



Using the Joint Integrated Analysis Tool (JIAT)

ISPA/SCEA WORKSHOP JUNE 8-11, 2010





Agenda

- Introduction (Daniel Schwartz, ODASA-CE)
- JIAT Use Case (Melissa Cyrulik, Tecolote Research, Inc.)
- > JIAT's Continuing Evolution (Daniel Schwartz)
- Questions

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Introduction

The Army's Cost Estimating Challenge

- The logistics of accessing estimating resources can be a challenging task. You must work through several hurdles:
 - Knowing that the data and models exist,
 - Knowing where data and models are stored,
 - Getting access to the resources,
 - Understanding how to extract the data or interact with the resources, and
 - Reformatting the information so that it can be integrated into an estimate or analysis.

The Army's Cost Estimating Solution

- The Joint Integrated Analysis Tool (JIAT) is a web-based application that provides access to capability, performance, and operations and support databases and provides links to, cost estimating tools, engineering design models, and modeling and simulation tools.
- JIAT is administered by the Office of the Deputy Assistant Secretary of the Army – Cost & Economics (ODASA-CE) and Tecolote Research, Inc.
- This presentation shows how you can use JIAT to overcome the aforementioned challenges and perform your daily estimating and analysis work efficiently and from a broader variety of sources.

JIAT

Three Challenges When Performing an Estimate or Analysis Task

| Iden | tifying |
|------|---------|
| Anal | ogous |
| Sys | stems |

- Identify Analogies
- Locate Analogous System Cost, Schedule, and Technical Data to Build Cost Estimating Relationships (CERs)

Collecting Source Data

- · Gather Estimating Data from Various Sources:
 - Costs Associated with Military and Civilian Personnel
 - Cost of Unit Operations; flying hours, fuel, consumable and reparable costs
 - Operational Costs for analogous systems

Locating CERs and Source Models

- Search Libraries for appropriate CERs and Factors
- Locate existing estimating models that can provide estimates for portions of the system you are estimating - for example software or platform models



Current JIAT Components



* Currently only one sample ACDB database is hosted

**Price H and Excel Provider are under development at the time of publication

Approved For Public Release

JIAT Provides Access to Multiple Databases



Identify Analogous Systems

- Capabilities
- Programmatic Data
- Technical Data

Collect Standard Rates

- Enlisted
- Officer
- Civilian
- Use for Manpower



Gather O&S Data

- Operate Vehicles
 Data
- Support Systems Data
- Aircraft Flight Data
- Maintain Software
 Data

FORCES

JIAT

Obtain Force and Organizational Data

- Flying Costs
- Fuel Costs
- Equipment Costs
- Replenishment Costs

JIAT Provides Access to Multiple Model Providers



Connect to JIAT in Two Ways: Web Browser and Clients

JIAT uses a common interface to display information

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JIAT Use Case

Utilizing JIAT to Cross Check an Estimate

- Our task is to cross check an estimate for a helicopter program.
- > The system capabilities of the helicopter are that it:
 - > Will be man-operated (controlled by a person),
 - Can be deployed, and
 - Must provide ground support.
- To create an estimate or cross check one, analysts pull information together from a variety of sources.
- This presentation shows an example of how JIAT can help cross check an estimate. The cross check analysis is hosted in Excel. In addition, we show how working with this information in Excel can expand your analysis capabilities to include allowing you to perform portfolio analysis.

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Example Helicopter Estimate

The task is to cross check the results of this Life Cycle Cost Estimate

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| REPL REPAIR PARTS (CONS) \$411.499 \$100.00 \$246.649 RDT & RDT & RDT & FUNDED ELEMENTS END ITEM SUPPLY & MAINT \$11.549 \$0.00 | REPL SPARES (REPARABLES) | \$1,159.145 | | | | | | | | | | | | |
| PETRO, OIL AND LUB (POL) \$246.649 RDT&E FUNDED ELEMENTS END ITEM SUPPLY & MAINT \$11.549 \$0.00 TRANSPORTATION \$17.281 201120142017202020320262029203220352038204120442047 SOFTWARE \$65.300 201120142017202020320262029203220352038204120442047 SYSTEM TEST AND EVAL, OPER 5 5 SYSTEMS ENGINEERING/MGMT \$256.534 \$0.537 TRAINING \$451.020 \$0.537 OTHER OM \$310.931 NOTIONAL data \$0.370 \$0.878 \$1.523 \$2.813 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 \$4.555 \$6.073 \$9.110 \$15.183 \$142.718 | REPL REPAIR PARTS (CONS) | \$411.499 | | \$100.0 | 00 + | | ▋▋₿₽ | | | | | | | |
| END ITEM SUPPLY & MAINT \$11.549 TRANSPORTATION \$17.281 SOFTWARE \$65.300 SYSTEM TEST AND EVAL, OPER • • SYSTEMS ENGINEERING/MGMT \$256.534 TRAINING \$451.020 \$0.537 \$1.274 \$2.09 \$4.081 \$442.919 OTHER OM \$310.931 Notional data \$0.370 \$0.878 \$1.523 \$2.813 \$305.346 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 • • \$44.555 \$6.073 \$9.110 \$15.183 \$142.718 | PETRO, OIL AND LUB (POL) | \$246.649 | | <i>\</i> 1 0010 | | | | | | | RDT&E FUNDED ELEMENTS | | | |
| TRANSPORTATION \$17.281 \$0.000 SOFTWARE \$65.300 $201120142017202023202520352038204120442047$ SYSTEM TEST AND EVAL, OPER C 5000000000000000000000000000000000000 | END ITEM SUPPLY & MAINT | \$11.549 | | ćo o | | | | | | | | | | |
| SOFTWARE \$65.300 2011/2014/2017/2020/23202620/29203220352038204120442047 SYSTEM TEST AND EVAL, OPER C 5/250.534 SYSTEMS ENGINEERING/MGMT \$256.534 \$200.537 \$1.274 \$209.534 TRAINING \$451.020 Noti onal data \$0.370 \$1.274 \$2.209 \$4.081 \$442.919 OTHER OM \$310.931 Noti onal data \$0.370 \$0.878 \$1.523 \$2.813 \$305.346 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 S \$44.555 \$6.073 \$9.110 \$15.183 \$142.718 | TRANSPORTATION | \$17.281 | | ŞU.U | 00 | | | | | | | | | |
| SYSTEM TEST AND EVAL, OPER Image: Constraint of the system of the sy | SOFTWARE | \$65.300 | | | 201120 | 1420172020 | 202320262 | 0292032203 | 520382041 | L20442047 | | | | |
| SYSTEMS ENGINEERING/MGMT \$256.534 TRAINING \$451.020 OTHER OM \$310.931 Notional data \$0.537 \$1.274 \$2.209 \$4.81 \$442.919 OTHER OM \$310.931 Notional data \$0.370 \$0.878 \$1.523 \$2.813 \$305.346 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 \$44.555 \$6.073 \$9.110 \$15.183 \$142.718 | SYSTEM TEST AND EVAL, OPER | | | | | | | | | | | | | |
| TRAINING \$451.020 Notional data \$0.537 \$1.274 \$2.209 \$4.081 \$442.919 OTHER OM \$310.931 Notional data \$0.0370 \$0.878 \$1.523 \$2.813 \$305.346 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 \$1 \$4.555 \$6.073 \$9.110 \$15.183 \$142.718 | SYSTEMS ENGINEERING/MGMT | \$256.534 | | | | | | | | \$250.534 | | | | |
| OTHER OM \$310.931 INOTIONAL GATA \$0.370 \$0.878 \$1.523 \$2.813 \$305.346 ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 \$4.555 \$6.073 \$9.110 \$15.183 \$142.718 | TRAINING | \$451.020 | NL-1 | | | \$0.537 | \$1.274 | \$2.209 | \$4.081 | \$442.919 | | | | |
| ARMY WORKING CAPITAL FUND (AWCF) ELEMENT \$177.638 \$4.555 \$6.073 \$9.110 \$15.183 \$142.718 | OTHER OM | \$310.931 | Noti | onal data | 3 | \$0.370 | \$0.878 | \$1.523 | \$2.813 | \$305.346 | | | | |
| | ARMY WORKING CAPITAL FUND (AWCF) ELEMENT | \$177.638 | | | | \$4.555 | \$6.073 | \$9.110 | \$15.183 | \$142.718 | | | | |

Items to Cross Check in the Estimate

- For this use case we focus on three main areas to cross check the results in our estimate. All this information is gathered using JIAT.
 - For procurement... determining an analogous Average Unit Production Cost and compare it to that calculated from the estimate. We use CKB data to perform this check.
 - For O&M... calculate personnel costs and determine consumable to reparable cost factors to cross check the proportions of these items in the estimate. We use AMCOS and OSMIS data to check these items.
 - For software development... use the estimated lines of code to cross check the effort months used the in software development. We use a SEER SEM model to show how to verify this portion of the estimate.

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Cross Check Average Unit Production Cost with CKB Data

Using CKB to Identify Analogous Systems and Gather Cost and Technical Data



- CKB in JIAT offers four search options:
 - Program by Capability obtain a list of programs based on capabilities
 - Capabilities List by PNO view a list of all the capabilities of a system
 - Programmatic Data by PNO view programmatic data by major phase
 - Fechnical parameters by PNO view technical characteristics

Using CKB to Search for Analogous Systems

• Search CKB database

CKB search results

| elect Value(s) | | | А | С | D | E | F | | |
|---|--------------------------|-------------|-------------------------------------|---------------------------------|------------------------------|---|---|--|--|
| Variable Value | | 1 | JIAT De | ata Quer | у | | | | |
| □ 10_Manuever □ 11_Ground □ 12_Maritime | Search for | 2 3 4 | Model: Description: Provider: | CKB: Pro Obtain P ODASA-C | ogram t Program E Data | oy Capability ns Bases on Capabilities bases Provider | | | |
| 13_Submerged | Systems by Capabilities: | 5 | Query Inputs | | | Query Results | | | |
| ☑ 14_Air | Example - Air Manned | 6 | Name | Value | PNO | ProgramName | | | |
| 20 Control | | 7 | Capability | Choice | 156 | BLACK HAWK (UH-60A/L) | | | |
| ☑ 21_Manned | Support, and Ground | 8 | | Ī | 182 | LUH | | | |
| 22_Unmanned | | 9 | | | 202 | APACHE BLOCK III | | | |
| 30_Shoot | | 10 | | | 202 | LONGBOW BLOCK III (AB3) | | | |
| □ 31_Line_of_Signt(LU: □ 32 Beyond Line of 1 | o) Sight/BLOS) | 11 | | | 278 | CH-47F | | | |
| | | 12 | | | 831 | LONGBOW APACHE | | | |
| Check All Unche | eck All OK Cancel | 13 | | | | 1 | | | |
| | 19 | 14 | | | | | | | |
| Six Systems in CKB met | | | | | | | | | |

- Use CKB to understand the technical parameters of the analogies
- Search CKB "Technical Parameters by PNO" for each system
- Search results shown are examples of two notional analogous helicopter systems

| 1 2 3 4 | A C D JIAT Data Query Model: CKB: Technical parameters by PNO Description: List all technical data of a PNO Provider: ODASA-CE Databases Provider Query Inputs Mame Value Subprogram Name I | | | | Shows various technical parameters such as: speed, rotor diameter, rate of climb, length, height, weight, etc. | | | | | | | | | |
|------------------|---|--|---|--------------------------|--|-----------------|-------------------|--------------|--------------------|--------------------|--------------|----------------|----------------------------|---|
| 6 | Name | Guery | Value | Subprogram Name | MILHDBK881A System | n Type Crui | se Speed | Max Spe | ed Rotor Dia | meter I | Rate of C | limb Ler | gth Height | |
| 7 8 | PNO | Aircraft A | | | Aircraft Aircraft | | 184.32 202.752 | 210. | 6 816 6 | 51.8624 51.8624 | 110 8 | 0.16 | 57.6 19.584 4.65 19.584 | |
| 14 4 | (+ H / C | CKB - AirF - C | ap 🏑 Capabilities Cor | npare 🖌 CKB - AirA - T | ech CKB - AirA - Te | ch (2) CKB | | Ш | | 1 | | 1.4 | • | |
| 1 | A JIAT De | C ata Query | D | E | The tec all the a | hnical malog | para ous s | mete yste | ers can ms; thi | be o s info | comp orma | oareo ition | l for can | |
| 2 3 4 | Model: Description: Provider: | CKB: Techni List all techi ODASA-CE Di | cal parameters by PNO nical data of a PNO atabases Provider | | be | used | to d | evelop | CEF | Rs | | | | |
| 5 | Query | Inputs | | | | | | | | | | | | |
| 6 | Name | Value | Subprogram Name | MILHDBK881A System | n Type Cruise Speed | Max Speed | Rotor Dia | ameter I | Rate of Climb | Length | Height | Wingspa | n Max Gro | s |
| 7 | PNO | Aircraft 2 | | Aircraft | | 192.384 | 4 | 41.5872 | | 38.477 | 13.018 | | - | |
| 8 | () H / (| CKB - AirA - T | Fech 📈 CKB - AirA - T | ech (2) 📈 CKB - AirB - 1 | Tech CKB - AirB - Te | ech (2) / CK | B | 1111 | | | | | • | • |
| | | | | | | | Noti | onal data | | | | | | |



- Search CKB "Programmatic Data by PNO" for each system
- Search results shown are examples of two notional analogous helicopter systems

| | | | | | | Shows | variou | is program | data such as | S: | | |
|---|--|-------------------------------------|---|------------------|-----------------|-------------|------------|--------------------------|------------------------|-------------|----|--|
| | A | С | D | E | la | atest S | AR dat | a for RDTE | . Procureme | ent. | | |
| 1 | JIAT De | ata Query | | | Ν | | l and (| 28.M costs | nlue mileete | no | | |
| 2 | Model: | CKB: Programmatic Data by PNO | | | IV | | , and v | | plus miesic | ЛС | | |
| 3 | Description: | List all programmatic data of a PNO | l programmatic data of a PNO CE Databases Provider | | | | and a | Jerade Unit | nroduction (| roete | | |
| 4 | Provider: | ODASA-CE Databases Provider | | uui | production | 50313 | | | | | | |
| 5 | | Query Inputs | | | | | | Query Resi | ults | | | |
| 6 | Name | Value | Latest SAR Date | RDTE Cost | Proc Cost | MILCON Cost | O&M Cost D | uration, MS II to MS III | Duration, MS II to IOC | Segment Nam | 1e | |
| 7 | PNO | Aircraft A | 12/25/2000 | (| 1342 | 3 | 0 | | | Aircraft A | | |
| 14 | | CKB - AirA - Prog CKB - AirA - Pr | rog (2) CKB - A | CKB - Air I 4 | | | | > | | | | |
| | CKB - AirA - Prog CKB - AirA - Prog CKB - AirB - P | | | | | | | | | | | |
| 1 | ן JIAT | Data Query | | | analo | ogous s | ystems | s; this inforr | nation can b | e used | | |
| 2 | Model: CKB: Programmatic Data by PNO Description: List all programmatic data of a PNO | | | | to develop CERs | | | | | | | |
| 4 Provider: ODASA-CE Databases Provider | | | | | | | | | | | | |
| 5 | Quer | ry Inputs | | • | | | | Query Results | | | | |

| 5 | Query | mputs | | Query Results | | | | | | | | | | |
|----|-------|----------------|-------------------|------------------|------------|--------------------|--------------|---------------------------|------------------------|--------------|---|--|--|--|
| 6 | Name | Value | Latest SAR Date | RDTE Cost | Proc Cost | MILCON Cost | O&M Cost | Duration, MS II to MS III | Duration, MS II to IOC | Segment Name | | | | |
| 7 | PNO | Aircraft B | 12/25/2000 | 3.7 | 2092.7 | 0 | 0 | | | Aircraft B | - | | | |
| 14 | | CKB - AirA - I | Prog 📈 CKB - AirA | A - Prog (2) | CKB - AirB | - Prog CKB | - AirB - Pro | g (2) / I I | Ш | | | | | |

Notional data



To cross check our example use CKB data to develop CERs

 Compile data from various CKB data queries into one Excel/CO\$TAT worksheet and perform analysis
 CO\$TAT data





Hosting the CER in JIAT

Take any CER and store it in a JIAT CER library for others to search

| 🖉 JIAT - Windows Internet Explo | rer | | | | × |
|---|---|-------------------|----------------------------|---------------------------------------|--------------------------|
| 🙋 https://jiat.awps.army.mil/JIATWeb/Pa | ages/CERPage.aspx | | | | ✓ |
| CO.N. | USAN ALAN BARANA SANA SANA SANA SANA SANA SANA SANA | :MELISSA.ANN.CYF | RULIK Roles:Administrato | or, CerAdmin, Analyst, Providerl | |
| | Home Session 🕨 Model Sequence 🕨 F | Add CER | | | |
| | | | | | |
| | BARRAN AND AND AND AND | Title: Aircraft A | verage Unit Production Cos | t | |
| | | Equation: | | | |
| 1 m / × | USASMDC Ground Based Interc | 0.01992 | * EmptyWgt ^ 0.2663 * E | ngineshp ^ 0.5106 | |
| IIAT CER Libraries | | P to al | ibrary | | |
| Sample CER Library | | it to a i | ibrary | | |
| Training CER Library | | Reference Cost: | Learnin | a Slope: | Fee Included: Yes ¥ |
| USASMDC Ground Based | | Theory: | Rate SI | ope: | G&A Included: Ves V |
| Interceptor Cost Model Lib | 🖃 🔲 😳 USASMDC Demilitarization & Dispo | Fiscal Yoar: | | © Dollara | Overhead Included: Vee w |
| | 📄 🔲 🛯 Direct Demilitarization & Dispos | Demoin Turner | | a Dollars | Overhead Included. Tes |
| Libraries | 🗄 🔲 🕑 Pre-Disposal | Domain Type: | Cost Commo | Aviation | × |
| listing | 🔲 🗋 Annual Post-Disposal | Pridse: | | A to D Converter | |
| | Indirect Disposal | Pre-Development | | Aerospace Grd Equip | |
| | Other Demilitarization & Dispos | Development | | Airborne Spt Equip | Includes CEP |
| CERS | USASMDC Development CERs | Production | | Airframe, Structure | |
| liating | The Data | | pport | Definition: | definition and |
| | | | C: | Documents and Setting Browse | |
| | | | | Save | statistics |
| | 🖽 🔲 🕒 Other | | | | × |
| < | | | | · · · · · · · · · · · · · · · · · · · | |
| | | | 🗸 Truste | d sites 🔍 🔍 100% 🔻 | |

Working with JIAT Hosted CERs

Search for a CER in the JIAT CER libraries

| Lleo tho | JIAT Model Selection Wizard | Search by your criteria | Select from | JIAT Model Selection Wizard | |
|----------|--|-------------------------|----------------|--|---------------------------------------|
| | Providers to be Searched | Search By | ovoilabla | Model Name | Provider Name |
| | AMCOM ACE Session Provider | | available | USASMDC Ground Based Interceptor C | CER Runner Provider |
| CER | AMCOM SEER-SEM Provider AMCOS Provider | Model Name: | | (USASMDC Ground Based Interceptor C | CER Runner Provider |
| | CECOM ACE Session Provider | Model Description: | CER-IIST | Training CER Library) Aircraft Average U | CER Runner Provider |
| Model | CECUM SEER-SEM Provider | Production | | [Sample CER Library] MUDIFICATION | 252 Emptywgt 0.2003 Enginesing 0.3100 |
| INIUGEI | Model Sequence Provider | 🗆 Subject: | | Sample CER Library) TRAINING | CER Runner Provider |
| | ODASA-CE ALE Session Provider ODASA-CE Databases Provider | | View CFR | Sample CER Library) SYSTEMS ENGINE. | CER Runner Provider |
| Runner | ODASA-CE. Sample Aircraft ACDB F ODASA-CE. SEED SEM Provider | | | (Sample CER Library) Integration Assemb | CER Runner Provider |
| | ODASA-CE SEER-SEM Provider OSMIS Provider | Domain Type: | Documentation | (Sample CER Library) NON-BECUBBIN | CEB Bunner Provider |
| Provider | SEER-SEM Provider | | | | |
| | | | | | |
| | | | | | |
| | | CPrevious Next> Cancel | | | < Previous Next > Cancel |

Load and calculate CERs in Excel with your input variables

| | A | C | D | E | F | G | н | |
|----|---|---------------|---------------|-------------|---------|--|-------------|---|
| 1 | JIAT Non-Time Phased | | | | | | | |
| 2 | Model: (Training CER Library) Aircraft Average Unit Production Cost | | | | 4 | 141.1 | | |
| 3 | Description: 0.01992 * EmptyWgt ^ 0.2663 * Engineshp ^ 0.5106 | Showe | CED | l Cr | eate | multiple | cases | |
| 4 | Provider: CER Runner Provider | 010005 | | | | _ | | |
| 5 | Base Year 2009 \$ | | | | | R and a second s | | |
| 6 | Variable Name | Appropriation | Vodel Unit: C | onvert From | Case 1 | Smaller Weight | Smaller SHP | |
| 7 | OUTPUT VARIABLES | | | ulto | | | | |
| 8 | Aircraft Average Unit Production Cost Output | | ER res | uits | \$11.75 | \$10.69 | \$9.94 | |
| 9 | INPUT VARIABLES | | | | | | | |
| 10 | EmptyWgt | Enter | inputs | | 15720 | 11000 | 11000 | |
| 11 | Engineshp | Entor | nipare | | 1730 | 1730 | 1500 | - |
| 14 | + H / Report Helo Data / Helo Data (2) Non-Time Phased Sh | Off - A | | | | • | | |

Using the JIAT Analysis Information in our Cross Check

Results from the helicopter procurement estimate to cross check

| Costs in BY2009 \$M | | | | | | | | | | | |
|------------------------------|--------------|----------------|-----------|-----------|-----------|----------------|-----------|-----------|-----------|-----------|--------------|
| WBS | Total | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | To Complete |
| ARMY CES (AIRCRAFT) | \$13,149.461 | \$36.01/ | \$101 740 | \$120.062 | \$318,260 | \$280 831 | \$449.399 | \$429.512 | \$429.802 | \$453.981 | \$10,528.960 |
| PROCUREMENT FUNDED ELEMENTS | \$4,270.902 | | timate | | - | Ф 7 О I | 2.120 | \$396.014 | \$375.828 | \$361.967 | \$2,274.185 |
| Production Quantity | 585.0 | | umate | e AUr | | າເ.ວາ | VI 50.0 | 50.0 | 50.0 | 50.0 | 350.0 |
| Shaft Horsepower (lbs) | 1,730.0 | | | 1 | | | | | | | |
| Empty Weight (lbs) | 15,720.0 | | | | | | | | | | |
| Average Unit Production Cost | 7.3 | \blacksquare | | | 14.0 | 11.0 | 8.6 | 7.9 | 7.5 | 7.2 | n/a |

Results from an average unit production cost CER developed from JIAT hosted data shows the estimate might be low

| | A | С | D | E | F | G | Н | - |
|------------------|--|---------------|------------------|--------------|---------|----------------|-------------|---|
| 1 | JIAT Non-Time Phased | | | | | | | |
| 2 3 4 5 | Model: (Training CER Library) Aircraft Average Unit Production Cost Description: 0.01992 * EmptyWgt ^ 0.2663 * Engineshp ^ 0.5106 Provider: CER Runner Provider Base Year 2009 \$ | | | | | | | |
| 6 | Variable Name | Appropriation | Model Unit | Convert From | Case 1 | Smaller Weight | Smaller SHP | |
| 7 | OUTPUT VARIABLES | | | | | | | |
| 8 | Aircraft Average Unit Production Cost Output | RDTEF | | | \$11.75 | \$10.69 | \$9.94 | |
| 9 | INPUT VARIABLES | | • • • • • | | | | | |
| 10 | EmptyWgt CER / | AUPC = | \$11. | / IVI | 15720 | 11000 | 11000 | |
| 11 | Engineshp | | - | | 1730 | 1730 | 1500 | - |
| 14 4 | 🕨 🕨 📈 Report Helo Data 🏑 Helo Data (2) 🔒 Non-Time Phased Sh | eet AMCOS - | Off - ANI 4 | | | | • | |

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Cross Check O&M Items with AMCOS and OSMIS

Obtaining data from the AMCOS Database

Use AMCOS to assist with estimating personnel costs

• Search AMCOS enlisted, officer, and civilian tables

 Search by cost type, group, sub group, and appropriation

| JIAT | Model Selection Wizard | | 3) | R | un Ou | erv | | | |
|------|---------------------------|-------------------------------|----|------------|----------|----------|--------------------------|-------|----|
| 1 | IAT | Station Role | | | | | | | |
| | | and the second states and the | | | | Name | Value | | |
| | Model Name | Provider Name | | | • | Summary | Composite Standard Rates | - | |
| | Active Enlisted | AMCOS Provider | 11 | | | Group | 15 : AVIATION | - | |
| | Active Officer | AMCOS Provider | | | | SubGroup | 15A : AVIATION.GENERAL | - | |
| | Civilian General Schedule | AMCOS Provider | | \searrow | | | MPA | | |
| | | | _ | 1 | <u> </u> | AFEN | | | _ |
| | | | | | | Category | ALL | | _ |
| | | | 11 | | | Element | SUM | - | |
| | | | 11 | | | | | | |
| | | | 11 | | | | | | |
| L | | | 11 | | | | | | |
| | | | | 1 | | | 1 | | _ |
| | | < Previous Next> Cancel | 1 | | | | Run Query | Cance | el |
| | | | 1 | | | | | | |



> AMCOS data query results provided directly in Excel worksheet

| 0 | SCEA ISPA JIAT Worksheet.xlsx - Microsoft Excel | | | | | | | | | | | | | | | | |
|-------------|--|---------------------------|---------|---------------|-------------|------------|-------------|---------|---------------|---------|----------|------------|-------------|-----------|-------------------------|-----------|-----------|
| C | Home | Insert Page Layout | Formula | is Data | Review | View | Add-Ins | COSTAT | POST | | | | | | | | 0 - 🖛 x |
| | JIAT * | Snaglt 🛃 Window | • | | | | | | | | | | | | | | |
| Mer | nu Command: | s Custom Toolbars | | | | | | | | | | | | | _ | | |
| | P11 | \bullet (*) f_x | | | | | | | | | | | | Pers | onne | el lab | or |
| | A | С | D | | | E | | F | G | Н | 1 | J | _ | | U | | |
| 1 | JIAT De | ata Query | | | | | | | | | | | CC | osts I | ру ра | ay gr | ade |
| 2 3 4 | Model: Active Officer Description: Amcos Lite for Active Officer Pay Plan Provider: AMCOS Provider | | | | | | | | | | | | | | | | |
| 5 | | Query Inputs | | | | | | | | | Qu | ery Result | * | | | | |
| 6 | Name | Value | APPN | | Cate | egory | | Element | Fiscal Year | Units | 01 | 02 | 03 | 04 | 05 | 06 | 07 |
| 7 | Summary | Composite Standard Rates | MPA | Military Co | mpensatio | on TOTAL | 2 | SUM | 2009 | Dollars | 53387.08 | 67821 | 88917.05088 | 117138.55 | 136465.09 | 163237.34 | 187213.66 |
| 8 | Group | 15 : AVIATION | MPA | Other Bene | efits TOTAL | L | | SUM | 2009 | Dollars | 11329.84 | 11362.74 | 11362.74048 | 11362.74 | 11362.74 | 11362.74 | 11362.74 |
| 9 | SubGroup | 15A : AVIATION, GENERAL | MPA | Permanent | Change o | f Station | Costs TOTAL | . SUM | 2009 | Dollars | 885.0931 | 5882.746 | Notion | al data | 636 9.5923 | 5702.089 | 6510.3552 |
| 10 | APPN | MPA | MPA | Retired Pay | Accrual T | OTAL | | SUM | 2009 | Dollars | 10461.19 | 13842.3 | 18963.03744 | 24771.583 | 288 <mark>20.471</mark> | 35914.89 | 41840.536 |
| 11 | Category | ALL | MPA | Separation | Costs TOT | AL | | SUM | 2009 | Dollars | 5.65632 | 54.80064 | 1078.29504 | 774.19008 | 2596.7347 | 5406.1056 | 4784.7168 |
| 12 | Element | SUM | MPA | Special Pay | s TOTAL | | | SUM | 2009 | Dollars | 2949.454 | 4682.73 | 7339.97952 | 11755.711 | 12984.18 | 9074.5114 | 5360.9702 |
| - | INN ZA | AMCOS - Off - Av Gen AMCO | os - of | F - Av Gen (2 | AMCO | S - Off- A | v Gen Sum 🔒 | AMCOS - | Off- Av Gel S | um | | | | 2 | | | * |
| Rea | dy | | | | | | | | | | Show | vs re | sults | base | 100% | | • • |
| | | | | | | | | | | Ч | | | | 6400 | | | |
| | | | | | | | | | | | | y | ear | | | | |

Using AMCOS Data to Calculate Manpower

Link AMCOS rates directly into FTEs per year in Excel worksheet

| 0 | 💼 🖬 🤊 - 😢 - 🛕 🎒 👼 🗧 🔹 SCEA ISPA JIAT Worksheet.xlsx - Microsoft Excel 💷 🗖 | | | | | | | | | | | X | | | | | | | | |
|-----|---|--------------------------|--------------------|------|---------------------------|------|------------|----------------------|-----------|-------|-----------|-----|------------|--------|--------|-----|-----------|------|-----------|------------|
| 0 | Home Insert | Page | Layout For | mula | s Data | | Review | V | /iew Ac | ld-Ir | ns COSTA | Т | POST | | | | | (| 0 - " | 5 X |
| Mer | JIAT - Snagit 🖻 | y ⁱ V om T | Vindow • | | | | | | | | |) ~ | otos li | nk | ad . | fra | nm | | | |
| | B4 ▼ (| 2 | f _∞ ='A | MC | <mark>DS - O</mark> ff- A | v G | en Sum (2 | :)' <mark>!</mark> ! | 7 | | | \C | | | JU | | | | | * |
| | A | | В | | С | | D | | | | J | 4 | ΤΑΜ | CC |)S . | sh | neet | | J | 5 |
| 1 | | | | | | | / | | | | | | | | | | | , | | |
| 2 | FTEs per Year | Pa | y Rate 2009 | | 2016 | | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | | 2022 | | 202 | 23 |
| 3 | Total Concerned Assistant 01 | 6 | 70.010.00 | 14 | 15 | | 39 | | 66 | | 122 | 1 | 1// | | 247 | | 305 | | 36 | »/ |
| 4 | General Aviation 01 | 3 | 102 646 22 | | 1 | | 1 | | 2 | | 4 | | 8 | | 10 | | 10 | | 1 | 10 |
| 0 | General Aviation 02 | Ş | 103,040.32 | | 1 | | 2 | | 4 | | 8 | | 10 | | 10 | | 18 | | 1 | 10 |
| 0 | General Aviation 03 | Ş | 133,400.27 | | 1 | | 2 | | 2 | | 4 | | 8 | | ŏ | | 10 | | 1 | 10 |
| / | General Aviation 04 | Ş | 1/2,8/4./8 | | 1 | | 1 | _ | 2 | | 3 | | 0 | | 0 | | 8 | | | ð |
| 8 | General Aviation 07 | Ş | 257,072.98 | | Notiona | al o | data | | 1 | | 1 | | 1 | | 1 | | 1 | | | 1 |
| 10 | Aviation Specialist E3 | \$ | 52,782.94 | | 4 | | 14 | | 26 | | 40 | | 60 | | 80 | 1 | 100 | | 12 | 20 |
| 11 | Aviation Mechanics E4 | \$ | 62,058.08 | | 5 | | 14 | | 20 | | 30 | | 40 | | 68 | 6 | 82 | | 10 | 00 |
| 12 | Aviation Mechanics E5 | \$ | 71,839.48 | | 2 | | 4 | | 8 | | 28 | | 34 | | 54 | ł. | 70 | | 9 | 90 |
| 13 | Aviation Mechanics E7 | \$ | 100,324.95 | | 1 | | 1 | | 1 | | 4 | | 4 | | 6 | i . | 6 | | 1 | 10 |
| 14 | | | | | | | | | | | | | | | | | | | | |
| 15 | Personnel Cost | To | tal BY2009 | | 2016 | | 2017 | | 2018 | | 2019 | | 2020 | | 2021 | l I | 2022 | | 202 | 23 |
| 16 | Total | \$ | 974,558,111 | \$1 | ,175,353 | \$2 | 2,721,455 | \$4 | 4,730,816 | \$ | 8,840,431 | \$ | 13,145,200 | \$17,5 | 75,925 | \$2 | 1,627,720 | \$25 | ,638,51 | 3 |
| 17 | General Aviation 01 | \$ | 4,346,006 | \$ | - | \$ | 79,018 | \$ | 158,037 | \$ | 316,073 | \$ | 632,146 | \$ 6 | 32,146 | \$ | 790,183 | \$ | 790,18 | 3 |
| 18 | General Aviation 02 | \$ | 10,675,570 | \$ | 103,646 | \$ | 207,293 | \$ | 414,585 | \$ | 829,171 | \$ | 1,658,341 | \$ 1,6 | 58,341 | \$ | 1,865,634 | \$ 1 | ,865,634 | 4 |
| 19 | General Aviation 03 | \$ | 7,337,345 | \$ | 133,406 | \$ | 266,813 | \$ | 266,813 | \$ | 533,625 | \$ | 1,067,250 | \$ 1,0 | 67,250 | \$ | 1,334,063 | \$ 1 | ,334,06 | 3 |
| 20 | General Aviation 04 | \$ | 7,433,615 | \$ | 172,875 | \$ | 172,875 | \$ | 345,750 | \$ | 518,624 | \$ | 1,037,249 | \$ 1,0 | 37,249 | \$ | 1,382,998 | \$ 1 | .,382,990 | 8 |
| 21 | General Aviation 07 | \$ | 1,799,511 | \$ | - | \$ | - | \$ | 257,073 | \$ | 257,073 | \$ | 257,073 | \$ 2 | 57,073 | \$ | 257,073 | \$ | 257,073 | 3 |
| 14 | 🕨 🖬 📈 AMCOS - Enl - A | v Sp | ec Sum 📈 A | мсо | S - Enl - Av | Sp | ec Sum (2) | | ManPow | er I | Estimat (| | -401- | | | | | | | > 1 |
| Rea | dy | | | | | | | | | | | | | | | 100 | 1% Θ | | (| Ð . |

Using the JIAT Information in our Cross Check

- Results from helicopter manpower crew estimate to cross check
- Methodology based on cost per flight hour

1.799.511 S

General Aviation 07

Crew Cost = \$974.9 M

| Costs in BY2009 \$M | | | | | | | | | | |
|---------------------|-----------|---------|---------|---------|---------|----------|----------|----------|----------|-------------|
| WBS | Total | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | To Complete |
| CREW | \$974.985 | \$1.162 | \$2.754 | \$4.776 | \$8.821 | \$13.140 | \$17.441 | \$21.724 | \$25.988 | \$879.179 |

Additional manpower FTE matrix was provided

Used AMCOS rates to develop FTEs cost per year

| FTEs per Year | Pay | y Rate 2009 | | 2016 | | 2017 | | 2018 | 2019 | ſ | 2020 | | 2021 | | 2022 | | 2023 |
|------------------------|-----|-------------|----|-----------|-----|-----------|-----|-----------|-----------------|----|------------|------------|---------|-------------------------|-------------------------------|---------|-------|
| Total | | | | 15 | | 39 | | 66 | 122 | | 177 | | 247 | | 305 | | 367 |
| General Aviation 01 | \$ | 79,018.28 | | 0 | | 1 | | 2 | 4 | | 8 | | 8 | | 10 | | 10 |
| General Aviation 02 | \$ | 103,646.32 | | 1 | | 2 | | 4 | 8 | | 16 | | 16 | | 18 | | 18 |
| General Aviation 03 | \$ | 133,406.27 | | 1 | | 2 | | 2 | 4 | | 8 | | 8 | | 10 | | 10 |
| General Aviation 04 | \$ | 172,874.78 | | 1 | | 1 | | 2 | 3 | | 6 | | 6 | | 8 | | 8 |
| General Aviation 07 | \$ | 257,072.98 | | 0 | | . 9 | | 1 | 1 | | 1 | | 1 | | 1 | | 1 |
| | | | 1 | Notiona | l d | ata | | | | | | | | | | | |
| Aviation Specialist E3 | \$ | 52,782.94 | | 4 | | 14 | | 26 | 40 | | 60 | | 80 | | 100 | | 120 |
| Aviation Mechanics E4 | \$ | 62,058.08 | | 5 | | 14 | | 20 | 30 | | 40 | | 68 | | 82 | | 100 |
| Aviation Mechanics E5 | \$ | 71,839.48 | | 2 | | 4 | | 8 | 28 | | | | | | 1 _ C | | |
| Aviation Mechanics E7 | \$ | 100,324.95 | | 1 | | 1 | | 1 | 4 | | | re | W C | OS | $\mathfrak{I} = \mathfrak{I}$ | Þ974 | 4.0 |
| | | | | | | | | | | | | | | | | | |
| Personnel Cost | Tot | tal BY2009 | | 2016 | | 2017 | | 2019 | 2019 | | 2020 | | 2021 | | 2022 | | 2023 |
| Total | \$ | 974,558,111 | Ş | l,175,353 | \$: | 2,721,455 | \$4 | 4,730,816 | \$ 8,840,431 | \$ | 13,145,200 | \$17, | 575,925 | \$21 | ,627,720 | \$25,63 | 8,513 |
| General Aviation 01 | \$ | 4,346,006 | \$ | - | \$ | 79,018 | \$ | 158,037 | \$ 316,073 | \$ | 632,146 | \$ | 632,146 | \$ | 790,183 | \$ 79 | 0,183 |
| General Aviation 02 | \$ | 10,675,570 | \$ | 103,646 | \$ | 207,293 | \$ | 414,585 | \$ 829,171 | \$ | 1,658,341 | \$ 1, | 658,341 | \$ 1 | ,865,634 | \$ 1,86 | 5,634 |
| General Aviation 03 | \$ | 7,337,345 | \$ | 133,406 | \$ | 266,813 | \$ | 266,813 | \$ 533,625 | \$ | | 6 | | | 4 | | |
| General Aviation 04 | \$ | 7,433,615 | \$ | 172,875 | \$ | 172,875 | \$ | 345,750 | \$ 518,624 | \$ | | - (| rew | $\overline{\mathbf{C}}$ | ost (| che | CKS |

Approved For Public Release

257.073

Gathering Historical Consumable and Reparable Costs with OSMIS

- Use the OSMIS Provider to find consumable and reparable costs for analogous systems
- Search OSMIS summary cost metric data

 Search by commodity, design series (variant), major command of operation, years of operation and CONOPS

| IAT Model Selection Wizard | | | 5 | I | | |
|--|---|--------|--------|---|--|----------|
| JIAT | al Cal | 22 | Run Qu | iery | | × |
| Model Name Image: DSMIS Summary Cost Metric Image: DSMIS Summary Cost Metric by Year | Provider Name OSMIS Provider OSMIS Provider | | | NameCommodity GroupMission Design SeriesMajor CommandStart YearEnd YearCONOPS Inclusion | ValueA : AVIATIONAH-1F : COBRAE1 : USAREUR19972007Without CONOPS | |
| | < Previous Next> | Cancel | | | Run Quer | y Cancel |



- OSMIS data query results provided directly in Excel worksheet
- Shows annual consumable and reparable cost by vehicle operating within a specific major command

| | А | С | D | E | F | G | Н | I | J | K | | | | | |
|----|--|--------------------|-------------------------------|----------------|-----------------|-------------|-------------|-------------|-------------|-------------|--|--|--|--|--|
| 1 | JIAT Data Query Shows input specifications | | | | | | | | | | | | | | |
| 2 | Model: | OSMIS Summary Cost | t Metric by Year | wa ilipu | speci | illation | 5 | | | | | | | | |
| 3 | Description: | OSMIS Summary Cost | Metric by rear | | | | | | | | | | | | |
| 4 | Provider: | OSMIS Provider | | | | | | | പ | | | | | | |
| 5 | Query Results Query Results | | | | | | | | | | | | | | |
| 6 | Name | Value | Variable Name | Units | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | | | | | |
| 7 | Commodit | A : AVIATION | Consumables | \$ | 2967141.57 | 8525026.921 | 6405443.574 | 15159967.14 | 10046854.03 | 12430265.38 | | | | | |
| 8 | Mission De | Aircraft C | Repairables | \$ | 10748457.1 | 40257355.33 | 25641447.89 | 49104873.25 | 44472976 | 67842768.37 | | | | | |
| 9 | Major Com | E1: USAREUR | Operating Tempo | HOURS | 877 | 7914 | 11901 | 18755 | 16797 | 15180 | | | | | |
| 10 | Start Year | 1997 | Density | SYSTEMS | 22 | 28 | 46 | Notio | nal data 60 | 65 | | | | | |
| 11 | End Year | 2007 | Consumables per System | \$ per SYSTEM | 156165.4 | 355209.5 | 160136.1 | 352557.4 | 193208.7 | 221969.0 | | | | | |
| 12 | CONOPS In | With CONOPS | Repairables per System | \$ per SYSTEM | 565708.3 | 1677389.8 | 641036.2 | 1141973.8 | 855249.5 | 1211478.0 | | | | | |
| 13 | | | Consumables per Unit Activity | \$ per HOUR | 3899.0 | 1240.9 | 620.0 | 931.2 | 689.0 | 943.3 | | | | | |
| 14 | | | Repairables per Unit Activity | \$ per HOUR | 14124.1 | 5859.9 | 2482.0 | 3016.3 | 3050.1 | 5148.6 | | | | | |
| 14 | | SMIS - AirC - E1 | OSMIS - AirC - E1 (2) OSMIS - | AirC - FC 🖉 OS | MIS - AirC - P1 | OSMIS - A | KC - P8 | Shows | results | bv | | | | | |

year

Helicopter Reparable and Consumable costs are shown below – from the estimate calculate a factor
Estimated consumables are

| | | 35 | .5% | of re | bair c | costs | | | | | | |
|--------------------------|-------------|---------|---------|---------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Costs in BY2009 \$M | | | | | | | | 1 | | 1 | | |
| WBS | Total | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | To Comple |
| REPL SPARES (REPARABLES) | \$1,159.145 | \$1.381 | \$3.274 | \$5.678 | \$10.488 | \$15.623 | \$20.736 | \$25.827 | \$30.896 | \$36.290 | \$42.351 | \$966.6 |
| REPL REPAIR PARTS (CONS) | \$411.499 | 0.490 | \$1.162 | \$2.016 | \$3.723 | \$5.546 | \$7.361 | \$9.169 | \$10.968 | \$12.883 | \$15.035 | \$343.1 |
| | | | | | | | | | | | | |
| Factor | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.355 | 0.3 |

- Use JIAT OSMIS data to cross check consumable and reparable costs in the helicopter estimate
- Studied factors for five different systems in four different commands from 1997 to 2007; 70 data points total (example below of one system in one command)

| | A | C | D | E | F | G | Н | 1 | J | K | L | M |
|----|--------------|--------------------------|------------------------------------|---------------|-------------|--------------------|-------------|------------------|---------------|-------------|-------------|-----------|
| 1 | JIAT Da | ata Query | | | | | | | | | | |
| 2 | Model: | OSMIS Summary Cost Metr | ic by Year | | | | | | | Noti | onal data | |
| 3 | Description: | OSMIS Summary Cost Metri | c by Year | | | | | | | | | |
| 4 | Provider: | OSMIS Provider | | | | | | | | | | |
| 5 | | Query Inputs | | | | | | Query Resu | ilts | | | |
| 6 | Name | Value | Variable Name | Units | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 |
| 7 | Commodit | A : AVIATION | Consumables | \$ | 4259316.3 | 3240327.3 | 4081465.7 | 3875511.2 | 3693283.3 | 4024180.8 | 3346901.4 | 411818 |
| 8 | Mission De | Aircraft A | Repairables | \$ | 15697667.6 | 11717012.6 | 15043728.8 | 14977361.2 | 13279778.9 | 16129709.2 | 15161263.5 | 1701916 |
| 9 | Major Com | P1:USARPAC | Operating Tempo | HOURS | 7981 | 99 <mark>81</mark> | 7835 | 10283 | 9467 | 8632 | 8124 | 8: |
| 10 | Start Year | 1997 | Density | SYSTEMS | 69 | | | | | | | |
| 11 | End Year | 2007 | Consumables per System | \$ per SYSTEM | 70988.60 | 68943. | For | ~ 78% | of the | e data | noint | S' |
| 12 | CONOPS In | With CONOPS | Repairables per System | \$ per SYSTEM | 261627.79 | 249290. | | 1070 | | | point | 0. |
| 13 | | | Consumables per Unit Activity | \$ per HOUR | 614.80 | 374. | facto | rs rar | nae 10 |)5% t | 0.37 | Q% |
| 14 | | | Repairables per Unit Activity | \$ per HOUR | 2265.83 | 1352. | 14010 | | ige it | | 01. | 0 /0 |
| 15 | | | | | | | | | | | | |
| 16 | | | Cons/Repair Factor | | 0.27133434 | 0.27654893 | 0.271306783 | 0.258757944 | 0.278113313 | 0.249488742 | 0.220753459 | 0.2419731 |
| 14 | | OSMIS - AirE - P8 🖉 OSMI | IS - AirE - P1 📝 OSMIS - AirA - P1 | OSMIS - Ai | rA - P1 (2) | OSMIS - AirA - E | E1 FORCES | - Fly - All / FC | RCE Fly COSTA | TAIL | | • |

Presented at the 2010 ISPA/SCEA Joint Annual Conference and Training Workshop - www.iceaaonline.com



Cross Check Software Estimate with SEER SEM model

Run a SEER SEM Model with Your Inputs

- Look for a model to estimate software development effort months
- Search a SEER SEM Model Provider
- Select from a list of available models

| JIAT Model Selection Wizard | \mathbf{X} | JIAT Mo | del Selection Wizard | |
|---|---|---------|---|---|
| Providers to be Searched Providers to be Searched AMCOM SEER-SEM Provider AMCOS Provider AMCOS Provider CECOM ACE Session Provider CECOM SEER-SEM Provider CECOM SEER-SEM Provider CER Runner Provider CER Runner Provider DASA-CE ACE Session Provider DASA-CE Sample Aircraft ACDB F DDASA-CE SEER-SEM Provider SEER-SEM Provider SEER-SEM Provider | Search By Model Name: Model Description: Phase: Development Subject: Commodity: Domain Type: | | Image: A state of the stat | Provider Name SEER-SEM Provider |
| | < Previous Next > Cancel | | | < Previous Next > Cancel |



Software effort months used in the helicopter estimate

| | | 462 effort months |
|----------------------------|----------|-------------------|
| WBS | BASELINE | and a second |
| Software New Lines of Code | 55,500.0 | in the estimate |
| Software Effort Months | 462.5 | |

Use the SEER SEM model to cross check the software effort months portion in the helicopter estimate

| | A | С | D | E | F | G | Н | - |
|------------------|--|-------------------------|--------------------|--------------|----------|------------------|-----------------------|---|
| 1 2 3 4 | JIAT Non-Time Phased Model: Flight Software Description: Based on New Lines of Code Provider: SEER-SEM Provider | 5 effort m cross che | onths i eck moe | n the del |] | Calcu | ate multiple cases | è |
| 5 | Base Year 2009 \$ | | | | | | | |
| 6 | Variable Name | Appropriation | Model Unit | Convert From | Laseline | Smaller Software | Larger Software | 1 |
| 8 | Single CSCI-Development Effort Months | | mo | | 535.25 | 472.24 | 587.74 | |
| 9 | Single CSCI-Development Schedule Months | | mo | | 27.28 | 26.16 | 28.14 | |
| 10 | INPUT VARIABLES | | | | | | | |
| 11 | Single CSCI-New Lines of Code | | SLOC | 1 | 55500 | 50000 | 60000 | - |
| 1 | Non-Time Phased Sheet (2) Sheet1 | Enter | your inp | outs 🗹 | | Ш | * | |

Estimate might not have enough effort months when compared to this cross check

Examine Model Results Trends in JIAT Web Browser

Run on any JIAT hosted model in a batch mode
 Run with multiple input variables in a single batch

Calculated results for all the list inputs





Cross Check Summary

- Used CKB to identify analogous systems and analyzed SAR data to develop a CER to cross check the average unit production cost of the estimate.
- Used AMCOS data to collect officer and enlisted pay rates to calculate the manpower cost with an FTE per year matrix and cross check the crew manpower cost in the estimate.
- Used OSMIS data to study the consumable and reparable costs of analogous systems. Calculated consumable to reparable factors. Compared the factors calculated from OSMIS data to the helicopter estimate.
- Used a SEER SEM flight software model to cross check the software effort months used in the software cost of the helicopter estimate.

Working with JIAT Data in Excel Provides Benefits

- > All JIAT data collection worksheets are stored in an Excel file.
- All JIAT hosted data is available in an environment that requires little additional training to operate.
- JIAT Excel worksheets can be updated as the JIAT host data is revised.
- Excel links and macros can be created to compile the data so that it can be analyzed with analysis packages like CO\$TAT.
- Excel links and macros can be created to integrate data together to build cost estimates.
- > Excel links and macros can be created to perform portfolio analysis.

JIAT Supports Portfolio Analysis

Perform quantity "What-if" drills by project

Control what is visible by project, and JIAT user has identical interface regardless of model source (Excel, SEER SEM, Price H, database, etc.)





JIAT's Continuing Evolution

- Adding addition model providers this year
 - Excel
 - Price H
- Expanding Calculation Capabilities
 Calculate models with Risk
- Creating CER Libraries and adding CERs with documentation
- Integrating engineering design tools
- Researching potential integration of modeling and simulation tools
- Providing JIAT for potential use by Navy, Air Force, and other services' cost analysts

Presented at the 2010 ISPA/SCEA Joint Annual Conference and Training Workshop - www.iceaaonline.com





Gathering Historical Flying Hour and Fuel Costs with FORCES

- Use FORCES to find flying hour and fuel costs for the analogous systems
 Search by aircraft fuel type, and
- Search FORCES cost factors handbook

| wouername | Provider Name |
|---|-----------------------------|
| CKB: Program by Capability | ODASA-CE Databases Provider |
| CKB: Capabilities List by PNO | ODASA-CE Databases Provider |
| CKB: Programmatic Data by PNO | ODASA-CE Databases Provider |
| CKB: Technical parameters by PNO | ODASA-CE Databases Provider |
| FORCES: Cost Factors Handbook Flying H | ODASA-CE Databases Provider |
| FORCES: Cost Factors Handbook Fuel Cost | ODASA-CE Databases Provider |
| FORCES: Cost Factors Handbook Equipm | ODASA-CE Databases Provider |
| FORCES: Cost Factors Handbook Repleni | ODASA-CE Databases Provider |

 Search by aircraft, fuel type, and equipment (not shown)

| | 1 | | |
|-------------------------------------|-------------------------|----------------------------|---|
| Name | Value | | |
| Aircraft | AH-64A | | - |
| FY | 2008 | | - |
| | | | |
| | | Run Query | Cancel |
| | | | |
| | | | |
| ry | | | |
| г у Name | Value | | |
| r y Name Measure | Value BARREL | | • |
| r y Name Measure FY | Value BARREL 2008 | | • |
| | Aircraft FY | Aircraft AH-64A FY 2008 | Aircraft AH-64A FY 2008 Run Query |



FORCES data query results show flying hour costs directly in Excel worksheet

> Shows various metrics for aircraft

| | A | C | D | Е | F | G | Н | 1 | J | K | L | M | N | 0 | P |
|------|---|---|--------------|----------|------------|---------|------------|-----------------|---------|-------------|-----------|------------|---------------|----------|-------------|
| 1 | JIAT Data Query Contractor logistics support | | | | | | | | | | | | Joport | | |
| 2 | Model: FORCES: Cost Factors Handbook Flying Hour Cost | | | | | | | | | | | | | | |
| 3 | Description: | Description: Obtain Total Costs of Flying Categories and TUEL COSTS | | | | | | | | | | | | | |
| 4 | Provider: | ODASA-0 | E Database | s Provid | ler | | | | | - 1. | | | | | |
| 5 | Query In | Query Results | | | | | | | | | | | | | |
| 6 | Name | Value | Aircraft | FY | CLS | FUEL | DLR | DEPOT_MTCE | OTHER | CREWPAY AS | SET_UTIL | DOD_RATE | FED_USER_RATE | FMS_RATE | PUBLIC_RATE |
| 7 | Aircraft | ALL | Aircraft C | 2008 | 1303.32 | 295.89 | 3838.06 | 2641.48 | 1065.51 | Dono | tmai | otopo | 305.06 | 9305.06 | 9677.26 |
| 8 | FY | 2008 | Aircraft D | 2008 | 1303.32 | 319.43 | 3954.00 | 3496.82 | 1030.71 | Debo | lliai | nena | 100 1265.07 | 10265.07 | 10675.68 |
| 9 | | | Aircraft G | 2008 | 35.95 | 275.77 | 0.00 | 0.00 | 1102.31 | cost | | te | .574.84 | 1574.84 | 1637.83 |
| 10 | | | Aircraft H | 2008 | 241.79 | 1211.58 | 0.00 | 0.00 | 4608.92 | | 00513 | | 348.18 | 6348.18 | 6602.10 |
| 11 | | | Aircraft I | 2008 | 35.95 | 343.73 | 0.00 | 0.00 | 2140.16 | 223.34 | 109.73 | 2519.85 | 2743.19 | 2743.19 | 2852.92 |
| 12 | | | Aircraft J | 2008 | 35.95 | 220.78 | 0.00 | 0.00 | 874.17 | 160.81 | 51.67 | 1130.92 | 1291.71 | 1291.71 | 1343.38 |
| 13 | | | Aircraft K | 2008 | 241.79 | 866.70 | 0.00 | 0.00 | 5003.23 | 285.88 | 255.91 | 6111.72 | 6397.60 | 6397.60 | 6653.50 |
| 14 | | | Aircraft E | 2008 | 1245.46 | 874.03 | 4366.54 | 2551.46 | 1570.14 | 285.88 | 435.74 | 10607.64 | 10893.52 | 10893.52 | 11329.26 |
| 15 | | | Aircraft L | 2008 | 31.00 | 579.56 | 0.00 | 0.00 | 3779.39 | 160.81 | 182.03 | 4389.95 | 4550.76 | 4550.76 | 4732.78 |
| 16 | | | Aircraft B | 2008 | 751.05 | 207.74 | 551.59 | 1004.56 | 226.11 | 223.34 | 123.86 | 2741.05 | 2964.38 | 2964.38 | 3088.25 |
| 17 | | | Aircraft M | 2008 | 275.82 | 56.07 | 305.91 | 0.00 | 169.64 | 142.95 | 38.02 | 807.45 | 950.40 | 950.40 | 988.42 |
| 18 | | | Aircraft N | 2008 | 626.76 | 91.46 | 1461.48 | 0.00 | 424.93 | 223.34No | tional da | ta 2604.63 | 2827.96 | 2827.96 | 2941.08 |
| 19 | | | Aircraft O | 2008 | 35.95 | 267.89 | 0.00 | 0.00 | 1652.87 | 160.81 | 84.70 | 1956.71 | 2117.51 | 2117.51 | 2202.21 |
| 20 | | | Aircraft P | 2008 | 246.62 | 73.95 | 249.90 | 0.00 | 0.00 | 160.81 | 29.25 | 570.47 | 731.28 | 731.28 | 760.53 |
| 21 | | | Aircraft Q | 2008 | 35.95 | 356.98 | 0.00 | 0.00 | 1113.49 | 160.81 | 66.69 | 1506.42 | 1667.23 | 1667.23 | 1733.92 |
| 22 | | | Aircraft R | 2008 | 546.27 | 202.49 | 686.21 | 0.00 | 449.66 | 223.34 | 84.31 | 1884.63 | 2107.96 | 2107.96 | 2192.28 |
| 23 | | | Aircraft A | 2008 | 853.71 | 290.32 | 2387.68 | 1641.40 | 575.04 | 223.34 | 238.86 | 5748.16 | 5971.50 | 5971.50 | 6210.35 |
| 24 | | | Aircraft F | 2008 | 817.26 | 290.32 | 1604.71 | 1641.40 | 614.87 | 223.34 | 207.67 | 4968.56 | 5191.90 | 5191.90 | 5399.57 |
| 14 4 | FI F | ORCES - | Fly - All (2 |) FO | RCE Fly CO | \$TAT | Pairwise F | ORCE Fly CO\$TA | T / Rep | ort FORCE F | | | Ш | | > I |



FORCES data query results show fuel rates directly in Excel worksheet

| | A | С | D | E | F | G | Н | 1 | J | К | L | M | N |
|--|--|-------------------------|---------|------|-------------|--------|--------|--------|--------|--------------|----------------|--------------|-----------|
| 1 | JIAT Data Query | | | | | | | | | | | | |
| 2 | Model: FORCES: Cost Factors Handbook Fuel Cost | | | | | | | | | | | | |
| 3 | Description: Obtain Total Costs of Fuel by Type FUEL Rates by Type | | | | | | | | | | | | |
| 4 | Provider: ODASA-CE Databases Provider | | | | | | | | | | | | |
| 5 | Query In | ry Inputs Query Results | | | | | | | | | | | |
| 6 | Name | Value | Measure | FY | CONUS_AVGAS | DIESEL | JP4 | JP5 | JP8 | MOGAS_LEADED | MOGAS_UNLEADED | OCONUS_AVGAS | RESIDUALS |
| 7 | Measure | ALL | BARREL | 2008 | 163.47 | 143.70 | 151.44 | 148.06 | 147.09 | 177.09 | 150.47 | 658.53 | 110.80 |
| 8 | FY | 2008 | GALLON | 2008 | 3.97 | 3.42 | 3.61 | 3.53 | 3.50 | 4.22 | 3.58 | 15.68 | 3 2.64 |
| Report FORCE Fly CO\$TAT / FORCES - Fuel - All FORCES - Fuel - All (2) / SEPM C(14 Notional data | | | | | | | | | | | ►Î | | |





Capabilities Knowledge Base

- The Capabilities Knowledge Base (CKB) was designed and developed to facilitate the use of capabilities-based cost estimating. The CKB contains data and tools that will aid the analyst and high-level decision maker throughout the entire lifecycle of a defense program.
- The CKB contains the cross-service program capability, cost, and performance data required to produce cost forecasts within stricter timelines. The CKB, which is intended for cross-service and DoD-wide use, currently houses over 50,000 data points.
- The CKB is the result of an on-going study conducted by the Early Cost Team within The Office of the Deputy Assistant Secretary of the Army for Cost and Economics (ODASA-CE).
- The CKB is currently housed on ODASA-CE's Cost & Performance Portal (CPP).





Army Manpower Cost System

- AMCOS is available on the OSMIS website at <u>https://www.osmisweb.army.mil</u>.
- AMCOS is an automated tool that helps users estimate the costs associated with personnel and personnel requirements for different components, grades, and skills.
- AMCOS Lite performs quick estimates of military, civilian and the private labor market.
- The JIAT server contains the most current update of AMCOS Lite rates.

Source: https://www.osmisweb.army.mil





Operating & Support Management Information System

- OSMIS is available at <u>https://www.osmisweb.army.mil</u>
- OSMIS is the Army's VAMOSC system
- > OSMIS is a historical archive of weapons system data to include:
 - Class IX Demands
 - Activity Data (miles/hours)
 - Parts (NSN Level) & Fuel
 - Ammunition
 - Intermediate Maintenance
 - Depot Maintenance
 - Year of Manufacture





Force & Organization Cost Estimating System (FORCES)

- FORCES is available at <u>www.osmisweb.army.mil/forces</u>.
- FORCES provides four main tools to Army analysts:
 - FORCE Cost Model (FCM)
 - End Strength Cost Model (ESCM)
 - Army Contingency Cost Model (ACM)
 - Cost & Factors Handbook (CFH)
- Provides a variety of data including OPTEMPO/Cost Factors, Equipment, Force Structure, Personnel, Base Operations, Movement, and Indirect Training Costs.
- Currently only the CFH is available in JIAT.