





JOINT INTEGRATED ANALYSIS TOOL (JIAT) WHERE GOOD ANALYSIS STARTS

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# The JIAT Solution

### The DoD Cost Estimating Challenge

- The logistics of accessing estimating resources can be a challenging task
- A cost analyst 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
  - Reformatting the information so that it can be integrated into an estimate or analysis
- The Joint Integrated Analysis Tool (JIAT) Solution
- A web-based application that provides a portal to capability, performance, and operations and support databases, CER libraries and provides links to estimating tools
- Administered by the Office of the Deputy Assistant Secretary of the Army Cost & Economics (ODASA-CE) and Tecolote Research, Inc.
- Available to government analysts only

This presentation shows how to use JIAT to overcome the aforementioned challenges and perform your daily estimating and analysis work efficiently and from a broader variety of sources!

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### JIAT Provides Benefits to Various User Groups

- JIAT provides benefits to novice and experienced cost estimators as well as their managers
- For Novice Cost Estimators, JIAT:
  - Exposes them to unfamiliar or new data sources
  - Provides easy access to a multitude of data resources
  - Uses a single intuitive user interface for all resources allowing them to quickly become productive
- For Experienced Cost Estimators, JIAT:
  - Offers a single location to touch many resources during data collection
  - Provides a mechanism to share the results of their expertise
- For Managers, JIAT:
  - Provides a location to selectively share the organization's cost data and sources
  - Provide data and metrics on usage. Will assist decision makers with future investment decisions

### JIAT Provides Access to Data

 JIAT Provides CAC log-in controlled access to various sources of estimating data

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- Connect via the AWPS portal at https://www.awps.army.mil/
- Access to different areas is controlled by group and individual log-in privileges

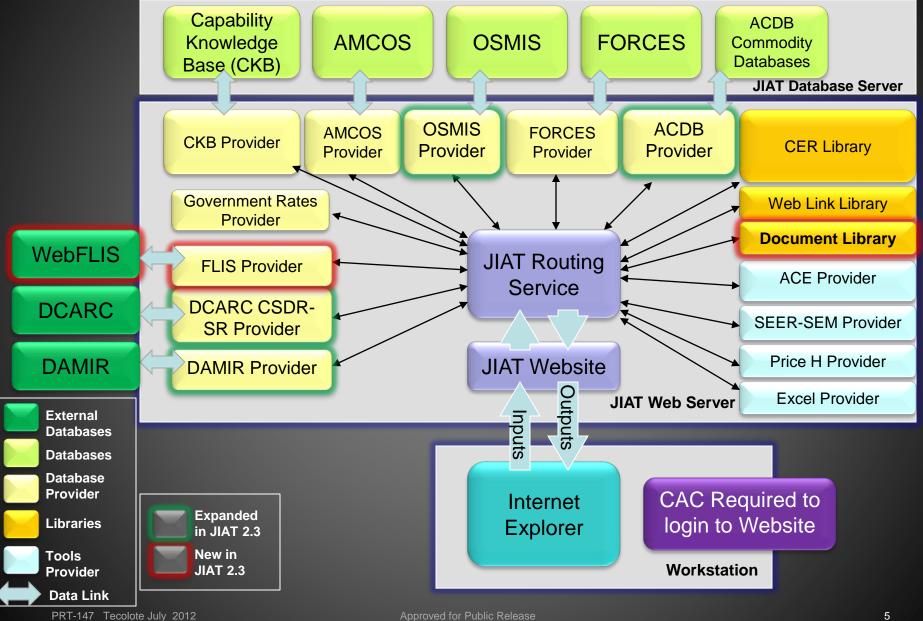
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Models	<ul> <li>Locate and run existing cost models to generate estimates for elements of your system – e.g. software or platform models</li> </ul>
Libraries	<ul> <li>Includes CER and Factor Libraries</li> <li>Includes Web Link Libraries that provide listings of relevant websites</li> <li>Search and retrieve CERs, factors, and websites from the libraries by keyword</li> <li>Supports hosting of organizational or group libraries</li> </ul>
Databases	<ul> <li>Access up to 8 databases</li> <li>Run various queries in the databases to search for cost, schedule, and technical data for use in cost analysis, cost estimating, and model development tasks</li> </ul>

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# JIAT 2.3 Components



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## Summary of New JIAT 2.3 Features

- Improved JIAT website interface
  - New Menu Ribbon

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 Multiple "sheets" of different models or providers can be added to a single session to more easily switch from one model to another

JIAT S	IAT Session - Example Session									
🛃 Sa 💽 Sa		New	Copy Delete Rename	Manage Export to Export to Co Export to Co		🖹 Сору	Run Query	Costs: N/A Cost Units: \$	Session Description Provider Description Model Definition	
Ses	sion		S	heet		Edit	Queries	Properties	Documentation	
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				Query Inp	uts				Query Results	
	Name Value									
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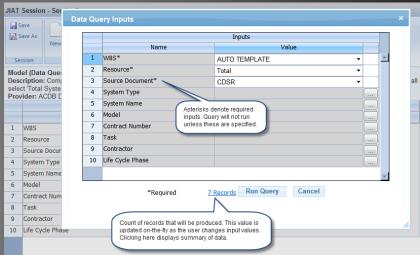
Data Query Sheet Data Query Sheet (2)

## Summary of New JIAT 2.3 Features

New FLIS Provider

\*\*\*\*

- Query Federal Logistics Information System (FLIS) data by the National Item Identification Number (NIIN)
- Additional DAMIR Contract and Performance models
- Additional OSMIS Provider models
  - Army and CAIG CES data,
  - Consumable and Repairable Data by MDS,
  - Crew Cost and Definitions,
  - Depot
  - Fuel Usage



New ACDB models and revision of pre-existing models

- Keyword Cost and Technical Data model that displays data by keywords such as Brakes
- Database Summary Model that shows the Database Inventory
- Revision of existing models to more closely match the functionality of the ACDB Report Wizard
- Record count on Data Query Inputs dialog
- Improved web performance speed and functionality

## **JIAT Database Providers**

### JIAT provides access to multiple DoD databases



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### Retrieve Program Cost, Schedule and Technical Data

Search and Retrieve mapped and normalized data



#### Understand CSDR-SR data availability

• Provides CSDR-SR Plans listed by MDAP



#### Collect Standard Rates

- Enlisted, Officer, Civilian, National Guard and Reserve
- 17 tables of MOS level rates provided

#### Identify Analogous Systems

- Capabilities, Programmatic, Technical, and Schedule data
- SAR Data



#### Gather MDAP and MAIS Data

• The authoritative source for Selected Acquisition Reports (SAR), SAR Baseline, Acquisition Program Baselines (APB) and Assessment



#### Obtain Force and Organizational Data

- Flying costs, Cost per mile, Facilities costs, Equip data and costs, Replenishment costs, and Mileage
  - 50 tables provided



### Military Composite Standard Pay and Reimbursement Rates

 Rates published by Office of the Under Secretary of Defense Comptroller

## ÖSMIS

- Gather O&S Data
- Vehicle operations Support systems, Aircraft flight, and Software Maintenance data

#### Query Federal Logistics Information

Search Logistics data by NIIN

### Search and Retrieve Data

### Common Database Query Format Across Database Providers

- The database provider data (e.g. DAMIR and AMCOS) is brought in with a common format
- Common Format includes:
  - Sheet Header Information: displays Provider, Model and description of data
  - Query Inputs: lists all inputs to the model
  - Query Results: after query is executed displays resulting data

#### JIAT Data Query

#### Model: Cost and Funding Summary

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- Description: This model provides a summary of Cost and Funding POM and DAES/Web Services program data
- Provider: DAMIR Provider (1.0)

Properties:	TY \$M
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Query Inputs	Query Results													
Name	Value	Variable	Units	Prior	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	To Complete	Total
Service	Army	RDTE	\$M											1
Program	148 - PATRIOT PAC-3	Procurement	\$M											
Data Source	POM - 2013	POM 2012 Total	\$M											1
Subprogram	MISSILE SEGMENT	Development Qty	unt											)
Start Year	2006	Production Qty	unt											)
End Year	2013	POM 2012 Total Qty	unt											)

-											
JIAT Da	ta Query										
Model:	AMCOS Pay Plan Mo	del									
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Properties:	TY \$										
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PayPlan	Active Enlisted	MPA	Military Compensation	Avg Cost of Base Pay (Military)	2012						;
Summary	Composite Stand	MPA	Military Compensation	Avg Cost of Basic Allowance for Housing (in cash)	2012						i
Group	12 : ENGINEER	MPA	Military Compensation	Avg Cost of Basic Allowance for Subsistence	2012						•
SubGroup	ALL	MPA	Other Benefits	Avg Cost of Other Benefits	2012						
APPN	ALL	MPA	Permanent Change of Station Costs	Avg Permanent Change of Station-Annualized ()	2012						i i
Category	ALL	MPA	Retired Pay Accrual	Avg Cost of Retired Pay Accrual	2012						i
Element	ALL	MPA	Separation Costs	Avg Cost of All Separation Incentives	2012						1
Locality	N/A	MPA	Special Pays	Avg Cost of Special Pays	2012						)
Area	N/A										

## Using JIAT's CER Library

 JIAT currently hosts over 650 documented CERs and factors available for DoD users

### • CER and factor sources

- ✓ Missile Blue Books
- ✓ Ground Vehicles Blue Book
- ✓ Combat Vehicles
- Manned and Unmanned Aircraft (library created by ODASA-CE analyst from several documented studies)
- Permissions are set by user group and individual user to allow access to various libraries
- Private libraries can be created for other organizations or groups
- Search across all libraries by phase, keyword, and text from a single login and simple-to-navigate user interface

## Hosting a CER in JIAT

- Analysts with permission can post CERs to the JIAT website
- Load any CER and store it in a JIAT CER library for others to search

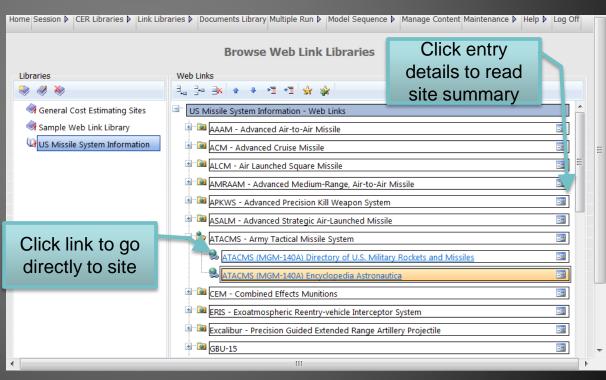
		CER Details	Add CER t	o a library	*
Chttps://jiat.awps.army.mil/ - JIAT - Windows Ir	nternet Explorer	Tide: Transmission CER	VCPER		
		Equation:			
TRIL	User: Roles:	* HP * Spd ^			~
Home Session ▶ Model Sequence ▶ Report	ts CER Libraries V Link Libraries Manage Content Maintenance		Learning	Fee Inc	cluded: No 💌
		Cost: Theory:	Slope: Rate Slope:	G&A	No 🗸
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ODASA-CE Future Combat Syste		) Phase:	Keyword		
ODASA-CE Ground Vehicles Libr	Hardware CER/CPER	Pre-Development		Converter	
ODASA-CE Missile Blue Book	Transmission CER/CPER	Development	A-Kits	e Control Svs	
ODASA-CE Missiles Library	Turret, Fire Control, and Armament Other (excludes ca	Operations and Support		rmntion Ctrl Sys	
Sample CER Library	Engine CER/CPER			·	
Training CER Library	Auxiliary Automotive CER/CPER	CER Definition - Transmission CER/CPER			
SASMDC Ground Based Interce	Integration and Assembly CER/CPER	HARDWARE CER/CPER: Transmission			
	Suspension CER/CPER	DESCRIPTION: This Hardware CER/CPER relates the cost of th technical and performance characteristics. Transmission Cost			
	Hull/Frame CER/CPER	in BY SCURCE DATA: The primary data source for this study is the V			
Libraries	New Generation High Power Density Engine CER/CI	(WTVDE). COSTAT was used to develop the CPER. The most assembling the data set. Cost, technical, and performance dat	difficult part of performing this analysis was	Include	es CER
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	Hardw Cost to Cost Factors			ctati	stics
				Slall	51165
CERs listing					
Ū		Images and some formatting are not included in this definition p	review, Click download for the full definition.		
		Download Upload (	Close		
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## JIAT's Web Link Library

- JIAT can host website link libraries to assist users with finding relevant and verified information sources on the web
- Web libraries can be browsed or searched via keywords
- Two major libraries available plus the ability to build your own organizational library
- ✓ General Cost Estimating Sites
  - Provides links to cost estimating resources

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- Grouped by functional areas: like inflation and discount rate guidance, organizational sites, and reference guide locations
- ✓ US Missile System Information
  - Provides information on over 35 different missile systems
  - Search of information about missiles by: service, informational resource, common name, designator (i.e. AIM-152), missile type and general size
  - Over 185 sites provided and documented



### JIAT Provides Access to Multiple Model Providers



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#### SEER SEM

- Estimates Software Development and Maintenance
- Estimate effort, cost, schedule, staffing, reliability, and risk



### PRICE H

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- Estimates Hardware Acquisition and Development
- Estimates cost, resources, and schedules



#### Excel

- Host any Excel Model
- Specify Model Inputs and Outputs



### ACEIT

- Host any ACE Session
- Specify Model Inputs and Outputs

## Analyzing JIAT Data in CO\$TAT

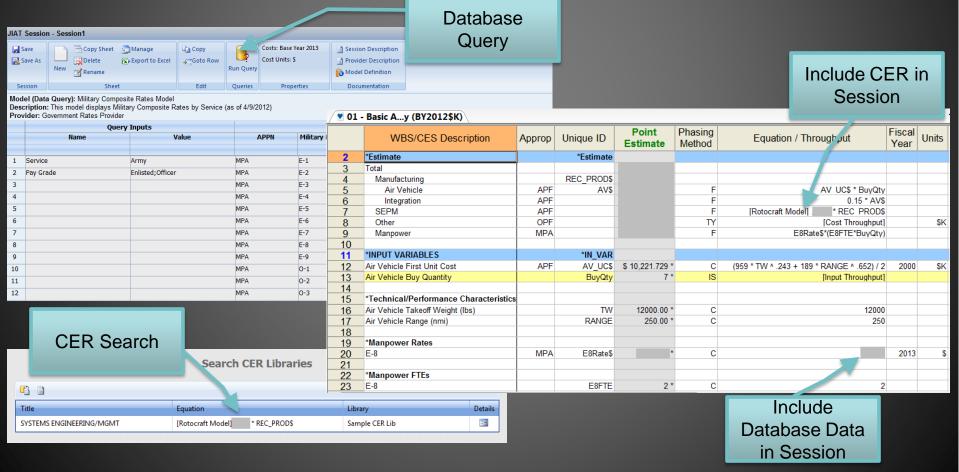
- Several of the JIAT Data Queries can export data to a CO\$TAT dataset worksheet
- Use CO\$TAT to analyze a dataset to calculate a factor, regress a CER or develop a learning curve

Determine the reserve of the reserve	
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### Use JIAT Data Directly in ACE Estimates

- Several of the JIAT Data Queries provide source data that can be used directly in ACE estimates. Databases like AMCOS, FORCES, and the Government Rates Provider can be queried and copied into ACE
- Incorporate CERs and Factors from the JIAT libraries into your ACE session



JIAT

## **Creating a JIAT Account**

### Visit https://www.awps.army.mil/ to request a

## JIAT account

- Select New User Request and complete the form
- Once the account is approved return to the awps site and follow the portal to JIAT



DOD DISCLAIMER EAWPS HELPDESK NEW USER REQUEST

Ammo Training Maintenance Training

CLOSE

Welcome to the US Army web application environment. Authorized users will have access to web based applications used to manage Maintenance, Logistics, Budgeting, and Workload and Performance for several US Army, National Guard, and Army Reserve activities.

Only UNCLASSIFIED use of this system is allowed

	QA Testing Environment	
eAWPS User ID:	:	
Password:		
	: DOD CA-15	
	: USER.JOE.0123456789	
Valid From: Valid Until:	: 4/22/2008 : 8/19/2008 11:59:59 PM	
valiu Ontii.		
	Begin Login Forgot your password?	
	Login via AKO using CAC Powered AKO Aut	By nentication
Instructions:	AKO CAC access to eAWPS is available only after you reg with your <b>eAWPS account</b> and your AKO account has you To initiate this registration please login normally then click t link for more instructions.	r CAC registered to it.
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If you need assistance please contact the eAWPS Helpdesk

## **JIAT Usage Perspectives**

Copy

Value

Goto Row

### User Role

JIAT Session - Session1

1 Commodity Group

6 End Year

Lihr

4) 4) CONOPS

2 Mission Design Serie

4 Major Command List Or Sum

CODY

rovider: OSMIS Provider (as of 4/1/2012)

Name

Manage

A Finant to COSTAT

Description: Displays a system's consumable and repairable data by year and by Major Command

W : WHEELED COMBAT

M1135 : STRYKER

Without CONOPS

Delete Sa Export to Excel

Model (Data Query): Consumable and Repairable Data by Major Command

**Ouerv Inputs** 

SUM 2008

2011

Save

Save As

### Databases

- ACDB Validated Engine Data
- OSMIS Cost Per Mile Assessment
- AMCOS Updated Labor Rates

## • CER Library

- Hardware CER/CPER
- Learning Curve Slopes
- Step Functions

4100			
	Browse CER Li	braries	
aries           Image: State	CERS ∃_a ∃⊲ ∋× ◆ ◆ *1 ◆1 □ G= CER Description	Equation	
ODASA-CE AII Cutt und Omnum. ODASA-CE COMBAT VEHICLE ODASA-CE Future Combat Syst ODASA-CE Ground Vehicles Li ODASA-CE Missile Blue Book ODASA-CE Missiles Library Sample CER Library Training CER Library USASMDC Ground Based Inter	ARMY CES (SURFACE VEHICLES)  ARMY CES (SURFACE VEHICLES)  REPL SPARES (REPARABLES)  PWR PKG/DRIVE TR  Engine Transmission Cost Per Unit - Combat - Driv  HULL/FRAME Cost Per Unit - Combat (FRAM	e TR	
	EPL REPAIR PARTS (CONSUMAE	LES)	

Costs: Then Yea

Cost Units: 5

Variable Name

Run Query

Session Description

Provider Description

**Ouerv Results** 

2009

2010

2011

2008

Model Definition

Units

MILES

Consumables per Svis per SYSTEM

Repairables per Systis per SYSTEM

Consumables per Unis per MILI

SYSTEMS

## **JIAT Usage Perspectives**

### Team Leader Role

### Data Distribution

- Wheeled Track Vehicle (WTV) ACDB Lite
- Cost Estimating Relationship (CER) Library

### Knowledge Sharing

- Ability to quickly train & mentor new civilians
- Minimizes learning time thanks to common user interface

me Session V CER Libraries V Link Lib	rraries	gOm
	Browse Web Link Libraries	
Libraries	Web Links	
🔍 🦑 🔌	12 3* 3* 4 4 12 12 14 14 14 14	
General Cost Estimating Sites	General Cost Estimating Sites - Web Links	
🔿 Sample Web Link Library	Equipment	
i US Missile System Information	💷 📾 Inflation and Discount Rates	
	🗉 َ 🗃 Organization Sites	
	🖃 🏪 Reference Guides 🛛 📑	
	Lir Force Cost Uncertainty and Risk Analysis Handbook	
	Contact Pricing Reference Guides	
	- S Defense Acquisition Guidebook	
	DoD 101 Introduction to the Military	
	SAO Cost Estimating and Assessment Guide	3
	Tools/Models	
	Mage/Salary/Travel Rates	3
		_

## **Overview of JIAT Benefits**

- Web services technology provides a platform to bring multiple tools together in one workplace
- JIAT provides resources for novice and experienced cost estimators and their managers
- JIAT can easily segment user groups by service and command to promote appropriate levels for data access
- Analyses for all phases of the program including pre-Milestone A, Alternative of Analysis, & Cost Benefit Analysis
- Enables a comprehensive LCCE which can reduce program risk by addressing cost, technical, and programmatic requirements anywhere within a program's life cycle

## Conclusion

- JIAT provides controlled access to a wide variety of data from a single interface and login
- Access to data is controlled by user group and individual permission levels
- JIAT data can be used
  - To Support building your cost models
  - In your CO\$TAT analysis to build CERs and factors
  - To identify uncertainty distributions to enter into estimates

### • Use JIAT CER Libraries

- To expand available CERs and factors
- To organize CERs and factors so they can be used across your organization and easily inserted into models
- Use JIAT web links
  - To help others in organization identify relevant and verified web resources
- Additionally, JIAT provides access to other model sources that can be imported into your estimates

### JIAT provides the data to drive cost estimates

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Approved for Public Release



# BACKUP

## JIAT Terms

- JIAT Website .mil hosted website that allows the end-user to query databases and run models
- JIAT Provider Software (i.e. a web service) that hosts one or more models made available to JIAT Client applications
  - Providers typically "wrap" the functionality of an existing application (e.g., ACDB, AMCOS, OSMIS, SEER, PRICE, Excel, etc.) to process database/model run requests by the end-user
- JIAT Model Named element available from a JIAT Provider that accepts a set of input values and produces a set of output values
- **JIAT Server** Central switchboard for communicating between a JIAT client application and the JIAT Providers
  - All model run requests are routed here first and then passed on to the appropriate Provider for execution
  - Once registered with the JIAT server, a Provider and its models become available from the JIAT website

UAT

## **General Database Query Operation**

**Enter Query Inputs** 

#### 1. Select a Database Provider

#### Create a New Session

IIAT

Please select a provider to search and enter any relevant search criteria.

Providers to be Searched		Search By	
● 🗆 ACDB Demo Provider	^	Madel News	
🔛 🗆 ACE Model Provider For Training		Model Name:	
🔛 🗆 ACE Provider		Model Description:	
👹 🗆 AMCOS Provider		Hodel Description.	
🔛 🗆 Army ACE Provider		Phase:	<b>~</b>
🜒 🗹 Army Rotary Wing Aircraft		C I I I I	
🛍 🗖 CER Runner Provider		Subject:	~
😘 🗖 CKB Provider		Commodity:	
🔛 🗖 DAMIR Provider		commonly.	×
	~	Domain Type:	×
			Y

Home	Session > Model Seq	uence 👂 Reports CER Libraries
Data	Query Model Runne	r - ACDB
Dese Prop Sess	e: Cost By WBS cription: Comparable to perties: BY 2011 SK ion Edt Run Docum	to the ACDB Report Wizard "Sele
		Query Inputs
	Name	Value
1	WBS Type	Standard WBS
2	WBS	USACEAC AIRCRAFT T
3	System Type	
4	System Name	
5	Model	
б	Contract Number	
7	Task	1

3.

8 Contractor 9 Life Cycle Phase

		Inputs			
	Name	Value			
l.	WBS Type	Standard WBS	*		1
	WBS	USACEAC AIRCRAFT TEMPLATE (MIL-STD-88	۷		
	System Type	CARGO		100	
	System Name	CH-46;CH-47			
i.	Model				
í	Contract Number				
	Task			(and	
	Contractor				
	Life Cycle Phase			0 ere (	
0	Source Document	CDSR (1921)	*	_	

Previous Next

#### 2. Select a Provider Model

Dre	reate a New Session										
	Please select a model and click Next.										
		Model Name	Provider								
		Cost By CES	Army Rotary Wing Aircraft								
	B	Cost By WBS	Army Rotary Wing Aircraft								
		Single Data Point Picker	Army Rotary Wing Aircraft								
		Task Aggregator	Army Rotary Wing Aircraft								
		Technical Data by WBS	Army Rotary Wing Aircraft								

#### 4. View Query Results

	Data 0	Query Model Runner - AC	DB							
	Descr	: Cost By WBS iption: Comparable to the <i>i</i>	ACDB Report Wizard "Sele	ct Entire WBS and Or	e Resource"	Pro	vider: Army Rotary W	/ing Aircraft (NOV 2011)		
		rties: BY 2011 \$K	0							
	Session Luk Kuin Documentadonn									
		Query	Inputs							
		Name	Value	Name	Task 1	Task 2	Task 3	Task 4		
	1	WBS Type	Standard WBS	System Type	CARGO	CARGO	CARGO	CARGO		
	2	WBS	USACEAC AIRCRAFT T	System	CH-46	CH-46	CH-46	CH-47		
	3	System Type	CARGO	Model	CH-46D/F	CH-46F	CH-46F	CH-47C		
	4	System Name	CH-46 CH-47	Contract Number						
	5	Model		Task	CH-46D/FLOT 1 A	AFCH-46F LOT 1 AIR	VCH-46F LOT 2 AIR	V CH-47C AIR VEHICLE		
	6	Contract Number		Contractor						
	7	Task		Life Cycle Phase	FRP	FRP	FRP	FRP		
	8	Contractor		Source Document	CDSR (1921)	CDSR (1921)	CDSR (1921)	CDSR (1921)		
Previous Finish	9	Life Cycle Phase		Report By	Prime/Associate	Prime/Associate	Prime/Associate	Prime/Associate		
	10	Source Document	CDSR (1921)	LRE Date						
	11			Inflation Index	05/13/2011	05/13/2011	05/13/2011	05/13/2011		
	12			Total % Spent (ACW	l i			)		
	13			System Buy Quantity				2		
	14			System First Unit						
	15			System Last Unit						

WOR	king with JIA	T Hosted CER	S
			Hon
<ul> <li>Search for a CER in</li> </ul>	the JIAT CER libraries		
JIAT Model Selection Wizard	Search by Select from	JIAT Model Selection Wizard	
Use the CER Model	your criteria available		E BAR
Runner Provider	CER list		1
ACDB Demo Provider		Model Name Provider Name  Model Name  Transmission CER/CPER (DDASA-CE Ground Vehicles Lib CER Runner Provider	
ACE Model Provider For Training     ACE Model Provider For Training     ACE Provider     ACE Provider     AMOS Provider     Amount ACE Provider     ✓ Phase:			
✓ CER Runner Provider     ✓ CER Runner Provider     ✓ CKB Provider     ✓ CKB Provider	Production  Transmission	View CER	
DAMIR Provider     DCARC CSDR-SR Provider     Excel Provider     Excel Provider		Documentation	
Excel Provider for Training FORCES Provider			
🔲 Military Composite Rates Provider 🛛 💌			
Cancel	Next >		Finish
Cancel			Finish
Cancel	CERs in Excel with you		Finish
Cancel			Finish
Cancel	CERs in Excel with you		Finish
Load and calculate	CERs in Excel with you Shows CER	r input variables	Finish
• Load and calculate JIAT Non-Time Phased Model: Transmission CER/ Description: S • HP • S Provider: CER Runner Provider	CERs in Excel with you		Finish
• Load and calculate           JIAT Non-Time Phased           Model:         Transmission CER/ bescription:	CERs in Excel with you	r input variables Create multiple cases	Finish
• Load and calculate JIAT Non-Time Phased Model: Transmission CER/ Description: 3 + HP + S Provider: CER Runner Provider Properties: BY 2003 5K Variable Name OUTPUT VARIABLES	CERS in Excel with you CPER Shows CER r (1.0) Appropriation Model Unit: Convert From Ba	r input variables Create multiple cases	Finish
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• Load and calculate JIAT Non-Time Phased Model: Transmission CER/ Description: 3 + HP + S Provider: CER Runner Provider Properties: BY 2003 5K Variable Name OUTPUT VARIABLES	CERS in Excel with you CPER Shows CER r (1.0) Appropriation Model Unit: Convert From Ba	r input variables Create multiple cases	Finish
• Load and calculate JIAT Non-Time Phased Model: Transmission CER/ Description: + HP + S Provider: CER Runner Provider Properties: BY 2003 SK Variable Name OUTPUT VARIABLES Transmission CER/CPER Outp INPUT VARIABLES	CERS in Excel with you CPER Shows CER (1.0) Appropriation Model Unit: Convert From Ba out RDTEF	r input variables Create multiple cases  seline More Power Less Power	Finish

## **Running Models in JIAT**

Common Model Runner

IIAT

Enter new case inputs and calculate results in various models from various tools

JIAT Non-Time Phased		COCOMC						
Model: COCOMO II <								
Description: COCOMO Example		in Exce						
Provider: Excel Provider (2.1.5) Properties: BY 2010 \$				JIAT Non-Time Phased		Miccilo	Model	
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Total Build Equiv SLOC				INPUT VARIABLES				
Estimated Effort (MM)		mo		Missile:Guidance Control/Naviga	tion & Electronics:Guidan	ce: Manufacturing		
Estimated Cost (\$)	RDTEA			Missile:Guidance Control/Naviga	tion & Electronics:Control	: Manufacturing C		
Estimated Duration (mo)		mo		Missile:Guidance Control/Naviga	tion & Electronics:Nav.: N	lanufacturing Com		
INPUT VARIABLES				Missile:Guidance Control/Naviga	tion & Electronics:Core Pr	ocessor: Manufac		
Total SLOC				Missile:Seeker:Target Detection:	Manufacturing Complexit	ty of Electronics		
Existing SLOC				Missile:Seeker:Gimbal: Manufact	uring Complexity of Elect	ronics		
Touchable SLOC				Missile:Warhead and Fuse:Safe/	Arm/Fuse: Manufacturing	Complexity of Ele		
New SLOC				Missile:Airframe and Motor:Forw	ard: Manufacturing Comp	lexity of Structure		
Breakage				Missile:Airframe and Motor:Cent	er: Manufacturing Comple	exity of Structure		
Precedentedness				Missile:Airframe and Motor:Aft: I	Manufacturing Complexity	y of Structure		
Development Flexibility				Missile:Airframe and Motor:Moto	or: Manufacturing Comple	xity of Structure		
Architecture/Risk Resolution				Missile:Airframe and Motor:Airfr	ame and Moter I&T: Manu	facturing Comple		
Team Cohesion				Missile:Guidance Control/Naviga	tion & Electronics:Guidan	ce: Manufacturing		
				Missile:Guidance Control/Naviga	tion & Electronics:Control	: Manufacturing C		
				Missile:Guidance Control/Naviga	tion & Electronics:Nav.: M	lanufacturing Com		

Missile:Guidance Control/Navigation & Electronics:Core Processor: Manufac