

# NATIONAL Estimator

The Society of Cost Estimating and Analysis

Fall 2011

## In this issue ...

- **Part I — Unit Theory:**  
**Learning Curve Primer**
- **Toward a More Efficient & Effective  
Cost Estimating & Contract  
Negotiations Process**
- **Book Review:**  
**Money Changes Hands ...  
A Good Book Changes Minds**
- **2011 ISPA/SCEA Conference Wrap-up**
- **2012 Conference Call for Papers**
- **Chapter Updates**

*The U.S. Capitol Building in Fall. Come see this and other attractions at the 2011 IPM Conference in Bethesda, MD (info on page 29).*

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NATIONAL

# Estimator

## The Society of Cost Estimating and Analysis

A non-profit organization dedicated to improving cost estimating and analysis in government and industry and enhancing the professional competence and achievement of its members.

### President's Letter

By Paul Marston, SCEA President..... 4

### Letter from the Editor

By Joe Wagner, National Estimator Editor ..... 5

### SCEA & ISPA Joint Office Operations

By Erin Whittaker, SCEA Executive Director..... 6

### SCEA Certification Director's Corner

By Peter Andrejev, Director of Certification..... 7

### Certification Congratulations

..... 8

### What Do You Know?

By Peter Braxton, Director, Body of Knowledge..... 9

### Chaptering & Membership

By Mike Thompson, Chaptering and Membership Chair..... 10

### Training Corner: What's Causin' All This?

By Kevin Cincotta, Training Chair ..... 11

### Part I — Unit Theory: Learning Curve Primer

By Timothy P. Anderson ..... 12

### Toward a More Efficient & Effective Cost Estimating & Contract Negotiations Process

By George Barbic..... 19

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

Book Review by Lt Col David Peeler..... 23

### 2011 ISPA/SCEA Conference Highlights..... 24

### SCEA National Awards

By Mike Thompson, Annual Awards Chair..... 25

### Best Paper Awards

By Deb Lehman, 2011 Best Papers Chair..... 27

### Chapter Updates ..... 33

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# President's Letter

By Paul Marston, SCEA President

## Like

many of you, my son was assigned a summer reading list by his high school. Among his required books was the American classic *The Adventures of Huckleberry Finn* by Mark Twain. Just as Huck and Jim are carried down the Mississippi from place to place, challenge to challenge, with little control or fore-knowledge of what they'll find, we too find ourselves being swept up in a national debt crisis, a significant restructuring of the federal budget, and uncertainty in our government programs, companies, and even jobs. We don't always have the luxury to choose where we land, but we do control how we react. These are eventful days for all of us; no less for SCEA.

Our challenge as stewards of the Society and cost community leaders is to ensure SCEA remains relevant and deals constructively with the upcoming changes. To do so, your Board has begun a number of initiatives.

### Merger with ISPA

I'm happy to report that the efforts of **Neil Albert**, **Bill Haseltine**, and many others who have worked to merge SCEA and ISPA are finally paying off. While the two societies already conduct many joint activities (shared business office, joint journal, and joint conference), the final step of a formal merger has always eluded us ... until now. While combining the efforts of these two similar organizations seems like the logical next step, it took careful planning and many years before we ready to embark on that chapter. At the June Board meetings for SCEA and ISPA, both Boards voted to affirm our intention to merge. Since then, we've established an Integration Committee and Solution Teams tasked with recommending a path for combining our two equal organizations and cultures. I'm pleased to report that work is progressing as planned. All of the teams are hard at work, and five of eight have completed their recommendations. I expect that by the time of publication, the Committee will be finalizing its recommendations to our respective Boards. While much work remains, we expect to have the framework of integration approved at our fall Board meeting. From there, we will finalize our governance documents, present our best candidates for a new Society name, and prepare for general membership votes. I can't tell you how gratifying it is to see the spirit of cooperation and shared mission that has been displayed throughout this process; it bodes well for our future success.

### Reassess SCEA's Value to Members and Stakeholder Organizations

While the merger has been at the top of our agendas, it's not the only thing we've been focusing on. Not coincidentally, SCEA is engaging in a bit of soul searching, asking a few fundamental questions: Why do we exist? What do we offer our members? What is our role in our community? Every organization needs a head check from time to time. Because it's your Society, we need your thoughts. In the near future, we will release a Member Survey. Your feedback will help us understand what direction you'd like to see the Society take and will help us set course over the next few years. Additionally, I've asked **Dan Nussbaum**, a SCEA Past President, to lead a newly formed committee charged with inter-organizational outreach. Dan will take the pulse of our stakeholder organizations in government, industry, and academia, noting where SCEA can make a positive contribution to the cost community at large.

### Invest in CEBOK®

CEBoK is one of SCEA's crown jewels, but it didn't happen by accident. It was the result of many years' investment of time, talent, knowledge, and money. Under **Peter Braxton**'s careful watch, CEBoK sets the standard in capturing our collective knowledge. To stay relevant, it needs to expand and adapt. I've asked Peter to develop a 5-year investment plan and re-imagine what CEBoK can be in the future.

### Strengthen Certification

Over the past few years, SCEA has made gains in our certification program. Our CCEA and PCEA designations, based on a natural progression through Foundational Knowledge, Practical Application, Advanced Analysis, and Case Study, represent rigorous professional achievement and mastery of our craft. While the program is in place, **Peter Andrejev** is working to make SCEA certifications the gold standard throughout government and industry. Remember, *Train, Attain, and Sustain ... Certification Matters!*

Finally, as your new president, I invite you to get involved. It's easy to be overwhelmed with the magnitude of changes, but if we all join in paddling in the same direction, we can reach common goals and, at least, enjoy the company of friends and colleagues as we meet the challenges coming our way. With your help, the cost community and SCEA will emerge stronger, more dynamic, and more relevant.

# Letter from the Editor

By Joe Wagner, National Estimator Editor



**You** would think that putting out a magazine like *The National Estimator* twice a year might get repetitive since we aim to report on the ongoing activities of chapters and members that might not change much from issue to issue. We strive to bring you a fresh and interesting publication, and despite my fear of monotony, I find that each issue manages to provide new and relevant information for members.

## What's new and interesting in this issue?

So, what's new in this issue? First, following our 2011 National Board Elections, we have a new Board of Directors to announce (take a look at page 2 for the listing of National Officers). As a result of the elections, we welcome **Paul Marston** as our new national SCEA President, taking the reins from the very capable hands of **Bill Haseltine**, who now becomes our Past President. Other changes to the national leadership positions find **Debra Lehman** elected as Treasurer, while I have been kicked upstairs to the job of Vice President. **Carol Hibbard** continues her successful reign as Secretary. There are also new names and new positions among our six at-large Directors, and seven Regional Vice Presidents. Of particular note is the formal election of our JSCEA Regional Vice President, **Yasushi Horikawa** of the Japanese Aerospace Exploration Agency. JSCEA, our first international affiliate, was approved by the SCEA Board in February 2011 with Dr. Horikawa acting as pro-tem Regional VP prior to his election. This international expansion of SCEA, in addition to our Canadian, European, and Australian activities and members, offers a virtually unlimited potential for future growth and influence in the world of professional costing.

Speaking of Australia, in the "Chapter Updates" you will find the first article from our Canberra Australia Chapter, submitted by **Joe Vega**, current Canberra Chapter President.

## Teasers in this issue for the next issue...

In this issue, we have two great feature articles from **Tim Anderson** and **George Barbic**: one about the technical side of cost estimating and the other with cost as an element in the business aspects of acquisition management. In fact, we are embarrassed by our riches. Because of its length, Tim's article will be split between this issue and the Spring 2012 issue.

Also in this issue, you will see mentions of the planned ISPA/SCEA merger. As announced at the June ISPA/SCEA Conference, following a vote by the Boards of the two societies, a merger plan for ISPA and SCEA is now being prepared. While details are still being developed, a joint committee is at work to move the process along. As this process moves along, details will be posted to the SCEA website at [www.sceaonline.org](http://www.sceaonline.org) for members (log in as a member and then click the merger link on the homepage). By our next issue, we should have a historic outcome to report on as a result of these efforts.

## Conference Updates

Both professionally and financially, the 2011 ISPA/SCEA Conference and Training Workshop in Albuquerque, chaired by SCEA's **Mel Etheridge** and ISPA's **Rich Harwin**, was a smashing success. (We'll avoid saying it was a "roaring" success, given the Arizona wildfires that provided the somewhat smoky atmosphere.) The attendance was the second-highest ever (506 registrants), the training was the most comprehensive and well-integrated ever, and we had more papers submitted for presentation than we could accommodate. I know we will only exceed 2011's performance when we hold our two conferences in 2012: the domestic conference in Orlando from 26–29 June 2012 and the international conference in Brussels, Belgium, from 14–17 May 2012. We hope to see you at one – or both – of them!



## *In Memory of F. Kelly Chamberlain*

We sadly note the May 21, 2011 passing of F. Kelly Chamberlain at his home in Nags Head, NC. Kelly was a past-president of the California chapter of SCEA as well as a long-time member of ISPA, and he was a certified cost estimator/analyst. Kelly began his career with four years as a United States Marine, including a combat tour in Korea where he earned the Korean Service Medal with Bronze Combat Star. He left military service in 1953 and earned an MBA and a masters in finance from Loyola College in Baltimore, MD, followed by a decades-long career as a cost estimator at Space & Missiles Systems Center in Los Angeles and in other aerospace programs with government and private industry. He also spent 19 years as an adjunct professor of the University of Phoenix. We will miss his years of service as a professional and a friend of the Society. Kelly is survived by his wife of 47 years, Judith Ann Chamberlain, his two daughters, and several grand and great-grand children.



# SCEA & ISPA Joint Office Operations

By Erin Whittaker, SCEA Executive Director

**A**s I write this article, Virginia and the rest of the East Coast regions are recovering from an earthquake, followed a few days later by a hurricane. As communities work together to clean up, I can't help but think of how SCEA Board Members and the membership-at-large have collaborated over the past year to help bring about big, exciting changes for our Society.

## Conferences

This issue of the *Estimator* features photos and articles about the 2011 SCEA/ISPA Joint Annual Conference & Training Workshop in Albuquerque, NM, which was one of our most successful conferences to date. We had over 500 attendees, 95 papers, and 36 training workshops. We featured a keynote speech by **Colonel Mike Mullane**, author and former astronaut, and a panel discussion on DoD affordability initiatives. There were numerous networking opportunities, as well as a complimentary shuttle to Old Town Albuquerque one evening — an option that was enjoyed by many conference participants. I'd like to thank **Mel Etheridge** and **Rich Harwin**, Conference Co-Chairs, whose careful planning made this conference a success. **Paul Marston**, **Sherry Stukes**, **Peter Braxton**, **Kevin Cincotta**, **Roy Smoker**, and all their track chairs all deserve recognition for their work coordinating the program and training. Additionally, thanks go to local MCR volunteers **Steve Hogan** and **Jane Kelchner**, who helped register attendees. Be sure to visit the SCEA website for follow-up conference information like photos and links to the Best Papers (<https://www.sceaonline.org/events/conference/2011/2011Conference.cfm>). Conference photos on the website and in this issue were taken by **Joseph Wagner** and **Rob Currie**. We'd especially like to thank Rob, who captured some great shots of our attendees.

The 2011 Integrated Program Management (IPM) Conference will be held November 7–9 at the Marriott Bethesda North Hotel & Conference Center in Bethesda, MD. This event is the premier earned value management (EVM) Conference and is jointly hosted by SCEA, PMI's EVM Community of Practice, and NDIA. We will once again be featuring a cost estimating integration track, chaired by **Mike Thompson**. Attendees can earn CEU credit (useful for CCEA recertification) by attending the cost track sessions. For more informa-

tion, visit the IPM website at [http://www.pmi-cpm.org/pages/events/IPM11/conf\\_program.html](http://www.pmi-cpm.org/pages/events/IPM11/conf_program.html).

The year 2012 will feature two joint annual conferences (one domestic and one international), each with slightly different names and slightly different program options. Every four years SCEA and ISPA hold two conferences instead of one — ISPA manages the international conference, and SCEA manages the domestic conference. Both conference are still considered “joint” and feature comprehensive training based on the training products of both societies. The ISPA/SCEA Conference will be held in Brussels, Belgium, from 14–17 May 2012. More information can be found at the ISPA website ([www.ispa-cost.org](http://www.ispa-cost.org)).

The SCEA/ISPA Conference will be in Orlando, Florida from 26–29 June 2012. This event will be a great chance to brush up on your skills, train for the CCEA exam, network with colleagues, and visit the outstanding local attractions. The conference hotel will be the Hilton Orlando on Destination Parkway, and all attendees will receive the prevailing government per diem as their room rate. Why not take advantage of this great opportunity and bring the whole family for a once-in-a-lifetime vacation? Read on for information about the 2012 Conference and the Call for Papers. Abstracts can be submitted online at <https://www.sceaonline.org/events/callforpapers/upload.cfm>. We expect a large number of submissions, so be sure to submit your abstract early (the deadline is 10 January 2012).

## Certification

In 2011, 89 people sat for the certification exam, with that number expected to climb as the November exam cycle gets underway. At the time of this writing, 596 people hold the CCEA credential, and 90 hold the PCEA credential. We continue to see the important role certification plays in professional lives of estimators/analysts, as evidenced by this increasing number of those attaining their CCEA or PCEA. Check out **Peter Andrejev**'s article in this issue about how our international chapters and affiliates are also starting to recognize the importance of certification.

## Journal of Cost Analysis and Parametrics

In the last issue of the *Estimator*, we told you about our new partnership with Taylor and Francis, a commercial



publishing house who has taken over the work on the *Journal of Cost Analysis and Parametrics* — we provide the content and they do everything else, from processing subscriptions to publishing each issue. One of the benefits of this partnership is that members will now be able to view the issues online, with the option to download full PDFs or run keyword searches. Volume 4, Number 1 (January – June 2011) of the *Journal* was printed and mailed in August and was the first issue available online through Taylor and Francis. Members will also soon get access to back issues of the *JCAP* and our previous journal, the *Journal of Cost Analysis and Management*. To view the current online issue, go to <http://www.sceaonline.org/publications/journal.cfm> and click on the green “Continue” button at the top of the page. (You must be logged in to the SCEA website first.)

## Membership and Member Resources

Membership currently stands at 2,047, with new members being added every day. We’ve recently started offering a new renewal option to companies: setting up a single expiration date for all employees, allowing one company representative to issue one check for all member dues just

once a year. If your company is interested, contact **Erica Wilkening** at [erica@sceaonline.org](mailto:erica@sceaonline.org).

In addition to this magazine, our journal, the SCEA website, and jobs and resumes posted to the Cost Estimating Career Center (<http://careers.sceaonline.org/>), we’re always looking for new and innovative ways to reach out to our members. As announced in the last issue of *The National Estimator*, we’ve started a weekly eNewsbrief, emailed directly to members and featuring relevant and timely news articles from sources around the world. We welcome feedback from members: have a particular article you’d like us to feature or a website that you regularly turn to for news that isn’t currently included? Contact us with your suggestions. And, if your company is interested in advertising in the newsletter and reaching an audience of 2,500 people on a weekly basis, contact me at [erin@sceaonline.org](mailto:erin@sceaonline.org) for more information.

## ISPA/SCEA Merger

Members can get current information on the status of the merger by logging into [www.sceaonline.org](http://www.sceaonline.org) and following the SCEA & ISPA Merger Process link.

# SCEA Certification Director’s Corner

*By Peter Andrejev, Director of Certification*



**Did** you know SCEA has international chapters and affiliates? Did you know that they too want to certify their practitioners? Apparently the need to distinguish competent professionals from those new to the field or lacking in understanding isn’t limited to U.S. Government or commercial organizations.

Through our long-standing relationship with the United Kingdom Ministry of Defence — be it informally through training sessions and activities or more formally through the creation of U.K. variants to CEBok® modules — they have come to recognize the value and quality of our certification program. After attending numerous CEBok training sessions, they’ve acknowledged that, except for how we account for inflation, escalation, and certain contracting methods, CEBok and our certification examination should serve as their standard as well.

The same is true for our Canberra Australia Chapter of SCEA. We recently identified a handful of questions on escalation, contracting, and pricing that will be re-engineered to create an Australian variant of the CCEA examination.

Perhaps the most ambitious international certification program resides in Japan. The JSCEA Regional Vice President has set a goal of 2,000 certified practitioners under his tenure. Consequently, Japan SCEA is initiating efforts to translate current CEBok training materials and the PCEA examination into Japanese. Then, we’ll need to remedy the “that’s not how we do it here” challenges; however, because the United States and Japanese acquisition processes are not as closely related as the United States and United Kingdom / Australia processes, developing the Japanese variant to both CEBok and the CCEA or PCEA examination will be significant. With the expectations of literally thousands of new practitioners and potential members, how can we not take up this worthy opportunity to increase the cost profession’s outreach?

In the meantime, if you are not yet certified, consider it. If you are a CCEA, be a role model. And if you’ve let your certification lapse, take the necessary steps to renew or acquire again your CCEA designation.

# Certification Congratulations

With the growing interest among the cost community in the Certified Cost Estimator/Analyst Certification Program, it's no surprise that there has also been an increase in the number of those attempting and achieving certification. As the market value of certification is more widely recognized, more and more analysts are facing up to the challenge of standing out in the crowd with the CCEA credential.

With the help of those who volunteer their time to proctor the exam, SCEA is able to offer the exam in most locations where applicants are located. Once an applicant is approved to take the exam, the National Office goes to work to secure a proctor and location. Thanks go out to the following individuals who proctored the exam around the country since the spring issue of the *Estimator*: **Areve Alexander, John Bates, Denise Cline, Sam Cooke, Tom Dauber, Salem Engler, Eric Gabrielson, David Harris, Ken Hunt, Zachary Hunt, Mike Mahoney, Rick Osseck, Andrew Pitman, Rick Schwikert, Steve Sheamer, James Strachan, Julie Wallace, Brian Welsh.**

The following people have passed the CCEA or PCEA exam, or have recertified, since the last issue of the *National Estimator*.

## CCEA Achievers:

- Sean Broderick, BAH
- Michael Bucey, CAE USA, Inc.
- Steven Cedotal, BCF
- Dwayne Clarke, IM Solutions, LLC
- Frederick Davey, Wyle
- Les Flugum, LMCO
- Amy Fox, BAH
- Raffi Garcia, BAH
- David Harris, BAH
- Andrew Hutchinson, Herren Associates
- J. David LaChance, MCR
- William Laing, Technomics
- Chems Lo, BAH
- Omar Mahmoud, BAH
- Robert Malenich, FBI
- David McConnell, Alliant Techsystems(ATK)
- Jason McDonald, Fourcast Management Analysis
- Ryan McMillian, BAH
- Mike Metcalf, Technomics
- Robert Nation, BAH
- David Rauschberg, BAH
- James Robb, BAH

- Joseph Rohner, BAH
- Daniel Rude, BAH
- Gabriel Rutledge, AFCAA
- Alisha Soles, TASC
- Christopher Teigue, Cobec
- Robert Viglione, Tecolote
- Julie Wallace, Boeing
- Benjamin Watson, BAH
- Anthony Wilson, BAH

## PCEA Achievers/ CCEA Eligible:

- Daniel Andelin, NELO
- Stephanie Anderson, NELO
- Joseph Bauer, Air Force
- Brandon Britton, BAH
- Sharra Cales, FBI
- William Evans, BAH
- Stefani Fournier, BAH
- James Haynes, Tecolote
- Lynda Huynh, BAH
- Nathan Welch, MITRE
- Travis Winstead, Herren Associates
- Peter Zell, BAH

## PCEA Achievers:

- Paul Casas, Technomics
- Kathryn Connor, RAND
- Norman Dean, Army
- Stephanie Lewis, Wyle – CAS
- Marcus Palmer, Jacobs
- Joseph Plummer, TASC
- Kathleen Santiago, NELO
- Matthew Stagner, BAH

**Attaining the CCEA credential takes real-world experience and focused exam prep. Once achieved, it is equally important to sustain CCEA certification, which is done through the recertification process (now available online for certified members). The following people have recertified since the last issue of the *Estimator*.**

- Peter Andrejev
- Ellen Barber
- John Bates
- Rick Battle
- Noel Bishop
- Brett Cayer

- Jack Davis
- Diane Dressel
- Mary Evriviades
- Brian Godsy
- Donald Gudzone
- Leon Halstead
- Joseph Hamaker
- Stacy Houk
- Kirk Hoy
- Nayeema Islam
- Hisham Jalil
- Kelly Kane
- Robyn Kane
- Brian Kolstad
- Ralph (Tim) Lawrence
- Chad Lucas
- David Lyons
- Daniel Marcelliano
- Earl McLain
- Ralph Mitchell
- Thomas Mulczynski
- Daniel Nussbaum
- Wayne Salls
- Carolyn Smith
- Thomas Wiederrecht
- Larry Winterton
- Geoffrey Zahn



# What Do You Know?

By Peter Braxton, Director, Body of Knowledge, [pbraxton@technomics.net](mailto:pbraxton@technomics.net)



Welcome to the latest installment of my new column, highlighting activities related to the cost estimating and analysis body of knowledge (BoK). The focus in this issue is society integration issues related to the impending merger of SCEA with the International Society of Parametric Estimating (ISPA), about which we are all very excited.

## A Long Time Coming

Ever since I can remember — which admittedly is not as long as some — SCEA and ISPA have been conducting joint conferences and inexorably moving toward joint operations. In fact, my very first SCEA conference, San Antonio in 1999 (which started the two-year “pattern” of SCEA host cities winning the National Basketball Association championship — beware estimating based on a sparse data set!), was a joint conference. Over the years, I have had the pleasure and honor of working with many ISPA members on shared endeavors, primarily in the training arena. **Doug Druley** and I led the first-ever integrated joint conference training at New Orleans in 2007, and to up the degree of difficulty, we managed to pull off joint training at two conferences in 2008, Noordwijk in May and Industry Hills (near Los Angeles) in June. As always, we were ably assisted by many track chairs and instructors, including **Bethia (Cullis) Burke**, who co-taught CEBoK® with me for the first time at a joint European conference. Stalwart trainers such as **Steve Book** and **Jason Dechoretz** have long been members of both societies and worked tirelessly to promote cooperation between the societies. I have worked with **Sherry Stukes** and **Roy Smoker**, among others, on subsequent joint conference training. I have attended a Parametric Cost Estimating Initiative (PCEI) meeting hosted by **Dick Basner** at Northrop Grumman Electronic Systems, and I have spoken by invitation at an ISPA Southern California Chapter meeting hosted by **Madeline Ellis**.

I’m sure you will be hearing a great deal more about the merger in the coming months, including elsewhere in this issue. SCEA veterans like **Neil Albert**, who also helped guide the ICA–NES merger that formed SCEA, are leading the process. For my part, I am supporting **Dan Nussbaum** (SCEA) and **Tom Coonce** (ISPA) as

part of the Training and BoK Solutions Team, which as of press time has provided its inputs to the Integration Committee. These inputs include impacts in just about every other area, including governance (How will the BoK be represented on the combined Board?), naming and branding (Does CEBoK need a new name?), finance (How will we get ongoing funding for CEBoK improvements?), publications (How will we get the word out about CEBoK), certifications (How will CEBoK be as the basis for core and specialty exams), and awards (Do we need to recognize BoK contributions distinct from technical and education?).

## What Does the Merger Mean for CEBoK® (and the PEH)?

In the tradition of the *Washington Post*’s “5 Myths About...” column, here are a couple of myths to consider (and I’m sure you’re relieved I only have two!).

**Myth #1: “SCEA doesn’t do Parametrics.”** The merger almost certainly means that we’ll have a “P” in our name, which may help dispel confusion regarding our cost estimating techniques. SCEA has long considered parametrics as the hallmark technique of professional estimators, while acknowledging the importance of analogy, build-up, extrapolation from actuals, and (yes, begrudgingly) expert opinion. The famous Module 1-2-3-6-8-10 “thread” in CEBoK strongly supports parametrics with its thorough treatment of data analysis, regression, and probability and statistics.

**Myth #2: “The Parametric Estimating Handbook (PEH) is not in CEBoK.”** When we purposefully changed the name of CostPROF to CEBoK, we wanted to emphasize the breadth of resources available to the professional estimator, even outside our 16 modules’ worth of slides, speaker notes, exercises, solutions, and definitions, robust though they may be. Some references, such as the *Government Accountability Office Cost Assessment Guide*, were considered so seminal that we included them on the CEBoK CD even if they were publicly available elsewhere, and PEH version 4 was one of those.

That being said, PEH has much content that can be better integrated in CEBoK, and it is our goal to move toward a “CEBoK+” — or CEBoK-PLUS (paramet-

rics, learning, uncertainty, and schedule), if you like acronyms — that does just that, in addition to previously stated goals of overhauling the risk and uncertainty content and continuing to make other general improvements. As we said when we released CEBok, “CostPROF est mort! Vive le CostPROF!” Whether we end up changing the name or not, replace “CostPROF” with “CEBoK,” and you capture the spirit of needing to keep our shared BoK vital and fresh. In the near term, PEH v4 will continue to be an essential resource, and just as CostPROF and others that have gone before, it will always be an important historical artifact.

## The (CEBoK) Circle of Life

The best way to improve CEBoK is to use it, and we continue to get excellent feedback from conference, chapter, corporate, and third-party training events. I was delighted to support co-chairs **Kevin Cincotta** and **Roy Smoker** (ISPA) and track chairs **Ashlin Smith**, **Brian Welsh**, and

**Dave Brown** at the 2011 joint conference in Albuquerque (although somehow I scheduled myself to teach Prob/Stat, Regression, Learning Curve, and Risk, respectively, in the last timeslot of the day every day of the conference!). As always, please don’t hesitate to send me questions, issues, and suggestions for improvement, either directly or via your local CEBoK Steering Committee representative.

The CEBoK Maintenance effort is alive and well under the leadership of **Tom DuPré** and **Chrissy (Kanick) Donadi** from TASC, and I will be working with them to develop and release comprehensive and timely updates.

## CEBoK®

If you’ve been to the SCEA website recently, you may notice that CEBoK has a handsome little “®” next to it. I am proud to say that SCEA has successfully filed for a trademark for CEBoK. Many thanks to Executive Director **Erin Whittaker** for her tireless efforts!



# Chaptering & Membership

*By Mike Thompson, Chaptering and Membership Chair*

**What** seems to attract new members to join a SCEA chapter or join as an “at large” member are what we refer to as the three pillars of the Society: the chapter, the training, and the certification. It all begins with the chapter. Without the chapter, you have no structure for serving members. Without members you don’t need any training, and without training, certification is of little use. During the next two years, we are initiating more chapter awareness and communication on the part of the Board of Directors through telecoms, emails, and chapter visits by members of the Board.

## Communication is Key!

In the past, after a chapter was established it was pretty much left on its own to chart its own course. Over the last four years, I have worked with some of the chapter presidents of the new chapters to help identify speakers, offer suggestions, and act as a sounding board for ideas. This year, we are taking a more hands-on approach to assisting the chapters. It will begin with Chapter President telecoms and Regional Vice President telecoms, scheduled to happen on a quarterly basis.

The first set of telecoms were for the Chapter Presidents and lasted roughly one hour. Regions 1, 2, and 3 held their call on 29 September; Regions 4, 5, and 6 held their call on 30 September. The time for an Australia Chapter telecom is to be determined (at this writing). These meetings are designed to give the Chapter Presidents a forum to discuss what works, what doesn’t work, ways to gauge member interest as well as an opportunity to bring up challenges to being a chapter president. All of the Regional Vice Presidents are encouraged to attend these calls.

The Regional Vice Presidents will have a Chaptering Conference Call in October to give them a chance to share their own ideas and discuss what has (or has not) worked for them with the chapters in their region. It is also an opportunity for them to participate in the chaptering process by identifying points of contact and potential chapter locations in their regions.

## A Close-Knit Community

With over 2,000 members we need to maintain and expand both our membership and chapters. Although I’m fond of saying that the cost community is close knit, that knitting needs a structured approach and to be well tended in order to flourish and thrive.



# What's Causin' All This?

By Kevin Cincotta, Training Chair



I'd like to start by giving a special shout-out to everyone who helped make this year's conference training the best yet. Track Chairs **Ashlin Smith, Brian Welsh, and Dave Brown** each affected a self-effacing manner while providing helpful context for all of the sessions. With these three at the helm, I was even able to steal some well-deserved time at the hotel pool, as the conference training largely ran itself! Shout-out also to my Conference Training Co-Chair **Peter Braxton**, my ISPA counterpart **Roy Smoker**, and overall Conference Chairs **Mel Etheridge** and **Rich Harwin**. Without exception, all of you were professional, dedicated, fun, and easy to work with. SCEA could not have put on such an effective training program without you; please accept my sincere thanks and appreciation.

Of course, a training program is nothing without the trainers themselves. While too numerous to list here with their individual course titles, I will recognize their contributions in all of the professional areas of our program. We had a great diversity of trainers, from reliable veterans like Lifetime Achievement Award-winner **Steve Book** to new, first-time trainers like **Angela Camp, Spencer Comert, Colleen Craig, Stacy Dean, Megan Guild, David Harris, Richard Lee, and Matt Pitlyk** — with virtually every experience level in between also represented. Our training program also included three winners of the Society's prestigious Cost Estimator of the Year Award: the aforementioned Peter Braxton (Education), **Eric Druker** (Technical Achievement), and newly added trainer **Tim Anderson** (Technical Achievement). The rest of the SCEA training corps consisted of **Neil Albert, Dave Brown, Rob Currie, Joe Dean, Jason Dechoretz, Tom DuPré, Greg Hogan, Greg Patton, Allison Horrigan, Kent Joris, Chuck Manes, Tucker Moore, Gabe Rutledge, Sam Toas, Brian Welsh, and Lori Vaughan**. (*If you were a SCEA trainer and I neglected to mention you, please send me a note and accept my sincerest apologies.*) All of the anecdotal feedback I've received so far has been positive, and it's a testament to each of your abilities as trainers that the sessions continue to be so popular.

The National Office staff are busy compiling the results of the formal course evaluations, which will be used to provide feedback to instructors and help shape next year's training in the spirit of continual improvement.

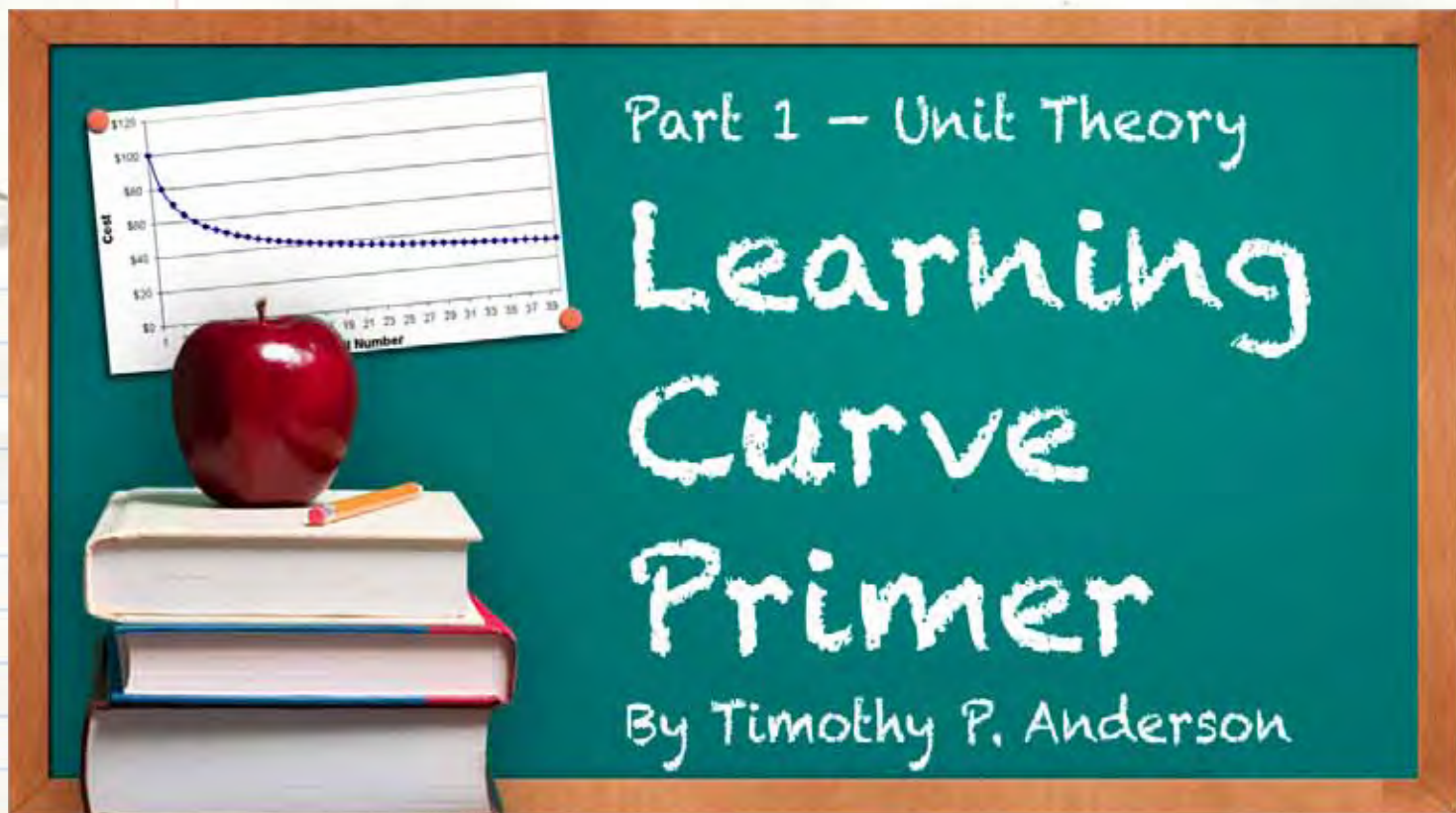
## Training and CEBok®...

Many of our trainers are authors who contributed to the Cost Estimating Body of Knowledge (CEBok) curriculum. This enabled them to answer questions and bring out the subtleties of the CEBok lessons. We featured the successful and popular joint three-track model for the training sessions. The three tracks were Fundamentals (FD), covering the basics of the cost estimating and analysis body of knowledge, including parametrics; Practitioner (PC), with more in-depth coverage of important topics, including parametric models; and Integration (IN), with more on related topics such as earned value management (EVM), schedule, and risk, including auditing parametrics. There were 36 training sessions in total, including 14 based on CEBok and 10 based on ISPA's Parametric Estimating Handbook (PEH). Together, the sessions provided ample preparation for the Certified Cost Estimator/Analyst (CCEA) and Certified Parametric Practitioner (CPP) exams, respectively — and I'm pleased to see that so many people sat for the exams offered at the conclusion of the conference. A track redesign is in the works for next year's conference, so stay tuned!

## Diversity: The Spice of Cost Training

Finally, my plan is to continue to take an ecumenical approach to training. While I love the heroic efforts of our star trainers who did multiple sessions, there's also great benefit to having a diversity of trainers via their backgrounds, perspectives, education, and experience levels.

As we expand CEBok-based training, we also need more instructors experienced in teaching CEBok, including the "Related and Advanced Topics" sections. Do you (or someone you know) have training content to share? Or maybe you have feedback about the conference training. Or maybe you just want to ask what everyone else asks me: What's causin' all this?!? Whatever the feedback, you may share it with me, and it just might appear in the next *Training Corner*.



Learning curve analysis was developed as a tool to estimate the *recurring* costs in a production process. The dominant factor in learning theory is *direct labor* and is based on the common observation that as a task is accomplished several times, it can be completed in shorter time periods. That is, each time you perform a task, you become better at it and accomplish the task faster than the previous time. While other possible factors may contribute to “learning,” such as management learning, production improvements, engineering improvements, etc., the dominant factor is direct labor.

There are two primary theories of learning — *unit theory* and *cumulative average theory*. Any production process can be modeled using either theory; however,

once the learning curve equation is derived, it is important that the *theory* in which it was developed be consistently imposed for the life of the learning curve. That is, one cannot use a unit theory learning curve in a cumulative average theory problem and vice versa. To do so would be to create large errors in the estimate. In this issue of *The National Estimator*, we will discuss the unit theory learning curve. We will cover the basic unit theory equation and how it is derived from historical data. Then, we will learn how to use the equation to estimate the cost of individual units as well as downstream lots. Finally, we will learn how to “fit” a learning curve using “lot” data. The cumulative average theory will then be discussed in a similar fashion in the next issue of *The National Estimator*.

## Unit Theory

An X% *unit theory* learning curve means that every time production quantity doubles, the unit cost of the *doubled* quantity is X% of the unit cost of the *undoubled* quantity. For example, if a production process has an 80% *unit theory* learning curve, then for every doubling that occurs, the unit cost decreases by 20%, or the unit cost of the doubled quantity is 80% the unit cost of the undoubled quantity. A graph of an 80% unit theory learning curve is shown in Figure 1.

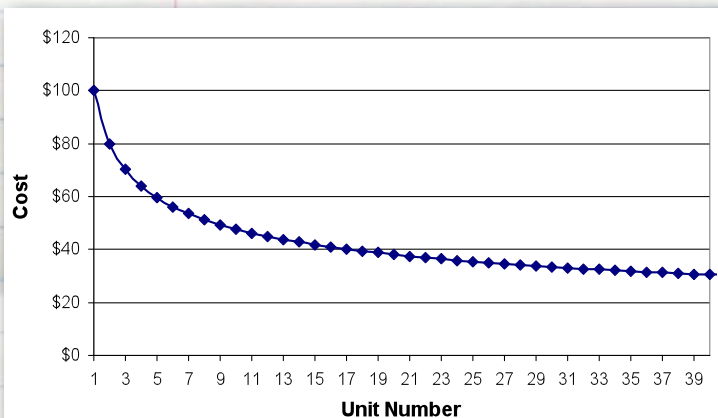


Figure 1. Eighty percent unit theory learning curve.

Timothy P. Anderson is a senior engineering specialist for The Aerospace Corporation and a professional cost analyst and operations research analyst, with over 16 years experience, primarily in the context of Department of Defense (DoD) weapon systems and national security space acquisition. Tim served for 20 years in the U.S. Navy, where he served as a military professor at the Naval Postgraduate School, teaching cost estimation, operations research, and other technical courses. His areas of interest are cost analysis, cost uncertainty analysis, operations research, and decision analysis.



As can be seen in Figure 1, the cost of unit 2 is 80% the cost of unit 1, the cost of unit 4 is 80% the cost of unit 2, the cost of unit 6 is 80% the cost of unit 3, and so on.

The unit theory learning curve is usually credited to J. R. Crawford (1947) who developed the theory while studying WWII airframe production costs. Hence, the unit theory learning curve is sometimes referred to as the “Crawford” curve. Basically, the unit theory says, “If there is learning in the production process, the cost<sup>1</sup> of some doubled unit equals the cost of the undoubled unit times the slope of the learning curve” or “as the quantity of units produced doubles, the cost to produce a unit is decreased by a constant percentage.”

Let me point out here that few, if any, production processes actually follow a precise learning curve; however, the cost behavior is sufficiently close to a learning curve that we have chosen to use learning curves to approximate, or model, the production cost behavior. That is, we use learning curve theory to *model* the unit decreases in production cost because it is a sufficiently representative model — but not necessarily because there is some inherent learning curve behavior in the physics of the production process. It is really just an approximation of the process.

The unit theory learning curve is defined by the equation:

$$Y_x = Ax^b$$

where  $Y_x$  = the unit cost of unit  $x$ ;

$A$  = the theoretical cost of unit 1 (aka  $T1$ );

$x$  = the unit number in question

$b$  = the learning parameter — a function of the slope of the learning curve.

The learning parameter,  $b$ , defines the steepness of the learning curve. In practice,  $-0.5 \leq b \leq -0.05$ , corresponding with learning curves between 70% and 96%. However, the learning parameter is largely determined by the type of industry and the degree of automation, and when  $b = 0$ , the learning curve equation simplifies to  $Y = A$ , meaning that every unit costs the same as the first unit. In this case, there is *no* learning, and the learning curve is simply a horizontal line — referred to as a 100% learning curve.

The theoretical first unit cost,  $A$  (or more commonly denoted as  $T1$ ), is the cost at which the learning curve crosses the  $Y$ -axis at a value of  $x = 1$ . Importantly,  $T1$  is *not* the *actual* cost of the first unit (except by pure coincidence). The *actual* cost of the first unit is usually different than the *theoretical* first unit cost. Figure 2 shows how  $T1$  and the actual first unit cost can be different from one another.

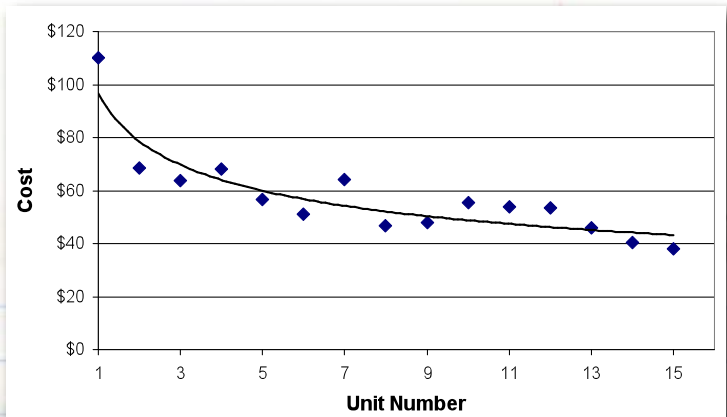


Figure 2. Unit theory learning curve vs. actual costs.

Note that in this example, the solid curve represents the derived unit theory learning curve, while the data points represent the actual unit costs. The learning curve crosses the  $Y$ -axis at approximately \$97.00, indicating that the  $T1$  for this set of data is \$97.00, while the *actual* first unit cost is approximately \$110.00. As mentioned previously, the learning curve is simply a *model* that represents the actual cost behavior in the aggregate — it does not necessarily follow each data point precisely.

Now, we address the relationship between the learning parameter,  $b$ , and the learning curve slope. In particular, how do we translate between the learning parameter and learning curve slope? Recall that in the unit theory, as the number of units doubles, the unit cost is reduced by a constant percentage. This constant percentage is referred to as the *slope* of the learning curve. That is: Cost of unit  $2n$  = (Cost of unit  $n$ )  $\times$  (Slope of the learning curve)

Rearranging this equation, we have:

$$\text{Slope of learning curve} = \frac{\text{Cost of unit } 2n}{\text{Cost of unit } n} = \frac{A(2n)^b}{A(n)^b} = 2^b$$

So, the slope is equal to  $2^b$  (slope =  $2^b$ ). Therefore, given a slope parameter,  $b$ , one can easily determine the slope of the learning curve. For example, if  $b = -0.3219$ , then the slope of the learning curve is:

$$\text{slope} = 2^{-0.3219} = 0.80 = 80\%.$$

Similarly, once can easily go the other way. Given a learning curve slope, it is easy to calculate the slope parameter  $b$ . Specifically,

$$\begin{aligned} \text{slope} &= 2^b \\ \ln(\text{slope}) &= \ln(2^b) \\ \ln(\text{slope}) &= b \ln(2) \\ b &= \frac{\ln(\text{slope})}{\ln(2)} \end{aligned}$$

For example, if you have an 80% learning curve, then the slope parameter is calculated as:

$$b = \frac{\ln(0.80)}{\ln(2)} = -0.3219$$

<sup>1</sup> In a manufacturing process, it sometimes makes sense to substitute labor hours for dollars. Since time equals money, and all that is required is to multiply labor hours by a labor rate to get cost, dollars usually work just as well as labor hours in learning curve calculations.



## Obtaining slope and *TI* from historical data

Of course, to model cost using a learning curve, one must somehow obtain a *slope* and a *TI*. The first unit costs may be derived from engineering estimates,

CERs, or historical data from previous production quantities. Similarly, the slope may be derived from analogous production situations, industry averages, historical slopes from the same production site, or historical data from previous production quantities.

If historical production data are available for a given production process, then one can develop the appropriate learning curve equation using log-OLS regression. For example, suppose you have access to the following production cost information for a certain production process and that you want to determine the unit theory learning curve that corresponds to this production process.

Unit # (x)	Cost (Y)	X' ln(X)	Y' ln(Y)
5	63	1.6094	4.1431
12	43	2.4849	3.7612
35	33	3.5553	3.4965
125	20	4.8283	2.9957

That is, given the actual cost of units 5, 12, 35, and 125, you desire to derive the corresponding *TI* and learning curve slope for this production process. The graph of cost vs. unit number is shown in Figure 3.

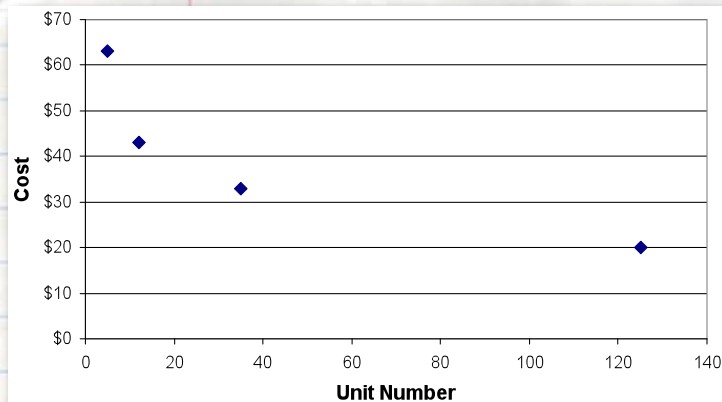


Figure 3. Actual cost vs. unit number.

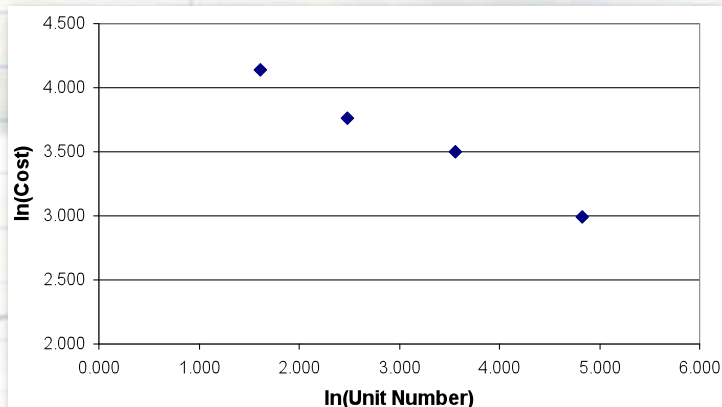


Figure 4. ln(cost) vs. ln(unit number).

If the actual data follow a learning curve, then the data will plot as nearly a straight line in log-space as shown in Figure 4.

Therefore, it is a simple matter to perform a least squares regression of the log data and transform that equation back into unit space to arrive at the learning curve equation that represents the given data. Suppose after regressing ln(Cost) against ln(Unit Number) we have:

Regression Statistics	
Multiple R	0.9955
R Square	0.9911
Adjusted R Square	0.9866
Standard Error	0.0558
Observations	4

### ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.6906	0.6906	221.51	0.0045
Residual	2	0.0062	0.0031		
Total	3	0.6968			

	Coefficients	Standard Error	t Stat	P-Value
Intercept	4.6762	0.0776	60.29	0.0003
ln(x)	-0.3453	0.0232	-14.88	0.0045

This results in a linear model of the form  $\ln(Y) = 4.6762 - 0.3453\ln(X)$ . Transforming this back into unit space is simply a matter of taking the exponential of both sides, then solving for Y, as follows:

$$\ln(Y) = 4.6762 - 0.3453\ln(X)$$

$$e^{\ln(Y)} = e^{-0.3453\ln(X)}$$

$$Y = e^{4.6762} e^{-0.3453\ln(X)}$$

$$Y = 107.4X^{-0.3453}$$

Thus, the unit theory learning curve that models this particular production situation is defined as  $Y = 107.4X^{-0.3453}$ . From this, we can infer that the *TI* is equal to \$107.4, and the learning slope can be determined as,  $\text{slope} = 2^{-0.3453} = 0.7872 = 78.72\%$ .

In particular, the general process for determining *TI* and *slope* from a set of cost/quantity data is to run a regression on ln(cost) vs. ln(quantity), then transform the resulting linear model into unit space as follows:

$$\ln(\text{Cost}) = a' + b\ln(Qty)$$

$$e^{\ln(\text{Cost})} = e^{a' + b\ln(Qty)}$$

$$\text{Cost} = e^{a'} e^{b\ln(Qty)}$$

$$\text{Cost} = A \cdot Qty^b, \text{ where } A = e^{a'}$$

Then, the *TI* is equal to A, and the learning curve slope is derived from b ( $\text{slope} = 2^b$ ).

Now, given the unit theory learning curve derived previously,  $Y = 107.4X^{-0.3453}$ , we can calculate the expected cost of any given unit number. For example, the expected cost of unit number 200 is simply

$$\text{Cost}_{200} = 107.4(200)^{-0.3453} = \$17.23.$$



Similarly, if one desires to “run the cost down the learning curve” for the first 200 units (units 1–200), one could simply sum the expected costs of all units from 1 to 200 as follows:

$$CT_{200} = \sum_{x=1}^{200} 107.4x^{-0.3453} = \$5,165.63.$$

Of course, while this appears simple, it requires summing 200 (or potentially many more) individual unit costs. The total cost of  $n$  units can be approximated by solving the integral

$$CT_n \approx \int_0^n Ax^b dx = \frac{An^{b+1}}{b+1}.$$

This result is not precisely correct, because it assumes a continuous learning curve, and starts at unit zero, however it is reasonably accurate in practice. Using this formulation for the total cost we get

$$CT_{200} \approx \frac{107.4(200)^{-0.3453+1}}{-0.3453+1} = \$5,264.35.$$

The difference between the actual summed cost and the approximated cost is less than 2%.

The preceding example assumed we were “running down the learning curve,” or summing costs, starting at unit 1. Often, however, we desire to run down a “downstream” portion of the learning curve. For example, we may only be interested in the costs of units 101 through 200. Short of summing the individual costs of units 101 through 200, the way to accomplish this is to compute the costs of units 1 through 200, then subtract away the cost of units 1 through 100 using the approximating formula:

$$CT_{101,200} \approx \frac{107.4(200)^{-0.3453+1}}{-0.3453+1} - \frac{107.4(100)^{-0.3453+1}}{-0.3453+1} \\ = \$5,264.35 - \$3,343.89 = \$1,920.47.$$

We see then that the general approximating formula for “running down the learning curve” from units  $F$  to  $L$  is

$$CT_{F,L} \approx \frac{AL^{b+1}}{b+1} - \frac{A(F-1)^{b+1}}{b+1}.$$

Figure 5 provides a graphical representation of the computation of costs downstream on the learning curve.

## Fitting a Unit Theory Learning Curve Using Lot Data

In the previous example of deriving a unit theory learning curve from known cost/quantity data, it was assumed that actual costs were known for specific units. Unfortunately, this is rarely true in practice. More often, cost is reported for production “lots,” each containing multiple units. So,

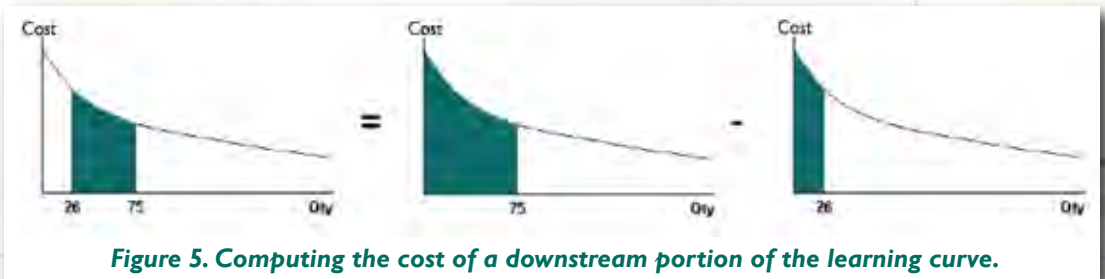
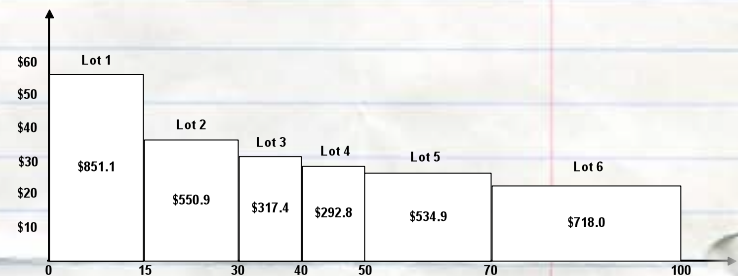


Figure 5. Computing the cost of a downstream portion of the learning curve.

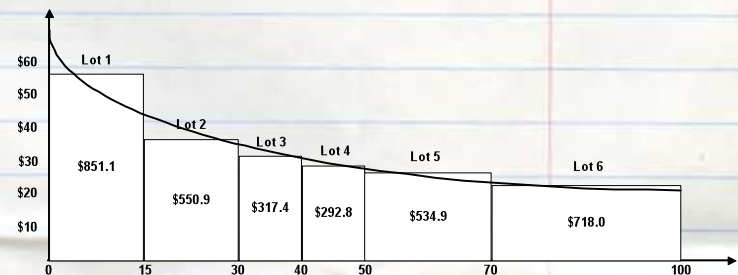
all that is known is the lot size and lot cost. An example of this type of data follows:

Lot	Quantity (Lot Size)	Lot Cost
1	15	\$851.1
2	15	\$550.9
3	10	\$317.4
4	10	\$292.8
5	20	\$534.9
6	30	\$718.0

Graphically, this can be shown in the following type of display:



Despite the fact that we do not have individual units and individual unit costs, one can still see that there is an apparent learning curve. The question now becomes, “how do we model the learning behavior of this lot data?” The answer is to compute each lot’s average unit cost (AUC) and lot midpoint (LMP). Then, given a data set containing AUCs and LMPs, it is possible to deduce the learning curve. Fundamentally, we are seeking the learning curve as follows:



Lot data must be adjusted since learning curve calculations require unit numbers and their associated unit costs. Again, the unit number and associated unit cost for lot data are represented by their LMP and AUC. The LMP is defined as the theoretical unit (could be fractional) whose cost is equal to the AUC for that lot on the learning curve. The actual calculation of the LMP is tricky, since it is a function of the learning



parameter,  $b$ . But,  $b$  is one of the things we are trying to determine, so we are in a “Catch-22” situation. Since  $b$  is unknown, we have, over the years, invented an approximating technique to derive the LMPs of the various lots. Without derivation, the heuristic technique is given as follows:

### First lot

For the *first* lot (the one starting with unit 1), the LMP is computed as:

If Lot Size < 10, then LMP = Lot Size / 2

If Lot Size ≥ 10, then LMP = Lot Size / 3.

### All subsequent lots

For all subsequent lots, the LMP is computed as:

$$LMP = \frac{F + L + 2\sqrt{F \cdot L}}{4}$$

where  $F$  = first unit in the lot

$L$  = last unit in the lot

The LMPs then become the independent variable  $X$  which can be transformed logarithmically and used in an OLS regression to arrive at the learning curve for our production situation. The dependent variable  $Y$ , which must also be logarithmically transformed, is the AUC for each lot, which is determined as follows:

$$AUC = \frac{\text{Total Lot Cost}}{\text{Lot Size}}$$

Finally, with the set of LMPs and AUCs, one can derive the associated learning curve using the method shown previously. For example, given the lot data provided earlier we have:

Lot	Quantity (Lot Size)	Lot Cost	F	L	LMP	AUC
1	15	\$851.1	1	15	5.0	56.7
2	15	\$550.9	16	30	22.5	36.7
3	10	\$317.4	31	40	35.4	31.7
4	10	\$292.8	41	50	45.4	29.3
5	20	\$534.9	51	70	60.1	26.7
6	30	\$718.0	71	100	84.9	23.9

Now, the unit theory learning curve is derived by computing the natural log of the LMP and AUC columns, performing OLS on the log data, then transforming the resulting log-linear equation back into unit space, as follows:

Quantity (Lot Size)	Lot Cost	F	L	LMP	AUC	ln(LMP)	ln(AUC)
15	\$851.1	1	15	5.0	56.7	1.609	4.038
15	\$550.9	16	30	22.5	36.7	3.111	3.604
10	\$317.4	31	40	35.4	31.7	3.565	3.458
10	\$292.8	41	50	45.4	29.3	3.815	3.377
20	\$534.9	51	70	60.1	26.7	4.096	3.286
30	\$718.0	71	100	84.9	23.9	4.441	3.175

The result of the regression analysis and transformation back into unit space are as shown:

### Regression Statistics

Multiple R	0.9996
R Square	0.9991
Adjusted R Square	0.9989
Standard Error	0.0101
Observations	6

### ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.4677	0.4677	4602.9	0.0000
Residual	4	0.0004	0.0001		
Total	5	0.4681			

	Coefficients	Standard Error	t Stat	P-Value
Intercept	4.537	0.016	284.1	0.0000
ln(x)	-0.304	0.004	-67.8	0.0000

$$\ln(Y) = 4.537 - 0.304 \ln(X)$$

$$e^{\ln(Y)} = e^{4.537 - 0.304 \ln(X)}$$

$$Y = e^{4.537} e^{-0.304 \ln(X)}$$

$$Y = 93.4X^{-0.304}$$

Thus, the unit theory learning curve that models this particular production situation is defined as  $Y = 93.4X^{-0.304}$ . From this, we can infer that the  $TI$  is equal to \$93.4, and the learning slope can be determined as, slope =  $2^{-0.304} = 0.8098 = 80.98\%$ . Now, suppose we desire to estimate the cost of Lot 7 (which is currently under production) and contains 50 units. Then we simply compute the downstream portion of the learning curve,  $CT_{101,150}$ , as follows:

$$CT_{101,150} \approx \frac{93.4(150)^{-0.304+1}}{-0.304+1} - \frac{93.4(100)^{-0.304+1}}{-0.304+1}$$

$$= \$4,388.3 - \$3,309.3 = \$1,079.0$$

Stay tuned! In the next issue of The National Estimator, we will perform a similar treatment for the cumulative average theory.





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# Toward a More Efficient & Effective Cost Estimating & Contract Negotiations Process

*By George Barbic, Director of Estimating, Program Assessment & Evaluation Lockheed Martin Corporation*

## Background on Perspectives and the Current Environment

**It's** time to redefine government acquisitions (A. Carter Initiative) to streamline and improve the products and processes required. For cost estimating, this process should be based on the data, tools, and methods that exist today, and for this to be successful, we need to be willing to modify our existing processes, procedures, and regulations as necessary, including Federal Acquisition Regulation (FAR). The review and evaluation process that leads to award and contract definitization is based on “*the way we have always done it*” instead of the “*best way*.” This article shows the “Is-State” and the “Desired-State” and identifies the potential solutions and recommendations required to make this transformation.

Cost estimating is a critical part of the acquisition process and has a strong impact on the efficacy of that process. Department of Defense (DoD) system budgets, funding profiles, expenditures, cost risk, and execution are influenced by, and often based on, the cost estimates of contractor and government cost estimating organizations.

While the acquisition process has seen reform after reform, the process of creating, submitting, and negotiating contract cost positions has been rather static — constrained by the repetition of unchanging cost volume requirements in request for proposals (RFPs). We need to seize the opportunity to incorporate improvements to the cost estimating process, to improve the credibility of cost estimates, and to create a more affordable proposal process. These objectives have been discussed in various joint government/industry cost forums [e.g., The Joint Space Cost Council, the Navy Cost Integrated Product Team (IPT), the NRO Cost IPT, the Aviation Cost IPT, Air Force Material Command–Contracting Innovation Group’s Pricing Working Group]. While there has been an agreement in principle to various estimating improvements and some are actually being piloted (e.g., standard work breakdown structure for space), now is the time to embrace bold improvements to the cost estimating and proposal processes, with the support of both the program management and acquisition communities.

In the current environment, contractor and government representatives engage in protracted contract evaluations, fact finding, and negotiations that frequently result in the award of undefinitized contract instruments because requirement schedules cannot wait for the untimely conclusion of the process. This is not a result that either the government or its contractors can continue to tolerate. The cost estimating and proposal processes need to be revamped so that



**George Barbic is the principal government, customer, and industry interface associated with estimating transformation and initiatives and is responsible for the integrated Lockheed Martin corporate Estimating Transformation Initiative and Corporate Estimating Council. He is responsible for cost estimating processes and tools along with the corporate-wide, future transformation of estimating.**

1) the fidelity of the estimates will be better understood, 2) source selections and negotiation of follow-on sole source contracts will be based on better and more useful information, and 3) costs and cycle times can be reduced through the selection of more affordable solutions.

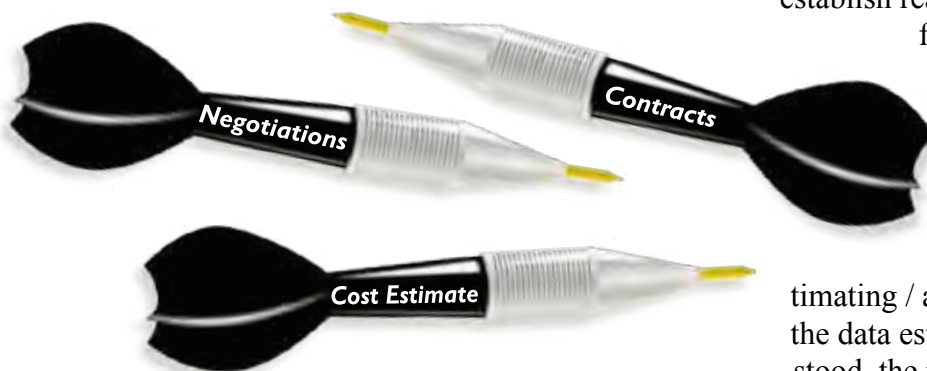
The current estimating approach typically requires a complete, detailed, standalone, bottoms-up estimating and pricing effort that is often more focused on the currency of data than on actual validation of the cost estimate. FAR requirements and RFP instructions focus the process on providing the lowest levels of detail, based on ill-defined work breakdown structures (WBS) that drive thousands of basis of estimates (BOEs) and untold pages of proposal data. This extends the acquisition process and shifts focus away from the credibility and reasonableness of the cost estimate. The bottoms-up cost proposal does not assure successful execution and does not provide a meaningful calibration of what the work will cost because, in many cases, it is highly dependent on professional judgment at levels of detail that cannot be verified. Instead, the process should be based on providing applicable, verifiable, historical cost data. A “data-driven” estimating process is a much more transparent cost estimating approach and, with today’s relatively cheap data storage and data manipulation and computing devices, a data-driven process would provide cost estimates that are quicker, cheaper, and easier to evaluate. Instead, there is some reluctance to abandon the current process although its constraints limit the benefits that can be achieved.

Data-driven estimates are developed using historical data from similar programs adjusted for complexity and other factors. Historical mathematical relationships can also be developed from similar programs and turned into parametric or cost-to-cost models used to produce data-driven estimates. These estimates are typically used to set the budgets and define the funding profiles that set the acquisition process in motion. Risk and estimating uncertainty depend on the fidelity, maturity, and complexity of the baseline definition and are typically reduced as part of the evolution and maturing of the baseline. This estimating process is used by both the U.S. government and industry and is most effective when accomplished jointly, using similar data and normalization rules. This “data-driven” process for establishing budgets and funding should also be used, with appropriate maturity and detail, to drive the basis of estimates and to validate the reasonableness and credibility of the system cost estimate throughout the proposal process, both for estimates of in-house labor and other cost as well as material and subcontract cost. A cost estimating process, set up as a closed loop process that collects, analyzes, and normalizes program “actual” cost data (stored in a “joint” database), could be used throughout the acquisition process to keep the technical and cost baselines in sync.

## Opportunities and End State

Reforms to the current acquisition system are being considered in an effort to drive down the cost of developing, procuring, and maintaining military systems. The DoD and its military components are looking for opportunities to reduce effort, increase accuracy of cost projections, and obtain best value in all aspects of a program. Hence, I believe that government should adopt a “should-cost” and “will-cost” management approach and use historically derived independent cost estimation (“will-cost” estimates) to leverage managing of programs to cost objectives (“should-cost” estimates).

There are many steps in the acquisition process (see Figure 1) where the cost estimate plays a critical role. It is used to establish the viability of executing the defined system, set the budget, define funding, establish realism, assure compliance, set the baseline for execution, and facilitate the estimate at completion (EAC) process. When government, industry, and consultants all participate effectively in these cost estimates, the result can be a well understood, defined and stable set of requirements and a joint, data driven estimating / acquisition process (Step 1 of Figure 1). If the data estimates are shared, reconciled, and understood, the results provide “should-cost” and “will-





costs” estimates (Step 2 of Figure 1). When used properly, such estimates can contribute to the establishment and execution of affordable programs — where realistic cost, technical, and schedule baselines are matched to fully funded budgets and established requirements (Step 3 of Figure 1). The key is to maintain a close correlation between the cost, technical, and schedule baselines early and throughout the acquisition lifecycle. To assure success, there need to be “gates” — milestone reviews that demonstrate, at every step, the cost and technical baselines are in

sync. Proposal development should be the formalized products (cost, technical, management, past performance volumes) that provide the complete end-to-end evidence that the contractor *can* deliver the system on schedule and within the “should/will” cost (Step 4 of Figure 1). The cost proposal *must maintain the connection* between the cost estimate and the technical baseline throughout this process. The cost volume will also assure the appropriate rates, factors, escalations, CERs, etc., have been utilized, assuring Truth in Negotiations Act compliance. Contractors will be able to differentiate themselves in the source selection process based on best value (not on the lowest cost) because the “should” and “will” cost estimates will be matured, well substantiated, and credible. Ideally, this product is completely different from the voluminous cost volumes (that focus on the bottoms-up details and the currency and accuracy of these details) delivered in response to RFPs today. Instead, this product will be focused on overall system execution, within the defined technical baseline and schedule. Cost estimating involving relevant databases, tools, methods, multiple cross checks and independent evaluations will be more credible and realistic than the bottoms-up estimates. The RFP and proposal process, audit, and negotiation are crucial to improving the estimation of cost for the systems required (Step 5 of Figure 1). RFP language that clearly encourages and requests standardized, data-driven approaches must become the catalyst for changes that will improve proposal quality and cost realism.

Just changing the RFP language, however, does not solve the problem of excessively detailed Defense Contract Audit Agency audits, customer fact finding, and negotiations. The government’s approach to these activities will have to be modified to accommodate “data-driven” cost proposals, while still accomplishing appropriate levels of review.

## How Government and Industry Could Make the Process Better

Government and industry have been partnering, in pockets, across all agencies with some degree of success. What is needed is to adopt these successes and their associated “best practices” — making them the standards by which we operate and replace the old processes that have become non-value added — given the maturity and evolution of cost estimating and its role in the acquisition process. Specifically this means the following:

1. Adopt the use of consistent, standard WBS (MIL-STD-881), currently defined by National Defense Industrial Association (NDIA), standard contract data requirements lists (CDRLs)

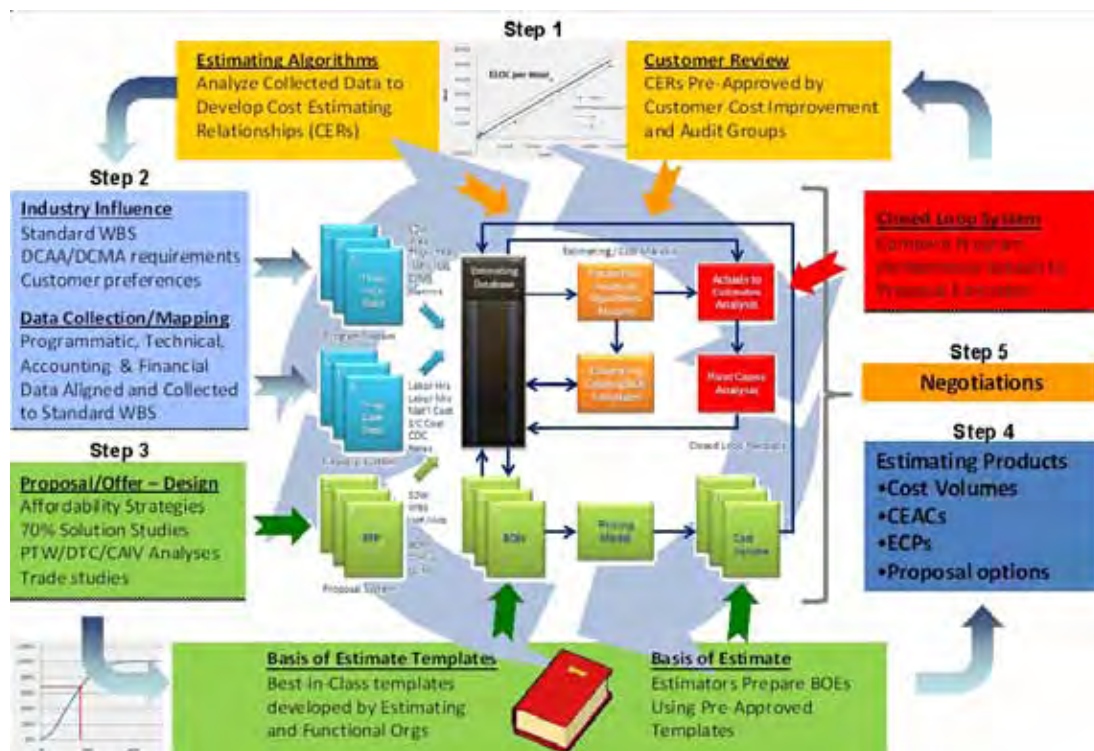



Figure 1. Estimating end state.

for cost [i.e., Joint Space Cost Council (JSCC) recommended CDRLs] and standard basis-of-estimate templates (i.e., JSCC recommended BoE) as part of the acquisition process.

2. Encourage the use of “data-driven” estimating/analysis methodology as part of the RFP process.
3. As part of the “data-driven” methodology, expand the use of estimating factors and algorithms, including contract direct factors, and pre-approve those stable factors/algorithms on a periodic basis (annually?) as part of an estimating system calibration/approval process. This should reduce the time associated with the negotiation of the contract.
4. Transparently reconcile, understand, and communicate the differences between the government’s and contractor’s estimates with the dual goal of 1) objectively understanding the potential cost outcome of the contract, and 2) driving out unnecessary waste, both from the contractor and the government.
5. Refocus the acquisition process toward timely review, audit, and negotiation of complete contracts [no undefinitized contract actions (UCAs) and no dangling open items except in extreme circumstances]. Update acquisition guidance on how to evaluate data-driven estimates so acquiring agencies, audit agencies, and contractors all uniformly understand and interpret the



refocus toward data-driven accuracy and away from judgmentally-based detailed estimates. Revise, endorse, and reissue weighted guidelines to provide “fair and reasonable” fee guidance that addresses fee implications, such as those associated with “should cost vs. will cost,” UCA inefficiency, and funding/termination risks.

### The Future and Beyond

Mountains of data, evaluated, audited, and scrubbed, does not assure that the cost and technical baseline will be executed successfully. As thousands of BOEs are being reviewed, analyzed, and audited, everything must be kept current, accurate, and complete to the level of detail provided otherwise the acquisition process slows.

If “timing is everything”, then now is the time to *make* significant changes to the acquisition process. Implementing the changes suggested in this article could 1) improve cost estimating accuracy, 2) streamline and reduce the cost of the acquisition process, and 3) result in more timely and equitable contractual settlements for major competitive and sole-source acquisitions. Therefore, I recommended that NDIA endorse this improved cost estimating and negotiation approach and suggest that the DoD form a joint government–contractor team to enact its implementation.



*SCEA is proud to introduce a new feature to the National Estimator: a recurring series of book reviews. We begin the series with a look at a foundational primer in functional competence at the strategic level. Providing an integrated synopsis of end-strength and materiel requirements, the reviewer feels that this book is indispensable to informed strategic decision-support.*

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

*Book Review by Lt Col David Peeler*

**I**f you are interested in a short, candid review of where we stand in relation to all aspects of DoD resources, *Of Men And Materiel: The Crisis in Military Resources* will inform and fascinate. In five short chapters, the editors provide a current reality tour de force of how less begets less but also provides a priced plan to return capability — the real focus of the text. The book proposes a service-by-service manning and materiel plan that cuts across service interests for the good of the nation.

Recognizing Stalin's observation that, "Quantity has a quality all its own," the book's first chapter contends "Numbers Matter." Beginning with a brief look at U.S. military build-up led by Teddy Roosevelt, the chapter quickly outlines the recent "acquisition holiday" and current "hollow buildup." Concluding that the Pentagon is not breaking the treasury, focus is on the relative share of GDP that addresses military needs.

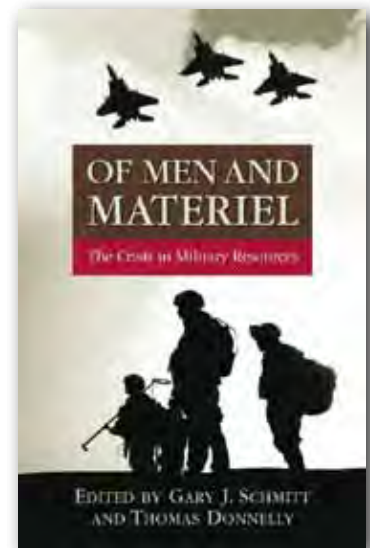
In the next four chapters, the book turns to the resource particulars of each service. Addressing the specific requirements for personnel and equipment, as well as taking up the issue of doctrine and roles and missions, the needs of the Army, Air Force, Navy, and Marines are evaluated and integrated to yield a comprehensive acquisition and manning strategy for each service going forward.

Each chapter builds service requirements based on the National Security Strategy. Reflecting on protracted wars and the Army's future, chapter two speaks to service assumptions, technology applications, and force structure. Chapter three, "Age and Indifference Erode U.S. Air Power," presents a very cogent argument with a well-written, 30-page summary of how we got where we are, and a road map for finding our way back. Chapter four takes up the issue of a 313-ship Navy. The author of this chapter argues that an affordable Navy for the 21<sup>st</sup> Century faces challenges from the Navy's prevailing views and requires a transformed fleet. Finally, a hybrid Marine Corps is proposed — a Corps that's not much different from long-standing Marine history but comprehensively manned to carry out the bifurcated role.

The book lacks a concluding chapter but provides a short appendix that yields a decent enough wrap-up. This omission is not detrimental to the message of the text, as each chapter follows the assumption that defense should be effective but cost efficient within reason. The separate service prescriptions don't seriously impose on each other — a balance is struck, and the bank ain't broke.

In less than 150 informative and easy-to-read pages, this book provides a fantastic discussion of current military readiness vis-à-vis national requirements. I highly recommend this book, as it lays out a comprehensible vision for DoD systems and sustainment.

*Lt Col Peeler currently serves as Deputy Director of Financial Management for Electronic Systems Center headquartered at Hanscom AFB Massachusetts. His most recent master's degree is in Strategic Studies from the Army War College. Additionally, he is a certified cost estimator/analyst and an Air Force certified acquisition professional in both financial and program management.*



**Of Men and Materiel:  
The Crisis in Military  
Resources**

**By Gary J. Schmitt and  
Thomas Donnelly.**

**Published in 2007 by The AEI  
Press in Washington, D.C.**



## 2011 ISPA/SCEA Conference

*By Erin Whittaker, SCEA Executive Director, and Mel Etheridge, Conference Co-Chair*

By all accounts, the 2011 ISPA/SCEA Conference, held from 6–10 June 2011 in Albuquerque, NM, was a huge success. We had over 500 attendees (our second highest attendance ever) and offered a jam-packed schedule with four exhibitor sessions, two informational sessions, 36 training presentations, and a whopping 95 professional presentations. Our conference hotel, the Hyatt Regency Albuquerque, offered luxury amenities, comfortable meeting facilities, views of the Sandia Mountains, and convenient access to downtown Albuquerque (including historic Route 66). And although the Arizona wildfires made the atmosphere smoky at times, one could still appreciate the majestic scenery from the conference hotel. The conference attracted a lot of first-time attendees and younger estimators just starting out in their field. We look forward to seeing this trend continue!

Exhibitors and sponsors are one of the cornerstones of a successful event. This year we had 19 exhibitors: **ACEIT, Acumen, Boeing, Booz Allen Hamilton, Cobec Consulting, Dekker, Frontier Technology, Galorath, Kalman & Company, MCR LLC, NCMA, Palisade Corp., PRICE Systems, ProPricer, Scitor, TASC, Technomics, Tecolote Research, and Wyle.** We sincerely thank them for their support and participation. In addition, we would also like to thank the following sponsors:



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The conference opened with a general session featuring Colonel **Mike Mullane** as the keynote speaker. Col Mullane is an author and former shuttle astronaut (a veteran of three space flights). He provided an insightful presentation on teamwork.

Thursday's general session featured a government/industry panel on DoD affordability initiatives. Panel members included **Dr. Richard Burke**, Deputy Director, OSD CAPE; **Steve Bagby**, Deputy Assistant Secretary of the Army (Cost & Economics); **George Barbic**, Director of Estimating, Program Assessment, Lockheed Martin; **Dan Noteboom**, Director of Estimating & Pricing, Boeing Defense Systems; **David Ricci**, Director of Estimating and Program Control, Northrop Grumman; and **Duncan Thomas**, Technical Director for the Naval Center for Cost Analysis.

Although we had such a full schedule of conference events, many attendees found time to get out and explore the surrounding area, like the Sandia Peak tramway and local museums like the Albuquerque Museum of Art & History and the National Atomic Museum. Guests took day trips to Santa Fe and explored historic Old Town Albuquerque on their free evenings.

Networking is a key part of ISPA/SCEA conferences. We had numerous networking opportunities, including a Tuesday evening welcome reception (where we had entertainers playing a marimba, with some conference attendees joining in!). On Thursday evening, we held a reception and awards banquet, where we announced the winners of the Best Paper Awards as well as the 2011 SCEA Annual Awards. We'd like to congratulate all the award winners.

*All conference photos, unless otherwise noted, were taken by Joseph Wagner and Rob Currie.*



## Award Winners

We had many outstanding papers presented at this year's conference, but only a select few can be chosen as the Best Paper Award winners. For more information about the winners, see **Deb Lehman's** article (p. 27), but we'd like to take a moment to congratulate the winners: **Greg Hogan**, **Antonio Rippe**, and **Darren Elliott** (Research Track); **Kristina Kipp**, **Stephen Ringler**, **Erin Chapman**, **Luke Rinard**, and **Claude Freaner** (Management Track); **Sherry Stukes** and **John Spagnuolo** (Software Track); **Doug Howarth** (Models & Methods Track); **Bohdan Kaluzny** (Applications Track); **Michael Ross** (eTrack); **Christian Smart** (Risk Track and Best Overall Paper).

We'd also like to offer our congratulations to the SCEA Annual Award Winners. Read Mike Thompson's article (below) for more information about each winner. Congratulations to them all!

- **Joe Dean** for 2011 Lifetime Achievement Award
- **Blake Boswell** for Technical Achievement
- **Michael Mahoney** for Contributions in the Field of Education
- **Daniel Nussbaum** for Service to the Society
- **Ken Hunt** for Contributions in the Field of Management

## Thank You...

The success of ISPA/SCEA conferences depends on the individuals who devote their time and energy to plan, coordinate, and then manage the on-site operations of the event. I would like to thank everyone who helped make the 2011 conference a success: the SCEA and ISPA Boards of Directors; **Sharon Burger**, **Joe Wagner**, **Erica Wilkening**, **Erin Whittaker** of the National Office; and the volunteers for all the conference chair positions — **Peter Braxton**, **Kevin Cincotta**, and **Roy Smoker** (Training); **Rich Harwin** (ISPA Conference Co-Chair); **Deb Lehman** (Best Papers); **Mike Thompson** (SCEA National Awards); **Paul Marston** and **Sherry Stukes** (Programs); and **Linda Williams** and **Eric Mosier** (CCEA Study Session Coordinators). Track Chairs (and alternates) included **Ashlin Smith**, **Brian Welsh**, **David Brown**, **Doug Howarth**, **Bob Hunt**, **Jim Roberts**, **Rey Carpio**, **Kurt Brunner**, **Mike Ross**, **Hank Apgar**, **Leigh Rosenberg**, **Quentin Redman**, **Cari Pullen**, **Tom Sanders**, **Tim Anderson**, **Andrew Drennon**, **Joe Dean**, **Leone Young**, and **Frank Flett**. We'd also like to thank the volunteers from MCR who were on hand to help with registration on Tuesday: **Steve Hogan** and **Jane Kelchner**.

Conference photos and additional follow-up conference information can be found online at [www.sceaonline.org/events/conference/2011/2011Conference.cfm](http://www.sceaonline.org/events/conference/2011/2011Conference.cfm)

## Come see us in 2012!

The SCEA/ISPA Conference will be 26–29 June 2012 in Orlando, FL. Don't delay. The "Call for Papers" is available at <https://www.sceaonline.org/events/callforpapers/upload.cfm>, and you can upload your abstract today!

# SCEA National Awards

*By Mike Thompson, Annual Awards Chair*

A total of 14 nominations were received this year for the 2011 SCEA National Awards, which were evaluated by a panel made up of representatives from government, contracting, and industry. The members of the panel included **Rich Hartley**, **Dave Burgess**, **Joe Dean**, **Frank Flett**, **Travis Eyrich**, **Blaine Webber**, **Kathy Hedges**, and **Steve Hansen**. Each nomination was judged against a set of standard criteria, which were established several years ago and used consistently ever since.

Each award committee judged nominations separately, ranking winners in each category. The results were tabulated, and the entire committee met via telecon to discuss the results and pick the final winners between the top two choices in each category. Once winners were chosen, the committee forwarded their recommendations to the SCEA Board, who passed the recommendations unanimously.

I would like to thank all of the members who participated either as a nominator, nominee, member of the selection committee, and/or the SCEA Board of Directors. Most of all, I'd like to congratulate the winners.





### **2011 SCEA Lifetime Achievement Award — Joseph Dean**

**Joseph Dean** has been in cost estimating and analysis for 28 years, currently as the Air Force Cost Analysis Agency Branch Chief at Hanscom AFB in Massachusetts. Prior to that, he was with Tecolote Research, Inc., for 19 years and with the Armed Forces for 22 years (4 years in the Marines and 18 years with the Air Force). He is a former member of the Software Engineering Institute's Software Acquisition Metrics Working Group and is co-author of *Practical Software Measurement, Objective Information for Decision Makers*. Joe has long been a valuable SCEA volunteer, holding national positions like SCEA National Vice President, Chaptering/Membership Chair, and SCEA Region 1 VP (his current role) and chapter positions like New England Chapter President. Congratulations, Joe!



### **Cost Estimator of the Year Award for Technical Achievement — Blake Boswell**

**Blake Boswell** is a Consultant for Booz Allen Hamilton's Business Analytics Team. His career includes many notable accomplishments. He has worked to develop a new Monte Carlo simulation tool (RealTime Analytics™) and has done considerable research into the Mahalanobis Distance algorithm, while mentoring interns in the process. We congratulate Blake on this achievement and look forward to even more accomplishments in his future!



### **Cost Estimator of the Year Award for Contributions in Education — Michael Mahoney**

**Michael Mahoney**, CCEA, is a Staff Analyst at Lockheed Martin, where he is subject matter expert on learning curve at the Chelmsford, MA, location. He developed a CCEA study plan for Lockheed Martin employees in response to a call from the Chelmsford Business Operations department, training six employees over a 12-month period. Of those six trainees, three took the exam, and all three passed. He is known for his involvement in mentoring and encouraging junior analysts and peers and is well deserving of SCEA's Education Award.



### **Cost Estimator of the Year Award for Service to the Society — Daniel Nussbaum**

There isn't much **Daniel Nussbaum** hasn't done in service to SCEA: he's been a National At-Large Director, Vice President, President, and Past President. He has helped further SCEA's influence in the estimating community, championed the marketing and promotion of CostPROF™, and helped stabilize SCEA's financial status. He initiated the Corporate Sponsorship Program and consistently provides guidance to other SCEA National Board members. We are indebted to Dan for his work, and very happy to present him with this year's Service to the Society Award.



### **Cost Estimator of the Year Award for Contributions in Management — Ken Hunt**

**Ken Hunt**, CCEA, works at the Navy Engineering Logistics Office where he manages a group of cost analysts supporting ACAT-level programs. He is dedicated to fostering the professional growth of early- and mid-career analysts: He helped coordinate NELO's purchase of a CEBok site license, encourages young analysts to take specialized training and sit for PCEA and CCEA exams, and volunteers to proctor many of these exams himself. Our heartfelt congratulations go out to Ken for this achievement.

Once again, I would like to congratulate all the winners. Your work in the estimating community is helping SCEA to achieve its goal of "improving cost estimating and analysis in government and industry by enhancing the competence and achievements of its members."



# Best Paper Awards

By Deb Lehman, 2011 Best Papers Chair

With the large number of presentations at this year's conference, the Best Paper Award selection process was more challenging than ever. A total of 95 papers were presented, divided into six tracks: Applications, Management, Models & Methods, Research, Risk, and Software. In addition, we had papers submitted for the CD only, which were also considered for Best Paper Awards in their own track (the eTrack). The task of selecting the winning papers was taken on by a dedicated group of volunteers, which I chaired. For particularly large tracks, four judges, instead of two, were assigned.



Track Chairs

<b>Applications</b>	<b>Management</b>	<b>Models &amp; Methods</b>	<b>Risk</b>	<b>Software</b>	<b>Research</b>
Jeffrey Jaenicke	Antonio Ortiz	Dean Kimmel	Eric Gabrielson	Lyle Davis	Ken Marshall
Kate Styers	Paolo Ponzio	Guenever Aldrich	Doug Howarth	Barbara	Joe Hamaker
Cynthia Foster	Dean, Stacy	Douglas Brown	Dawn Bozulich	Stone-Towns	<b>eTrack</b>
George Culver	Bob Hunt	Dale Shermon	(Alternate)		Chris Dalton
					Steve Green

Over the past few years, we have implemented a standard scoring system with great success. The judges score each paper in four categories: 1) technical content (40%), 2) creativity (20%), 3) application to our profession (20%), and 4) overall quality and style (20%). The scores are weighted and then aggregated to determine the overall score for each paper, with an average score based on the judges' composite scores. The highest scoring paper in each track wins. Each judge then scores all the winning Track Best Papers using the same system to determine the Conference Best Paper. Judging so many well-deserving papers is no easy task, and I want to extend my sincere thanks to all the judges for their time and effort.

And now, on to the winners!

- **Christian Smart** (Risk & Overall Best Paper): *Covered with Oil: Incorporating Realism in Cost Risk Analysis*
- **Greg Hogan, Antonio Rippe, and Darren Elliott** (Research): *Joint Cost Schedule Model (JCSM) — Recent AFCAA Efforts to Assess Integrated Cost and Schedule Analysis*
- **Kristina Kipp, Stephen Ringler, Erin Chapman, Luke Rinard, and Claude Frenner** (Management): *Instrument Schedule Delays Potential Impact on Mission Development Cost for Recent NASA Projects (Follow-On Study)*
- **Sherry Stukes and John Spagnuolo** (Software): *Software Cost Estimation Using a Decision Graph Process: A Knowledge Engineering Approach*
- **Bohdan Kaluzny** (Models and Methods): *Trade Space, Product Optimization and Parametric Analysis*
- **Doug Howarth** (Applications): *An Application of Data Mining Algorithms for Shipbuilding Cost Estimation*
- **Michael Ross** (eTrack): *An Improved Method for Predicting Software Code Growth: Tecolote DSLOC Estimate Growth Model*

Congratulations to the winners, as well as all the other presenters, whose top-notch papers made this year's program one of the best yet. Thanks also to the judges for the hours of work, their fair readings, and their dedication to the profession. The winning papers can be viewed at <http://www.sceaonline.org/awards/bestpaper.cfm>.

## Call for Future Volunteers

Cost estimating/analysis continues to grow in importance, and with that growth, comes increased need for volunteer participation. Help us to promote the profession and foster the professional growth of our members. If you are interested in being a Best Paper judge, contact the Joint Office at [scea@sceaonline.org](mailto:scea@sceaonline.org).



Christian Smart



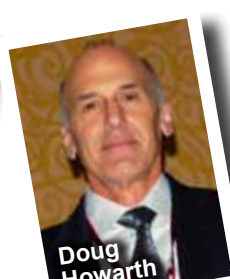
Bohdan Kaluzny



Claude Frenner



Sherry Stukes



Doug Howarth



Michael Ross



# Exhibitors





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## CALL FOR PAPERS

### 2012 SCEA/ISPA Joint Annual Conference

26 - 29 June 2012

Orlando, FL

**Submit your abstract by 10 January 2012**

The Conference Committee will be accepting abstracts until **10 January 2012** for the 2012 SCEA/ISPA Conference in Orlando, FL. This conference will be a great opportunity to demonstrate your expertise and contribute to the advancement of the profession, and we expect a high number of quality submissions, so be sure to submit your abstract early.

The 2012 Joint Conference Programs Committee would like to present a wide variety of cost estimating and cost analysis topics, which will fall into the following Tracks:

- Hardware and Software Estimating
- Earned Value Management/Scheduling
- Risk Analysis
- Life Cycle Cost Analysis
- Cost Methodologies/Applications
- Parametrics
- Models
- Management

#### Deadlines:

- Abstract and Biography submission deadline – **10 January 2012**
- Author Notification – **7 February 2012**
- Final paper/presentation and release form submission – **30 March 2012**

#### Submission Process:

To upload materials, select the “Call for Papers” link under the Calendar menu on the SCEA website ([www.sceaonline.org](http://www.sceaonline.org)).

#### For more information. . .

Contact Mike Thompson, Programs Chair ([mthompson@mcricri.com](mailto:mthompson@mcricri.com), 301-904-1103), or Mel Etheridge, Deputy Programs Chair ([metheridge@mcricri.com](mailto:metheridge@mcricri.com)).



For general Conference inquiries, contact the SCEA & ISPA Joint Office  
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# Experience the magic of Orlando at the 2012 SCEA/ISPA Joint Annual Conference & Training Workshop

Hilton Orlando  
26-29 June 2012



Come join us for a chance to learn and network in one of the greatest vacation destinations in the world — Orlando, Florida. We'll be at the Hilton Orlando on Destination Parkway, which is conveniently located near outlets, shops, and restaurants along International Drive. Transportation is available to local theme parks like SeaWorld, Universal Orlando, and Disney World. Why not stay over after the Conference ends and take advantage of this great vacation opportunity?

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- Attend comprehensive training based on the Cost Estimating Body of Knowledge (CEBoK®) and the *Parametric Estimating Handbook*. Brush up on your skills, or prepare to take the CCEA exam, held Saturday, June 30.
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- |                         |                                |                          |
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| • Busch Gardens (Tampa) | • <i>Blizzard Beach, Magic</i> | • Airboat Tours          |
| • Universal Orlando     | • <i>Kingdom, and more!</i>    | • Kennedy Space Center   |

## Stay tuned!

- Look for more information on the SCEA website ([www.sceaonline.org](http://www.sceaonline.org)) as it becomes available.





# Call for Papers

## 2012 ISPA/SCEA Joint International Conference & Training Workshop

### Assuring Cost Efficiency: Global Solution

14-17 May 2012

The ISPA logo is a blue oval with the word "ispa" in white lowercase letters.

**Brussels, Belgium**

The SCEA logo is a red rectangle with the word "SCEA" in white bold letters, and below it, "Society of Cost Estimating and Analysis" in smaller white text.

Submit your abstract by 9 January 2012  
Late submissions cannot be considered!

The Joint Conference Committee is seeking technical papers covering a wide variety of cost estimating and cost analysis topics including, but not limited to:

- Hardware/Software Estimating
- Cost Growth Analysis
- Whole Life Cost Analysis
- System of Systems Estimating
- Earned Value Management
- Risk Analysis
- Joint Confidence Levels
- Cost Estimating Models
- Cost Methodologies/Applications
- Decision Analysis
- Cost Benefit Analysis
- Benchmarking
- Cost As an Independent Variable
- Affordability Assessment

This is a great opportunity to demonstrate your expertise and contribute to the advancement of the profession. The schedule for this year's conference is as follows:

<b>Abstract submission</b>	<b>9 January 2012</b>	Instructions for uploading abstracts will be available at the ISPA web site, <a href="http://www.ispa-cost.org">www.ispa-cost.org</a> beginning in August 2011.
<b>Author notification</b>	<b>31 January 2012</b>	
<b>Final submission</b>	<b>2 April 2012</b>	

Note: For the two-day (17-18 May 2012) SSCAG/EACE meeting following the ISPA/SCEA conference, abstracts should be submitted directly to those sponsors.

If you have questions or need additional information about the workshops, please contact:

Sherry Stukes  
[sherry.a.stukes@jpl.nasa.gov](mailto:sherry.a.stukes@jpl.nasa.gov)  
+1.818.393.7517



[www.ispa-cost.org](http://www.ispa-cost.org)



## Baltimore Chapter News

By **Sonja Holzinger**, Chapter President

To expand our membership, our chapter held an Open House at Aberdeen Proving Grounds, MD, on 31 March 2011. The event advertised the Baltimore Chapter to the local cost community recently moved to the area with the Base Realignment and Closure (BRAC). Most attendees were non-members who came to join SCEA. For the first time, we also offered special membership and CEBoK® discounts to new and existing members. During the Open House, **Sonja Holzinger**, Chapter President and **Tucker Moore**, Training & Program Chair, presented “Why SCEA?”, an introductory presentation aimed at new members that gave insight into the benefits of SCEA and the local chapter.

### Chapter Presentations

We also hosted a briefing on new features for ACEIT version 7.3, presented by certified ACEIT trainer **Ray Radovich**. The event has held on 12 May 2011 at SAIC office in Abingdon, MD. This session highlighted

new features available with ACEIT 7.3 and was an opportunity for our members to get their ACEIT questions answered by an expert.

Upcoming, the Baltimore Chapter will be hosting **Mike Thompson**, who will be presenting “You Don’t Have to Lose a Million Dollars a Day, a Cost/Price Analysis Journey through Winemaking”, which was also presented at the 2011 ISPA/SCEA Joint Conference.

### Elections

This year, the Baltimore chapter will hold its first elections. The two-year term is up for current officers, and the email calling for participation in our elections was sent out in early August 2011. The elections opened 12 September 2011, and results will be announced by the end of October 2011. New officers will take on their duties on 01 January 2012.

A special thank you goes to our election board for their dedicated support of our first election: Election Board Chair **Eric Laird** (TASC) and, Election Board Member **Elmira Mukailova** (SAIC).

## Canberra, Australia, Chapter News

By **Joe Vega**, Chapter President

### First Australian SCEA Chapter Established

Canberra, Australia, now has a SCEA chapter to serve its local members. The Canberra Chapter was given formal approval by the SCEA Board in February 2011. We’d like to take this opportunity to publicly express our heartfelt gratitude to the SCEA Board for their vote of confidence to establish this chapter. While only a small chapter, members are working toward growing their numbers and establishing a permanent board and committee. Until the new board is established, the provisional board consists of President **Joe Vega** [retired ex-Head of Cost Analysis Branch Australian Department of Defence (DoD)], Vice President **Stacey Wehmeier** (DoD), Secretary **Karen Lloyd** (DoD), and Treasurer **Tony Thackray** (DoD).

Cost Analysis Branch (Australian DoD) undertook CEBoK® training in May 2010. The training was conducted by two knowledgeable and engaging personalities: Peter Braxton and Dick Coleman. The idea of forming a chapter in Canberra arose last year from this training by like-minded cost analysts and estimators within the Cost Analysis Branch, Dept. of Finance and Deregulation, and industry. We saw a gap in our professional standing and the lack of a forum in which to gather to express our thoughts and improve cost estimation.

Thanks to **Karen Lloyd** and **Katie Andrews** who drafted all the necessary documentation for the National Office, as well as for the local authorities to



(Top) First meeting of the Canberra Australia Chapter of SCEA.  
(Bottom, left to right) Treasurer Tony Thackray, Secretary Karen Lloyd, and President Joe Vega.

# Chapter Updates

allow the chapter to act as an independent non-profit organisation within the Australian Capital Territory legal framework. While it has been a long journey, it promises to be a rewarding one with interest growing. So to steal a line from our American friends, “Houston, we have blast off!”

## Inaugural Defence Cost Estimation Conference

Our Chapter was highlighted in the DoD’s Acting Assistant Secretary Cost Analysis opening presentation at the Inaugural Defence Cost Estimation Conference in Adelaide, South Australia, on 27–28 June 2011. This conference was organised by staff from within the Australian DoD who are also founding members of the Canberra Chapter. The establishment of this inaugural conference demonstrates the high level of support given to improving cost estimation by the senior executives in the Australian DoD. At the conference, the chapter called for participation from industry and academia to not only grow their membership, but to establish a strong cost estimation network and share each other’s experiences. The conference was well attended with 137 registrations and speakers from defence industry and the public sector in the United Kingdom, the United States, and Australia.

## First Chapter Meeting

The first chapter meeting was held 23 August 2011. About 20 members attended. After a bit of meet-and-greet and socialisation (mainly drinking beer), we got onto the business of discussing “now that we’ve formed the chapter, where do we go from here?” Two topics dominated the discussions: 1) How to increase our membership by promoting and making key industry and public service groups aware of the benefits of SCEA and of joining the chapter? 2) How do we educate, up-skill our people, and modify some CEBoK® content to meet the Australian environment? The latter would concentrate on inflation and contract pricing, which is handled differently.

## Houston / Clear Lake Chapter News

**By Rey Carpio, Chapter President**

**W**e were delighted to have **Vickie Gutierrez** as our featured speaker at our last luncheon. Ms. Gutierrez is the Team Lead for the Cost Estimating and Assessments Office at the Johnson Space Center and has over 20 years experience in cost estimating. She provided her insights into the current and future status of NASA cost analysis at Johnson Space Center.

## Happy Retirement, Ella!

**Ella Hrabar**, chapter founder and first president, is retiring from the Procurement Business Management Office of United Space Alliance in Houston. At the company, she supported NASA’s human space operations, assisting in day-to-day management of the space shuttle fleet and operations for space shuttle missions and the International Space Station. Ella’s career started in 1960, and at the

end of August 2011, she transitioned to retirement. It was Ella’s vision and zeal to contribute to our profession that led to the founding of the Houston/Clear Lake chapter. She has been the continuing force behind our profession here and is the type who wants to get things up and running, which is exactly what she did. She stirred the community, nudged the unwilling to volunteer, worked the details, and engaged our cost analysis community. As a result, she galvanized everyone and created the energy among our professionals for forming a chapter. We all recognize her outstanding achievement (also her personal goal) of starting a chapter in the Houston/Clear Lake area. Through her mentorship, the chapter has grown and thrived. Though Ella is retiring from corporate America, we are sure that her interests and endeavors will keep her active — and we will continue to enjoy her presence and wisdom in our chapter. We sincerely want to recognize Ella’s outstanding efforts and service to the Society.

*(Left to right)  
Vickie Gutierrez  
spoke at the  
last luncheon.  
Ella Hrabar  
celebrates a well-  
deserved retire-  
ment with friends  
(left to right :  
Carl Conder,  
Sarah Walsh,  
Ella Hrabar, and  
Krista Stroh).*





## Mid-Atlantic Chapter News

By Jeff Sueck, Chapter President

**O**n May 26th, we held a meeting at the Boeing Facility in Ridley Park, PA (which is located along the I-95 corridor mid-way between Philadelphia and Wilmington, DE). We draw our membership from defense and other government facilities in the Philadelphia area and the neighboring areas of New Jersey, such as Veterans Affairs, U.S. Army CECOM, and NAVAIR. Boeing, Lockheed Martin, Booz Allen Hamilton, SAIC, AAI, and Tecolote are among the companies represented in our membership.

At our last meeting, chapter Treasurer **Anthony Walsh** (Boeing Philadelphia Site Core Estimating and Pricing Group) made a presentation about the current federal government climate concerning TINA (Truth In Negotiations Act) and complaints that are developing around many proposals. Of particular interest was the increasingly stringent requirements that the U.S. government imposed on subcontractor proposals in excess of \$700K as part of larger negotiations with major vendors. The effects of these TINA processes on proposal quality and turn around time were discussed following the presentation. The subject was of great interest as our attendees work primarily in the areas of estimating, pricing, and procurement financial analysis.

## Lone Star Chapter News

By Rex Potter, Chapter Past President

An our May meeting, our guest speaker was **Jerry McAfee**, Defense Contract Audit Agency's LOGCAP Audit Coordinator. Jerry is responsible for coordinating audits of certain overseas contingency operations contractors supporting the military and U.S. government operations in countries like Kuwait, Iraq, and Afghanistan. Before his current assignment, he served as a Regional Audit Manager, where he was responsible for managing contract audit work at several DCAA audit offices, conducting audits at Boeing, Lockheed Martin, and Bell Helicopter. Jerry

discussed the DCAA audit of a contractor forward pricing proposal, parametric estimating, common issues that DCAA has found with contractors' proposals, and other areas the estimating community can consider to expedite the audit process. Attendance was excellent with about 25 members and guests engaging in a good discussion regarding issues involving the proposal process and changes in the DCAA guidelines.

Our next meeting will be held in October where we are planning to discuss "should-cost" analysis and its effect on the estimating and proposal process.

*Good times at the May Lone Star Meeting.*



## New England Chapter News

By Eleanor Bassett, Chapter President

**W**e had a very busy spring, and we're looking forward to a busy fall! We just completed the CEBoK® training program and scheduled a certification exam on September 1<sup>st</sup>. Thanks go to **Eric Timinski** for organizing this monumental effort, and we wish good luck to the analysts who took the exam! We also held a very successful cost workshop on May 2<sup>nd</sup>, closing with a Cinco de Mayo-themed social that was enjoyed by all.

The workshop was held at Hanscom AFB. We had five speakers covering six topics as well as a speaker during lunch. We received corporate donations from TASC (breakfast), Tecolote (subsidized lunch), and MCR (providing pocket folders with paper pads and pens with highlighters).

The workshop committee thought they had covered all the bases, getting permission for the caterer and speakers and off-base attendees to be able to come on-base property through any gate. We didn't factor in that Osama Bin Laden would finally be found by our military! I arrived at 6:15 AM for an 8:00 AM start. As I arrived at the gate in the dark and saw vehicles being searched, I knew we were going to have a hiccup. Enhanced security had been initiated at the base to prevent any backlash from the Bin Laden death. The result was a delay in the arrival of several speakers and attendees. The morning session was lead by **David Seaver** (PRICE Systems) presenting "ESLOC — Is the question more important than the answer?" Next, MCR's **Ray Covert** presented "Reducing Systemic Errors in Cost Models", followed by MCR's **Kerry Sheehan** presenting the "MIL-STD 881C Update". We ended the morning session with **Alf Smith** (Tecolote) previewing ACE V7.3.

During lunch, our own Major **Stephen Gray** talked about his deployment to Afghanistan. He spoke about contracting, budgeting, and dealing with the Afghanistan military. He also reminisced about the "delicacies" he was served. Luckily that part of the discussion came after most had finished eating. Gray's talk was interesting, entertaining, and enjoyed by all. The afternoon session included Alf Smith's second topic "Relationship between Tornado Variance Analysis & RI\$K Allocated \$", followed by **Brian Fersch** (ESC Chief of Operations Research and Studies) presenting "Cost Engineering/Technical Baseline Training". The workshop was a huge success. Thanks to speakers who volunteered their time and knowledge for this event and the National Office for their help.

### Awards

We ended the workshop with the presentation of our 2011 Chapter Awards. **Darren Kreitler** (MCR) received the Management Award, **Bill Lane** (Tecolote) received the Technical Achievement Award, and **Michael Mahoney** (Lockheed Martin) received the Education Award. All recipients were sent on for nomination at the national level. **Michael Mahoney** also received the National Award for Education! Congratulations to all for these remarkable achievements, we are pleased to be able to recognize your talents!

### Elections

Our board election was summer with the term beginning on September 1st. Thanks to the election

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- Follow link for "**Post your Resume**"
- Get your name out as an employee who will go the extra mile for the job!





committee for organizing the election: **Jon Lister**, **Rick Beavers**, and **Michael Mahoney**. They brought our chapter to the 21<sup>st</sup> Century with online voting, which was well received by all. Congratulations to the new board: **Ellie Bassett**, **Kelly Kane**, **Cari Pullen**, **Ken Marshall**, **Eric Timinski**, LtCol **David Peeler**, and **Brian Fersch**.

## Coming Up

We have several activities planned in the coming months. In addition to monthly luncheons, we are planning another cost workshop tentatively scheduled in November. Anyone looking for a reason to travel to New England in the fall should contact us as we're still filling out the roster of speakers and topics for luncheons as well as the workshop. It's shaping up to be a busy fall, and we're already looking forward to our holiday social!

## Northwest / Washington Chapter News

By Julie Wallace, Chapter President

**O**ur chapter continues to focus on increasing membership, encouraging member involvement, expanding the number of general meetings, and growing member skills.

Our membership count was 107 at publication of the spring issue of the *Estimator*. Our current count of 136, a 36% increase over December 2010. We have officially exceeded our 2011 target of 120 members!

We had a much larger role in leading this year's ISPA/SCEA conference than we've had in the past. We provided chairpersons, instructors, judges, and an exam proctor. Thanks to all members who contributed time and talent to this conference; **Jeff Campbell**, **Spencer Comert**, **Stacy Dean**, **Mike Doherty**, **Eric Gabrielson**, and **Jeff Jaenicke**. We hope to have even greater involvement in years to come!

Our Seattle Mariner's fundraising event is in full swing. As of this writing, we're halfway into this activity, having worked three baseball games with three to go. We are working smaller booths this year. Improvements at the ball park make our work easier, and we are looking into other possible fundraising activities to fund socials and guest speakers.

Chapter members had a good time socializing over appetizers and drinks at our July social event, where we shared pictures from this year's Annual Conference in Albuquerque. Attending members agreed that these social events should be done more often! Our next social event is scheduled for September, where members will enjoy each others company over appetizers and beer and have the opportunity to play a game or two of pool. We are working on putting together speaker events for our members as well.

Our spring session of the SCEA Certification Exam preparation course took place May 19<sup>th</sup>–July 12<sup>th</sup>. This 8-week, 40-hour class, designed to provide assistance and preparation guidance to those interested in obtaining their Certified Cost Estimating/Analysis or Professional Cost Estimating/Analysis certifications, covered each of the 16 modules in CEBoK®. It was taught by certified chapter members, and four students went on to take the exam. We will be providing another session of the Exam preparation course this fall. The upcoming session's schedule is in the works and the course will be kicking off in the October/November time frame.



(Left) **Spencer Comert** co-instructing **Fundamentals Course on Data Analysis** at the **2011 SCEA Conference**. (Right) **Members** enjoying a good time at our **July 2011 social event**.

## San Diego Chapter News



By **Lauren Queen Ramirez, PCEA,**  
**Chapter President**

**O**ur chapter has reorganized and we're moving in a new direction. Since our last report, the San Diego Chapter has hosted assorted meetings at local businesses and restaurants and has focused on getting members certified.

### Meetings Go High Tech

Meeting topics have included conference recaps, cost risk analysis, SCEA committees and ways to get involved, and most recently, Agile software development methodologies. In the future, we look forward to a deeper dive into "should-cost" and "real-time" modeling. Running meetings using AT&T Web Meeting has enabled us to host our quarterly meetings in-person for better discussions and networking and stream live to those who cannot attend physically. Moving ahead, we look forward to leveraging speakers and meetings that we and other chapters are hosting to share resources and equip local members with a greater SCEA network.

(Above) Meeting at Booz Allen office (pictured include Justin Robb, Anthony Balistreri, Dave Harris, Sheona Whitwer, Lauren Ramirez, Doug



Druley, Dave Bracamonte, Jason Blancet, Jason Navaroli, Robert Wade, Narissa Vania, Rachel Diedrick, Stephanie Kane, Mike Thompson). (Bottom) Socializing at a recent meeting (pictured include Kevin Venable, Dave Bracamonte, Dave Harris, Jocelyn Bush, Rachel Diedrick, Lauren Ramirez, Stephanie Kane, Janna Garland, Narissa Vania, and Anthony Balistreri).

## Southern California Chapter News

By **Dave Graham, President Pro Tem**

**W**e have reinstituted the Lunchtime Lecture Series with Dr. **Roy Smoker**, who presented "Use of Earned Value Measurement Trends to Forecast Cost Risks" on Wednesday, 24 August, at the Aerospace Corporation in El Segundo, CA, from noon to 1:30 PM. The lecture series will complement the Joint Southern California ISPA/SCEA quarterly one-day workshops by occurring in alternate months.

### Lunchtime Lecture Series Kick-off

Dr. Smoker presented a very innovative approach to projecting earned value (BCWP) and budget at completion (BAC) using linear regression trend analysis and using those equations to establish a projected ending month for the contract. What makes this approach so innovative is that it takes into account the inevitable fact that the BAC grows over time — something often not taken into account in normal EVM analysis. Similarly,

using trend analysis another equation is developed to project an estimate at completion (EAC) based on that ending month to credibly establish a variance at completion (VAC). Thus, a more credible projection of the VAC is enabled (a.k.a. "cost risk") earlier in a program's life cycle enabling the program manager to prepare risk mitigation to decrease the growth of the BAC and/or prepare for budget requests to handle the extra risk.

### Elections

The Southern California Chapter is also preparing for elections. The National Office set up an account for our chapter to conduct elections electronically. Originally, the plan was to conduct the elections by late August, but it appears that the elections will occur in September/October this year. Candidates were being identified but not fast enough for an August election. It is, however, great news that we're further reinvigorating the Southern California Chapter and adding to our Joint Southern California ISPA/SCEA Workshop activities!





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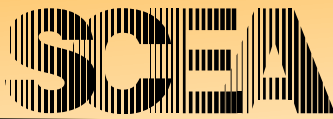
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