized the correct bases; and (6) proposed costs align with the expectations of FAR Part 31 (Contract Cost Principles and Procedures).

You may also support conducting a 'cost realism' analysis as well. This is the process of independently reviewing and evaluating specific elements of each bidder's cost proposal to determine whether the estimated proposed cost elements: (1) are realistic for the work to be performed; (2) reflect a clear understanding of contract requirements; and (3) are consistent with the unique methods of performances and materials described in the bidder's technical proposal. We do the 'cost realism' analysis to ascertain what might be the most probable cost (MPC) for each bidder. The MPC could indicate a potential over-cost or under-cost situation when compared to the proposed costs and thus something the PCO and SSA should understand in any contract award decision.

Please keep in mind that a formal 'technical analysis' is also conducted for each proposal submitted and it would be available to the PCO and SSA. This is accomplished by personnel with specialized knowledge to analyze the need and reasonableness of proposed work scope elements, including: (1) types & quantities of material; (2) types, quantities, mix of labor hours; (3) pertinent technical aspects; (4) processes, special tooling, equipment; and (5) real property, scrap and/or spoilage.

As you may now realize, a 'source selection' requires a

great deal of judgment regarding the data and resources obtained by the PCO to determine and document what is fair and reasonable in support of a contract award, especially important for the higher cost ACAT 1 and 2 programs.

Before you get too far along in your task, you will definitely want to review the actual solicitation and applicable Source Selection Plan (SSP) to obtain key insights into what your DoD customer is actually requesting from their bidders in terms of the scope, deliverables, etc. to be accomplished and what the Government expects in the proposal submission itself. In particular, what cost proposal details and formats were required per Section L of the RFP? Also, how was the Government going to evaluate those cost details per Section M in the RFP? You will also most likely be part of a mixed composition Government/SETA Cost Team and thus you will need to understand what aspects of the cost proposal are your responsibility for this particular solicitation. In addition, you will need to understand the extent and format required of your cost/price analyses documentation and when it's due.

It might make sense for you to refresh yourself with Module 14 (Contracting Pricing) of the latest ICEAA Cost Estimating Body of Knowledge (CEBoK). In addition to discussion of basic contract types, Module 14 also addresses the cost estimating techniques typically used as a basis of estimate (BOE) across the cost proposal work breakdown structure (WBS) elements and how to evaluate those BOEs for their reasonableness.

As you may now realize, a 'source selection' requires a great deal of judgment regarding the data and resources obtained by the PCO to determine and document what is fair and reasonable...

There should be BOEs for all labor, materials, and other direct costs (ODCs) elements included in the cost proposal. In terms of BOEs, this also includes supporting documentation on the specific direct and indirect rates used and how applied to achieve the fully burdened proposed cost through any cost of money and profit/fee. [Note: Please keep in mind that the specific direct and indirect rates as well as fee/profit rates are the purview of the PCO and they would typically interface with the applicable Defense Contract Audit Agency (DCAA) or Defense Contract Management Agency (DCMA) representative for that bidder for assistance.]

Labor BOEs could address direct touch and support labor areas and any factored labor via a CER or cost factor. The labor BOEs should clearly explain the use of relevant historical actuals (or established standards), basis for any

continued

complexity factor utilized against historical actuals and basis for the mix of labor hours (e.g., junior to senior across engineering, manufacturing, etc. categories) and then finally the phasing of the labor hours over the applicable PoP. Cost improvement curves may also be applicable depending on the number of proposed deliverable units or test articles needed to satisfy the solicitation requirements. The prime bidder should provide the rationale for all labor tied to each applicable WBS element in the cost proposal.

Material BOEs may span a wide range of items to include direct material by the prime bidder, any interdivisional work transfers (IWTs) from other organizational units of the prime bidder, and the various subcontractors that the prime selected to accomplish specific areas of the solicitation statement of work (SOW) or performance work statement (PWS). The direct materials (e.g., raw materials, parts, sub-assemblies, components) should have recent vendor quotes that substantiate the item(s) supplied, the applicable quantities for each item, any scrap or yield rate adjustments, and projected delivery dates of the items. The prime bidder should provide the rationale for all material tied to each applicable WBS element in the cost proposal.

Typically, the IWTs and subcontractors are themselves a mix of labor, materials, and ODCs that roll-up as material for the prime bidder. As such, the prime bidder should have conducted a cost and price analysis (CAPA) to establish the reasonableness of proposed IWT and subcontract prices and included that assessment in their proposal to the Government. Please be mindful that CAPAs are often not always accomplished, or available in time before the proposal submission to the Government. However, the prime bidder should indicate in their proposal a timeframe for finalizing their CAPAs.

ODCs can address a wide range of costs that include travel, consultant services, equipment maintenance and repair, facilities rental, computer services, Federal excise taxes, royalties, preservation, packaging, copying, etc. Special tooling and test equipment may also be an ODC if not included under materials and not items that the contractor may capitalize instead. Typically, ODCs are a relatively small portion of the overall proposal cost, but do require assessment of their magnitude and relevancy to the overall SOW or PWS. As such, the ODC BOEs should provide adequate insight into how each proposed ODC was determined and how they tie into completion of the applicable WBS element(s) of the prime bidder effort.

Supporting source selections is an exciting opportunity, especially for those cost analysts like yourself with some initial experience in collecting cost data and building cost models.

A Disclosure Statement (Form DS-1) is a Cost Accounting Standard (CAS) requirement that describes the bidder's cost accounting practices and procedures. As such, a Disclosure Statement is required for any bidder business unit (as defined in CAS 410-30(a)(2)) that is selected to receive a CAS-covered contract or subcontract estimated to exceed \$50 million, including option amounts, or has received contract awards totaling more than \$50 million in its most recent cost accounting period. The Disclosure

Statement also includes certain direct and indirect rates established for a specified period (could be 1-5 years). The bidder may submit these rates and factors as part of a Forward Pricing Rate Proposal (FPRP) that could become a Forward Pricing Rate Agreement (FPRA) when agreed to by both the bidder and a specific Government agency. These rates and factors are used to price contracts and contract modifications and updated with actual costs as the bidder closes out their cost accounting period.

Supporting source selections is an exciting opportunity, especially for those cost analysts like yourself with some initial experience in collecting cost data and building cost models. Labor, material, ODCs, rates and factors, etc. are all examples of cost data that are contained in the cost proposal, but often not sufficiently substantiated. Sometimes, this also means performing some data normalization (inflation, quantities, learning curve, etc.) as necessary to ascertain that the proposed costs are representative when compared to other historical programs. Likewise, building traditional cost models is akin to constructing a detailed spreadsheet that fully characterizes (source data, mathematical equations, links, etc.) the entire cost and price of a bidder cost proposal. I would venture to say that your DoD customer would be very happy to leverage your ability to undertake systematic and in-depth cost/price analyses for their ACAT 1 and 2 program source selections.

There are a number of other references to assist you in conducting cost/price analyses of DoD proposals. These include the five volumes of the Contracting Pricing Reference Guides (CPRG) and DAU courses CON 170 and CON 270. Chapter 9 of the Defense Contract Audit Agency (DCCA) Contract Audit Manual CAM is also useful.

Good luck on your upcoming cost/price analysis support to your new DoD customer source selections. I have supported about 130 source selections across my career and each of them had some interesting challenges!





Certification Congratulations

ICEAA Certification closed out another successful year administering a total of 136 exams to individuals seeking the CCEA® or PCEA® credential to distinguish them in their profession. Over 25 members have already registered to take the exam in the first few months of 2019! Don't be left behind! Consider ICEAA certification TODAY!

As always, this would not have been possible without the ICEAA certified members who volunteer their time to proctor the exam. If you are CCEA® certified and would like to give back to the cost community by proctoring an exam in your area in exchange for points

toward recertification, please contact the ICEAA International Business Office.

Thanks go out to following individuals who proctored the certification exam between July and December 2018: **John Beerman, Geoff Berntsen, Brian Bucceri, Mary Chenoweth, Marc-Andre Delparte, Stu Dornfeld, Jim Gates, JC Kassab, Bill Mahoney, Sheila Nicholson, Brian Ochteau, Erin Veltman, Emily Winfield, and Ivy Yang.**

Congratulations are extended to the following individuals for passing either the CCEA® or PCEA® exam between July and December 2018:

CCEA® Achievers:

Catherine Blair

David Brougher, Tecolote Research, Inc.

William Christie, Tecolote Research, Inc.

Nick DeTore, Tecolote Research, Inc.

Drew Ernest, Ernest Company Consulting

Ahtishamullah Fazli, Department of National Defence Canada

Candace Fogle, Booz Allen Hamilton

Michel Girard-Beauchesne, Department of National Defence Canada

Thomas Grebenc, Fisheries and Oceans Canada

Kelly Grey, Tecolote Research, Inc.

Emily Hagerty, Technomics, Inc.

Irfan Hashmi, Indigenous Services Canada

Joseph Jewell, Tecolote Research, Inc.

Katherine Jozefiak, Tecolote Research, Inc.

Magdalen Kayanja, Department of National Defence Canada

Robert Mach, Tecolote Research, Inc.

Keith McSweeney, Tecolote Research, Inc.

Christopher Muller, Tecolote Research, Inc.

Akvile Palenski, Tecolote Research, Inc.

Tom Parr, Tecolote Research Inc.

Roberto Perez, Cask, LLC

Patrick Ransom, Abt Associates

Cannon Sobay, Engility Corporation

Robert Wells, Tecolote Research, Inc.

Jing Wu, Department of National Defence Canada

Christopher York, Tecolote Research, Inc.

Shirley Zeng, Department of National Defence Canada

continued

PCEA® Achievers/CCEA® Eligible:

Stephanie Boucher, Department of
National Defence Canada

Noah Church, Department of
National Defence Canada

Mike Cusentino, Booz Allen Hamilton

Vinay Dave, Department of
National Defence Canada

Emily Goehring, Tecolote Research, Inc.

Elena Lopez Rodriquez, Government of Canada

Brannden Moss, Booz Allen Hamilton

Robert Schneid, Technomics, Inc.

Andrew Thompson, Department of
National Defence Canada

Melanie Tran, Booz Allen Hamilton

PCEA® Achievers:

John Baltz, Tecolote Research, Inc.

Rachel Burns, RAND Corporation

Christina Crampton, Department of
National Defence Canada

Sara Duhachek Muggy, RAND Corporation

Jake Ghanaim, Booz Allen Hamilton

Sean Glidden, Booz Allen Hamilton

Mark Alan Hanson, RAND Corporation

Kelly Klima, RAND Corporation

James McMahon, Augur Consulting

Timothy Luke Muggy, RAND Corporation

Ricardo Sanchez, RAND Corporation

Robert Strand, Booz Allen Hamilton

Devin Tierney, RAND Corporation

Bradley J. Wilson, RAND Corporation

Glenn Wolchko, Booz Allen Hamilton

Rachit Mohan, Booz Allen Hamilton

Kellie Scarbrough, Cobec Consulting, Inc.

Maria Sinagra, Deloitte Consulting LLP

Katherine Trankina, Booz Allen Hamilton

The following are those who have recertified between July and December 2018

Brian Alford

Andrew Drennon

Daryl Kubo

Hetal Patel

Joseph Annunziato

Kishan Dudkikar

Chad Larson

Sanathanan Rajagopal

Timothy Appleby

Jermaine Garland

Grant Lawless

Kimberly Roye

Robert Ashford

Mark Gornall

Jennifer Leotta

Crystal Rudloff

Walter Bednarski

Thomas Goughnour

Jeffrey Locke

Cabin Samuels

John Bielecki

Richard Hoffacker

Travis Logsdon

Kirk Schneider

David Biron

Sonja Holzinger

Patrick Malone

Robert Schwartz

Donald Brown

Lynda Huynh

Brad Markiewicz

Joanna Scott

Kurt Brunner

Steven Ikeler

Mary Mertz

Ash Sherman

Janice Burke

Ross Jackson

Lauren Nolte

Ryan Timm

Gerald Corwin

Debra Knudson

Brian Octeau

Chinson Yew

Benjamin Costley

David Krueger

Joshua Patapow

Money Changes Hands... ...A Good Book Changes Minds

Book review by Col David Peeler

In the past couple of issues we reviewed some light-hearted reading albeit with a cost analysts view and interest of the world. Now, we return to a more rigorous topic – the development of some budget estimating relationships. While the specific focus is on the Air Force flying hour program, may you find this interesting; and tease out the applicability of the methodology for other, broader applications.

Book Review

In five short chapters Hildebrandt walks the reader through the development and use of **Budget Estimating Relationships for Depot-Level Reparables in the Air Force Flying Hour Program**. If you're in the market for this type of analysis or budget estimating relationships for DoD applications in general, this piece is worth your time. The research is also a short read of general interest for those amongst us that enjoy such journeys into data and their causality musings.

In chapter one the reader is introduced to the organization and categorization of Air Force flying hour spare parts and maintenance costs. These divisions are important to understand in relation to how parts and maintenance costs are incurred, accounted for, and distributed for flying hour vs non-flying hour applications and budgeting. A discussion of supply and back-shop activity is also provided.

Chapter two discusses Air Force aircraft major design series and their combinations with respect to cost capture and budgetary breakout necessary for the department's program objective memorandum (POM) inputs. Depot-level reparables net sales to/from supply are illustrated. Additional information on operational tempo and aircraft design series ages are explained.

Budget Estimating Relationships for Depot-Level Reparables in the Air Force Flying Hour Program

Gregory G. Hildebrandt, RAND Corporation:
Santa Monica, CA; 2007


From the data elements described in chapter two, the specification of budget estimating relationships are provided in chapter three. The hypothesized budget estimating relationships are described based on the aircraft characteristics, operational tempo, and time components. Each of these is addressed separately starting with mission type and flyaway costs. Then tempo is discussed in relation to flying hours and sortie characteristics. Finally, the time variable is represented by both fiscal year and mission series age. Combining these three characteristics – aircraft, tempo, and time – produces a flying hour depot reparables model construct.

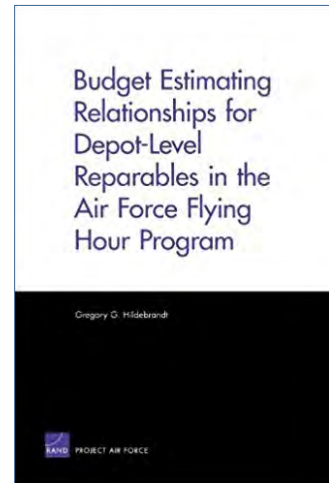
Chapter four presents the empirical findings. The first presentation herein is the functional form of the specified model. The budget estimating relationship is shown, based on the empirical estimation.

continued

The chapter concludes with the presentation of the prediction model including serial correlation. Additional empirical results are provided in an appendix.

The final chapter concludes the text with a short general discussion and comparison of the developed budget estimating relationships. The final blurb in the chapter mentions Air Force process and procedure changes forthcoming when the book was written in 2007. Some of those changes came to fruition, others didn't; and a few that did flowered differently than planned.

Given the age of this study and the changes that have occurred since, the relationships developed should be analyzed before any use or application today. However, the methodology and analysis provided by Hildebrandt is worth investigation in relation to development of new formulaic relationships. I don't recommend this book to the general reader, but I do suggest anyone looking at budget estimating relationships take a read through it. It's certainly a nice gander for curious and broadly interested cost quants (nerds). I certainly consider myself among the latter group. 



David Peeler is Deputy Director emeritus of Financial Management and Comptroller for the Air Force Life Cycle Management Center. He is a Certified Cost Estimator/Analyst and a DoD certified acquisition professional in financial, program, and test management. He is a member of both the American Society of Military Comptrollers and the International Cost Estimating and Analysis Association.

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2019 Workshop Preview

By Megan Jones

Weigh anchor and hoist the mizzen!

Moving the Professional Development & Training Workshop from our usual June to the merry month of May was a big change for everyone - big enough that we figured we'd go easy on our attendees and not make too many other major changes for 2019.

Before we shove off on Tuesday morning, take a moment to plunder some coffee and a square breakfast from the buffets in the exhibit hall. Our fine benefactors, this year's sponsors and exhibitors, will be in the grand foyer adjacent to the general session room and several of the breakout rooms. And a truly grand foyer it is: large picture windows overlook the marina on Garrison Channel and will fill the hall with alluring sunshine.

Papers presentations will be scheduled all day with the final papers of the Workshop concluding on Thursday afternoon. Meanwhile, training begins Tuesday afternoon, runs all day

Wednesday and Thursday, and Friday morning. ICEAA's training program consists of CEBoK®-based training sessions, with opportunities for attendees to review specific topics, break out into study groups, and leave the workshop with a thorough understanding of what it takes to earn their CCEA®. For the third year in a row, we will also be featuring Software Training sessions, created from the content thus far developed for our upcoming Software Cost Estimating Body of Knowledge, "CEBoK."

So what's the difference between a "paper" and "training"? There's more to it than mere scheduling.

Learn the ropes

The papers sessions are written and presented by your colleagues: esteemed members of the academic, corporate, and government cost communities. Abstract summaries were sent in all the way back in November. 2019 Papers Program

continued

76 Papers in 13 Tracks:

- | | |
|----------------------------------|------------------------------|
| ☞ Agile | ☞ Planning & Strategy |
| ☞ Analysis & Modeling | ☞ Processes & Best Practices |
| ☞ Communications & Visualization | ☞ Risk |
| ☞ Computing | ☞ Scheduling & Programming |
| ☞ Data Collection & Management | ☞ Software |
| ☞ Machine Learning | ☞ Space & Missiles |
| ☞ Methods | |

Chair **Karen Mourikas** gathered a crew of ten to select the most promising 76 abstracts from the hoard of entries we received from ICEAA members and other professionals in the cost community.

These papers presentations are a unique opportunity to learn more about the latest in the industry, hot topics, and new research. We paid special attention this year to the feedback we received in Phoenix, and gave priority to those topics that were mentioned by our attendees as the most memorable and valuable, as well as the topics the participants hoped to see more of in the future.

With 76 papers in less than three days - 30 on Tuesday alone - we understand what a challenge it is for attendees to choose which papers to attend. To help chart the waters, we have organized them into thematic tracks that are sure to steer you right.

These tracks aren't pre-determined, nor are the number of them. Rather than fit what we get into categories, we make categories that work with what our authors want to present. We have a greater number of tracks than usual for 2019, with some perennial favorites as well as some new ones. Unsurprisingly, one of the most valued topics of 2018, **Machine Learning**, emerged as its own track this year, and we received enough papers on the softer-skills of estimating to have our first **Communications & Visualization** track.

Check out the papers summaries and bios for our authors on the ICEAA Website for a preview of what's to come in Tampa, and be sure to update your ICEAA Mobile App to download the 2019 content App as soon as it's available. The app is the easiest way to mark the spots you think will yield the most fruitful bounty!



Credit where credit is due

We've got dozens of outstanding papers on the schedule, but where's the fun if there's nothing at stake? While our authors aren't under captain's orders to do so, those that sent us narrative/white-paper format papers by the February 25 deadline were candidates for a Best Paper Award. Another stalwart crew of volunteers will take the time to read these missives (or in some cases, tomes) and rate them among the entries in their category. The top-rated papers from each category undergo another round of judging to declare the best among the best.

Find out who lays claim to the prizes this year during the Best Paper presentation on Tuesday morning before the general session. The app will be updated Tuesday morning to put the X on the winners for easy navigation.

Whether you plan to attend mostly papers presentations or training sessions, all hands will be in the Grand Ballroom on Thursday just before lunch to enjoy the Best Paper Overall. Never fear missing the year's best paper because another caught your eye at the same time, the Best Paper Overall won't be dragging you from other sessions during its original time, but rescheduled for a general session for all.

First-rate crewmembers

ICEAA is chock full of members who make a difference, both at home and abroad, on board or on land. Others are the types that can find a gale in the doldrums. And then there's the young lads and lassies with a vast and promising future. You'll get to learn more about these fine folk on Wednesday morning at the Association Awards presentation.

continued

40 Training Sessions in 3 Tracks:

- ☞ Cost Estimating Basics
- ☞ Advanced Cost Topics
- ☞ Parrrametrics

Our awards are also given out in appreciation for notable and continued service to ICEAA; to those who have made a difference in making a difference both in the past year and throughout their lifetimes.

Peruse the descriptions of the categories and read up on previous years' winners at iceaaonline.com/awards

Letters of Marque

For those green swabs looking to earn their PCEA® or CCEA® certification, the Professional Development & Training Workshop is the place to be! These sessions have been developed and sculpted over the years to best instruct ICEAA's Cost Estimating Body of Knowledge®, the foundation of the PCEA® and CCEA® exams.

If you've been keeping your nose in CEBoK® in preparation for the exams, these 40 training sessions will provide the reinforcement, support, and burst of headwind that will help you sail smoothly to success.

Old salts shouldn't jettison the training sessions either - many of the advanced topics go above and beyond CEBoK® to provide up-to-date continuing education that will keep your eyes sharp on the horizon.

Join us Tuesday morning for the CCEA/PCEA® Exam Overview and Training Program. Welcome to find out more about the value and benefits of attending the training sessions!

A fetching new portrait

Rather than load you up with the usual kind of dead weight you pick up at events like these, ICEAA is keeping our photographer on board for complimentary head shots. No decent wanted poster is complete without a current capture of your appearance, and professional photos will set you back some dubloons ashore!

Splice the mainbrace!

While we were poring over the 2018 feedback survey to help determine the most desired topics for the papers, an unsurprising theme emerged: more than anything else, our attendees say the most valuable part of the Workshop is the opportunity to network with your colleagues, peers, and for some of you who've come to several Workshops, your friends. A bunch of people working on the same sorts of thing makes an industry; a network of individuals is what makes a community.

Our schedule allows for enough time for attendees to travel from session to session without rushing or missing a chance to ask that one extra question of the instructor. Spend the breaks continuing your conversation, or use them to email those poor souls missing out at home.

Tuesday and Wednesday evening, all hands are welcome in the exhibit hall for our networking receptions to unwind over some grub and grog. With the caliber of attendees at the 2019 Professional Development & Training Workshop, ye never know which famed captains you may hoist your mug with!



View speaker bios, paper abstracts, training session descriptions, and hotel information on our website. You can also download the latest detailed schedule, featuring session dates and times at:

www.iceaaonline.com/tampa2019

Outline Schedule

Tuesday, May 14

Breakfast buffet available	7:00 ~ 8:00
Welcome & Overview	7:45 ~ 8:00
Best Paper Awards	8:00 ~ 8:30
General Session	8:30 ~ 9:30
Exam Overview/ Training Intro/Papers	9:45 ~ 11:45
Lunch	11:45 ~ 12:45
Training/Papers	12:45 ~ 4:45
Welcome Reception	4:45 ~ 7:00

Wednesday, May 15

Breakfast buffet available	7:00 ~ 8:00
Welcome, day intro	7:45 ~ 8:00
Association Awards	8:00 ~ 8:45
General Session	8:45 ~ 9:45
Training/Papers	10:15 ~ 12:00
Lunch	12:00 ~ 1:15
Training/Papers	1:15 ~ 5:15
Networking Reception	5:15 ~ 7:00

Thursday, May 16

Breakfast buffet available	7:00 ~ 8:00
Welcome, day intro	7:45 ~ 8:00
General Session	8:00 ~ 9:00
Training/Papers	9:15 ~ 11:00
Best Paper General Session	11:15 ~ 12:00
Lunch	12:00 ~ 1:15
Training/Papers	1:15 ~ 5:15

Friday, May 17

Continental Breakfast Available	7:00 ~ 8:00
Training day review, Q&A etc.	7:45 ~ 8:00
Training	8:00 ~ 11:30
Conference Ends	11:30

Enjoy a night of shore leave in Tampa

2019 Workshop Committee

Workshop Chair
Christina "the Kraken" Snyder

Papers Chair
Keelhaul Karen Mourikas

Training Chair
Admiral Omar Akbik

Workshop Deputy Chair
Limey Britt Staley

Awards Chair
Corsaire Erin Barkel

Best Paper Chair
The Dreaded Andrew Drennon



Society for Cost Analysis & Forecasting (SCAF): Costing News from the UK

by Dale Shermon, SCAF Chairman

In December I chaired the SCAF committee meeting and we discussed feedback from the November event on *Uncertainty and Risk*. The scores were favourable on the speakers and the comments indicated that SCAF had a good selection of papers and you liked the BAWA venue. Many thanks to all the members who attended, without you the event would be very dull! The committee are always keen to hear feedback regarding the events we have organised; it's the best way to improve our society and activities we organise. Please keep those themes for future event coming, we need your thoughts.

With the February event nearly arranged, I took an action to draft the SCAF challenge for next year. We are excited to return to the Bristol Aerospace centre with the inspiring Concorde as a back drop for the junior members of the SCAF community to contemplate while presenting their solution to the challenge. You will get the invitation to submit teams in the New Year, everyone is welcome.

Personally, I have been working with the association for project management (APM) on their 7th version of the APM body of knowledge (BoK). I got involved because the APM was asking its members for comments on their proposed BoK version 7 structures. APM was looking for people to contribute who had writing experience and appreciate the publishing process. I have written books on cost, estimating and forecasting previously so I volunteered. So, when **Ruth Murray-Webster**, Body of Knowledge co-editor, contacted me we had a common understanding of the challenge ahead of us.

One of the great things about this project is the chance to learn about other areas of project management from the writing team. I am the only writer from aerospace and defence, so I also have a perspective to offer. The structure for version 7 is different from the previous documents and it is

aimed at a variety of users. The front end is very specifically aimed at an executive level of understanding; the latter parts of the document are about the day-to-day process of delivering a project and will be useful to novice project managers. Ultimately, the new BoK will be useful because it spans understanding from the top to the bottom of an organisation. When it's published next year we are confident that it will benefit many people.

In September my wife and I took a tour of China which was a fascinating trip for a cost estimator! The infrastructure building was mind-blowing. We went on the bullet train from Beijing to Xian which was 750 miles in a straight line. In Chengdu, there were roadworks for a metro line that was being built; when I asked about the progress I was amazed to learn that the authorities had built five lines since 2005 [now 2018]. By 2025, they plan to have twenty one in total! I flew back to Heathrow expecting to see a third runway had been built!

Enough from me, I look forward to meeting you in the 2019 SCAF Challenge in April where our teams of estimators will tackle *Plastic: The Cost of the Clean-Up*. Come and join us; you may learn something new or contribute to the learning of the less experienced by networking!



Bullet train in China - capable of speeds up to 300km/hour!

ICEAA Member Spotlight:

Sanathanan Rajagopal

By: Kathryn Bellamy

“Did you know that in response to a cyber-threat, 92% of an organisation’s funding goes into upgrading software?” After the high profile global cyber-attacks in 2017 Governments, organisations like the UK’s National Health Service and other multi-national companies collectively spent millions upgrading or updating their software, and yet, as cost engineer/cost estimator Sanathanan Rajagopal observed: “If all organisations knew about proactive management of software obsolescence, they could manage their costs and protect their system – this is the science and art of cost estimating.”

Sanath is a cost engineer and estimator for QinetiQ, a leading science and engineering business operating in the defence, security and aerospace sectors.

An outstanding and innovative specialist in software cost estimating, software obsolescence management and cost estimating, cost engineering and forecasting, Sanath is currently acting as Deputy Chairman of the Society for Cost Analysis and Forecasting (SCAF) and as UK Director of the International Cost Estimating and Analysis Association (ICEAA). He has chaired costing workshops, been a speaker and track chair at past ICEAA international training and development workshops, and is a valuable contributor to ICEAA’s forthcoming Software Cost Estimating Body of Knowledge. Internationally recognised, he has won a number of awards including the ICEAA’s Technical Achievement of the Year Award 2017.

In 2018, in recognition of his outstanding technical and business achievements, Sanath was awarded a

QinetiQ Fellowship. In accepting this, Sanath joins a community of world-leading scientists and engineers whose knowledge and experience are highly valued by customers to meet some of their most pressing and complex challenges. In 2015, he became the youngest Fellow of the UK Ministry of Defence Equipment and Supply (DE&S) and is the only individual who holds fellowships for both organisations.



If all organisations knew about proactive management of software obsolescence, they could manage their costs and protect their system – this is the science and art of cost estimating.

Sanath encourages businesses to improve their understanding and adoption of cost engineering in his industry sector. He said: “The cost engineering discipline is not widely understood in the global aerospace and defence sector. It is important that I take the opportunity to demonstrate thought leadership in this field so that I can genuinely deliver best business practice in this sector because customers – many of whom are Governments - demand value for money, the effective planning and management of costs and budgets, assurance, and effective risk analysis.”

He added: “One of my proudest career achievements was supporting the establishment of the Parametric Centre of Excellence capability within CAAS (Cost Assurance and

Analysis Service, MoD UK) and being instrumental in the development of parametric estimating techniques. The process and guidelines I created are now widely used in the defence industry.”

Currently, he is the only person within the UK defence and aerospace industries who is leading on the understanding of the cost of software obsolescence resolution and the management of

software obsolescence and its implications. Currently he is in the final stages of his PhD on this subject.

Software obsolescence and management are particularly important for global organisations for two reasons, as Sanath explains: “Firstly, in this time of austerity, there is a real requirement for software obsolescence management guidance for software engineers and designers regarding the cost of their software design solutions and how they could reduce the cost and risk of software obsolescence.”

“Secondly, cyber threats to global industries are increasing. One of the key reasons for the increase in cyber threat is due to the high level of obsolete software being used. As a specialist cost engineer I know that I can play an important role working with my cyber security and training colleagues to manage and mitigate software applications that will go obsolete at very early stages of development, thus helping in the early identification of potential cyber vulnerability within systems.”

A passionate believer in ‘giving back’ to his discipline, Sanath routinely delivers guest lectures to Undergraduate and Postgraduate students. He also mentors cost estimating colleagues and delivers training for international delegates through ICEAA workshops. ICEAA is especially fortunate and grateful to have such a unique perspective contribute to the Software CEBOK project. In his own words: “I’ve developed myself a niche element of software estimating. It’s a learning process, you learn every day – but I feel like I need to give it back to the association, by giving back to the community. And one way of doing that is sharing the knowledge and developing software modules for software CEBOK. I think it’s going to be a great addition to ICEAA Certification to develop the software estimating capability.”

Summing up, he said: “In a world of austerity, managing and understanding our costs and protecting systems are essential for organisations. Moreover, cyber threats are not going to go away and with ever greater dependency on software for the delivery and enabling of services or infrastructure, cost estimators have a vital role to play in helping organisations to understand that a robust software maintenance strategy is going to save significant amounts of money and keep systems safe.”



Upcoming Events

Washington Capital Area Chapter Annual Workshop

The Boeing Company

Arlington, VA

March 20, 2019

www.washingtoniceea.com

2019 SCAF Challenge and Training Workshop

Aerospace Corp.

Patchway, Bristol, UK

April 30, 2019

www.scaf.org.uk/events.html

2019 ICEAA Professional Development & Training Workshop

Tampa Marriott Waterside Hotel
& Marina

Tampa, Florida

May 14-17, 2019

iceaaonline.com/tampa2019

2020 ICEAA Professional Development & Training Workshop

Hyatt Regency San Antonio

San Antonio, TX

May 12-15, 2020

2021 ICEAA Professional Development & Training Workshop

Renaissance Minneapolis Hotel,
The Depot

Minneapolis, MN

May 18-21, 2021

Central Virginia Chapter Report

Britt Staley, Central Virginia Chapter President

Our ICEAA Central Virginia (CVA) Chapter wrapped fiscal year 2018 with a bang! At our fourth quarter meeting we ate Jersey Mike's subs while **Ken Rhodes** of Technomics, Inc. taught our membership a little bit about "Software Data Collection and Analysis for Proposal Evaluation." In closing out the year, we also took some

time to recognize our FY2018 CVA Chapter Awardees! Read more about their outstanding work online at iceaaonline.com/chapters/cva/



2018 Junior Analyst
of the Year:
Nicole Robertson



2018 Technical
Excellence Award:
Gail Flynn



2018 Chapter
Service Award:
Yun Kim



ICEAA Members at the CVA Social

We welcomed 2019 during our first quarterly ICEAA CVA Chapter Members Meeting on November 14th, graciously hosted by our friends at Naval Surface Warfare Center Dahlgren Division (NSWCDD). This meeting boasted an intriguing presentation on Business Case Benefits Analysis as presented by **Jim Sunderlin** of Technomics, Inc. Attendees had the opportunity to learn more about basic process and steps involved in conducting benefit analysis for investment decisions. A big thanks goes out to our presenters for facilitating these exceptional learning opportunities!

In the Regional arena, we hosted our first ICEAA Central Virginia Chapter Social on November 30th! This event proved to be a great success (and a great time!). Hosted at Ledo's Pizza in Dahlgren, Virginia, chapter members, colleagues, and friends enjoyed good food, good brews, and good company. It was great to see representation from across the region, government and contractors alike. Sincere thanks to **Megan Jones** (ICEAA Executive Director) for joining us as our special guest! With this, we'd also like to take a moment to recognize some of our newest CVA Chapter Members! We look forward to having you on board: **Jon Brown**, NSWCDD, **Jeremy Goucher**, MCR, **Gail Flynn**, NSWCDD, **Paul Neubert**, NSWCDD, **John Rensink**, NSWCDD, **Ericka Kadner**, Kalman & Company, Inc., **Katie Barbre**, NSWCDD.

Nationally, we are prime to make one heck of a showing in the coming months. Our membership has had multiple papers approved and are participating in the training tracks for the 2019 ICEAA Professional Development and Training Workshop in Tampa. But right before the Workshop, our chapter will be hosting a CCEA/PCEA Exam on May 11th so our growing membership can obtain those four powerful letters!

Finally, as this fiscal year comes to a close, we will be preparing for our Chapter election cycle for the FY2020-2021 term – welcoming new leadership and bidding a warm "adieu" to the current. It's an exciting time at the CVA Chapter and there is still so much more to come!

If you are in the Central VA area (Quantico, Dahlgren, Pax River), and are not affiliated with a Chapter yet – or would like to change your affiliation – please don't hesitate to reach out to any of our board members with your inquiries! *The more the merrier* at the ICEAA Central VA Chapter!

The ICEAA Central VA Chapter 2018-2019 Board of Directors:

President:	Britt Staley bstaley@technomics.net
Vice President:	Tommy Knoll tknoll@tecolote.com
Treasurer:	Brian Bucceri bbucceri@tecolote.com
Secretary:	Nicole Robertson nrobertson@technomics.net
Membership:	Erik Gyorgy egyorgi@tecolote.com



New England Chapter Report

Andrew Walker, New England Chapter Vice President

In the Spring of 2018, the New England Area ICEAA Chapter Board challenged themselves to get away from the same old, same old and offer our members a more rewarding and worthwhile experience by reaching out to speakers who would present attention-grabbing topics, break away from deep-dives into very specific cost estimating areas, and put on events that had an overall appeal to our audience different than they've seen in other cost estimating forums. We also made it our charge to revitalize our yearly cost workshop, boost our membership, as well as have more outlets for the entire chapter to socialize, network, and more importantly have some fun!

Since this internal challenge was presented, the board was able to land the following speakers for their quarterly chapter lunches:

Anette (Peko) Hosoi, Professor of Mechanical Engineering at MIT; *Luck and the Law: The Role of Chance in Fantasy Sports and Other Activities*

Richard M. Cockley, AFLCMC/HB (PEO Digital) Cost Chief; *Leadership Today and Tomorrow*

In addition to these two fascinating and thought-provoking speakers, the New England chapter had a Fall Social at a local watering hole outside of Hanscom AFB, with appetizers, pool, darts, and music for all ICEAA members. The social was attended by over 50 members!

The culmination of a successful 2018 chapter year came in December when The ICEAA New England Area

Chapter put on a Cost Workshop attended by over 70 cost estimators. There were two tracks of sessions with topics ranging from Agile Software Estimating, to ACAT I Cost Estimating Lessons Learned, to Comparing Cloud Costs Equitably, to a host of other interesting and relevant topics.



ICEAA New England Chapter Board of Directors

Following the workshop, the entire audience was invited to go into downtown Boston and visit the Harpoon Brewery for a tour and tasting. In addition to the tour, the head Harpoon Brew Master presented the business side of beer-making, really tying the entire day (and year) together for the large group of cost estimators.

In 2018, the New England chapter upped their membership from 60 to 89, all with the goal of offering our members a worthwhile experience. It's safe to say: challenge accepted and challenge met! We look forward to keeping the momentum going in 2019 -- Cheers!



*New England Chapter Workshop
A presentation on Agile Software Estimating*

The ICEAA New England Chapter 2018-2019 Board of Directors:

President:	William Lane <i>william.lane.12.ctr@us.af.mil</i>
Vice President:	Andrew Walker <i>andrew.walker.12.ctr@us.af.mil</i>
Treasurer:	Denise Saltojan <i>denise.saltojan@us.af.mil</i>
Secretary:	Kelly Kane <i>kelly.kane.1.ctr@us.af.mil</i>

Lone Star Chapter Report

John Deem, Region 6 Director

Networking Social

The Lone Star Chapter hosted a Professional Networking Social Wednesday, August 22 at Blue Mesa Grill in Fort Worth. Non-members and guests were encouraged to attend. Of particular interest was how senior practitioners see the future of the cost estimating and analysis profession versus how new practitioners see it. Special guest, **Glenn Weissinger**, retired Lockheed Martin Strategic Planning VP, shared highlights from his Ted Talk on the Promotion Trap. Check it out on YouTube!

Professional Development Workshop

The Fort Worth workshop was held Wednesday, October 17 at the Holiday Inn Express & Suites Western Center. The workshop included 9 sessions packed into an 8 am to 5 pm agenda. Topics of relevance to the cost estimating and analysis profession came from various steps in the proposal cycle including affordability, proposals, estimating methods, contract pricing, financial analysis, negotiating skills and program management.



Phil Fahringer presenting at the Workshop

Affordability and Value Analysis Modeling was presented by **Phil Fahringer**, Lockheed Martin Aeronautics, demonstrating advanced and powerful decision analysis modeling capabilities and skills using excel as it is available to most of us today.

Price-to-Win with PRICE True Planning was presented by **Melissa Winter**, PRICE Systems who also broadcast her part of the workshop to the PRICE Systems user community via webinar. PRICE Systems also helped sponsor the workshop for the Lone Star Chapter. Thanks!

Cost Estimating & Analysis Skills

ICEAA Overview on Education and Skills for Cost Estimating Careers was presented by **John Deem**, CCEA, ICEAA Region 6 Director and workshop emcee. Some say that cost estimating could be considered both art and science, but studies show that salaries for art professions tend to be lower than salaries for science professions. Downplaying the art aspects of our profession might be a better strategy financially speaking!



Melissa Winter presenting at the Workshop

Affordability Analysis Skills

Value Driven Solutions, Affordability Does Not Tell You What You Get for Your Money was presented by **Teresa McCarthy**, Lockheed Martin Aeronautics, Quality Assurance, on a mission to foster innovative ideas and pursue them by taking chances, revolutionizing the future, and owning cutting-edge engineering!

Manufacturing Estimating Skills

Improvement Curve Perils & Pitfalls was presented by **Brent Johnstone**, Lockheed Martin Aeronautics, an often recognized presenter at ICEAA annual conferences. Many of you know how fortunate we are to have Brent available to engage our local chapter on a regular basis.

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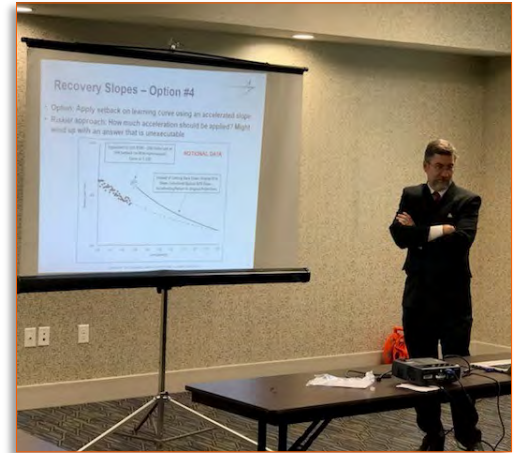
Proposal Skills

Contract Pricing for Common Contract Types was presented by **Geoffrey Holland, PCEA**, Lockheed Martin Aeronautics, and he also presented *Financial Goodness, How do you know if it's a good deal?* Much thanks to Geoff for doing a double header by preparing and presenting two sessions. Thanks!


Negotiating Strategy Review was facilitated by **John Deem** and involved complete audience participation to leverage the knowledge in the room. Negotiating skills is always a topic sure to engage the entire audience. This was a follow-up session to a presentation from a prior chapter workshop.

Program Management Skills

Federal Transit Administration Programs and Cost Estimate Management was presented by **Brian Ehrler, PMP, LEED, AP**, Burns Engineering, who provided a much appreciated divergence from the defense-centric presentations, covering the challenges of cost estimating atypical tasks encountered budgeting for New York City's recovery from Hurricane Sandy.



Brent Johnstone presenting Improvement Curve Perils & Pitfalls

Much positive feedback was collected from the audience at the close of the workshop and more positive feedback was collected from attendee management after the fact. We'll definitely plan on doing more of these down our dusty Texas road! 

RETAINING YOUR CCEA® CERTIFICATION IS SIMPLE

CCEA® holders are required to accumulate at least 30 recertification points across three areas of involvement during a five- year period

PROFESSIONAL WORK EXPERIENCE

EARN UP TO 15 POINTS FOR:

- EMPLOYMENT IN A COST-RELATED PROFESSION
- SERVING IN A COST ANALYSIS ROLE
- CREATING COST ANALYSIS PRODUCTS

PARTICIPATION AND CONTRIBUTION

EARN UP TO 15 POINTS FOR:

- MEMBERSHIP IN COST ORGANIZATIONS
- SERVING IN A LEADERSHIP POSITION
- RECEIVING AN AWARD, CITATION, COMMENDATION

LEARNING AND SHARING

EARN UP TO 15 POINTS FOR:

- PARTICIPATING IN COST-RELATED COURSES, SEMINARS, WORKSHOPS, ETC.
- TEACHING, PUBLISHING, PRESENTING ON COST TOPICS

visit www.iceaaonline.com/certification-matters for more information

Southern California Chapter Report

Rich Harwin, Southern California (SoCal) Chapter President

The Southern California (SoCal) Chapter of ICEAA Region 7 conducted a very successful workshop at Northrop Grumman Space Systems in Redondo Beach, California on 26 Sept. Our speakers and presentations were:

Dr. John Pinder - Northrop Grumman Aerospace Systems: *Cost Analysis in the Strategy Organization*

Karen Mourikas - The Boeing Company: *Machine Learning & Non-Parametric Methods of Cost Analysis*

Kurt Brunner - KB Enterprises: *Would A Cost Growth Factor Help Alleviate Continuing Cost Overruns?*

Hank Apgar, MCR Solutions, LLC: *Cost Estimate Credibility*

Rich Mabe - PRICE Systems, LLC: *Cyber Total Cost of Ownership*

Doug Howarth, MEE Inc: *Demand, Recurring Costs, And Profitability*



James Webb Space Telescope

Our day wrapped up with a tour/viewing of the James Webb Space Telescope in the NGC clean room facility as it is being prepared and tested prior to launch.



SoCal Members at Leidos

The Chapter also conducted a joint SoCal/San Diego workshop at Leidos in La Jolla, California on 12 Dec.

Our speakers and presentations were:

Jay McGuerty – Leidos: *Network Field Survival Guide: The Way of the Packet*

Nathan Eskue - Northrop Grumman Innovation Systems, Launch Vehicles Division: *A Robot Brain Might Be the Best Forecasting Tool Possible*

Kurt Brunner - KB Enterprises: *CER Issues and Solutions*

Dr. Sadrul Ula - University of California – Riverside: *Electrical Engineering Evolution*

Eric Sick - Galorath Incorporated: *SEER-Space in the 21st Century*

At the conclusion of our joint workshop, we met for a networking Happy Hour at Rock Bottom Brewery in La Jolla.

December also saw the results for our So Cal chapter election. We thank **Pam Ehhreich** of Boeing for her time and effort as the Election chair. Here is our new board for the 2019-2020 term.

And our thanks for **Chris Hutchings** and **Dara Billah** as our outgoing Treasurer and Board member for their service and support over the last 4 years.

SoCal workshop agendas are available to all ICEAA members, are emailed to previous workshop attendees, and they contain registration information, a location map, and driving instructions. The agenda is also posted on the ICEAA Southern California web site at: iceaaonline.org/socal.

The ICEAA Southern California Chapter 2019-2020 Board of Directors:

President:	Rich Harwin <i>harwin42@hotmail.com</i>
Vice President:	Tom Bosmans <i>Tom.L.Bosmans@leidos.com</i>
Treasurer:	Melissa Winter <i>melissa.winter@pricesystems.com</i>
Secretary:	Karen Mourikas <i>karen.mourikas@boeing.com</i>

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As always, our workshops are free, and all available presentations are loaded on the web site following the meeting. If you have any questions about the presentations please feel free to contact the ICEAA Southern California Board of Directors or the ICEAA office (iceaa@iceaaonline.org).

Please consider hosting a workshop or presenting at a workshop! It will be a rewarding experience. If you are interested in hosting a workshop or making a presentation at a workshop, please contact **Rich Harwin** at harwin42@hotmail.com or **Tom Bosmans** at Tom.L.Bosmans@leidos.com.



Our workshop focus is always to “advance, encourage, promote and enhance the profession of cost estimating and analysis through the use of parametrics and other data-driven techniques for use by the membership as well as the general public.” The Southern California and San Diego Chapters of ICEAA will continue to offer workshops that include a notable and diverse group of extraordinary speakers, training sessions, cutting edge topics, and knowledgeable attendees that are fully entertained and engaged.



WANTED

CCEA[®] and Specialty Exam Test Questions

For enhancing the portfolio of questions in ICEAA exams, study guides and training materials

1. Topic Category

Parametric Estimating:

2. Topic

CER

3. Question: If a CER for Site Development was developed giving the relationship, y (in \$K) = $31.765x + 145.32$ (where x is the number of workstations) for a data set cost driver that had a range minimum of 2 workstations to 52 workstations, and the independent variable has tested positively for significance, the predicted cost for a site that had 33 workstations would be:

4. Five multiple choice answers

- a. \$ 1,193.57
- b. \$1,193,565.00
- c. \$ 1,797.10
- d. \$1,797,100.00
- e. \$ 208,850.00

5. Answer B

6. Solution:

$y = 31.765 * 33$
 $+ 145.32 = 1,193.57$
 but must convert
 from \$K; value is
 $1,193.57 * \$1000 =$
 $\$1,193,565$

7. Reference
 CEBoK Module 3

REWARD: RECERTIFICATION POINTS

Contact the ICEAA Office or Director of Certification for details

Washington Capital Area Chapter Report

Meghan Kennedy, Washington Capital Area Chapter President

The Washington Capital Area Chapter will once again host a workshop this spring. This year's event is scheduled for March 20 at the same location as the 2018 chapter workshop – Boeing in Crystal City, VA. The 2019 Workshop theme is Big Data, and in addition to a range of exciting speakers, we will also use this occasion as our annual chapter meeting – including a brief chapter board of directors update and presenting our chapter awards. Please plan to attend this all day event to learn, discuss, and network.

Chapter Events


The chapter continues to offer a popular monthly lunchtime speaker series. Some of our recent presentations include:

- August 2018: *Social Media and Submarines: How Machine Learning and Unconventional Methods Can Change Cost Estimating*. Presented by **Omar Akbik** and **Jeffrey Pincus**. Held at Technomics, Inc., Arlington, VA.
- September 2018: *Where Have All the Estimators Gone?* Presented by **Tom Dauber** and **Cris Shaw**. Held at Cobec Consulting, Washington, DC.
- October 2018: *Have All the Cost Estimates Already Been Done? Data Science in Cost Analysis*. Presented by **Jeremy Eden**. Held at Tecolote Research, Arlington, VA.
- November 2018: *Costing Blockchain*. Presented by **Harvey Reed**. Held at MITRE, McLean, VA.
- December 2018: *Portfolio Analysis Integration*. Presented by **Fana Gebeyehu-Houston**. Held at Technomics, Inc., Arlington, VA.



ICEAA Washington Capital Area Board of Directors

Stay tuned and watch your inbox for more information on upcoming events. If you've missed any of our past luncheon presentations, they are often available on our website washingtoneaa.com.

We are always looking for future luncheon speakers. If you have something you'd like to share with the local cost community or would like to practice for an upcoming presentation, we'd love to have you present at one of our events. We are also looking for a wider range of locations to hold our luncheons. If you are interested in being a speaker or your organization is interested in hosting, please contact our Program chair at ProgramChair@washingtoneaa.com. 

ICEAA Washington Capital Area Chapter Workshop

Big Data: What's the Big Deal?

www.washingtoneaa.com

March 20, 2019
Arlington, VA

Working Guides to Estimating & Forecasting

A reference work as a series of five volumes aimed at Estimators and other professionals who regularly analyse and interpret data, and use it to make predictions about the future!

By **Alan R. Jones**, published by Routledge in hardback and ebook

Although the books cover basic topics such as Estimating “Good Practice” in Volume I, the main focus of Volumes II to V is on numerical and statistical techniques, providing practical examples and guidance on their use, underpinned by theoretical or academic constructs.

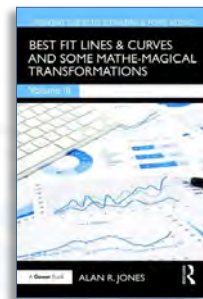
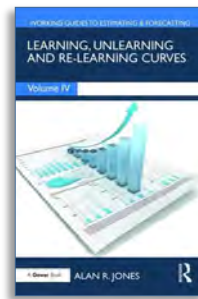
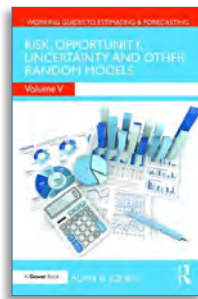
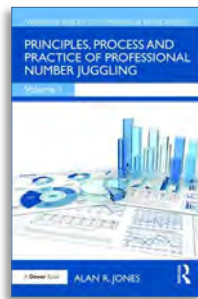
Volume I: Principles, Process and Practice of Professional Number Juggling

Volume II: Probability, Statistics and Other Frightening Stuff

Volume III: Best Fit Lines & Curves and Some Mathe-Magical Transformations

Volume IV: Learning, Unlearning and Re-Learning Curves

Volume V: Risk, Opportunity, Uncertainty and Other Random Models



Whilst a series of technical books, they are not “dry” academic texts but have humour embedded within them in terms of author’s comments to the reader, famous quotations (and some not so famous), along with comical analogies to illustrate key points, such as the “Correlation Chicken”.

Each volume contains sections for the **Formula-phobes** amongst us as well as the **Formula-philes**, numerous worked examples with step-by-step instructions (1291 figures and tables across the series), definitions, and the inevitable warning notices to Estimators (**Caveat Augurs**) of when a method or technique may not be appropriate, or simply to convey a health warning on its use.

Who are the books aimed at?

The intended audience is quite broad, ranging from the relative ‘novice’ who is embarking on a career as a professional estimator, to those already seasoned in the science and dark arts of estimating. There will be some of us who just want to know what tips and techniques can be used, and those who really want to understand the theory of why some things work and other things don’t. As a consequence, the style of this book is aimed to attract and provide signposts to both extremes (and all those in between).

For further information on contents, the full article, search LinkedIn or your favourite browser for **Alan R Jones estimating interview**.

ICEAA members: use the code **ICEAA230** when purchasing online for a special **20% discount** on any or all of the books in the series:
<https://www.routledge.com/Working-Guides-to-Estimating--Forecasting/book-series/WGE>



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ICEAA 2019-2021 International Board of Directors Election



Polls are open
March 1 - April 1

Ballots will be emailed on **March 1, 2019**
to all current ICEAA members.

Keep an eye on your inbox
for your chance to make your voice heard!

Email iceaa@iceaaonline.org to confirm your email address or to request another copy of the ballot. Expired members will not receive a ballot.