

# NATIONAL Estimator

The Society of Cost Estimating and Analysis

Spring 2012

## In this issue ...

- In Memory of Dr. Steve Book
- Part 2 — Cumulative Average Theory Learning Curve Primer
- OP-ED: A Long Slow Death ... Or a Decline?
- Book Reviews: The Wounded Giant Moneyball
- 2012 Conference
- Chapter Updates







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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

### In Memory of Dr. Steve Book

By Paul Marston, SCEA President..... 5

### SCEA & ISPA Joint Office Operations

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

### What Do You Know?

By Peter Braxton, Director, Body of Knowledge..... 8

### Certification Congratulations..... 9

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

By Kevin Cincotta, Training Chair ..... 10

### Chaptering & Membership

By Mike Thompson, Chaptering and Membership Chair..... 11

### AFIT Names SCEA Award Winner

By Joe Wagner..... 12

### SCEA + ISPA = Success!

By Joe Wagner..... 13

### Learning Curve Primer: Part 2 — Cumulative Average Theory

By Timothy P. Anderson..... 15

### OP-ED: A Long Slow Death ... or A Decline?

By David L. Peeler, Jr. .... 20

### Book Reviews

On the New Defense Guidance and Its Resources, by Walt Cooper..... 22

Money Changes Hands ... A Good Book Changes Minds, by Lt. Col. David Peeler..... 23

### 2012 ISPA/SCEA Conference..... 24

### Chapter Updates ..... 33

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# President's Letter

*By Paul Marston, SCEA President*

## It's

not often that organizations can claim to have reached an historic decision. Most of the time, we deal with routine business. Sometimes we make important moves in new directions. I think your Board of Directors' unanimous decision on February 14 to approve our merger with the International Society of Parametric Analysts (ISPA) rises to the level of "historic" for SCEA.

### Time Flies when You're Having Fun

Some of you may be thinking, "Wow, that was fast!" And yes, the Board and the Integration Committee have moved energetically over the last seven months to work out all of the details of the merger. The reality is that the Board vote to approve the merger is the culmination of a process that started way back in the summer of 1998.

Fourteen years ago at the Joint SCEA - ISPA Conference in Toronto, **Neil Albert**, in one of his last acts as the Society President, addressed our membership and formally proposed that the two organizations merge. In Neil's words, "his proposal was received with a distinct lack of enthusiasm." Yet the idea of merging found enough fertile ground that both Boards appointed a combined Jointness Committee comprised of **Neil Albert**, **Peter Andrejev**, and **Bob Carlton** for SCEA, and **Hank Apgar**, **Dan Ferens**, and **Andy Prince** for ISPA. While the Committee composition changed over the years, their mission to find ways to collaborate, cooperate, and better serve our members remained constant. We take it for granted now, but the Jointness Committee is the reason we have Joint Conferences, Joint Training, the joint *Journal of Cost Analysis and Parametrics*, and a Joint Office. What remained was to take that final, crucial step to merge.

### What's Been Accomplished?

In the days leading up to the Joint Conference in Albuquerque last summer, **Bill Haseltine**, then SCEA President, and **Jason Dechoretz**, then ISPA Chairman, decided it was time to move forward and take some concrete steps toward a merger. The driving reasons were the same ones that had started to take root fourteen years ago:

- SCEA and ISPA have common memberships;
- We have similar missions to improve and promote cost estimating and analysis, including parametric analysis and other techniques;

- We seek to promote the professional growth of our members through training and certification;
  - We promote a common body of knowledge through CEBoK® and the *Parametric Estimating Handbook*; and
  - We advocate a uniform Code of Ethics for our profession.
- Simply put, a merged organization will enable us to provide better value to our members.

### Moving Forward

So, to move the process forward, the SCEA and ISPA Boards appointed a joint Integration Committee. Over the last seven months, the Committee and its Solution Teams have developed integration plans for Publications, Training & CEBoK, Certification, Awards, Finances, and Governance. I'm happy to report that the dedication and hard work of the Integration Committee and all the Solution Team members has paid off, and the proposed recommendations have been approved by both Boards (members can see details of these recommendations by logging onto the SCEA website at [www.sceaonline.org](http://www.sceaonline.org)).

The sole remaining issue to be decided at the time of this writing is the name of the new, merged organization. While the Integration Committee and the two Boards have considered many alternatives, we have not quite settled on a name that captures the essence of our mission and heritage. Hopefully, by the time you read this article we will have reached a decision.

I fully support the merger. I believe it is in the best interests of SCEA, ISPA, and our entire memberships, and it is my hope that our members will support the merger as well. We will be providing all of you with copies of our Plan of Merger, our new Constitution and Bylaws, our new organization's name, and a new Governance structure (including a Pro Tem Board of Directors charged with governing until the first fully elected board is seated). All of our members will have the opportunity to vote to approve the merger in accordance with these documents as required by our current Constitution. I urge you to vote "yes" to approve the merger when the time comes. If you have any questions or concerns, please feel free to discuss them with your Chapter President, your Regional Vice President, our Executive Director, or with me. It's been a long time coming, but I'm very excited to be leading SCEA to this next, great chapter in our history.



# Letter from the Editor

By Joe Wagner, *National Estimator Editor*



## “I first met Dr. Steve Book ...”

I’m sure that phrase has passed through many minds in the past few months. As a friend, professional compatriot, or acquaintance, Steve had an impact on the lives of hundreds of our members over the years of his career. For me, the continuation of the opening phrase goes — “when I was at Air Force Systems Command headquarters, and Steve was Director of the Cost Group at Aerospace Corporation.” I worked with him on several Air Force space programs, finding him, as would always be the case, a thoroughly knowledgeable and convivial associate, and an enjoyable, reliable friend. I will miss him. Many others in this issue of the *National Estimator* share their memories of Dr. Book. Read on for Paul Marston’s memorial article for Steve.

## In this Issue

If you were eagerly awaiting the next chapter in the ongoing saga of our “Learning Curve Primer” by **Tim Anderson**, this issue brings you “Part II — Cumulative Average Theory,” a follow-on to last fall’s “Unit Theory” discussion. We very much welcome any and all technical or professional content articles such as this one. Just email me with your idea or completed article, and we will get you into the next issue.

Book reviews offer a double benefit — we learn about the publication itself and usually something of value from the reviewer. **Lt. Col. David Peeler** and **Walt Cooper** share with us their opinions and insights on two current publications of potential interest to the membership — David reviews *Moneyball: The Art of Winning an Unfair Game* by Michael Lewis, while Walt looks at *The Wounded Giant* by Michael O’Hanlon of the Brookings Institute.

For many years, there was a close and natural operating relationship between SCEA and the Air Force Institute of Technology (AFIT) Master’s Program in cost analysis. The AFIT degree is one of the few in the country offered specifically in our chosen discipline. As part of this relationship, SCEA for many years sponsored an award, which was given to an AFIT student in each class based on the quality of their thesis project. For reasons unknown now, that relationship lapsed. See the article on AFIT award winner for the good news update.

The big news for 2012 is the pending merger of ISPA and SCEA. More information is included in “ISPA + SCEA = Success”. As a result of the work accomplished, this could well be the last issue of the *SCEA National Estimator* under this title. Save it for your grandchildren.

## *In Memory of Dr. Steve Book*

By Paul Marston



The Cost Community lost a giant on January 10, 2012, when Dr. Stephen Book passed away at his home in Seal Beach, CA. It’s hardly necessary to recount Dr. Book’s contributions to the cost estimating field. He has touched so many of us in so many ways both personally and professionally. Many of us were lucky enough to have worked with him, been taught, mentored, and inspired by him, learned from his articles, and simply to have known him. And while he was certainly a giant among us, he was the most humble, unassuming, down-to-earth man you could ever meet. I remember talking to him about a course he was to present in MCR’s Boston office shortly after he joined our company. He wanted me to know that as long as he had about 5 attendees it would be fine; of course, it was a sellout crowd with just about every analyst in the office showing up — so typical of his modesty.

After earning a Ph.D. in mathematics, with a concentration in probability and statistics, from the University of Oregon, Dr. Book joined the Aerospace Corporation where he supported Air Force programs and directed research in cost, schedule, and risk analysis. He went on to serve as Director, Cost and Requirements Analysis. The Aerospace Corporation bestowed one of their most prestigious titles of “Distinguished Engineer” on him. He spent the last years of his career at MCR as its Chief Technical Officer.

In 30+ years, Dr. Book produced a number of landmark contributions to our profession; many consider him to be a father of modern cost analysis. To see his impact, consider a small sample of his work: “Do Not Sum ‘Most Likely’ Costs”; “Minimum-Percentage-Error (MPE) Regression under Zero-Bias Constraints” (with N.Y. Lao); “Why Correlation Matters in Cost Estimating”; “What We Can and Cannot Learn from Earned Value”; and “Cost Risk as a Discriminator in Trade Studies”. Dr. Book served as the last editor of the ISPA’s *Journal of Parametrics* and then as co-editor of the *Journal of Cost Analysis and Parametrics*. He received SCEA’s 2010 Lifetime Achievement Award. The Cost Community is richer for Steve’s years of service, but today, we’re all poorer for the loss of our colleague, mentor, and friend.



# SCEA & ISPA Joint Office Operations

By Erin Whittaker, SCEA Executive Director

**The** SCEA and ISPA Joint Office has been a flurry of activity since the last issue of the *National Estimator*, and I'm excited to get you up to speed!

Membership stands at 2,125 at the time of this writing, representing significant growth since our last issue. This growth is due in large part to the Membership Drive we held in December 2011 through February 2012. The drive offered discounts for new or renewing members, and help us gain over 75 new members. We're excited to welcome these new members and show them everything SCEA has to offer.

## 2011 Membership Survey

In addition to growing our membership base, we decided that it was time to reach out to our individual members to gauge how they value their SCEA membership, and to get ideas for ways we can improve service. The last membership survey was conducted in 2005, and with the membership growth we've experienced since 2007, there are hundreds of new SCEA members who haven't yet had the chance to tell us about what they expect from the Society. We received 544 survey responses (75% male and 25% female). The responses about age group and years of experience were very enlightening: 20% of the respondents were 34 or younger, with 44% being over 55. 37% of the respondents have 9 years or less of experience, with just 16% having over 30 years of experience. With this information, we can tell that as the Baby Boomer generation begins to retire, there is a robust group of younger analysts who are looking to move into more senior-level positions. The median salary for all respondents was \$105,000. We provide greater detail about the salary breakdown and the breakdown of other demographics on the SCEA website: <https://www.sceaonline.org/pdfs/2011Survey.pdf>.

In addition to gathering demographic data, we used the survey as an opportunity to get a better understanding of what SCEA members expect from SCEA at a national and international level. In our continuing effort to improve service to our members, the SCEA Board will take the suggestions and comments provided in

the survey and use those to develop strategic plan for upcoming initiatives. Increased Chapter Workshop support, more professional development opportunities for young analysts and those new to the field, and increased cooperation with other professional organizations were just some of the suggestions we received that we plan to implement over the next few months. We'd like to thank everyone who took time to respond to the survey.

## Conferences

The 2011 IPM Conference, held November 7 – 9 at the Bethesda North Marriott Hotel and Conference center, was a huge success. This is an event that SCEA hosts jointly with the National Defense Industrial Association (NDIA) and the College of Performance Management (CPM). We had 575 attendees, 32 exhibitors, and featured intriguing keynote speeches from **Dave Walker** (Comeback America Initiative), **Jacques Gansler** (School of Public Policy, UMD), and **W. Todd Grams** (Department of Veteran Affairs).

Plans are well underway for the 2012 SCEA Conference, to be held 26 – 29 June 2012 in Orlando, FL. Conference Chair **Bill Haseltine**, Program Co-Chairs **Mike Thompson** and **Mel Etheridge**, and Training Chairs **Brian Welsh** and **Kevin Cincotta** are all hard at work planning the schedule and finalizing the conference program. We expect this year's conference to be the most action-packed one yet! The conference will be held at the Hilton Orlando and will feature a keynote speech from Commander **Kirk Lippold**, who commanded the USS Cole when it was attacked by Al Qaeda in 2001. We will have 42 training sessions, 120 professional papers, CCEA study sessions, Exhibitor Sessions, and presentations from leaders of other professional organizations. The event will feature a Tuesday evening Attendee Reception, shuttle to local attractions on Wednesday night, and an offsite dinner at SeaWorld on Thursday evening. Read on for more information about the conference, including registration and hotel reservation information, and visit the conference webpage at <https://www.sceaonline.org/events/conference/2012splash.cfm>. We hope to see you there!



## Journal of Cost Analysis and Parametrics

In January, we were saddened to learn about the passing of **Steve Book**, Journal co-editor, luminary in the field, and friend to many, many SCEA members. Steve worked tirelessly with **Tony White** (SCEA's co-editor) to put out a quality product each *Journal* issue, and he will be sorely missed. ISPA has named **Ricardo Valerdi** as the new *Journal* co-editor. We would like to welcome Ricardo into this role.

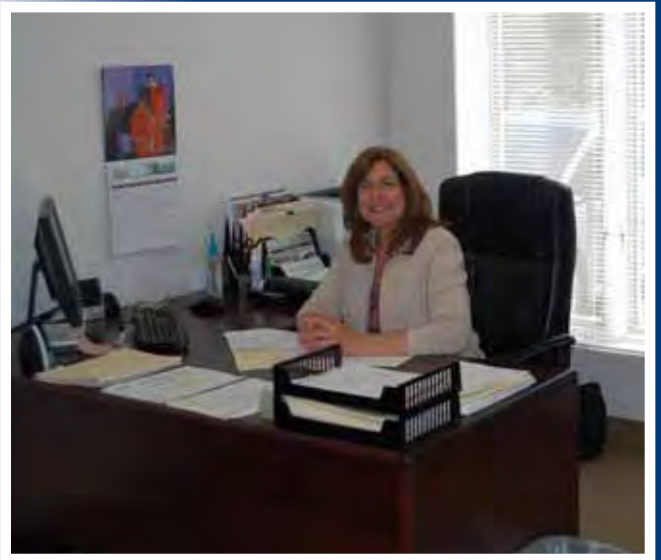
The next issue of the *Journal of Cost Analysis and Parametrics* will be printed and mailed by May. We continue to enjoy a great working relationship with the *Journal* publisher, Taylor and Francis, and we are pleased to announce that one of the benefits of SCEA membership, provided by Taylor and Francis, is on-line access to archives of all past journal issues. SCEA members just need to be logged in to the SCEA website, and then they can follow the link on the *Journal* webpage to get access to the journals (<https://www.sceaonline.org/publications/journal.cfm>). We hope everyone takes advantage of this exciting new member benefit!

## ISPA/SCEA Merger

As we mentioned in the last issue of the *National Estimator*, ISPA and SCEA have been working hard to negotiate a merger agreement. Each society has appointed members to be on an Integration Committee; the Integration Committee volunteers have been working tirelessly to craft specific merger recommendations and present them to the SCEA and ISPA Boards for approval. To date, we have agreements for Publications, Awards, Certification, Training & Body of Knowledge, and Finances all approved. The Integration Committee is currently working on a new society name, and new governance documents (Bylaws and Constitution) to be presented to the Boards for approval. Once we have all the information, we will be putting the merger to a final vote of the membership. But, if you want to stay up to date on the status of the merger, visit the SCEA website ([www.sceaonline.org](http://www.sceaonline.org)) and log in as a member. Click on "SCEA & ISPA Merger Process" for details.

## We've moved!

When you look at the return address on this issue of the *National Estimator*, you'll notice something different: our address has changed! After five years at the Joint Office on Maple Avenue in Vienna, with supplies and files starting to pile up and staff members sharing desks, the SCEA staff realized it was time to move. Our new office address is 8221 Old Courthouse Road, Suite 106, Vienna, VA 22182. Our phone and fax numbers remain the same. If you're in the area, we welcome you to drop by!



(From top to bottom) Lobby of our new office building. Our new front door! Sharon hard at work in her new office.



# What Do You Know?

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

**A**s we continue toward the merger of SCEA with the International Society of Parametric Analysts (ISPA), I'd like to take a moment to acknowledge the immense contributions to the body of knowledge by an individual who was honored with the Lifetime Achievement Award of both societies.

## The Inimitable Steve Book

While I can't claim to have known **Dr. Stephen A. "Steve" Book** as well as many in our community, I have found him to be as others invariably describe him: brilliant, generous, good-natured, and with a healthy and playful sense of humor. He was a stalwart supporter of the training program I ran at the SCEA annual conferences from 2004 to 2011, where he would cheerfully teach such complex topics as Multiplicative-Error Regression and Schedule Risk. I'm sure that all who attended this year's Department of Defense Cost Analysis Symposium (DoDCAS) appreciated the fitting tribute to Steve delivered by Neil Albert, citing such colleagues as **Dick Coleman**, **Tim Anderson**, and **Ray Covert**. In addition to insights into Steve as a person — "a real mensch" — I was fascinated by his self-selected list of top papers. Neil has generously passed them along, and I wanted to share them with you.

### The Top Ten...er, Fourteen!

In classic Steve Book style, when asked for a list of his top ten papers, he produced fourteen. While he certainly has many other influential papers to his credit, this list gives fascinating insight into the breadth of his contributions.

1. "The GPS Non-Uniform Constellation" (with W.F. Brady and P.R. Mazaika), 1981
2. "Do Not Sum 'Most Likely' Costs," 1992
3. "A Way Out of the Learning-Rate Morass: Quantity as an Independent Variable (QAIV)" (with E.L. Burgess), 1995
4. "Minimum-Percentage-Error Regression Under Zero-Bias Constraints" (with N.Y. Lao), 1998
5. "Costs of Reusable Launch Vehicles: Should We Pay Up Front to Build in High Reliability or Pay Later to Buy More Vehicles?" 1998
6. "Why Correlation Matters in Cost Estimating," 1999
7. "What We Can and Cannot Learn from Earned Value," 1999
8. "Estimating Correlations for Use in Cost-Risk Analysis," 2005
9. "Prediction Bounds for General-Error-Regression CERs," 2006
10. "IRLS/MUPE CERs Are Not MPE/ZPB CERs," 2006
11. "Allocating 'Risk Dollars' Back to Individual Cost Elements," 2007
12. "Adaptive Cost-Estimating Relationships" (with M.A. Broder), 2008
13. "Cost Risk as a Discriminator in Trade Studies," 2008
14. "Combining Probabilistic Estimates to Reduce Uncertainty," 2008

Sadly, my favorite Steve Book paper title (if not favorite paper), "Only Numbers in the Interval  $-1.0000$  to  $+0.9314$ ... Can Be Values of the Correlation Between Oppositely-Skewed Right-Triangular Distributions," was not included in the list.

### Contributions Wide-Ranging and Diverse

Little did I know that when I habitually check Google Maps on my iPhone — yes, I'm one of those people who watches the blinking blue dot move instead of looking out the window at the real world! — I should be thanking Steve. In his GPS paper [1], he showed that non-symmetric orbits would enable 18 satellites instead of the proposed 24 to meet system requirements, thereby saving hundreds of millions of dollars. As much as we cost estimators work to support fiscally-responsible decisions every day, how many of us can claim to have had that kind of a direct impact?

Looking at Steve's papers, what jumps out, in addition to his impactful space studies [1, 5], is the wide range of areas in which he made key contributions: regression [4, 9, 10, 12], risk [2, 8, 9, 11, 13, 14], learning curve [3], EVM [7], and CAIV [13]. Almost always there was sophisticated math involved, and often Steve took a fresh perspective, not confining himself to standard practices [3, 12]. Not only did Steve present on many topics, but he did so in many venues. He was a fixture at SCEA, ISPA, and DoDCAS conferences and



in the joint *Journal of Cost Analysis and Parametrics* (JCAP), of which he served as co-editor, but he also spoke at such venues as the IDA/OSD CAIG Cost Symposium, U.S. Army Conference on Applied Statistics, SSCAG, and NASA Cost Symposium.

## The CEBok® Bibliography

When you think of CEBok as training or reference materials, you probably think of the hundreds of rich slides with detailed Speaker Notes, but remember that it also has important resources such as the Glossary and Bibli-

ography. With the latter, and thanks to the tireless effort of individuals such as **Dick Coleman, Maureen Tedford, Joe Frisbie, and Matt Pitlyk**, we have tried to capture information on as many of the community's seminal papers, such as Steve's, as we can. If you know of ones that are missing, please send them my way. (I have made a note to self to add the ones from the above list that were missing!) In the future, we plan to explore ways in which to make the papers themselves more accessible to members.

# Certification Congratulations

As always, SCEA would like to acknowledge both those who volunteer their time to proctor the Certification Examination and those who achieve certification. Without CCEA® certified proctors to manage exam administration, SCEA would be unable to offer the exam in so many locations throughout the year. The National Office would like to thank the following individuals for proctoring an exam since the last issue of the *National Estimator*: **John Bates, Sabrina Beane, Bryan Daly, Stacy Dean, Eric Druker, Brian Fersch, Glenn Grossman, Roger Hill, David Humm, Ken Hunt, Justin Knowles, Nick Morales, Peter Morelli, Rick Osseck, Joe Parisi, Tom Sanders, John Vitkevich, Ed Weeks and Linda Williams**. Congratulations are extended to the following individuals for passing either the CCEA® or PCEA® exam since the last issue of the *National Estimator*:

### CCEA® Achievers

- Richard Allen
- Ed Bacon
- Bradley Boehmke
- Brett Bush
- Brian Camarote
- Garth Cooke
- Paul Crouse
- Bryan Daly
- Franco George
- Ryan Gianneschi
- Townsend Hanafourde
- Michella Hensley
- Kent Joris
- Jessica Karnis
- Mark Kipperman
- Jennifer Kirchhoffer

- Donald McGuire
- Sarita Sharma
- Erin Shea
- Michael Shortell
- John Teal
- Jose Tejada

### PCEA® Achievers / CCEA® Eligible

- Michael Brown
- Katherine Coyle
- James Davis
- Michele Ehlinger
- Kenneth Jeeves
- Charles Knight
- Donna Nguyen
- Rachael Noggle
- Ignacio Perez

- Toyya Pujol-Mitchell
- Kimberly Roye
- Ryan Shakely
- Alex Sherman-Ash
- Andrew Singleton
- Jennifer Swartz
- David Torgerson

### PCEA® Achievers:

- Eric Buller
- Soo Y. Lee
- Andrew Murray
- Jessica Patterson
- Margorie Pujols-Cruz
- Marc Russo
- Christopher Schmidt

### Recognized below are those who have recertified since the last issue of the *Estimator*:

- Terry Adler
- Timothy Anderson
- Richard Bazzzy
- Kristina Golden
- Stacy Houk
- Roger Imgarten
- Kevin Jackameit
- Kelly Kane
- Kevin McKeel
- Elmira Mukailova
- Stephen Newton
- Douglas Reimel
- Bruce Reynolds
- James Roberts
- Abbey Turnau
- Raymond Wekluk



## Training Corner

# What's Causin' All This?

By Kevin Cincotta, Training Chair

# The

2012 SCEA/ISPA Joint Annual Conference & Training Workshop is fast approaching! The gala will be held in Orlando, FL (the *second* home of Space Mountain) from June 26 to June 29, 2012. I will be co-chairing the training with **Brian Welsh**, who served as Chair for the Parametrics Track at last year's event. My traditional International Society of Parametric Analysis (ISPA) counterpart **Roy Smoker** will assist with coordinating training for the Parametrics track, Program Co-Chairs **Mike Thompson** and **Mel Etheridge** will handle the professional papers, while overall Conference Chair **Bill Haseltine** will balance papers and training to ensure that everything goes off without a hitch. Each year, I'm increasingly reliant on my dedicated, professional, fun-loving, and easy-to-work-with colleagues, as well as the unrelenting support of the **SCEA National Office**. Please accept my sincere thanks and appreciation for striving to make this year's training the best yet!

## Conference Get Track Face-lift

Avid readers will recall my mention of a track redesign for this conference. I'm happy to announce that we're expanding the training this year to a new, four-track format. This format provides a more logical separation of content and accommodates the Society's growing membership, growing rate of conference attendance, and planned merger with ISPA. We plan to offer 42 training courses, which (according to my high-powered math) is sure to eclipse the previous high water mark of 36. The four tracks are: Cost Estimating — Basics, Parametric Training, Cost Estimating — Advanced, and Integration. As before, content will be culled from the Cost Estimating Body of Knowledge (CEBoK®), *Parametric Estimating Handbook* (PEH), and other authoritative sources.

Also for the first time ever, our annual "Call for Trainers" was opened up to SCEA's entire membership plus non-member past conference attendees. This

means that, if you're reading this, you almost certainly should have received an email inquiring as to your interest in volunteering to become a trainer. Whether you've taught at a past conference or not, none of us are too experienced (nor too inexperienced) to provide meaningful training. Everyone has something to learn; everyone has something to teach. If you would like to volunteer for future conferences, please contact the aforementioned **Brian Welsh** at [bwelsh@technomics.net](mailto:bwelsh@technomics.net).

## Saying Farewell to Steve Book

I'd like to close by taking a moment to remember a dear friend and colleague to all of us, **Dr. Steve Book**. Each of us who were blessed to know Steve has many classic "Steve Book stories" to share, and I'm sure you've already ready many in this issue of the *National Estimator*. Many come to my mind, including the time he made us all count M&Ms for a week to demonstrate the veracity of the Central Limit Theorem. My favorite one occurred at the 2007 Department of Defense Cost Analysis Symposium (DoDCAS). I shared the same 90-minute time block with Steve on two separate but loosely related papers. As **Walt Cooper**, the Track Chair, tells the story, "Kevin was giving his talk, and all was going smoothly until Steve suddenly arose and violated the unwritten rule that one speaker will not challenge another speaker in the same session. He took dead aim at one of Kevin's key assertions about handling multicollinearity. The ensuing argument — "The Kevin and Steve Show" — was truly a moment of DoDCAS history rivaling the movie *Deliverance*'s dueling banjos in its intensity and entertainment value." Of course, all I remember is being thankful that Steve respected me enough to actually address me during my presentation, adding the wit and charm that only he could bring. Not before or since have I been able to, in Walt's words, "recreate the magic of Steve", but that is the whole point about Steve. He was often imitated, never duplicated. What's causin' all this? *You* are, Steve. Rest in peace, friend.



# Chaptering & Membership

*By Mike Thompson, Chaptering and Membership Chair*



## Chapter Programs Move into 21<sup>st</sup> Century!

I'm working with the Joint Office to roll out some exciting new tools and web features to support our chapters.

The first tool will be SCEA-supported Webmeetings, for chapters to share their speakers with other chapters. Rather than taking the place of regular, in-person meetings, this capability will enhance chapter events by making speakers available to multiple chapters. Several chapters have already conducted their own webmeetings (e.g., Baltimore and St. Louis Gateway Chapters), but in the past, they've had to rely on corporate sponsorship. A SCEA-provided service will enable a Northwest/Washington Chapter member to see a presentation from the New England Chapter (for example) without putting an undue financial burden on either chapter. This service will also facilitate meetings for chapters that cover a large area and, thus, have difficulty finding convenient meeting locations. We are testing the functionality of one webmeeting service and have had a few Chapter Presidents use the service and provide feedback. We plan on introducing the service to all Chapter Presidents at the

Chapter Presidents' cyber-meeting we hold in April. In the meantime, if any Chapter President is interested in testing out our current service, please contact the Joint Office at [scea@sceaonline.org](mailto:scea@sceaonline.org).

One of the hardest jobs of any chapter is getting speakers for the regular program meetings. Having been a Chapter Program Chair, I understand and appreciate everything a Program Chair does to get interesting and topical speakers. To help with this effort, I will be working with the Joint Office to send out a Speaker Form to all SCEA members. This form will allow people to step forward with a specific topic they would be willing to present at a Chapter Meeting. The information will be entered into an online database that Chapter Presidents will be able to access. We invite members to pass the form along to anyone else they may know who would be interested in speaking. This initiative is tentatively scheduled for early May.

We hope that these initial steps toward modernizing the chapter interaction will help strengthen chapters, grow our membership base, and foster a spirit of collaboration among Chapter Presidents.



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# AFIT Names SCEA Award Winner

By Joe Wagner



A ceremony was held at the SCEA Board of Director's meeting (February 2012) that marked a milestone. It was the first demonstration of the reestablishment of a strong relationship between SCEA and the Air Force Institute of Technology (AFIT) Master's Degree Program in Cost Analysis. Throughout the 1990s, a common professional interest in cost estimating, analysis, and related disciplines existed between SCEA and AFIT. To demonstrate this relationship, SCEA's President presented an plaque to the AFIT graduating student with the best

thesis project annually. In addition to the student's plaque, the winning student's name was inscribed on a permanent plaque mounted in the AFIT school building.

For unknown reasons, this relationship between AFIT and SCEA lapsed. The good news is that the relationship has been renewed, stronger than ever. Credit for the renewal goes to Lt. Col. **Eric Unger**, Director of the AFIT Cost Analysis Graduate Program, SCEA Past-President **Bill Haseltine**, and others interested in improving the natural professional ties

between the two organizations. Beginning late in 2010, AFIT reestablished the SCEA Award as a formal part of the AFIT Awards program; the first recipient was Captain **Aaron Lemke**, a 2010 graduate of the Cost Master's program. His winning thesis was "Part Count: Monolithic Part Effects on Manufacturing Labor Cost, an Aircraft Applied Model".

While Captain Lemke was the 2010 winner, his graduation departure from AFIT and subsequent reassignment precluded an actual presentation of his award. The concrete evidence of the new relationship and of the award renewal had to wait for the 2011 winner. That person is First Lieutenant **Grant Keaton**, whose thesis title is "Using Earned Value Data to Detect Potential Problems in Acquisition Contracts". SCEA President **Paul Marston** presented the plaque to Lt. Keaton on February 14, 2012 at the SCEA Board meeting held in conjunction with the DoD Cost Analysis Symposium. Our sincere congratulations to Lt. Keaton, as well as Capt. Lemke, and our best wishes to him for a successful professional cost career.

The future of the SCEA-AFIT relationship seems secure with a commitment from the new Director of the AFIT Cost Analysis Graduate Program, Major **Dan Ritschel** — "I think the SCEA thesis award is a valuable part of this program and I want to ensure that it continues this year and into the future."

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# SCEA + ISPA = Success!

By Joe Wagner

**The** unification of the International Society of Parametric Analysts (ISPA) and the Society of Cost Estimating & Analysis (SCEA) has been discussed and considered for many years. The memberships and the goals for each society overlap to a large extent, and the logic of joining together into a single organization has been evident to many for a long time. Over recent years, moves toward unity were made as the annual conferences were combined into a joint product, and the business activities of both societies were combined under one roof as the ISPA/SCEA Joint Office. Finally, during the 2011 Annual Conference in Albuquerque, NM, the Boards of Directors of both organizations began the administrative process needed to complete the deal. The executive team of each organization jointly established an Integration Committee made up of 10 individuals. Their charter was to define the functional areas at issue in a merger, decide on the way forward in each of them, and arrive at a consolidated solution that would be acceptable to the Boards of both societies.

## Getting to the Bottom-Line Issues

The issue areas were defined as: Governance, Naming, Financial, Training & Body of Knowledge, Certification, Publications, and Awards. Each issue area was handed over to a dedicated team made of ISPA and SCEA members, whose task was to define the end state of that function under a newly merged organization. Working through the summer and fall of 2011, the committees for four of the areas were ready with a solution to be voted on by the respective Boards at their fall meetings. In October 2011, the SCEA Board approved the solutions proposed for Training & Body of Knowledge, Publications, Certification, and Awards. Approval by the ISPA Board was also forthcoming. From October 2011 to January 2012, work continued on the Governance, Naming, and Financial issues. Two of those areas (Governance and Financial) were agreed to and approved by both the ISPA and SCEA Boards in February 2012. Discussions on the last remain-

ing area — a new name, were continuing up to the time of *Estimator* publication.

Once all of the areas have received a vote of approval by the two Boards, the complete merger proposal will be submitted to both memberships for a vote of approval.

## Taking the Next Step

The next step in implementing the issue solutions across both societies will be the creation of a single interim Board of Directors, made up of members from both societies' Boards. This body, appointed by the Boards of both societies, will take over governance of the newly emerging organization from its inception until member elections for the permanent new Board can be held in early 2013. The current ISPA–SCEA Joint Office, under **Erin Whittaker**, will continue to function as the implementing management office. Based on this schedule, the new organization will stand up in time for the 2013 Annual Conference & Training Workshop in New Orleans.

## The Legal Details

At the same time as these internal actions are going on, an outside legal team hired by both Societies undertook the incorporation of the new organization in the State of Virginia. This team has assisted in the creation of governing documents, provided advice on methods for combining the governing bodies, and assisted with advice on many other legal and operational aspects of the new organization.

## Logistics

Yet to come in the year ahead will be the logistics of standing up the new organization — changing the logo, adjusting website content, redoing publicity materials, financial information, phone identity, and hundreds of other as yet unforeseen changes that will take place as we adjust to the new us. Of great importance to everyone will be the impact on the individual chapters of both ISPA and SCEA, particularly in geographical areas where there are overlapping chapters in existence. All in all it promises to be a challenging and exciting time for everyone. Stay tuned.

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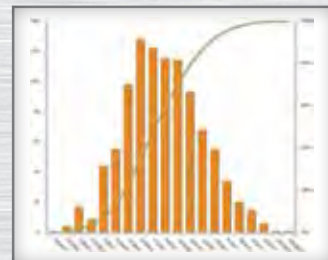
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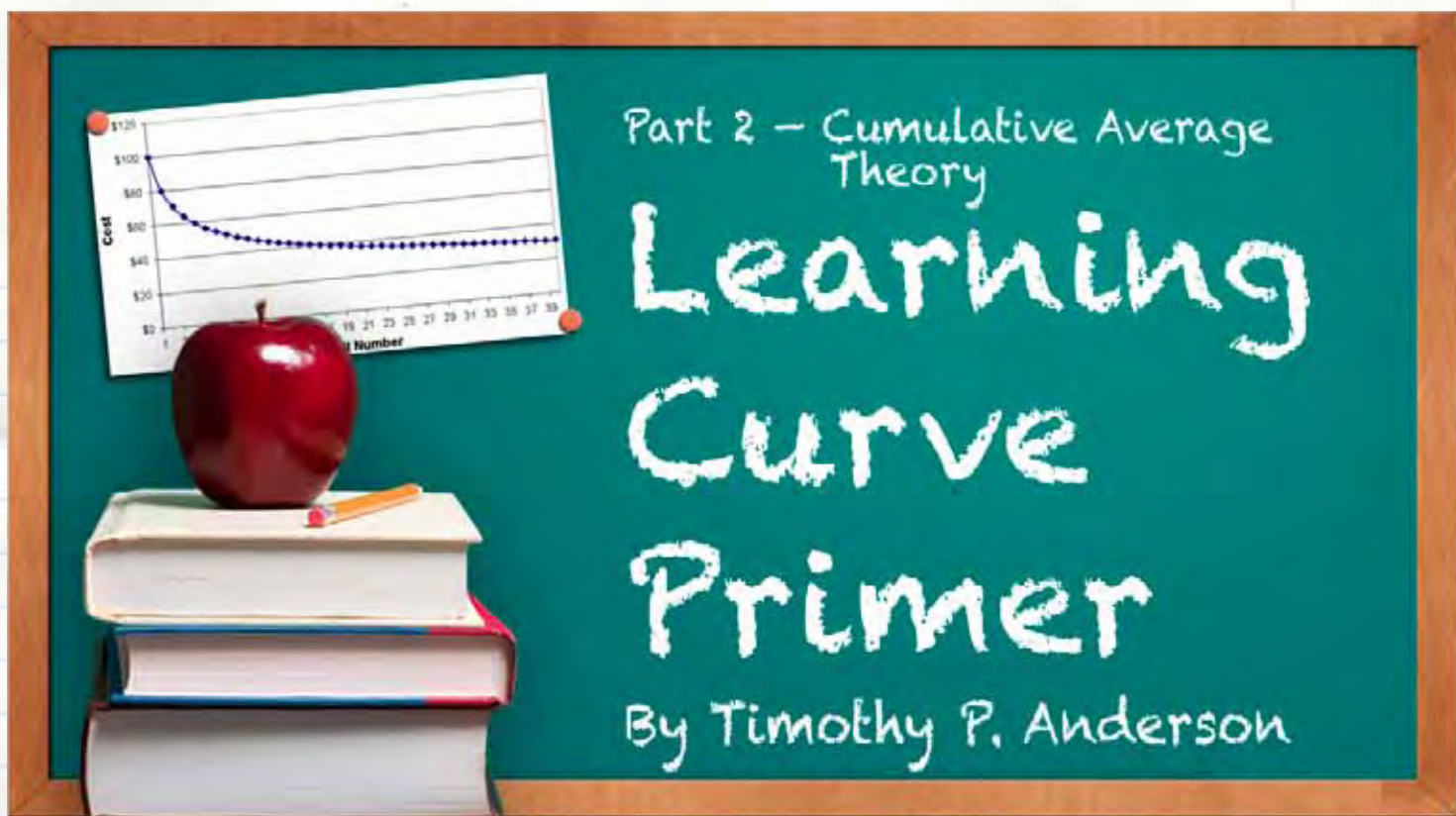
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Recall that, in the last issue of *The Estimator*, we completed a discussion of the unit theory learning curve. In this issue, we address the other major learning curve theory — the cumulative average theory. The cumulative average theory learning curve is credited to T.P. Wright (1936) who developed the theory while studying WWI airframe production costs; hence, it's sometimes referred to as the “Wright” curve. Basically, the cumulative average theory says, “If there is learning in the production process, then the cumulative average cost (CAC) — defined as cumulative cost (of units 1 through n) divided by cumulative quantity (of units 1 through n) — of some doubled quantity equals the cumulative average cost of the undoubled quantity times the slope of the learning curve,” or “as the quantity of units produced doubles, the cumulative average cost decreases by a constant percentage.”

The cumulative average theory is most frequently used in situations where the initial production of an item is likely to have large variations in cost due to the use of prototype tooling, inadequate supplier bases, early design changes, short lead times, etc. In other words, the cumulative average theory is attractive when there is substantial variability in the unit costs, especially early on in production, because the effect of averaging costs “smoothes out” the initial cost variations.

The Cumulative Average Theory learning curve is defined by the equation:

$$\bar{Y}_N = AN^b$$

where

$\bar{Y}_N$  = the cumulative average cost of units 1 through N

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

N = the cumulative number of units in question (starting with unit 1)

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

Again, the learning parameter, b, defines the steepness of the learning curve. As with unit theory, 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  $\bar{Y}_N = A$ , meaning that the cumulative average cost remains unchanged with changing quantities. 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 (aka T1), is the cost at which the learning curve crosses the Y-axis at a value of  $n = 1$ . As before, the *actual* cost of the first unit is usually different than the *theoretical* first unit cost. Figure 1 shows how T1 and the actual first unit cost can be different from one another.

*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.*



Note that in this example, the solid curve represents the derived cumulative average theory learning curve, while the data points represent the actual cumulative average costs. The learning curve crosses the *Y*-axis at about \$90, indicating that the *TI* for this set of data is \$90, while the *actual* first unit cost is about \$82. 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.

Incidentally, given a set of cost/quantity data, either theory can be used to model learning. The only difference is that the unit theory learning curve quantifies unit costs vs. unit quantities while the cumulative average theory learning curve quantifies cumulative costs vs. cumulative quantity. Table 1 shows how this is accomplished.

The cumulative average costs are defined as follows:

$$CAC_N = \frac{\sum_{i=1}^N (\text{Unit Cost})_i}{N}$$

For example, given Table 1, the various *CACs* are computed as follows:

$$CAC_1 = \frac{\$82.87}{1} = \$82.87$$

$$CAC_2 = \frac{\$82.87 + \$87.09}{2} = \$84.98$$

$$CAC_3 = \frac{\$82.87 + \$87.09 + 58.55}{3} = \$76.17$$

and so on.

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 cumulative average theory, as the cumulative quantity doubles, the cumulative average cost is reduced by a constant percentage. This constant percentage is referred to as the *slope* of the learning curve. That is:

$$\text{Cost of units 1 through } 2n = (\text{Cost of units 1 through } n) \times (\text{Slope of the learning curve})$$

Rearranging this equation, we have:

$$\text{Slope of learning curve} = \frac{\text{Cost of units 1 - } 2n}{\text{Cost of units 1 - } n} = \frac{A(2n)^b}{A(n)^b} = 2^b$$

So, as in unit theory, the cumulative average theory 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: 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,

$$\text{slope} = 2^b$$

$$\ln(\text{slope}) = \ln(2^b)$$

$$\ln(\text{slope}) = b \ln(2)$$

$$b = \frac{\ln(\text{slope})}{\ln(2)}$$

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

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

### 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. However, unlike unit theory, cumulative average theory requires consecutive units or consecutive lot costs/quantities in order to develop a learning curve. For example, suppose you have access to the produc-

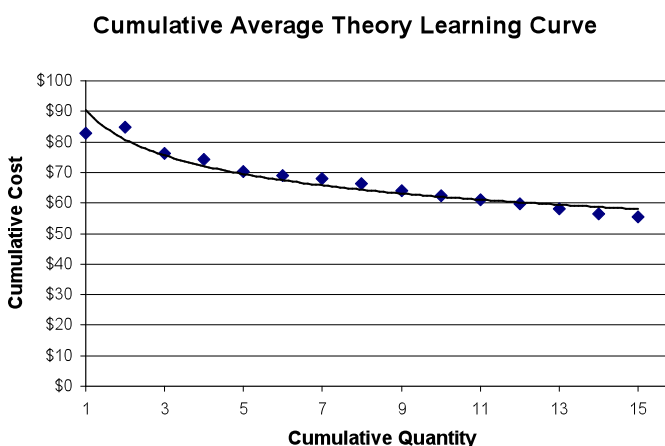


Figure 1. Cumulative average theory learning curve vs. cumulative average actual costs

Table 1.

Unit	Unit Cost (\$)	Cum Avg Cost (\$)
1	82.87	82.87
2	87.09	84.98
3	58.55	76.17
4	68.76	74.32
5	53.66	70.19
6	63.51	69.07
7	62.56	68.14
8	52.95	66.24
9	46.74	64.08
10	46.25	62.29
11	48.40	61.03
12	45.88	59.77
13	35.83	57.93
14	38.05	56.51
15	38.23	55.29

tion cost information in Table 2 for a certain production process and that you want to determine the cumulative average theory learning curve that corresponds to this production process.

That is, given the lot quantity and lot cost of lots 1, 2, 3, and 4, you desire to derive the corresponding cumulative average theory *TL* and learning curve slope for this production process. The graph of cumulative average cost vs. cumulative quantity is shown in Figure 2.

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 3.

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  $\ln(\text{Cum. Avg. Cost})$  against  $\ln(\text{Cum. Qty})$  we have

#### Regression Statistics

Multiple R	0.9952
R Square	0.9903
Adjusted R Square	0.9855
Standard Error	0.0323
Observations	4

#### ANOVA

	df	SS	MS	F	Significance F
Regression	1	0.2138	0.2138	204.91	0.0048
Residual	2	0.0021	0.0010		
Total	3	0.2159			

	Coefficients	Standard Error	t Stat	P-Value
Intercept	2.5078	0.098	25.48	0.0015
$\ln(N)$	-0.3335	0.023	-14.31	0.0048

This results in a linear model of the form  $\ln(\bar{Y}_N) = 2.5078 - 0.3335 \ln(N)$ . Transforming this back into unit space is simply a matter of taking the exponential of both sides, then solving for  $Y$ , as follows:

$$\ln(\bar{Y}_N) = 2.5078 - 0.3335 \ln(N)$$

$$e^{\ln(\bar{Y}_N)} = e^{2.5078 - 0.3335 \ln(N)}$$

$$\bar{Y}_N = e^{2.5078} e^{-0.3335 \ln(N)}$$

$$\bar{Y}_N = 12.3N^{-0.3335}$$

Thus, the cumulative average theory learning curve that models this particular production situation is defined as  $\bar{Y}_N = 12.3N^{-0.3335}$ . From this, we can infer that the *TL* is equal to \$12.3, and the learning slope can be determined as, slope =  $2^{-0.3335} = 0.7936 = 79.36\%$ .

Now, given the cumulative average theory learning curve, we can calculate the expected cumulative average cost of any given quantity (from 1 to  $N$ ). For example, the expected cumulative average cost of the first 200 units is

$$CAC_{200} = 12.3(200)^{-0.3335} = \$2.097.$$

The total cost of the first  $N$  units is simply

$$CT_N = AN^b \times N = AN^{b+1}.$$

Therefore, using our cumulative average theory learning curve, the total cost of the first 200 units is

$$CT_{200} = 12.3(200)^{-0.3335+1} = \$419.43.$$

Individual unit costs can also be computed using cumulative average theory. The trick is to calculate the total cost of the first  $n$  units, then subtract the total cost of the first  $n - 1$  units as follows:

$$T_N = AN^{b+1} - A(N-1)^{b+1}.$$

where  $T_N$  is the unit cost of unit  $N$ . Therefore, the unit cost of unit 200, using our cumulative average theory learning curve is

$$T_{200} = 12.3(200)^{-0.3335+1} - 12.3(199)^{-0.3335+1} = \$1.40.$$

Table 2.

Lot No.	Lot Qty	Lot Cost (\$)	Cum Qty (N)	Cum Cost (\$)	Cum Avg Cost (Y)	X' $\ln(N)$	Y' $\ln(Y)$
1	22	98.0	22	98.0	4.45	3.0910	1.4939
2	36	80.0	58	178.0	3.07	4.0604	1.1213
3	40	80.0	98	258.0	2.63	4.5850	0.9680
4	40	78.0	138	336.0	2.43	4.9273	0.8899

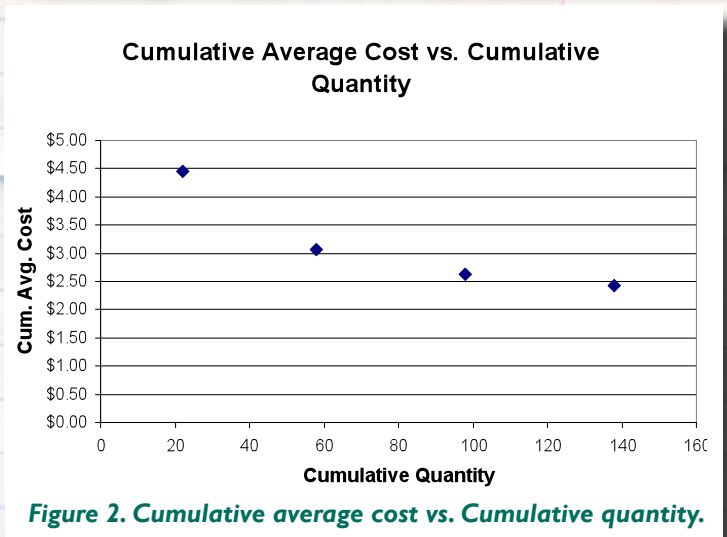


Figure 2. Cumulative average cost vs. Cumulative quantity.

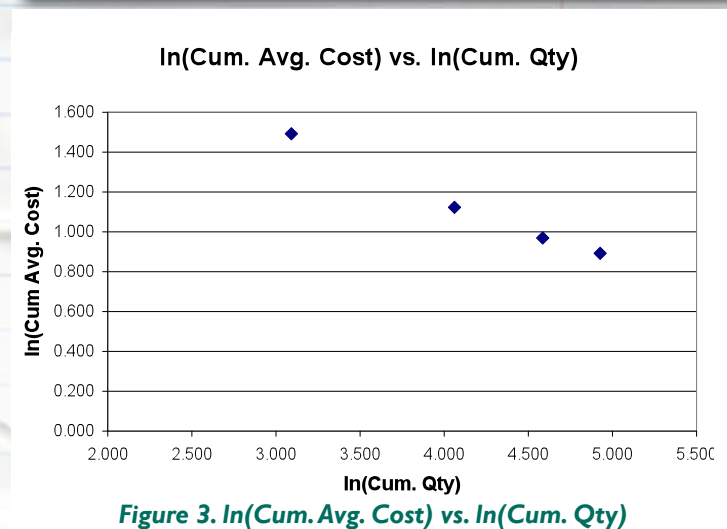


Figure 3.  $\ln(\text{Cum. Avg. Cost})$  vs.  $\ln(\text{Cum. Qty})$



Similar to the discussion in the unit theory section, we often desire to run down a “downstream” portion of the cumulative average theory learning curve. For example, we may only be interested in the costs of units 101 through 200. To accomplish this, compute the costs of units 1 through 200, then subtract away the cost of units 1 through 100 using the total cost formula:

$$CT_{101,200} = 12.3(200)^{-0.3335+1} - 12.3(100)^{-0.3335+1} = \$419.43 - \$264.26 = \$155.17.$$

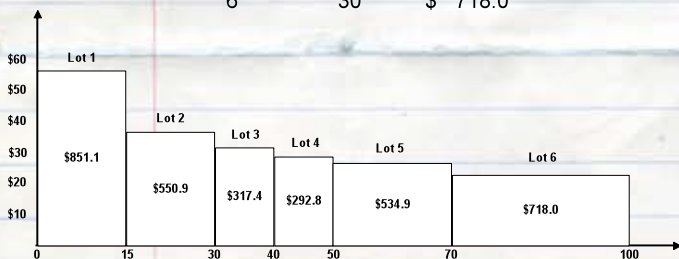
We see then that the general formula for “running down the learning curve” from units F to L, using cumulative average theory, is

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

### Example: Deriving and Using a Cumulative Average Theory Learning Curve

In this example, we use the same set of data that were used in the unit theory discussion to derive and use a cumulative average theory learning curve:

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



This time, the lot data must be adjusted to derive the cumulative average theory learning curve. In this case, however, there is no need to calculate LMPs and AUCs as was done in unit theory. Rather, we use the data directly to compute the learning curve equation.

The lot costs and lot quantities simply need to be transformed into cumulative average costs and cumulative quantities as shown in the table below:

Lot	Qty (Lot size)	Lot Cost (\$)	Cum Qty (N)	Cum Cost (\$)	Cum Average Cost (Y)	ln(N)	ln(Y)
1	15	8851.1	15	851.1	56.7	2.708	4.038
2	15	550.9	30	1402.0	46.7	3.401	3.844
3	10	317.4	40	1719.4	43.0	3.689	3.761
4	10	292.8	50	2012.2	40.2	3.912	3.695
5	20	534.9	70	2547.1	36.4	4.248	3.594
6	30	718.0	100	3265.1	32.7	4.605	3.486

Now, the learning curve is derived by computing the natural log of the Cum Qty and Cum Avg Cost columns, performing OLS on the log data, then transforming the resulting log-linear equation back into unit space.

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

Regression Statistics					
Multiple R		0.9998			
R Square		0.9996			
Adjusted R Square		0.9995			
Standard Error		0.0042			
Observations		6			
ANOVA					
	df	SS	MS	F	Significance F
Regression	1	0.1882	0.18815	10477.02	5.5E-08
Residual	2	0.0001	0.00002		
Total	3	0.1882			
Coefficients					
		Standard Error	t Stat	P-Value	
Intercept	4.8322	0.0108	445.63	1.52E-10	
ln(N)	-0.2914	0.0028	-102.36	5.46E-08	

$$\ln(\bar{Y}_N) = 4.8322 - 0.2914 \ln(N)$$

$$e^{\ln(\bar{Y}_N)} = e^{4.8322 - 0.2914 \ln(N)}$$

$$\bar{Y}_N = e^{4.8322} e^{-0.2914 \ln(N)}$$

$$\bar{Y}_N = 125.48 N^{-0.2914}$$

Thus, the learning curve that models this particular production situation is defined as  $\bar{Y}_N = 125.48 X^{-0.2914}$ . From this, we can infer that the *TL* is equal to \$125.48, and the learning slope can be determined as, slope =  $2^{-0.2914} = 0.8171 = 81.71\%$ <sup>1</sup>.

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:

$$CT_{101,150} = 125.48(150)^{-0.2914+1} - 125.48(100)^{-0.2914+1} = \$4,371.7 - \$3,279.9 = \$1,091.8.$$

Notice how closely this corresponds to the cost of Lot 7 as derived in the unit theory example. Ideally, the results would be identical, but they usually are not due to the differences in the way they are derived. We expect the results to be close, however. In the unit theory example, this cost was estimated as \$1,079.0. In the unit theory, the same lot is estimated as \$1,091.8 — a difference of just over 1%. Therefore, we conclude that the results are consistent.

## Summary

In these primer, we discussed unit theory and cumulative average theory learning curves — how they are derived from historical data and how they are used to estimate costs further down the learning curve. Happy estimating!

<sup>1</sup> Note that the *TL* and slope for the cumulative average theory learning curve is different from the *TL* and slope for the unit theory learning curve — although they were both derived from the same set of underlying data! Given the same set of data, a cumulative average theory learning curve will always be *shallower* than its corresponding unit theory learning curve. This is the usual result, underscoring that one cannot use a unit theory curve as if it were a cumulative average theory curve and vice versa; however, if used properly, either curve will provide consistent results.





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# A Long Slow Death ... or A Decline?'

## Military Financial Managers in Air Force Acquisition

by David L. Peeler, Jr.<sup>2</sup>

### Defibrillator, please ...

Is that what we need to preserve capability and cultivate capacity within Air Force military financial management despite a steady loss of billets? For almost two decades, people have questioned the viability of an Air Force career in financial management for uniformed acquisition personnel, especially in cost estimating. The focus on acquisition from the highest levels (Congress, the Office of Secretary of Defense, Services) is appreciated and needs translation into robust military presence in Air Force acquisition financial management. Given recent trends, can the Air Force financial management community reverse the decline of acquisition officers that started with contracting-out cost estimators in the mid-1990s?

Most recently of note is the impact to acquisition financial managers inherent in the pending Air Force Materiel Command re-organization. As a direct or indirect result, the upper end of career advancement for acquisition financial managers has been significantly truncated. Three colonel positions were abolished or converted to civilian authorizations. As few as three O-6 purely acquisition billets remain, with only one being a leadership position, vice a deputy billet. Along with the reductions at the top, comparable decreases are occurring at the O-4 and O-5 level, leaving few field grade officers (FGOs) in Air Force acquisition financial management. These reductions meaningfully impact the morale of the junior officers, looking to make Air Force acquisition financial management a career.

While the re-organization is affecting the top tier of the career field, the long-term prospects aren't dire. In a recent, previous program objective memorandum (POM) cycle, the Air Force increased its future years

defense plan (FYDP) allocation for cost estimators. In truth, this leaves the uniformed acquisition financial force at approximately 10% of what it was 20 years ago, but it's a welcome move in the right direction.

### Clear...

The value of acquisition trained/experienced financial managers is beginning to gain recognition throughout the career field community, especially at the highest levels. Whereas, the Air Force operational financial community has few analytical opportunities that compare to the complex and dynamic nature of those in the acquisition community. The company grade officers (CGOs) — lieutenants and captains — that continue to flow through acquisitions not only add enormous value to programs but eventually to the financial community writ large.

The every-day complexity and mind-numbing dynamics of performance requirements, schedule challenges, test timing, cost fluctuations, budgetary contests, logistics tails, etc, that are unceasingly balanced within an acquisition program add great value to the officers working therein. Acquisition officers almost daily deal with several appropriations across multiple fiscal years. The program details and legal limitations require attention and knowledge that increases these officers' value beyond the solely Operations and Maintenance (O&M) experienced financial officers. The required analytical skills are directly transferable to all decision-support activities across the Air Force. This skill is polished in acquisition officers.

The history of questioning the viability of acquisition financial management leads young officers to flee to operational support jobs. Leveraging the added value of acquisition officers throughout the career field is a

<sup>1</sup>The opinions expressed in this piece are the author's and not those of the US Air Force, Department of Defense, or SCEA. Nothing in this article should be considered or interpreted as the official position of the US Air Force or DoD. The views expressed are based on the observations and opinions of the author alone.

<sup>2</sup>Lt. Col. Peeler currently serves as Deputy Director of Financial Management for the Electronic Systems Center at Hanscom AFB Massachusetts. His most recent master's degree is in Strategic Studies from the Army War College. He has served in four operational and four acquisition assignments, with one tour as the O&M branch chief for the Air Force's acquisition command. Lt. Col. Peeler is a Certified Cost Estimator/Analyst (CCEA®) and an Air Force certified acquisition professional in both financial and program management. He is a member of both the Society of Cost Estimating and Analysis and the American Society of Military Comptrollers.



great bonus to O&M; however, we also need to further develop that talent in successive acquisition positions. The prevailing path for young acquisition officers — often on the advice of senior officers — is to only do one tour in a program office, go to the O&M world and never return. Air Force financial leadership is working to entice these officers to alternate early career tours to get a broad spectrum of experience in both acquisition and operations. The opportunities are enormous for such dually “qualified” officers, possessing a bigger understanding of Air Force financials. Additionally, acquisition officers possess knowledge and perspective that can help operational wing commanders.

### Clear...

Air Force comptrollership has numerous positions, at all levels, which benefit greatly from acquisition experience. Given that the advantage of broad experience grows as officers advance, serving in varied positions is desired. Many of the aforementioned positions have a mix of O&M and acquisition components. The bulk of these billets are in Air Force Materiel Command and Air Force Space Command, but notably important acquisition leverage is an advantage in all O-6 and above financial management and comptroller positions. Therefore, alternating rotations of CGOs, and eventually FGOs, between acquisition and operations builds stronger officers for filling critical roles at successively higher levels.

Gaining and maintaining acquisition knowledge and experience is crucial to Air Force officer development in financial management. Communicating this fact to our junior officers is critical. They must know that acquisition roles are not only interesting and challenging but also provide a viable and desired career path to senior level opportunities to contribute. The challenge at the senior level of financial management isn't the number of O-6 acquisition billets, it's the dearth of acquisition experienced officers. The community currently can't fill its existing FGO acquisition billets with experienced officers, much less flow military acquisi-

tion financial managers to the senior positions where hybrid experience would enhance performance.

Near-term manning indicators lead one to conclude that little to no growth in military billets is imminent. Therefore, a return to the numbers of Air Force military acquisition financial managers is unlikely. However, the recent gains, albeit small, in the CGO ranks should sustain Air Force acquisition financiers for a while; thus, providing a bit of a reprieve to work FGO billets, and more importantly encourage officers to serve multiple tours in the acquisition community. Moving forward, success is better defined by a larger pool of acquisition experienced officers, leveragable across Air Force comptrollership...

### Getting a pulse!

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Questions?

Contact Christian Smart, Managing Editor  
[christian.smart@mda.mil](mailto:christian.smart@mda.mil)







**The Wounded Giant:  
America's Armed Forces in an  
Age of Austerity**

**By Michael O'Hanlon**

**BOOK  
REVIEW**

**Walt Cooper is a senior cost analyst with Technomics. Prior to joining Technomics, he served as an Operations Research Analyst in the Cost Assessment and Program Evaluation Directorate in the Office, Secretary of Defense. He has a BA in mathematics from the University of Vermont, an MBA in operations research from Tulane University, and an MS in finance from The American University.**

# On the New Defense Guidance and Its Resources:

**Let the Debate, and the Analysis, Begin!**

*Book Review by Walt Cooper*

In the August 2011 deficit reduction agreement with Congress, the Obama administration agreed to cut Defense spending by about \$480 billion over the next 10 years. Since then, President Obama has worked with Defense Department leaders to craft a new strategy consistent with the more austere fiscal environment. Secretary Panetta released the new “strategic guidance” in early January. The new guidance provides for a smaller and leaner Joint Force that can fight across the full range of contingencies. As the Congress deliberates the new strategy and its associated budget, I urge the members of our community to read Michael O’Hanlon’s *The Wounded Giant: America’s Armed Forces in an Age of Austerity*. It provides timely and valuable perspectives and ideas about areas our profession only occasionally addresses: efficiencies and the complex relationship between national security strategy and resources.

In *The Wounded Giant*, published shortly after the debt deal was announced but before the new guidance was released, O’Hanlon argues that cutting the defense budget by the agreed-to amount would be hard but not impossible. His revised strategy is tied to nine major goals, including responsibly ending the current war in Afghanistan, deterring an assertive Iran, and maintaining enough combat power to wage one major war while carrying out two or three smaller operations. With these aims in mind, he suggests that between \$350 and \$500 million can be taken from the defense budgets over the next 10 years with acceptable risk. He proposes a range of efficiencies, including another round of base closures, higher premiums for health care, and adjustments to retirement programs. He provides a detailed discussion to support his argument that a smaller ground combat force — roughly the same as the ground forces of the 1990s — would be acceptable. O’Hanlon discusses global posture adjustments that feature using more rotational Navy forces. With regard to equipment modernization, he suggests major reductions in the F-35 program, acquisition of less expensive nuclear weapons, further reductions in missile defense, procurement of fewer V-22s, and a slowdown in the production of Navy surface combatants.

The Pentagon’s FY 2013 budget, submitted in early February, contains a number of proposals similar to those described in *The Wounded Giant*. The budget request calls for another round of base closures, a review of retirement programs, and reductions in ground troops. Defense Department priorities in equipment modernization, on the other hand, differ with O’Hanlon’s proposals in a number of areas: the F-35 program is delayed — but not cut, all 11 aircraft carriers and 10 carrier air wings are retained, and the nuclear triad is preserved. These divergences in no way diminish the value of *The Wounded Giant* to our community. In fact, the volume should serve as a clarion call to our profession to take on the task of contributing to the continuing debates about resource allocations. Estimating the cost effects of efficiency proposals and characterizing the relationship between strategy and resources are areas filled with challenges: warehouses of highly granular data are not readily available, robust quantitative tools are not plentiful, and difficult-to-quantify political factors can dominate the issues, but according to that old adage they taught me in Ranger School so many years ago, “When the going gets tough, the tough get going.” The need for thoughtful and rigorous cost analysis in support of high-level decision-making has rarely been greater. Let us step up to the challenge!

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

*Book Review by Lt. Col. David Peeler*

Many have likely heard of and some may have already read this book. Merely seeing the movie isn't sufficient to glean the multitude of lessons this book offers in relation to the development, interpretation/analysis, and use of available data. While not a book directly about cost estimating, the subject delightfully informs how statistical analysis can significantly transform decision-making in a financially constrained environment.

This book isn't really about baseball. In many ways, *Moneyball* is about how the "unrealized potential" of Billy Beane's baseball career led him to transform some peoples' thinking about how to win at baseball and the ability of statistics to drive the decisions involved. Even if you're not an avid baseball fan, this book is a valuable text in using statistical analysis to fundamentally change how an organization works. A basic understanding of baseball terminology and the elements of hitting and fielding data is needed, however. If you possess an interest in the application of statistics, don't be deterred by the baseball nature of this book. There is value here!

Over the course of 12 completely engrossing chapters, Lewis weaves the personal stories of numerous ballplayers into a description of the unlikely, sustained success of the Oakland As around the turn of the 21<sup>st</sup> century. A feat accomplished despite one of the smallest payrolls in baseball. The story's opening chapters, "The Curse of Talent" and "How to Find a Ballplayer," introduce the reader to Billy Beane and outlines the traditional method major league baseball scouts and managers use(d) to select players.

Moving from the human-interest aspect that introduces the book, the next eight chapters deal with the application of statistics to various situations and players to improve/maintain the Oakland As roster with limited financial resources. These chapters are a tour de force, smoothly depicted, that takes the reader to the heart of business decision-making via pure statistics. Lewis tells how the Oakland As general manager, Billy Beane, used fundamental statistical precepts to build his team. Advancing an open-source, decades-old CER-like runs equation, the As mined the vast amount of data available on players from high school to the professional ranks. Discovering and signing underpriced/undervalued talent, the As balanced fielding stats against hitting numbers to produce the required number of runs their model predicted necessary to win their division.

The process Oakland followed has wide applicability. Woven throughout the book are many twists and applications of statistics transposable to any program or project with plentiful datasets. Lewis describes the statistical "enlightenment" that led to the so-called "moneyball" approach to team composition. In this discussion, one can extrapolate the method to inform keep-or-kill programmatic decisions. The text makes clear what most passionate quants know in their bones — underlying rationalities might be discerned through statistical analysis, with data replacing opinions and biases.

The theme throughout reinforces that data and its analysis is superior to opinion. Another key point is that non-quantitative-minded organizations become self-propagating, with institutionalized knowledge, without a "mechanism to let in the good and get rid of the bad." Additionally, Lewis brings out that the math works although each player is unique — an important point, given uniqueness is a claim many of us often hear with respect to projects/programs.

With so many pertinent lessons regarding applying statistics, *Moneyball* is a recommended read for costers. The same idea that made inroads into baseball, generating relatively vast cost-effective wins for the Oakland As, is transferrable to industry and government programs. Anyone who uses stats will value Lewis' treatment of the discipline, and baseball enthusiasts will absolutely enjoy each of the 300 pages.



**Moneyball: The Art of  
Winning an Unfair Game.**

**By Michael Lewis**

## BOOK REVIEW

**Lt Col Peeler currently serves as Deputy Director of Financial Management for the Electronic Systems Center 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.**

# 2012 Joint Annual Conference & Training Workshop

Each year, the Society of Cost Estimating and Analysis puts together a Conference program that is better than the year before, and for the 2012 SCEA/ISPA Conference, we have outdone ourselves. The 2012 Conference will be an exciting opportunity to learn about the latest developments in the field, network with colleagues, and meet the decision makers who will shape the future of the cost estimating and analysis profession. The Conference will be held at the Hilton Orlando in Orlando, Florida, which is just minutes from all the world-class Orlando attractions like SeaWorld, Universal Orlando, Disney World, and much more! This brand new, 4 diamond hotel features luxurious accommodations in a resort-like setting with outdoor recreational options for all ages! Located right on International Drive, with convenient trolley access to shops and restaurants, this hotel gives you a great location and great on-site amenities. The 2012 Conference will feature expanded training based on content from the Cost Estimating Body of Knowledge (CEBoK®), over 100 professional papers, vendor presentations, CCEA® exam study sessions, and numerous other professional development opportunities. A keynote speech from Commander Kirk Lippold (of the USS Cole) will kick off the event and provide insight into managing difficult leadership situations.

## Professional Development

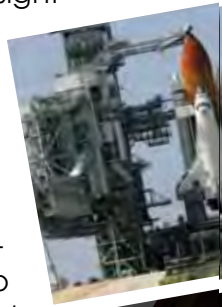
Join cost community experts to learn and share ideas. Comprehensive training will be offered for all skill levels in a newly designed 4-track structure with expanded session offerings. In addition to the training sessions, attendees looking to prepare for the Cost Estimator/Analyst (CCEA®) exam can attend daily two-hour study sessions where attendees work through problems together. The exam will be held on June 30th (register separately). Looking for ways to earn CEU credits? Attend the Conference and earn CEUs for training sessions and professional papers (overall conference attendance also qualifies for SCEA recertification points).

The Conference will feature an exciting keynote speaker on Wednesday, June 27th: Kirk Lippold, commanding Officer of USS Cole. Commander Lippold will discuss leadership strategies while recounting the story of the 2001 terrorist attack on the USS Cole. It is sure to be a riveting presentation. The agenda will also feature a keynote presentation by Ron Youngs of the Defense Contract Management Agency.

The Conference begins on Tuesday, June 26th, with Training, comprised of 90-minute sessions scheduled in four different tracks: Cost Estimating - Basics, Parametrics, Cost Estimating - Advanced, and Integration. Attendees can move freely from track to track, and can also attend the other Tuesday offerings like Exhibitor Sessions (where vendors will discuss new tools and products) and Organizational Sessions (featuring representatives of similar professional organizations like AACE and NCMA). On Tuesday evening, we'll welcome everyone with an Attendee Reception where attendees will enjoy hearty hors d'oeuvres while networking with colleagues and exhibitors in the exhibit hall.

On Wednesday morning, the Conference opens with a General Session and keynote speech from Commander Kirk Lippold. Following the General Session, the training tracks will continue and the professional papers will begin. Papers will be organized into seven tracks:

- Parametrics
- Risk
- Management
- Methods & Models
- Software/Hardware
- EVM
- Life Cycle Cost





CCEA® exam review study sessions will begin on Wednesday and will continue throughout the week. Exam applications must be filled out separately (visit [www.sceaonline.org](http://www.sceaonline.org) for details). On Wednesday evening we'll offer complimentary shuttle service to and from Universal CityWalk, a local hub of dining and nightlife, with restaurants such as Emeril's Orlando and Hard Rock Live, and entertainment options like a Blue Man Group performance (tickets must be purchased separately).

The program continues on Thursday morning with a keynote speech from Ron Youngs, Acting Executive Director, Contracts of the Defense Contract Management Agency. Training and professional papers continue following the General Session. An awards luncheon will be held on Thursday afternoon, where we will honor winners of the Conference Best Paper Awards and SCEA Annual Awards. In the evening, an off-site event will be held at SeaWorld Orlando (included in the conference registration fee). Guests will enjoy shuttle service to the park, a fun and casual dinner at SeaWorld complete with exotic animals and live entertainment, exclusive seating at a Shamu show, and access to all the attractions and rides the park has to offer.

Training and professional presentations will continue on Friday, with the Conference coming to a close at noon. On Saturday, SCEA's PCEA® and CCEA® and ISPA's CPP exams will be offered.

## Hotel Reservations

As a conference destination, Orlando can't be beat! The Hilton Orlando features first-rate meeting facilities and convenient access to the iRide Trolley system, which travels all along International Drive. The hotel has four full-service restaurants, two pools, a lazy river, and a state-of-the-art spa and fitness center. Attendees will enjoy free in-room internet access, a room rate of only \$97 per night (plus tax), and so much more! To make reservations, go to <http://www.sceaonline.org/events/conference/2012splash.cfm> and click on "General Information." The conference rate is available until June 4th, or until the room block sells out.

## Register Today!

Register for the Conference at [www.sceaonline.org/events/conference/2012splash.cfm](http://www.sceaonline.org/events/conference/2012splash.cfm) (click on "Conference Registration"). Registration fees are \$895 for SCEA and ISPA members and government/military employees, \$975 for non-members (non-member rate includes complimentary SCEA membership), and \$825 per person for groups of five or more (group members must be part of the same organization). Visit the SCEA website to see our Employer Justification Toolkit, which will help guide potential attendees in getting management approval for attendance. And if you plan on bringing your family, contact the SCEA & ISPA Joint Office at [scea@sceaonline.org](mailto:scea@sceaonline.org) for information about obtaining a Guest Meal Pass.

## Tentative Conference Schedule

### On-site Registration

Monday.....June 26 ... 2:00 PM - 6:00 PM  
Tues. - Thurs..June 27-28 . 7:00 AM - 5:00 PM  
Friday .....June 29 ... 7:00 AM - 12:00 PM

### Exhibits Schedule

Tuesday .....June 26 ... 5:00 PM - 7:30 PM  
Wed. - Thurs. June 27-28.. 7:00 AM - 5:00 PM  
Friday .....June 29 .... 7:00 AM - 12:00 PM

### Conference Events Schedule

Tuesday .....June 26 ... 8:45 AM - 5:00 PM  
(Training, Exhibitor Sessions)  
Wednesday .....June 27 ... 8:30 AM - 5:00 PM  
(Keynote, Training & Papers. Shuttle to  
Universal CityWalk from 5:30 to 10:30 PM)  
Thursday .....June 28 ... 8:30 AM - 5:00 PM  
(Keynote, Training & Papers, SeaWorld Dinner)  
Friday .....June 29 ... 8:30 AM - 12:00 PM  
(Training & Professional Papers)

### Welcome Reception

Tuesday .....June 26 .. 5:45 PM - 7:30 PM

### Continental Breakfast

Tues.-Fri. ....June 26-29 . 7:30 AM - 8:30 AM

### Lunch

Tuesday.....June 26 .. 12:15 PM - 1:30 PM  
Wed.-Thurs... June 27-28 . 12:00 PM - 1:30 PM

### SeaWorld Dinner

Thursday .....June 28 ... 6:00 PM - 9:30 PM

### Testing — SCEA CCEA Exam & ISPA CPP Exam

Saturday .....June 30 ... 7:30 AM - 1:30 PM

# Things to See and Do in Central Florida

*By Bill Haseltine, Conference Chair*

As we approach our conference in Orlando, I find more and more people are asking me, "besides theme parks, what is there to do in the area?" As a relative local, I have a unique perspective on some of the more interesting attractions that are off the beaten path.

## Science

For example, for the past fifty years the Orlando Science Center (OSC) has inspired fun, interactive learning for its visitors, young and old alike. With four floors of exciting exhibits, amazing giant screen movies and engaging live programming, the OSC is a must-see ([www.osc.org](http://www.osc.org)).

## Arts, Culture, and Shopping

If you are interested in enjoying some arts and culture, the Mennello Museum of American Art and Leu Gardens are great options. The Mennello Museum of American Art ([www.mennellomuseum.com](http://www.mennellomuseum.com)) showcases a permanent collection of paintings by American folk artist Earl Cunningham. In addition, there are shows, special exhibits and programs about traditional and contemporary American artists.

At the beautiful Leu Gardens ([www.leugardens.org](http://www.leugardens.org)) you can explore an amazing 50-acre botanical oasis minutes from downtown Orlando. Each garden is designed specifically to inspire visitors to appreciate and understand plants. The Leu House Museum, located in the heart of the gardens, reveals turn-of-the-century living for the families who once called this home.

If you are interested in venturing outside the Orlando city limits, a nearby community worth visiting is Winter Park. "The City of Culture and Heritage" is as beautiful as it is unique, and Winter Park is known for its abundance of upscale shopping, dining, museums and galleries located right downtown ([www.cityofwinterpark.org/Pages/Visitors/Museums\\_and\\_Galleries.aspx](http://www.cityofwinterpark.org/Pages/Visitors/Museums_and_Galleries.aspx)).

The Charles Hosmer Morse Museum of American Art ([www.morse-museum.org](http://www.morse-museum.org)), in Winter Park, houses the world's most comprehensive collection of works by Louis Comfort Tiffany (1848–1933). The Museum's Tiffany collection includes jewelry, pottery, paintings, art glass, leaded-glass windows and lamps, and the chapel interior the artist designed for the 1893 World's Columbian Exposition in Chicago.

Also to be found in Winter Park is the Albin Polasek Museum and Sculpture Gardens, which holds an art collection focusing primarily on American representational sculpture. The museum and sculpture garden are dedicated to preserving the works of Czech sculptor Albin Polasek, celebrating representational art and exhibiting regional and international artists. Guided tours of the historic Polasek residence and chapel are available. More information can be found at [www.polasek.org](http://www.polasek.org).

Between Tampa and Orlando you'll find the historic Bok Tower Gardens (<http://boktowergardens.org>). Bok Tower Gardens features permanent exhibits on Edward Bok and the Singing Tower carillon, as well as a variety of art exhibits featuring some of the best landscape artists in the state. Visitors may also view an orientation video about the Gardens.



## Family Fun

For anyone interested in airboat rides and alligators there's the Black Hammock Adventure Complex ([www.theblackhammock.com](http://www.theblackhammock.com)). The Black Hammock is a little east of Orlando, at the end of a winding road through citrus groves. In addition to the airboat rides the complex includes a gift shop, the Lazy Gator Bar, a display of live gators and the Black Hammock Restaurant. The complex can be found on Lake Jesup, a 100,000 year old lake, approximately 10,000 acres on the Saint Johns River, and is home to over 9,000 alligators, many species of birds, bald eagles, wild boars, and bobcats. The area is also anthropologically rich with Native American artifacts.

Do you enjoy NASCAR? If so, there's historic Daytona International Speedway, home to the Daytona 500 – "The Great American Race". Known as "the World Center of Racing," the speedway hosts stock cars, sports cars, motorcycles and karts nearly every day of the year ([www.daytonainternationalspeedway.com](http://www.daytonainternationalspeedway.com)).

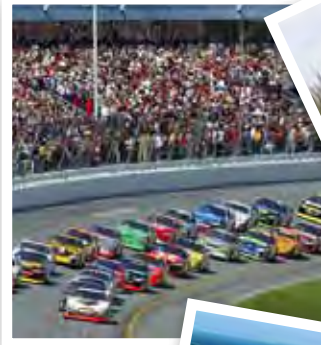
Are you interested in being able to drive on a sandy beach? New Smyrna and Daytona beaches provide this unique opportunity. While a little further up the Atlantic Coast, in historic Saint Augustine, history comes alive in red-brick lanes leading to centuries-old churches, in forts where soldiers still walk the grounds, and on horse-drawn carriage rides through time. Head just out of town and back to nature along 42 miles of pristine Atlantic beaches ([www.floridashistoriccoast.com](http://www.floridashistoriccoast.com)).

Head west toward Ocala, and visit Silver Springs ([www.silversprings.com](http://www.silversprings.com)), a timeless oasis and place of unparalleled beauty for generations. In the early 1500s, Timucuan Indians settled in the area, later early settlers drew sustenance from its 99.8 percent pure artesian spring waters, and today visitors can tour the springs in Glass Bottom Boats (invented by Hul-lam Jones in 1878).

Travel west along Interstate 4 and visit LEGO-LAND Florida (<http://florida.legoland.com>), which opened in the Fall of 2011. With over 50 family rides, "hands-on" attractions and shows, LEGO-LAND Florida provides education, adventure and fun geared specifically towards youngsters ages two through 12.

Other places of interest along Florida's Gulf Coast include The Salvador Dali Museum (<http://thedali.org>) and Busch Gardens (<http://seaworldparks.com/en/busch-gardens-tampa>). And let's not forget that two of the best beaches in the world can be found at Siesta Key and Honeymoon Island. And for anyone interested in baseball, the Rays and Tigers will play a weekend series at Tropicana Field the end of the month.

There's so much to see and do in the area surrounding Orlando, I hope you will take some time before or after the conference to explore everything Central Florida has to offer!



# Presentations

Parametrics	Presenter
Applying Parametric Cost Models as a Predictive Parameter for a CMMI Compliance	David Bloom
Tactical Missile Bluebook Cost Model Development	Donald L. Trapp
Comparing Bottom-Up and Top-Down Estimating Approaches in a Custom Cost Model	Donald L. Trapp
Estimating Relationship Development Spreadsheet and Unit-as-an-Independent Variable Regressions	Raymond P. Covert
Tactical Missiles Bluebook and Cost Model Overview	Raymond P. Covert
Error Analysis of a Custom Cost Model	Raymond P. Covert
Developing Space Vehicle Hardware Non-Recurring Cost Estimating Relationships: NRO CAIG Best Practices	Ryan Timm
Are Parametric Techniques Relevant for Agile Development Projects?	Arlene Minkiewicz
The Function Point Based Pricing Model: The Price is Right!	Daniel B. French
Methodologies for Understanding and Measuring the Impact of Design and Systems Engineering Decisions on Affordability	Zachary Jasnoff
Introducing Reliability and Availability Requirements into TOC Models	Wendy Lee
Risk	Presenter
Fitting Absolute Distributions to Limited Data	Blake Boswell
Diagnosing the Top Level Coefficient of Variation: An Alternative Approach	Daniel J. Andelin
A Systematic Approach for Empirical Sensitivity Analysis on Monte Carlo Models	Matt Pitlyk
Joining Effort and Duration in a Probabilistic Method for Predicting Software Cost and Schedule	Michael A. Ross
SAR Data Analysis, CV Benchmarks, and the Updated NCCA S-Curve Tool	Richard Lee
Enhanced Scenario-Based Method for Cost Risk Analysis: Theory, Application, and Implementation	Brian Flynn
Utilizing Optimization Technique to Enhance Cost and Schedule Risk Analysis	Colin Smith
Real Data, Real Uncertainty	Alfred Smith
Inflation Risk Analysis to Reduce Risks in Budgeting	Michael DeCarlo
Improving Realism of Cost and Schedule Risk Analysis	David L. Wang
Applying the Pareto Principle to Distribution Assignment in Cost Risk and Uncertainty Analysis	James R. Glenn
The Unseen: Statistical Inference with Limited Data	Trevor VanAtta
Using Method of Moments in Schedule Risk Analysis	Raymond P. Covert
Is My Schedule Ready for Risk Analysis?	Mario Fountano
Management	Presenter
Using Treasury Securities to Develop Inflation Indices	C. Tyler Cunningham
Evaluating the Life Cycle Cost and Effort of Project Management for Complex Systems Development Projects	Leone Young
Case Study of Army Cost Management: Variability in Analytical Products with the PIM Program	Tomeka Williams
Building a DHS Cost Estimating & Analysis Center of Excellence	Katie Geier
Social Media Applications for the Cost Analyst	Marc Wear
How does a \$300M ship become a \$600M ship? — Lessons Learned in Production Cost Management	Steve Sheamer
NRO Program Assessments — Best Practices and Lessons Learned	Greg Lochbaum
Capabilities Based Portfolio Assessment (CBPA): A Methodology for Balancing Capability and Managing Costs of Defense Programs	Paul Gvoth



# Presentations

Management (continued)	Presenter
Using the Tools of Persuasion to "Sell" Your Estimate	Jennifer Kirchhoffer
A Case Study in Multi-System Analysis: DoD Spectrum Reallocation, 1755–1850	Brian Wilkerson
Cloud Computing: Federal Mandates and the DoD	Heather Nayhouse
IT Service Costing Tool - Standardizing Provisioning and Servicing IT Resources Inside the DIA	Emily Jessen
Trying To Do Too Much with Too Little: How Poor Portfolio Management Leads to Schedule Delays and Cost Overruns	Christian Smart
Modeling R&D Budget Profiles	Erik Burgess
A Holistic Approach to Multi-year Procurements	Ann Hawpe
Models & Methods	Presenter
A Useful PET — Production Estimating Tool	Danny K. C. Wong
Building an Agile, Collaborative Environment for Capturing Productivity Based Cost Model Data	David Bloom
Galaxy Charts: The 1,000-Light-Year View of the Data	Robert Nehring
The IT Dashboard: Zillow.com for estimating IT?	Daniel Harper
One NASA Cost Engineering (ONCE) Database	Eric Plumer
Cost and Software Data Report (CSDR) Requirements, Process and Data Availability Update from the OSD CAPE DCARC Office	Mike Augustus
An Approach to Improving Cost Estimating and Budget Integration in Federal Programs	Michael Noonan
Enhancing Excel-based Cost Models with PivotTable Reporting	Blaze Smallwood
Canada's F-35A Joint Strike Fighter Cost Estimation Model	Bohdan L. Kaluzny
Developing Standardized Cost Element Structures for the United States Marine Corps	Jeremy Eden
Logistics Requirements Funding Summary Cost Estimating Tool — A Quick Cost Estimator for Logisticians — Part II	Charles Gu
Modeling Potential Cost Savings by Synchronizing Commercial Derivative Acquisition & Lifecycle Programs	Brad Boehmke
Zero Based Review Methodology	Martha Wells
Will-Cost and Should Cost Management: It's Not Business As Usual	Zachary Jasnoff
DoD Contracts Database and Interactive Tool	Brian Ochteau
Rapid Business Case Development Using Macro-Based Excel Tool	Andrew Hutchinson
An Intuitive Application of Cost Risk Analysis to a LRFS	Blake Boswell
Creating a Framework for Cost Analysis: The Cost Analysis Support Tool (CAST)	Eric Lumsden
Identifying the Cost Capabilities of the DoDAF 2.0 Architecture Framework	Holly A. H. Handley
EDGARS CB — A New Memory Tool for Costers	William Barfield
Analytical Hierarchy Process: A Real World Application of Decision Science	Tae Lee
Significant Reasons to Eschew Log-Log OLS Regression when Deriving Estimating Relationships	Ray Covert (for Stephen A. Book)
Valuation in Cost Estimating: Taking a Page from the Investment Banker's Playbook	Kevin Schutt
Cost Estimating Training for Non-Cost Estimators	Jeremy Eden
Just-In-Time Cost Analysis	John Ko
Estimating Alternatives for Joint Future Theater Lift (JFTL)	Robert Georgi
Exploring Methods of Conflating Data from Various Data Sources	Ashley Moses

# Presentations

Models & Methods (continued)	Presenter
Volatility and Cost Estimating	Jennifer Leotta
Practical Cost Benefit Analysis: Developing Skills	Darrell Hamilton
Accuracy Matters: Selecting a Lot-Based Cost Improvement Curve	Shu-Ping Hu
Software/Hardware	Presenter
Learning Curve Analysis with EZQuant — An Overview	Michael Mahoney
The Importance of Software Cost Estimating Standards among a Diverse Community	Kyle Thomas
Estimation of Expedited Systems Engineering Schedules	Barry Boehm
Estimating for Lifecycle and Product Line Affordability	Jo Ann Lane
COTS Estimating Metrics for Increased Cost Accuracy	Joshua Patapow
Domain-Driven Software Cost Estimation: Space, Air, Ship, and Ground Systems	Wilson Rosa
A Standard Process for Software Code Counting	Betsy Legg
Cost Considerations When Moving to an ASP/ISP Construct	Alisha Soles
Good Practices in Software Estimation	Richard Bethea
Utilization of Visual Basic in Cost Estimating Tools	Jeremy Eden
Cloud Computing — Changing the Way We “Do” Software	Arlene Minkiewicz
A Closed-Form Solution for the Production-Break Retrograde Method	Darrell Hamilton
Software Cost Estimating for Incremental Development Programs	Bob Hunt
EVM	Presenter
Optimization of Cost and Performance in Complex Systems	Michael Polly
WBS Development: Rules, Aberrations and MIL-STD-881C Implementation Challenges	M. Michael Metcalf
Joint Analysis of Cost and Schedule (JACS) — A New Tool for JCL Analysis	Antonio Rippe
Surprising Trends in Small Program Costs & Schedules	Brian Fersch
From Bid Package to Detailed EVM Baseline in One Easy Step	Karen Stiff
Integrated Project Management (IPM) — Transforming Data into Information	Andrea M. Mozzo
A New EVM Performance Index: The MRPI	Michael Nosbisch
EVM for the Rest of Us	Javier Sloninsky
Successful Implementation of an Over Target Baseline/Schedule from a Government Perspective	Joseph C. Annunziato
Standards and Trends in Over Target Baseline (OTB) Contracts	Simon Dekker
Critical Chain Applied to an MRO — Surface Repair Facility	Howard Rainer
Life Cycle Cost	Presenter
Software Maintenance Data Collection and Estimating Challenges	Vanessa V. Welker
Estimating Software Maintenance Costs for US Army Weapons Systems	Cheryl Jones
How the VAMOSCI VIEWS Can Help You!	Brian Welsh
Software Sustainment: Pay Now or Pay Later	Arlene Minkiewicz
Discrepancy Reports and Software Maintenance Cost Savings	Jennifer Woolley
Consistent Use of Various Escalation Rates	Marc Rose
Tactical Wheeled Vehicle (TWV) Fuel Economy Improvement Breakeven Analysis	Raymond Kleinberg
Inflation Lessons Learned: An Update	Eric Mosier
OSD/CAPE Defense Cost and Resource Center Contractor Sustainment Cost Data Collection	Sandra B. Enser
Designing a Conceptual Framework for Assessing Total Ownership Cost	F. Gurney Thompson III
Life Cycle Cost in CBAs	Niatika Griffin
Preliminary Study Of Palm-Oil Biodiesel Life Cycle Cost Analysis In INDONESIA	Sidharta Sahirman
A Statistical Life Cycle Cost Model of a DHS IT Project	Mark McLaughlin



# Registration Form

## REGISTRATION FEE

\$895 for SCEA or ISPA members, military, and govt. \$975 for all other attendees.

## GROUP DISCOUNTS

For 5+ attendees from the same organization, the registration fee is \$825 per attendee.

## WHAT'S INCLUDED?

Registration includes breakfasts, morning and afternoon coffee breaks, lunches, Tuesday's reception, shuttle service on Wednesday, Thursday's offsite Dinner, and access to all sessions. All attendees get a CD that includes training materials and presentations.

## GUEST MEAL PASS

Guest meal pass includes breakfasts, breaks, Tuesday's reception, and Thursday's Banquet = \$200 additional cost per guest.

## CANCELLATION

Before **June 20, 2012** = Full refund. After June 20, 2012 = NO refund. Substitutions are accepted at anytime. To cancel call: 703.938.5090

## PAYMENT BY CHECK

Mail completed registration form to:  
SCEA 2012 Conference  
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## ATTIRE:

Conference attire is business casual.

Date \_\_\_\_\_

## PERSONAL INFORMATION

Last \_\_\_\_\_ First \_\_\_\_\_ Middle \_\_\_\_\_  
(Mr. Mrs. Ms, Dr.)

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I am an active member of: ☐ SCEA ☐ ISPA

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☐ I plan to bring \_\_\_\_\_ guest(s) (\$200 per guest)

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**TOTAL AMOUNT DUE:** \_\_\_\_\_

## PAYMENT METHOD

☐ CORPORATE PURCHASE ORDER

☐ CHECK (payable to: SCEA)

☐ CREDIT CARD: ☐ AMEX ☐ VISA ☐ MASTERCARD

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# Early Announcement

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### Assuring Cost Efficiency: Global Solution

14-17 May 2012



Brussels, Belgium



Every four years, ISPA and SCEA present an annual conference in a non-US venue to accommodate our international membership and to provide a unique experience to meet with professionals and friends around the world. For 2012, we are pleased to announce our annual conference in **Brussels, Belgium**.

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## Greater Alabama Chapter News

*By Ralph Mitchell, Chapter President*

**O**ur chapter is having another banner year. Our activities so far have been varied and well received by our membership. One of our highlights was a cost estimating workshop sponsored by the Missile Defense Agency and our chapter. We had excellent participation with 89 people attending the presentations.

We had a food drive in December with the proceeds going to a local charity that feeds and houses the homeless in our area. In addition, we are in the process of setting up a scholarship fund to help students who are interested in a career in cost estimating and analysis.

Finally, **Dr. Sam Cooke** and our volunteer faculty have just completed teaching the annual training courses in preparation for the CCEA® exam. These dedicated individuals teach a series of evening courses every year that cover CEBok®. These courses, along with the study sessions, are provided free of charge to anyone interested in learning cost estimating. Our members use these classes to prepare for the certification exams. In addition, many of our members who have already achieved their certification use the courses as a refresher. We had 53 people sign up for the classes this year.

## Southern California Chapter News

*By David Graham, Chapter President*

**I**n November, **Darren Elliott** from Tecolote presented “Joint Analysis of Cost and Schedule (JACS) — a NASA-Focused JCL Modeling Tool”. JACS is a cost-loaded schedule tool and Mr. Elliott discussed the requirements for such a tool which include schedule uncertainty, discrete risks and associated risk impacts, costs, costs mapped to activities, and cost uncertainty along with giving you an overview of its features. He also explained how to use the JACS analysis results and its what-if capabilities. JACS has a friendly Excel user interface and utilizes the ACEIT monte carlo (a.k.a., latin-hypercube) engine to perform its analyses. It is a tool that can be utilized today by cost and schedule analysts.

In February, **Tim Wallender**, representing his company, Wallender and Associates, presented, “What Are You Telling OSD About Your Program?” stressing the importance of using the correct budget at completion (BAC), as well as risk analysis using some recommended estimates to complete EVM metrics in developing your program’s estimate at completion (EAC). Mr. Wallender currently supports the SMC Launch Vehicle program with EVM and schedule analysis.

In March, the Southern California SCEA chapter in conjunction with the Southern California ISPA chapter will contribute a presentation by **Mike Butterworth** that takes **Dr. Roy Smoker’s** EVM trend analysis presentation (the first lunchtime lecture) and makes a usable Excel-based tool that implements Dr. Smoker’s approach. Mike developed the tool and the intent is to be able to hand out copies of the tool after the presentation.

## Greater Dayton Chapter News

*By Eric Nardi, Chapter Vice President*

**T**he Greater Dayton Chapter has had an exciting past several months, both increasing membership and our interaction with the cost community. In September, we held a very successful social, which was held at The Pub at the Greene. Many current members and interested estimators came out to meet the chapter and network with fellow analysts. We hope to hold another social soon at this venue.

December was an exceptionally active month for the chapter, holding our annual Adopt-a-Family program, as well as a luncheon featuring **Kathy Watern**,

Associate Deputy Assistant Secretary for Cost and Economics, Office of the Assistant Secretary of the Air Force for Financial Management and Comptroller. For our charitable work we were able to sponsor a family in need, raising several hundred dollars in order to provide toys, clothes, and necessary household goods. Many thanks go out to all who contributed to the chapter’s fundraising efforts. Ms. Watern’s luncheon brought in a full house as she delivered information on current issues and challenges in the cost environment, the FY13 POM, cost estimating workforce development, the FMC Center of Expertise, Will Cost/Should Cost Estimating, and Program

# Chapter Updates

Control. All who attended were extremely privileged to hear insightful news and information related to our current environment.

In March, we participated in the annual Big Brothers Big Sisters Bowl for Kids' Sake event. This event raises money to help cover the costs to provide big brothers and big sisters to children in need of mentoring in the Miami Valley. In addition to providing teams of bowlers to help raise funds, our chapter is providing sponsorship to the event, helping

to offset the operating expenses related to holding the fundraiser. Many thanks go out to all the bowlers as well as to the chapter leadership for making this happen.

We are continuing to hold our monthly Board meeting on the second Wednesday of each month, enabling the Chapter Board and interested members to engage in discussion related to chapter activities and events. We will also be holding another social/training event in the April – May timeframe.

## Central Florida Chapter News

*By James Roberts, Chapter President*

Our Chapter held meetings in Cocoa Beach in May and November of 2011 and a meeting in Orlando in August (chapter meetings alternate between Orlando and the Space Coast). In addition, a Christmas party was held in December at the home of member and former vice president **Mike Euziere**. Chapter members **Jim Roberts** and **Terry Lambing** attended the 2011 SCEA/ISPA Conference in Albuquerque and presented a joint paper titled "Commercialization Activities at NASA and Resulting Cost Implications". Elections were held in Fall 2011 for a two-year term. New chapter officers are President **Jim Roberts**, Vice President **Joe Ruwe**, Treasurer **Greg Seavers**, and Secretary **Karen Rivaud**. In addition, Board Members for the coming term are **Mike Euziere**, **Chris Hobbs**, **Greg Seavers**, **Tina McMillian**, **Karen Rivaud**, **Bill Shockley**, **Joe Ruwe**, **Terry Lambing**, and **Jim Roberts**.

The Central Florida SCEA Chapter is looking forward to serving as "Host" Chapter for the coming Conference in Orlando from June 26–29, 2012.

## New England Chapter News

The New England SCEA chapter had a busy fall and is looking forward to an eventful spring! We kicked off the fall foliage season with a presentation from **Barbara Meyers**, Contract Performance Management Branch Chief of ESC/FM; she brought us up to date with "What's New in EVM". Following a tumultuous start to the fiscal year, Lt Col **David Peeler**, Deputy Director of ESC/FM, discussed the "Impacts of the AFMC & PEO Reorganization & Re-Structure" with us. We held our annual holiday so-

cial at Margarita's then the New Year was kicked off by **William Lane** and **Sean Collamore** who brought us "ACEIT's What-If Capability (with RI&K)".

In February we hosted **Dr. Jamie Morin**, the Air Force's Chief Financial Officer and principal advisor to the Secretary of the Air Force. He spoke to a full room of our chapter members as well as other members of the Electronic Systems Center at Hanscom AFB, MA about "Current and Future Budgets and the Impact of Will/Should Cost". He conveyed information on the current USAF and DoD budget and gave us all his perspective on the upcoming changes.

The Fisher House Foundation has recently been selected as our BoD's charitable organization; we are proud to make a donation on behalf of our volunteer speakers for each event. The Fisher House provides a home away from home for military families to be close to a loved one during hospitalization for an illness, disease, or injury.

Following onto last years' successes with the CEBoK® training program, we are planning to kick off the 2012 program this spring. Many thanks go to **Eric Timinski**, **Michael Mahoney**, and **Richard Beavers** for organizing this monumental effort.

*Dr. Jamie Morin at New England Chapter's February Meeting.*





It's that time of year for our Annual Chapter Awards as well. A call for nominations will be going out soon. We are excited to continue to recognize our chapter members' remarkable achievements talents!

We are looking to repeat last year's success with another cost workshop this coming May. It is in the early planning stages but is already shaping up to be

a great event! Anyone looking for an excuse to travel to New England in the spring should contact **Kelly Kane** (Kelly.kane.ctr@hanscom.af.mil) as we're still filling out the roster of speakers and topics for the workshop.

It's shaping up to be a busy spring and we're already looking forward to our summer social!

## Lone Star Chapter News

*By John Deem, Chapter President*

**W**e recently announced some changes to our membership regarding chapter leadership. **Rex Potter** was elected to the National Board of Directors as Region V Vice President so he asked me to take over as President for the remainder of the term. **Keith Hill** assumed the position of Vice President. **Nate Armstrong** continues to serve as Secretary, and **Lisa Schmitz** continues to serve as Treasurer.

November 2011 — We hosted guest speakers, **Alan Heckler** and **Andrew Williams**, Aerospace and Defense industry consultants from A.T. Kearney who facilitated an interactive discussion on improving affordability via the should-cost review process, a concept gaining a lot of attention now in both the public and private sectors.

February 2012 — Our chapter participated in a National Contract Management Association (NCMA)

event focusing on recent DCMC policy changes regarding DCAA Forward Pricing Rate Reviews.

March 2012 — Lockheed Martin Aeronautics Company hosted a chapter event at the production facility in Ft. Worth starting with a forum on current government and industry challenges facing our estimating and cost analysis community today followed by a tour of the mile long factory housing the F-35 production line with over 30 aircraft in work to be completed by the end of the year.

June 2012 — We have several candidates planning on taking the certification exam, so we started conducting study group workshops after working hours once a week to help candidates prepare.

The Lone Star Chapter is comprised of members representing several companies and government agencies in the Dallas – Fort Worth area, but much of our membership consists of a couple large companies including Lockheed Martin Aeronautics, Lockheed Martin Missiles & Fire Control and Bell Helicopter Textron.



*(Left to right, top to bottom) New Lone Star Chapter President, John Deem explaining leadership changes to chapter membership. Keith Hill accepting the position as Chapter Vice President and sharing expectations. Keith Hill with Treasurer, Lisa Schmitz. Cathy Kehoe and other members considering*

*attaining professional certification and smiling about it. John Deem thanking Andrew Williams (left) and Alan Heckler (right) from A.T. Kearney for facilitating an engaging discussion on should cost reviews.*



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Contact the SCEA International Office at [scea@sceaonline.org](mailto:scea@sceaonline.org) for more details.

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Join us at the Hilton Orlando for networking, training, and professional development. Training sessions (based on the *Cost Estimating Body of Knowledge and Parametric Estimating Handbook*), presentations, and keynote speeches will give insight into the latest developments in the field. The 2012 SCEA/ISPA Conference is sure to be the cost estimating/analysis event of the year!



## Northwest / Washington Chapter News

By Julie Wallace

- D**uring the past six months the our chapter has sponsored the following activities:
- One networking event, where members enjoyed each others company over billiards, beer, and appetizers.
  - One catered speaker event, where members were treated to a buffet of pizza, snacks, soda and beer and social time before hearing our two guest speakers, **Jim Hayes**, Director BCA Estimating and Pricing / PFA, The Boeing Company and **Jeff Campbell**, Director 737 Max Finance, the Boeing Company and Director SCEA National Board speak on estimating tools and techniques and how SCEA can help estimators in doing their job. One lucky attendee won a gift card that was raffled off. The night was ended with a brewery tour and free beer tasting.
  - One session of the SCEA certification exam preparation course was held. This eight-week, forty-hour class is designed to provide assistance and preparation guidance to those interested in obtaining their CCEA® (Certified Cost Estimator/Analyst) and PCEA® (Professional Cost Estimator/Analyst). It covers each of the 16 modules in SCEA's endorsed training: Cost Estimating Body of Knowledge (CEBok®) and is taught by certified chapter members.

In 2011, five chapter members obtained the designation of Certified Cost Estimator / Analyst: **Andy Sedlaceck** (August), **David Torgenson** (December), **Kathrine Coyle** (December), **Sarita Sharma** (December), and **Donna Nguyen** (December). These individuals passed the SCEA exam after participating in the Certification Exam Preparation course. The CCEA® designation distinguishes them as being one of less than 650 persons, internationally, who have demonstrated mastery of basic and intermediate knowledge in the field of cost estimating. These new certifications resulted in an 11% increase in the number of our chapter members holding certification.

Our Mariners baseball fundraiser begins April 1. Members run beverage and snack stands to bring in money for our chapter. This year, we will be providing more incentives for our members to volunteer: each month we have a raffle planned for those that participate in fundraising efforts for the month, and at the end of the season, all volunteers who participated will be treated to a Mariners baseball game, where they will be attending together as spectators rather than workers.

Due to the fundraising and volunteering efforts of our members, we are able to provide more for our members at our networking and speaker events than ever before. This year, our chapter is planning:

- Two networking events
- Two guest speaker events
- Two sessions of the SCEA Certification Exam Preparation course



(Left to right) Catered Speaker Event (December 2011) with pizza, soda and beer, gift card raffle, brewery tour and free beer tasting (Pyramid Brewery). Jim Hayes (top) and Jeff Campbell (bottom) spoke at the event. Networking Event (September 2011) where members socialized over billiards, beer, and appetizers at Acme Bowl, a local bowling/billiards establishment.

## Washington DC Metro Chapter News

**O**n January 25<sup>th</sup> the Washington Area Chapter of SCEA held our annual business meeting at the Washington Golf and Country Club in Arlington, VA. Attendees enjoyed drinks and hors d'oeuvres before a presentation by the board on the Chapter's activities. The keynote speaker was **Bill Haseltine**, SCEA Past President, who spoke on the integration of ISPA and SCEA. After his speech, the annual awards were presented for the categories of Junior Analyst, Team Achievement, Technical Achievement, Leadership/Management, and Best Luncheon Speaker. The nominees for Junior Analyst were **Colleen Craig** (Technomics, Inc.), **Kirsten Schulte** (TASC, Inc.), **Marcus Palmer** (Jacobs Technology Strategic Solutions Group, Inc.), **Dustin Hilton** (Kalman & Co, Inc.), **Michael Mender** (NCCA), and **Angelica Villarreal** (AFCAA). The team award nominees included the PEO Integrated Warfare Systems 2.0 Cost Analysis Team from Technomics, the US Navy VAMOSC database team from NCCA, the Logistics Requirements and Funding Summary Cost Estimating Tool Team from Booz Allen Hamilton, and the JPEO CBD PS&I Cost Analysis Support Team from Kalman & Co. The Leadership Nominees were **Ben Costley** (Tecolote), **Virginia Stouffer** (LMI), and **Dipali Amin** (Kalman & Co.). Finally, **Kevin Cincotta** (Technomics) and **Jennifer Swartz** (Kalman & Co) were nominated for Technical

Achievement. The chapter also presented an award for best luncheon speaker based on feedback from the members who attended the meeting.

Congratulations to our 2011 Washington Area Chapter award winners:

- **Angelica Villarreal** (AFCAA) — Junior Analyst
- Logistics Requirements and Funding Summary Cost Estimating Team (BAH) – Team Achievement
- **Ben Costley** (Tecolote) — Leadership
- **Kevin Cincotta** (Technomics) — Technical Achievement
- **Belinda Nethery** and **Kyle Thomas** (TASC) — Luncheon Speaker Award

In addition to the annual meeting, the chapter website ([www.washingtonscea.com](http://www.washingtonscea.com)) has recently had a facelift. It is now easier to navigate, more aesthetically pleasing, and fully up-to-date. The chapter continues to have monthly luncheon presentations, and we are organizing a half-day training session to prepare our membership for the upcoming SCEA certification tests. In order to keep our membership well-informed, we put out a quarterly newsletter that highlights past and future chapter activities. With the results from the national survey, we have heard our membership suggestions, and are excited at the opportunity to better tailor our activities to the membership's needs in the future.

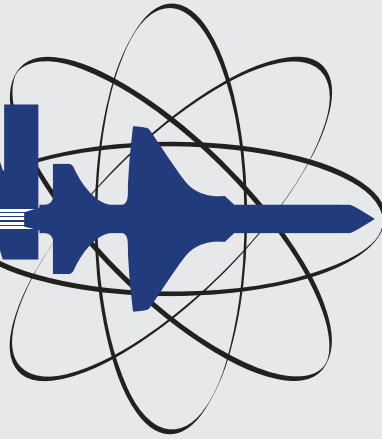
*(Left to right, top to bottom) Kevin Cincotta received the Technical Achievement Award. Chapter members mingle over drinks and hors d'oeuvres. The Logistics Requirements and Funding Summary Cost Estimating Team receives the Team Achievement Award. Ben Costley received the Leadership/Management Award. Belinda Nethery and Kyle Thomas win the Best Luncheon Speaker Award*





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Program Life Cycle Cost Estimates, Independent Cost Estimates, Analysis of Alternatives, Budgetary Support, and Milestone Decision Support to DoD Services

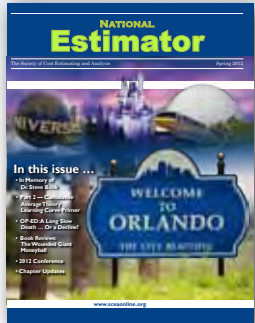
### COST RESEARCH

Providing Service Oriented Architecture Software Estimating Research for Marine Corps Systems Command



The Society of Cost Estimating and Analysis

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