



2018 Professional Development and Training Workshop

## Developing an Independent Government Cost Estimate

Acquisitions and Operations Track (AO12)

International Cost Estimating and  
Analysis Association (ICEAA)  
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Richard Shea | Shavaiz Saood

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# Introduction

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- ▶ The Independent Government Cost Estimate (IGCE) is an unbiased cost estimate based upon Government requirements and inputs without input from potential contractors
- ▶ The IGCE is a tool used by the Government during source selection as the basis for reserving funds for the contract, comparing costs proposed by submitting contractors, and used as a guideline to determine contract proposal price reasonableness
- ▶ This presentation discusses the steps building the IGCE and steps in the process

# Overview

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- ▶ Different types of Estimates
- ▶ What is an Independent Government Cost Estimate (IGCE)
- ▶ Why do we need a IGCE and when is it required
- ▶ Developing the IGCE
  - Get Stakeholder buy in
  - Develop the estimate plan
  - Gather data
  - Build estimate
  - Ensure estimate agrees with latest RFP version
  - Present the estimate
- ▶ The Next Steps
- ▶ Conclusion

## Types and Purposes of Cost Estimates

Cost Estimate	Performer	Primary Stakeholder	Other Stakeholders	Purpose
Budget Request	Program Office	Resource Chain of Command	PEO, Executive / Legislative Branch	To obtain funds. Focuses on short term (FYDP)
Life-Cycle Cost Estimate (Will-Cost)	Cost Estimation Shops	Acquisition Chain of Command	Program Office, PEO	Focuses on long term, developed during program milestones
Should Cost	Program Office	Acquisition Chain of Command	Resource Chain of Command	Identify should cost initiatives to reduce costs
What-if Drill	Program Office / Cost Estimation Shops	Varies	Varies	To analyze technical or programmatic trade-offs
IGCE	Program Office / Cost Estimation Shops	Program Office	Contracting Office	Contract

# What is an Independent Government Cost Estimate

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- ▶ Estimate of Resources and the respective costs incurred with the performance of a contract
- ▶ Complex work break down of a major hardware procurement or service requirement
- ▶ Single item cost estimate
- ▶ Tied to a specific requirement or a group of functional requirements
- ▶ Based upon market research
- ▶ Estimates must be
  - Accurate
  - Credible
  - Defensible
  - Well documented

## Uses of an Independent Government Cost Estimate

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- ▶ Developed by the Government
- ▶ Based upon market research
- ▶ Reserve funds for an acquisition
- ▶ Determine the commonality of assumptions presented in cost proposal as similar to those used by the Government
- ▶ Assist in design alternatives
- ▶ Assist in decision of project viability and affordability
- ▶ Benchmark for cost/price analysis

## The Need for IGCE

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- ▶ Used to commit budget funds for a Request for Proposal (RFP)
- ▶ Used to evaluate contract proposals
- ▶ Determines cost realism and reasonableness
- ▶ Required by law
- ▶ Required before Request for Proposal (RFP), Request for Quotation (RFQ), and Invitation for Bids (IFB) for new fixed-price contracts and cost-reimbursement contracts
- ▶ Get Stakeholder Buy In
  - Program Office
  - Contracting Office
  - Cost Estimating Shop

## Gather Data

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- ▶ Market Research
- ▶ Gather Request for Information (RFI) responses data
- ▶ Actual Costs
- ▶ Previous Contract Data
- ▶ Previous Contract Performance Data
- ▶ Cost reports from the Cost and Software Data Reporting (CSDR)
- ▶ Subject Matter Experts
- ▶ Business Case Analysis
- ▶ Analysis of Alternatives
- ▶ Budget Projections
- ▶ Earned Value Management data
- ▶ Comparable Data





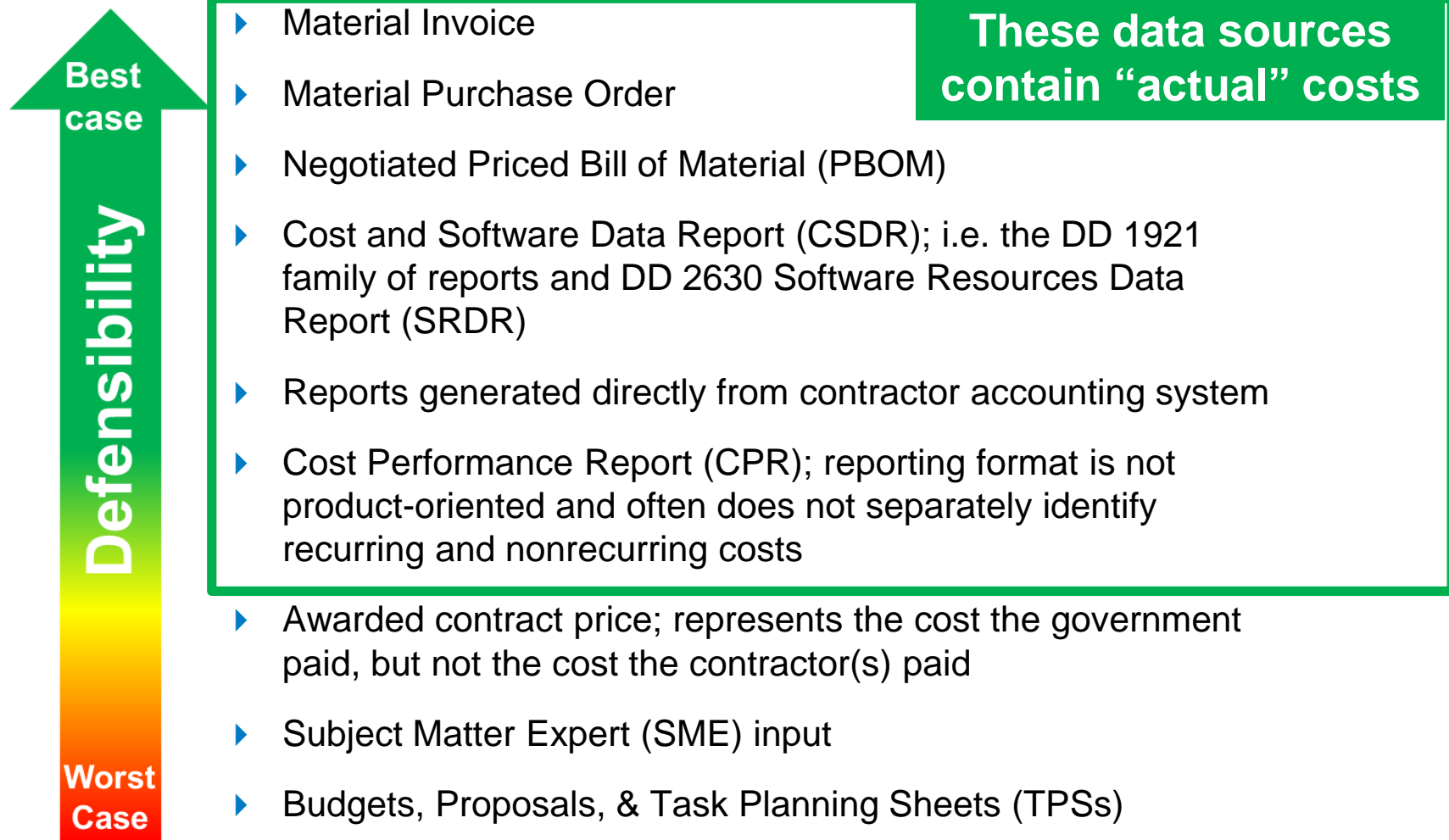
## Sources of Market Research

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- ▶ Manufacture and Dealer Catalogs
- ▶ Product Brochures and Promotional Material
- ▶ Trade Journals
- ▶ Industry Day
- ▶ Government or Independent Testing
- ▶ Federal Supply Schedules
- ▶ Economic Data
  - Government
  - Non-Government
- ▶ Industry Publications



# Hierarchy of Contractor Cost Data Sources



## Develop the estimate plan

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- ▶ Purpose and Use are to support a contract action
- ▶ Define Estimate Scope
- ▶ Develop a Ground Rules and Assumptions
  - Common set of agreed upon estimating standards
  - Period of performance
  - Determine the possible contractors
  - Develop a distribution of labor rates
  - Develop a Cost Estimating Methodology Matrix (CEMM)

## Sample IGCE (Software System)

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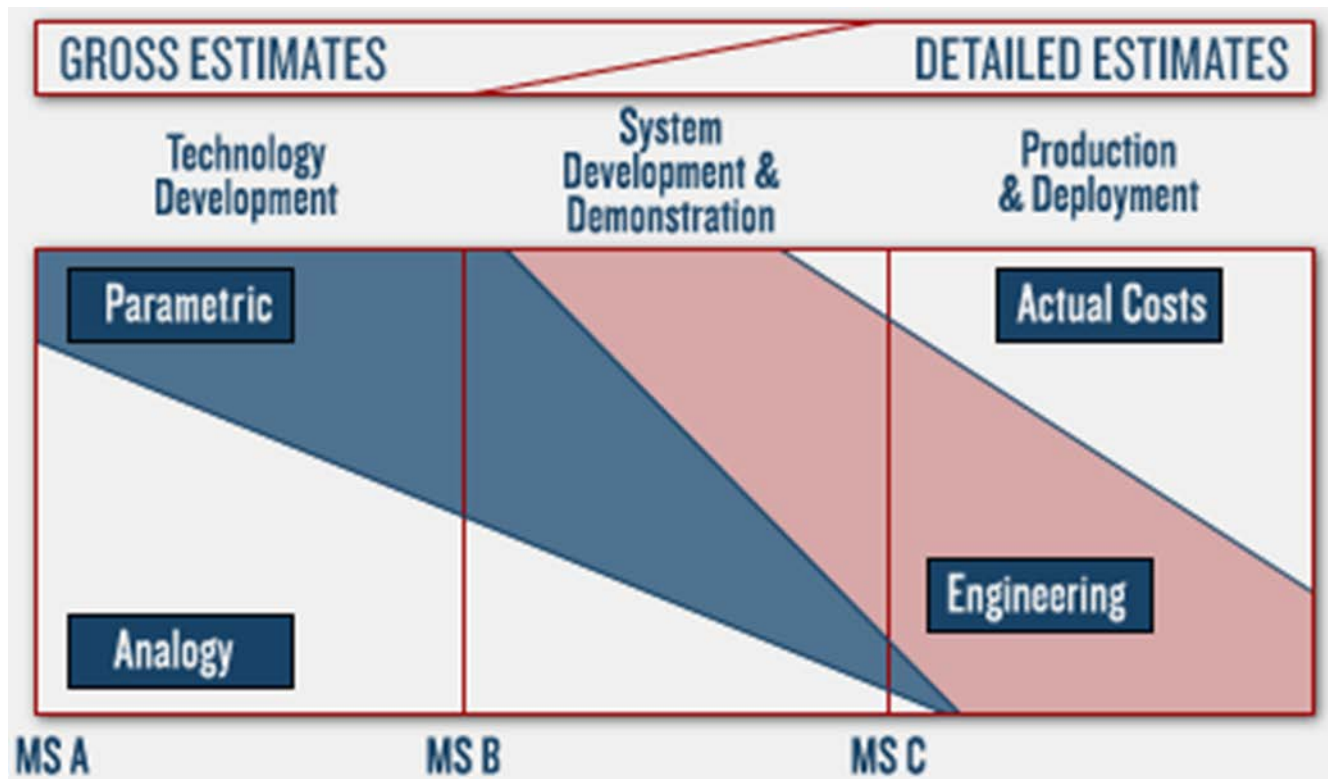
- ▶ System Overview and Contracting Approach
  - Schedule
  - Plan of Action and Milestones (POAM)
  
- ▶ Independent Government Cost Estimate (IGCE) (Software System)
  - Cost Estimating Overarching Ground Rules & Assumptions
  - Cost Estimating Methodology Matrix (CEMM)
  - Total Cost Overview
  - Software Build (SW Dev.)
  - Software Integration
  - Systems Engineering/Program Management (SEPM)
  - Software Maintenance/Modification (SW Maint./Mod.)
  - Industrial Facilities (Lab)
  
- ▶ Uncertainty analysis
  
- ▶ Mapping IGCE WBS to Contract CLINS
  
- ▶ Cost and Software Data Reporting (CSDR)/Earned Value Management (EVM) Co-Plan

# Cost Estimating Methods

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- ▶ Analogy (top down)
  - Based on experience on historical data of similar systems
- ▶ Parametric (statistical)
  - Relies on statistical analysis
- ▶ Engineering (bottom up)
  - Detailed estimate developed at the task or element level and then summarized at higher levels of the WBS
- ▶ Actual Costs (extrapolation)
  - Taking actual costs of previous deliverables
- ▶ Expert Opinion
  - Delphi technique
  - Used as a last resort

## Selecting the Correct Estimating Method



- ▶ The acquisition life cycle stage determines which methods are valid
- ▶ Methods vary with each cost element and can deviate from this chart on occasion

## Example of a Cost Estimating Methodology Matrix

WBS	Contract Mapping	Description	Cost Estimating Method
Software Build (SW Dev.)	Capability Builds 1 through n	End-to-end software development: <ul style="list-style-type: none"> <li>Build creation               <ul style="list-style-type: none"> <li>Requirements decomposition</li> <li>SW development and integration</li> </ul> </li> <li>Engineering Deficiency Report (EDR) burn-down</li> </ul>	$\frac{(ESLOC * Growth)}{Productivity} * Rate$
Software Integration	Hardware Integration/ Software Migrations	(1) Hardware Technical Insertion (HTI) Integration  (2) Capability Build Software Migration	(1) Analogy to Integration efforts from analogous systems  (2) $\frac{(ESLOC * Growth)}{T\&E Productivity} * Rate$
Systems Engineering & Program Management (SEPM)	Legacy Support Critical Experiments, Advance SE, ODCs and Travel	SEPM activities across contract	Analogy to similar system contracts
Software Maintenance and Modification	Legacy Support (In-Service Support)	(1) Software maintenance and modification of the Single Source Library (SSL) baseline (2) Adaptation & Integration	(1) $\frac{(KDSLOC)}{Productivity} * Rate$  (2) Analogy to similar system contracts
Industrial Facilities	Systems Integration Lab (SIL) Standup and Maintenance	(1) SIL standup (software/equipment installation in an existing facility) (2) Lab maintenance and sustainment	(1) Analogy to other systems efforts (2) FY14/15 PSEA actuals

## General Types of Costs Found in an IGCE

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- ▶ Material Costs
- ▶ Labor Costs
  - Burdened
  - Unburdened
- ▶ Travel and Other Direct Costs
- ▶ Contractor Furnished Equipment (CFE)
  - Materials
  - Equipment
- ▶ Other Costs

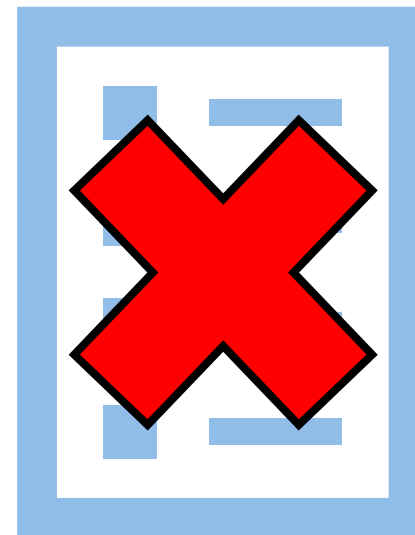




## General Types of Costs Not Found in an IGCE

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- ▶ Project Costs Outside the Period of Performance of the Proposed Contract
- ▶ Government Labor
- ▶ Government Furnished Equipment (GFE)
- ▶ Program Office Costs



## Build the Estimate

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- ▶ Create a Work Breakdown Structure based upon the MIL STD 881D
- ▶ Develop a cost estimating matrix
- ▶ Document assumptions
- ▶ Document sources
- ▶ Time Phase estimate
- ▶ Use appropriate inflation indices (JIC)
- ▶ Document any cost estimating tools used
- ▶ Cross check with previous estimates or comparable products or services
- ▶ Must contain enough detail to assist the Contracting Office and Source Selection Team in evaluating the reasonableness of offered proposals

## Ensure the IGCE Agrees with the RFP

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- ▶ Incorporate any changes and adjustments as the RFP develops
- ▶ Requirements are defined in the Statement of Work
- ▶ Guidance can be found in market research
- ▶ Program office and contracting office will refine the procurement request as necessary
- ▶ Compare to the program budget

## Best Practices

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- ▶ Use a team approach
- ▶ Understand the requirement
- ▶ Follow any internal review and approval process
- ▶ Maintain open communication with stakeholders to include Program Office, Contracting Office, Finance, etc.
- ▶ Engage early and often with SMEs
- ▶ Address in small chunks as to not get overwhelmed
- ▶ Document assumptions, methods, and sources
- ▶ Keep updating as required

## Author Biographies

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- ▶ Shavaiz Saood joined Herren Associates in 2015 with a bachelor in Finance from Duquesne University. Shavaiz currently supports NAVSEA 05C in the areas of cost engineering and data analysis. He specializes in the development of Life Cycle Cost Estimates (LCCEs), Independent Cost Estimates (ICE), Business Case Analyses (BCAs), along with other estimates and analyses. Prior to Herren, Shavaiz worked in the finance sector as an Investment Operations Analyst at the Bank of New York Mellon.
- ▶ Richard Shea joined Herren Associates in 2016 as a lead Senior Cost Analyst supporting NAVSEA 05C. Mr. Shea has years of experience supporting various Department of Defense (DoD) Organizations from the DoD Health Affairs, Defense Health Agency (DHA), Department of Veterans Affairs, US Marine Corps, US Army, and now the US Navy. Mr. Shea is experienced in building life cycle cost estimates, business case analysis, and independent cost estimates supporting DoD systems and services.

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## Author(s)

**Richard Shea** | Consultant  
Phone: (202) 400-3471  
[Richard.Shea@jlha.com](mailto:Richard.Shea@jlha.com)

**Shavaiz Saood** | Consultant  
[Shavaiz.Saood@jlha.com](mailto:Shavaiz.Saood@jlha.com)

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