

ACE 8.0 Layout

💟 🗔 🛅 🥙 🝽 🚺	MAIN PANE 07 - De	tailed LCC Estim	ate.aces (Read-Only) - Meth	nodology (BY2)	D16\$K) - ACE 8.0			- @ ×
FILE HOME LAYOUT CONSTRUCTION FUNCTIONS REPORTS	INPUT SHEET							~ @
Image: Second secon	Sheet w Sheet heet Column	23 logy WBS/CES	Yearly Spread Learning Phasing Total	RIŞK More Basic *	Tensert Rows Tensert Rows Tensert Rows Tensert Rows Tensert Rows Tensert Tensert Rows Tensert Tenser	□ Togg ∑ Togg A Colu	le Comment le No-Sum mns ×	
Clipboard Format		Sheets		E.	Construction			
Session Explorer - Estimate 4 Input Form - Methodology	Input Sheet - Metho	dology 🔻	Results - Phased Costs	 Chart 	s - Estimate 🔹 Overrides - Phased 💌			
रें र र वि रें = ,= है× □ Σ Row WBS/CES Descrip	tion Approp	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Fiscal Year	Units	Start Date
-56: Total Estimate at Probabilit 73	ineering		\$ 20,030.041 (47%)					
-57: Procurement Estimate at P 74 Air Vehicle		RDTEAV\$	\$ 6,665.445 (49%)					
58: Delta between PE and Prok	re RDTEF		\$ 4,427.036 (50%)	BE	Struc_T1\$ * NRT1Ratio			DevStartDate
-60: Delta between Procuremer	uidance RDTEF		\$ 1,534.036 (50%)	BE	425.555 + 25.555 * NavWt	1994	\$K	DevStartDate
-61: 77 Propulsion	RDTEF	-	\$ 704.373 (50%)	BE	PropMnth\$ * DevDuration * NRPropComplex			DevStartDate
-62: 6 78 Ground Station		RDTEGS\$	\$ 7,986.468 (50%)					
B-63: *Estimate	Parts RDTER		\$ 965.726	BE	GSUC\$ * GndStatQty			DATEADD(DevStartDate, 0, 0, 120)
E 64: Total Ba	Parts RDTER	DDTCOW	\$ 7,020.742 (50%)	BE	4500 ° GSComplex	2004	\$K	DATEADD(DevStartDate, 0, 0, 120)
65: RDT&E	RDTER	RDTESWa	5 3,180.341 (50%)	MS	45 * (TTOT/@DDTEAVE) + TTOT/@DDTECSED			DATEADD/DevEndDate 1)
66: Concept Refinement 83 Prototype Meaufe	turing		\$ 2,197.787 (50%)	DE	.15 (TTOT(@RDTEAV\$)+TTOT(@RDTEGS\$))			DATEADD(Devendbale, - 1)
-67: Contractor A	RDTER		\$ 2 921 369 (50%)	BE	1.5 * AV T15			ProtoStartDate
-68: Contractor B Mobile Ground	Station RDTEA		\$ 359.129 (27%)	BE	1.75 * TGS T1\$			ProtoStartDate
-70: Contractor A					-			•
-71: Contractor B								
E-72: System Developmen								(j) ×
🖻 -73: Development En 🔰 🕂 🗡 🚺 📑 🚺								•
-74: Air Vehicle Case Name	Compare	Time Last Ca	lculated	Descrip	overridden Rows H	las Total Ov	verrides H	as RI\$K Overrides
-76: Navigation Point Estimate		3/18/2019 2	:04:44 PM		0			
-77: Propulsion I Higher Uncertainty	\checkmark		Increased un	certainty or	Production inputs 4		Ye	es
-78: Ground Static Science Propulsion Cost Sce	nario 🗌		Override pro	pulsion unit	cost with lower cost. 4 Ye	25		
-79: Procure O New 3010 Budget and AF E	uy Quantities		Override 301	LO Budget ro	w to slip money to later 3			
-80: Design Ner Service Servic			Overrides to	NREC comp	lexity factor and Propuls 8 Ye	2S		
-81: Software 👻 🔄 Propulsion, Ground Station	and OM Mods		Overrides to	NREC comp	lexity factor and Propuls 11 Ye	es		
Estimate Traceback Documentation Found Match	es Cases Visualization	Successors						
Ready			Co	unt: 6 Average	e: \$ 1,922.919 10 Sum: \$ 11,537.516 🔳 🔲	11		- 12 + 100%

1. Quick Access Toolbar - contains commonly used ACE commands like save, calculate, options, undo, and Redo.

2. Title Bar - shows the session name, current view in main pane, Base Year and units of the session and the application name (i.e., ACE 8.0).

3. **Ribbons** - there are five default ribbons always visible and five conditional ribbons only visible in certain instances.

4. Row Navigator - enter a row number to navigate to or click the drop-down and select from Favorite Rows. Jump to parent row icon allows you to jump to the selected row's parent and the > and < icons allow you to jump between previous and next rows just visited.



5. Formula Bar - alternative to in-cell editing, helpful when entering information in the Equation/Throughput column. If you begin typing your equations here, Autocomplete shows a list of available functions, row and column Unique IDs, column values, User Defined Functions (UDFs), and Data Tables.

6. **Session Explorer** - shows the session in a tree structure format. Click + or - buttons to expand or collapse the tree elements. There are two Session Explorer tabs: **Estimate** tab has options allowing you to manipulate the rows of the session and the **Traceback** tab allows you to trace calculations back to their origins.

7. Main Pane - contains five tabs that allow you to do the work in your session.

- Input Form tab guides you through the process of entering a methodology for a row. Select the row in the Session Explorer and enter appropriate methodology here or in the Input Sheet tab. Input Form views of Methodology, RI\$K and Custom Columns can be selected from drop-down on tab.
- Input Sheet tab shows session data in a spreadsheet-like format, much like traditional ACE versions. ACE User Settings allow you to select how clicking a row in the Session Explorer affects the view in the Input Sheet. Traditional ACE workscreen views can be selected on drop-down for Input Sheet tab.
- **Results** tab shows tabular results for the selected row(s). The drop-down on the tab lets you see Phased Costs, Implied Expenditures, Present Value costs, Reportable Base Year costs, RI\$K Statistics and calculated results of any Custom columns you have created.
- **Charts** tab shows graphical results for the selected row(s). The drop-down on the tab lets you choose the type of chart to view. The following charts types are available: Estimate, Comparison, RI\$K, and Analysis.
- **Overrides** tab lets you perform what-if drills on your estimate. You can override input values (both estimate and RI\$K) for selected rows in your estimate and ACE will calculate the cost for the case based on these override values. The case shown is controlled from the Content Pane for Cases. The drop-down tab provides access to Phased, Total/Year, RI\$K, or Custom Text Column Overrides.

8. **Content Panes** - used to view and enter key information about your session. There are thirteen Content Panes: Error Log, Cases, Visualization, References, Documentation, Favorite Rows, Successors, Drives, Watch, Calculation Log, Chart Data, Found Matches, RI\$K Correlation. A subset of the group is loaded initially, additional panes can be added via the Layout Ribbon.

9. **Status Message** - gives information about the status of the session. "Ready" means ready to calculate. During calculation, the Status Message tells you if ACE is running a full or incremental calculation (default calculation that only calculates rows impacted by changes since last calculation), what case is being calculated, and if RI\$K is being calculated or not.

10. Summary Metrics - Count, Average, and Sum of selected cells.

11. Main Window Layout Options - These icons allow you to adjust the layout of the ACE window by changing where and if the Content Panes are shown.

12. **Zoom Settings** - Allows you to adjust the main screen magnification settings. Click 100% to customize zoom magnification.



Input All Form

Here State S

m Test & Eva

Tèle: Basic Structure

Unique ID: Equation/Throughput: Struc_T1\$*NRT1Rab

Start Date

Time (G)

Undo Redo Basic Close Help

Shap

Input All For

Goto

TRANSITIONING FROM ACE 7.5 TO 8.0

**Transition visuals shown with ACE 7.5 and equivalent ACE 8.0 example files. All ACE 8.0 example files were updated to Base Year 2019 and a newer phasing schedule. Further, the new examples were modified to illustrate new features like the Weibull Phasing Method. In short, the point estimates values in the following images while similar are not the same.

ACE 7.5 to 8.0 Comparison

ACE 7.5

ACE 8.0

/o	rkscreens								
•	WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Fiscal Year	Uni	
63	*Estimate		*Estimate						
64	Total		Total\$	\$ 907,466.992 *					
65	RDT&E		RDTE\$	\$ 63,375.769 *					
66	Concept Refinement			\$ 1,058.240 *					
67	Contractor A	RDTEF		\$ 531.150 *	TY	[Cost Throughput]			
68	Contractor B	RDTEA		\$ 527.090 *	TY	[Cost Throughput]			
69	Technology Development			\$ 4,710.518 *					
70	Contractor A	RDTEF		\$ 2,355.259 *	TC	2.0	2006		
71	Contractor B	RDTEA		\$ 2,355.259 *	TS	2.0	2006		
72	System Development and Demonstration			\$ 57,607.011 *					
73	Development Engineering			\$ 20,030.041 *					
74	Air Vehicle		RDTEAV\$	\$ 6,665.445 *					
75	Basic Structure	RDTEF		\$ 4,427.036 *	BE	Struc_T1\$ * NRT1Ratio			
76	Navigation/Guidance	RDTEF		\$ 1,534.036 *	BE	425.555 + 25.555 * NavWt	1994		
77	Propulsion	RDTEF		\$ 704.373 *	BE	PropMnth\$ * DevDuration * NRPropComplex			
78	Ground Station		RDTEGS\$	\$ 7,986.468 *					
79	Procure OTS Parts	RDTEF		\$ 965,726 *	BE	GSUC\$ * GndStatQtv			

Phasing Method

EqBuilder

Inpu	It Form - Methodology ▼ Input Sh	eet - Meth	odology 🔻	Results - Pha	sed Costs	 Overrides - Phased Charts - 	Estimate	2 v
Row	WBS/CES Description	Approp	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Fiscal Year	Uni *
62	✓ *Estimate		*Estimate					
63	▲ Total		Total\$	\$ 910,495.259				
64	▲ RDT&E		RDTE\$	\$ 63,751.317				
65	 Concept Refinement 			\$ 530.487				
66	- Contractor A	RDTEF		\$ 532.172	TY	[Cost Throughput]		
67	Contractor B	RDTEA		\$ 530.487	TY	[Cost Throughput]		
68	 Technology Development 			\$ 4,678.474				
69	- Contractor A	RDTEF		\$ 2,339.237	TC	2	2009	
70	Contractor B	RDTEA		\$ 2,339.237	TS	2	2009	
71	 System Development and Demon 			\$ 58,542.356				
72	 Development Engineering 			\$ 20,241.260				
73	▲ Air Vehicle		RDTEAV\$	\$ 7,242.551				
74	Basic Structure	RDTEF		\$ 4,517.409	BE	Struc_T1\$*NRT1Ratio		
75	Navigation/Guidance	MPF		\$ 2,008.188	BE	425.555+25.555*NavWt	1997	
76	Propulsion	RDTEF		\$ 716.954	BE	PropMnth\$*DevDuration*NRPropComplex		
77	 Ground Station 		RDTEGS\$	\$ 7,503.106				
78	Procure OTS Parts	RDTEF		\$ 976.217	BE	GSUC\$*GndStatQty		Ŧ

Input Form (Main Pane tab)

Innut Chasta (Main Dans tah)

Input Form	- Methodology 🔻 Input Sheet - Methodology 🔻 Results - Phased Costs 🔻 Overrides - Phased 👻 Charts - Estimate 🔻
Title: Unique ID:	Basic Structure *** •
\land	Equation/Value
Beta Curve	Struc_T1\$*NRT1Ratio fx
Weibull	Approp: RDTEF + FY: Units: +
	Start Date: DevStartDate fx 🛱 Finish Date: DevEndDate fx 🛱
Rayleigh	Spent (%): 60 ID
	Time (%): 40 ID
Trapezoid	Peakness: Medium *
	Status: Complete

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DATA ENTRY

ACE 7.5

ACE 8.0

Enter/Edit values for row in Input All Form 📴 Input All Form Selected Row Contractor B Move Item Phasing Method: Title: \sim 71 ~ Ŷ Unique ID: 付 Phasing Wizard . • Goto Equation/Throughput: 4 2.0 📸 Eq Builder.. Include Children 📖 CER Lib... े 🖓 🤜 🖧 👗 🦷 😤 🔊 § WBS/CES FY Inputs Monthly Learning Spread Total RI\$K DEC Defs Category What if § General Summary Section Category Values § BY Summary Section § TY Procurement Summary Section Category Value § Budget Information Category 3 § RI\$K Toggle and Metrics Category 4 § Estimate Category 5 - 🦻 Estimate Category 6 🛓 Σ Total Category 7 🖕 Σ RDT&E CES Number 🖶 Σ Concept Refinement Funding Source E Technology Development Key Unit Cost Category ---- Contractor A MDEP Contractor B Model System Development and Demonst PME Matrix Service Joint - Σ Procurement Theater 🗄 Σ Operations & Support WBS Indent Level 4 WBS Summary § INPUT VARIABLES WBS/Item Number 1.2.2 § *Milestone Dates

Enter/Edit values for row in Workscreen

ş	1	2	3 4	1 5	6	•	WBS/CES Description	Count (+) Counter	Wgt (+) TechWeight	Service
Ģ						63	*Estimate			
[-					64	Total			
		-				65	RDT&E			
			-			66	Concept Refinement			
						67	Contractor A			Joint
			L			68	Contractor B	2	2300	Joint
		[-			69	Technology Development			
						70	Contractor A			Joint
			l			71	Contractor B			Joint

Enter/Edit values for row in Input Form Input Form - Custom Columns 🔻 Input Sheet - Methodology 🔻 Results - Phased Costs 🔻 Overrides - RI\$K 🔹 🕨 Title: Contractor B Unique ID: CES#: WBS#: PE Value: \$526.255 Column Title ^ Value Group by: None Column ID Tag Туре Approp Reportable BY AppnRBY Text * Comments Comments Comment 2 fx Counter Count Non-cost Funding Source Funding Text Ŧ Service Service Text Joint * fx 2300 TechWeight Wgt Non-cost WBS Summary WBS Text *

Enter/Edit values for row in Input Sheet

Inpu	t Form - Custom Columns 🔻 Ir	nput Sheet - WBS/CE	s 🔻	Results -	Phased Co	osts 🔹 Overrides
Row	WBS/CES Description	Counter	Т	echWeight	Service	Funding
64	RDT&E					
65	 Concept Refinement 				Wgt	
66	Contractor A			Non-cost col	umn, Child ro	ows sum up to parent
67	Contractor B	2		2300	Joint	
68	 Technology Development 					
69	Contractor A				Joint	
70	Contractor B				Joint	



ACE 7.5

ACE 8.0

NAVIGATION

WBS Tree



Definition Editor

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🔮 07 - Detailed L		led LCCfinition	(ID: 10)	
This is our stand	ard program office integration f	actor.		. ℓ _c

Session Explorer Session Tree and Input Sheet



Documentation Pane

Cells with documentation indicated by small red triangle Documents attached to an ACE 7.5 session row reflected with a paper clip in the Comments column (new custom column added when opening 7.5 session in 8.0)





ACE 7.5

ACE 8.0

RESULTS

Inputs Results/Viewer

BY, TY, SY Results, Present Value Real/Nominal, DEC Results, BY RI\$K Statistics

BY Results	Phase	d by Case 🔹	Configuration Row	s ? RISK Parameters		
Inputs RISK Inputs	50%	• % F	DEC Results	Row Views 🔻	Calculate	Copy Z
BY Results TY Results	ults		Con	figure	Calculate	Clipboard
SY Results Present Value Real		f_X is in the				
Present Value Nominal BY DEC Results	S (BY2	016 \$K) 📲 07 - Deta i	led Lewer (BY2016\$K	C		
BY RISK Statistics		WBS/CES	Description	Total	FY 2011	FY 2012
Higner Uncertainty	63	*Estimate				
New 2010 Pudget of	64	Total		\$ 907,466.992	\$ 8,994.765	\$ 8,403.530
New 3010 Budget ar	65	RDT&E		\$ 63,375.769	\$ 8,994.765	\$ 8,403.530
Propulsion and OM	66	Concept Refinemen	t	\$ 1,058.240	\$ 1,058.240	
🛐 Propulsion, Ground	67	Contractor A		\$ 531.150	\$ 531.150	
	68	Contractor B		\$ 527.090	\$ 527.090	
	69	Technology Develo	pment	\$ 4,710.518	\$ 448.126	\$ 2,386.075
	70	Contractor A		\$ 2,355.259	\$ 181.954	\$ 1,193.140

Results (*Main Pane tab*)

BY, TY, SY Phased Costs, Case Totals, RI\$K Statistics, Custom Columns, Present Value, Reportable Base Year

Use Configure to customize which options appear on the drop-down Use the Cases Pane to create/select case

Row	WBS/CES Description		Tot	al	FY 2014	FY 201	Case Totals
61							RI\$K Statistics
62	 *Estimate 						Custom Columns
63	 Total 		\$ 904,4	159.331	\$ 1,874.3	81 \$ 3,244	Present Value
64	▲ RDT&E		\$ 62,9	952.687	\$ 1,874.3	81 \$ 3,244	
65	 Concept Refinement 		\$ 1,	058.427	\$ 1,058.4	27	Reportable Base Ye
66	Contractor A		\$!	532.172	\$ 532.1	72	Configure
67	Contractor B		\$!	526.255	\$ 526.2	55	
68	 Technology Development 		\$ 4,6	637.328	\$ 441.1	64 \$ 2,342.2	260 \$ 1,853.905
69	- Contractor A		\$ 2,3	318.664	\$ 179.1	27 \$ 1,171.0	080 \$ 968.458
70	Contractor B		\$ 2,3	318.664	\$ 262.0	37 \$ 1,171.	180 \$ 885.447
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+	× 🗈 🖏 😼 Case Name	Compare	Time Las	t Calculat	ed		Description
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+ Po Lo	X ID III III IIII Case Name Dint Estimate Wer Cost Propulsion ew APF Budget and AF Buy Quantities	Compare	Time Las 4/1/2019	t Calculat 4:32:2	ed 0 PM Lo 0 V Ov	wer Propul: erride APF	Description sion T1 Cost Budget row to slip mon
+ Po Lo	X ID III IIII IIIIIIIIIIIIIIIIIIIIIIIII	Compare	Time Las 4/1/2019	t Calculat 4:32:2	ted 0 PM Lo 0 V 0 V 0 V	wer Propul erride APF errides to I	Description sion T1 Cost Budget row to slip mon VREC complexity factor
+	X ID III IIII IIIIIIIIIIIIIIIIIIIIIIIII	Compare	Time Las 4/1/2019	t Calculat 4:32:2	ted 0 PM Lor 0 V 0 V 0 V	wer Propul: erride APF errides to I	Description sion T1 Cost Budget row to slip m NREC complexity fact



REPORTS

ACE 7.5

ACE 8.0

Reports

Accessed from the Results ribbon

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	Row	Cost Element	Approp	Total		FY 2011	FY 2012	FY 2013
76	Row 63	Cost Element *Estimate	Approp	Total	202.552	FY 2011	FY 2012	FY 2013
76 77 78	Row 63 64	Cost Element "Estimate Total RDT&F	Арргор	Total \$ 907, \$ 63	392.552	FY 2011 \$ 8,969.952 \$ 8,969.952	FY 2012 \$ 8,378.717 \$ 8 378 717	FY 2013
76 77 78 79	Row 63 64 65 66	Cost Element "Estimate Total RDT&E Concept Refinement	Approp	Total \$ 907, \$ 63 \$ 5	392.552 301.330 Phased Repo	FY 2011 \$ 8,969.952 \$ 8 969 952 rt Options	FY 2012 \$ 8,378.717 \$ 8,378.717	FY 2013
76 77 78 79 80	Row 63 64 65 66 67	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A	Approp	Total \$ 907 \$ 63 \$	392.552 301 330 Phased Repo	FY 2011 \$ 8,969.952 \$ 8 969.952 it Options Header Footer Pag	FY 2012 \$ 8,378.717 \$ 8.378.717 10 Layout Format Ro	FY 2013 \$ 14,362.5 \$ 14 362.5 *** Filter Columns R
76 77 78 79 80 81	Row 63 64 65 66 67 68	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A Contractor B	Approp RDTEF RDTEA	Total \$ 907 \$ 63 \$	392.552 301.330 Phased Repo Description Include F	FY 2011 \$ 8,969.952 \$ 8 969.952 rt Options Header Footer Pag Rows	FY 2012 \$ 8,378.717 \$ 8 378.717 e Layout Format Ro	FY 2013
76 77 78 79 80 81 82	Row 63 64 65 66 67 68 69	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A Contractor B Technology Development	Approp RDTEF RDTEA	Total \$ 907 \$ 63 \$ \$ \$ \$	392.552 301.330 Phased Repo Description	FY 2011 \$ 8,969.952 \$ 8 969.952 rt Options Header Footer Pag Rows	FY 2012 \$ 8,378.717 \$ 8 378.717 e Layout Format Ro	FY 2013
76 77 78 79 80 81 82 83	Row 63 64 65 66 67 68 69 70	Cost Element *Estimate Total RDTSE Concept Refinement Contractor A Contractor A Technology Development Contractor A	Approp RDTEF RDTEA RDTEF	Total \$ 907 \$ 63 \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Repo Description Include F Al S	FY 2011 \$ 8,969.952 \$ 8 969.952 \$ 2000 Ft Options Header Footer Pag Rows I slected Row Range	FY 2012 \$ 8,378.717 \$ 8 378.717 te Layout Format Ro	FY 2013
76 77 78 79 80 81 82 83 83 84	Row 63 64 65 66 67 68 69 70 71	Cost Element "Estimate Total RDT8E Concept Refinement Contractor A Contractor B Technology Development Contractor A Contractor A Contractor A	Approp RDTEF RDTEA RDTEF RDTEF RDTEA	Total \$ 907, \$ 63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Repo Description Include F Al Si Si R	FY 2011 \$ 8,969.952 \$ 9,975 \$ 9,	FY 2012 \$ 8,378.717 \$ 8 378 717 e Layout Format Ro	FY 2013 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5
76 77 78 79 80 81 82 83 83 84 85	Row 63 64 65 66 67 68 69 70 71 71 72	Cost Element *Estimate Total RDT&E Concept Refinement Contractor A Contractor B Technology Development Contractor A Contractor B System Development and Demonstration	Approp RDTEF RDTEA RDTEF RDTEA	Total \$ 907 \$ 63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 30.1 330 Phased Repo Include F Al Si R R F	FY 2011 \$ 8,969.952 \$ 8,969.95	FY 2012 \$ 8,376.717 \$ 8 378.717 e Layout Format Ro	FY 2013 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5 ************************************
76 77 78 79 80 81 82 83 84 85 85 86	Row 63 64 65 66 67 68 69 70 71 72 73	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A System Development and Demonstration Development Engineering	Approp RDTEF RDTEA RDTEF RDTEA	Total \$907 \$83 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Repo Include F All Si R F	FY 2011 \$ 8,969.952 ¢ 8 960.952 ¢ 9 960.9	FY 2012 \$ 8,378.717 \$ 8 378.717 e Layout Format Ro	FY 2013 \$ 14,362.5 \$ 14,362.5\$ \$ 14,362.5
76 77 78 79 80 81 82 83 84 85 86 85 86 87	Row 63 64 65 66 67 68 69 70 71 72 73 74 	Cost Element *Estimate Total RDT&E Concept Refinement Contractor A Contractor B Technology Development Contractor A Contractor A Contractor B System Development and Demonstration Development Engineering Air Vehicle	Approp RDTEF RDTEA RDTEF RDTEA	Total \$ 907 \$ 63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Repo Include F All St R R F	FY 2011 \$8,969,952 \$ A GG GS 2 C A GG GS 2 C Options Header Footer Pag Rows Header Footer Pag Rows Header Footer Pag Foot To the test of test o	FY 2012 \$8,378,717 \$8 378 717 e Layout Formal Ro Last 338	FY 2013 \$ 14,362.5 \$ 14,362.5\$ 14,362.5\$ 14,362.5\$ 14,362.5\$ 14,36
76 77 78 79 80 81 82 83 84 85 86 85 86 87 88	Row 63 64 65 66 67 68 69 70 71 72 73 74 75 52	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A Contractor B System Development and Demonstration Development Engineering Air Vehicle Basic Structure	Approp RDTEF RDTEA RDTEF RDTEA RDTEF RDTEA	Total \$ 907 \$ 63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Description Include F Al S R R C I I	FY 2011 \$ 8,969.952 \$ 9,969.952 \$ 8,969.952 \$ 9,952 \$ 9	FY 2012 \$8,378.717 \$ 8 378.717 te Layout Format Rom Last 338	FY 2013 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5 \$ 14,362.5
76 77 78 79 80 81 82 83 84 85 86 85 86 87 88 89 99	Row 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 77 77 77 77 76 76 77 77 77 77 77 77 76 77 77 77 77 77 77 76 77	Cost Element "Estimate Total RDT&E Concept Refinement Contractor A Contractor A Contractor B Technology Development Contractor B System Development and Demonstration Development Engineering Air Vehicle Basic Structure Navigation/Guidance	Approp RDTEF RDTEA RDTEF RDTEA RDTEF RDTEF RDTEF	Total \$907 \$63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Repo Description Include F Al S S R R C F	FY 2011 \$ 8,969,952 \$ 8 060 052 \$ 8 060 052 rt Options Header Footer Pag tows I selected Row Range ox I Row Numbers First 1 © First 1 © Sections I Image: Image Row Range ox Image Row Range Image Row Range First 1 Image Row Range Image Row Range Image Row Range Image Row Range	FY 2012 \$ 8,378.717 \$ 8 378.717 te Layout Format Rov Last 338 ***********************************	FY 2013
76 77 78 79 80 81 82 83 84 85 86 85 86 87 88 89 90	Row 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 77 72 72 72 74 75 76 77 72 72 72 74 72 72 72 74 72 72 74 75 76 77 77 72 72 74 72 72 74 72 72 74 72 74 75 76 77 77 72 74 72 72 74 72 74 74 75 76 77 77 72 74 72 72 74 74 75 76 77 72 74 74 75 76 77 76 77 76 77 72 74 75 76 76 77 76 76 77 76 76 77 76 76 76 76 77	Cost Element *Estimate Total RDT&E Concept Refinement Contractor A Contractor B System Development and Demonstration Development Engineering Ar Vehicle Basic Structure Navigation/Guidance Propulsion Over a Overlan	Approp RDTEF RDTEA RDTEF RDTEA RDTEF RDTEF RDTEF RDTEF	Total \$ 907 \$ 63 \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	392.552 301 330 Phased Report Include F All Si R C F	FY 2011 \$ 6,969.952 \$ 8, 069.952 \$ 8, 069.052 \$ 8, 060.052 Itelested Header Finit Pint Construct Genome Finit Construct Sections Finit Sections Sections Sections Sections Sections Sections Sections Sections	FY 2012 \$ 8,378.717 \$ 8 378.717 e Layout Format Ro	FY 2013
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76 77 78 80 81 82 83 84 85 86 87 88 86 87 88 89 90 91 92	Row 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79	Cost Element *Estimate Total RDT&E Concept Refinement Contractor A Contractor A Contractor B Technology Development Contractor A Contractor A Contractor B System Development and Demonstration Development Engineering Air Vehicle Basic Structure Navigation/Guidance Propulsion Ground Station Procure OTS Parts	Approp RDTEF RDTEA RDTEF RDTEA RDTEF RDTEF RDTEF RDTEF	Total \$ 907 \$ 63 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5 \$ 5	392.552 301.330 Phased Repo Description Include F A Second F Special F	FY 2011 S 8,969.952 S 8,969.952 S 8,969.952 S 8,969.952 S 8,969.952 S 9,952 S 9,95 S 9,9 S	FY 2012 \$8,378.717 \$8.378.717 \$8.378.717 te Layout Format Rov Last 338 Last 338 Socion tion Summary Section WBS/C	FY 2013 \$ 14,362.5 \$ 14,562.5 \$ 14,562.

Reports

Accessed from the Reports ribbon



Easily update and refresh with integrated report settings

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62	*Estimate								Report Settings		
63	Total		\$ 904,414.292	\$ 1,874.381	\$ 3,244.026	\$ 18,515.644	\$З		Report Name:		
64	RDT&E		\$ 62,907.648	\$ 1,874.381	\$ 3,244.026	\$ 18,515.644	\$2		BY Phared Results	-	_
65	Concept Refinement		\$ 1,058.427	\$ 1,058.427					BT Phased Results		
66	Contractor A	RDTEF	\$ 532.172	\$ 532.172					Report Title:		
67	Contractor B	RDTEA	\$ 526.255	\$ 526.255					BY Phased Costs (all rows)		A/
68	Technology Development		\$ 4,637.328	\$ 441.164	\$ 2,342.260	\$ 1,853.905					
69	Contractor A	RDTEF	\$ 2,318.664	\$ 179.127	\$ 1,171.080	\$ 968.458			Cost Type		Ĥ
70	Contractor B	RDTEA	\$ 2,318.664	\$ 262.037	\$ 1,171.180	\$ 885.447			Cost type		
71	System Development and Der	nonstration	\$ 57,211.893	\$ 374.790	\$ 901.766	\$ 16,661.739	\$2		Obligation	*	
72	Development Engineering		\$ 19,508.162		\$ 280.496	\$ 6,161.978	\$8				
73	Air Vehicle		\$ 6,696.175		\$ 280.415	\$ 3,454.628	\$2		Base Year		
74	Basic Structure	RDTEF	\$ 4,466.480		\$ 187.042	\$ 2,304.305	\$1		O Then Year		
75	Navigation/Guidance	RDTEF	\$ 1,519.046		\$ 63.613	\$ 783.692	\$5		Same Year		
76	Propulsion	RDTEF	\$ 710.649		\$ 29.760	\$ 366.631	\$2				
77	Ground Station		\$ 7,437.118			\$ 1,260.078	\$ 4				
78	Procure OTS Parts	RDTEF	\$ 967.631			\$ 530.178	\$4		RIŞK		
79	Design New Parts	RDTEF	\$ 6,469.487			\$ 729.900	\$ 3		Case		
80	Software	RDTEF	\$ 3,254.875		\$ 0.082	\$ 1,447.272	\$ 1		0		
81	Int & Assy	RDTEF	\$ 2,119.994						 Configuration Info 		
82	Prototype Manufacturing		\$ 3,305.561				\$ 5	-			
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OK Cancel Help



CHARTS

ACE 7.5

ACE 8.0



Charts (Main Pane tab)

\$ 0.000

2017

2018

2019

2020



2021 2022 2023 2024

2025



ACE 7.5

ACE 8.0

One Instance of ACE Tabs to change to a different session 👿 🔚 🕫 🔍 🗑 🖉 📼 ACE 7.5 - [07 - Detailed LCC Estimate.aces (Read-Only) - Methodology (BY2016\$K)] Home Microsoft Sans Senf • 10 B Z U Sol ② • ▲ - Font Calculate Solystax Check Previous B C Delete Rows ③ File Attachment F 🛛 🐰 Cut Copy 🔹 Paste Format Painter * 500 🖓 - A - Font Bookmark 🖻 Format Calculate Constru Clipboard View *Summary : • 回回 • 后 通验 Total • 07 - Detaile...y (BY2016\$K) • Army Missile.... 1 (BY2014\$M) Comments (*) Example File Phasing Method §123456 🕳 WBS/CES Description Approp Unique ID Point Estimate Comments 63*Estimate64Total65RDT&E *Estimate • \$ 907 466 992 ' TotalS \$ 63 375 769 * Concept Refinement ŢĢ 66 \$ 1.058.240 * 67 TY Contractor A Data is entered on Yearly Phasing RDTEF \$ 531.150 * RDTEA \$ 527.090 * TY 68 Contractor B Ę \$ 4,710.518 * 69 Technology Developme TC Contractor A Spread cost across start and finish date. Assume ramp up for 25% of the cost, then RDTEF \$ 2,355.259 * 70 TS Contractor B Spread cost across start and finish date. Assume ramp up for 25% of the duration RDTEA \$ 2,355.259 * 71 WBS/CES Methodology (Yearly Phasing /

File > User Options

User Options	×
General	Documentation
Use selected case column as default case	Text Editor: Built-In ACE Editor 🗸
Position total of phased report after yearly data	Default font for new definitions and reports:
Automatically make rows visible in POST	Font Times New Roman, 10 pt.
✓ Recently used file list: 9	
Save recovery file every 10 iminutes	AutoComplete
	Find functions and IDs using an interactive list:
Suppress syntax check completion dialog	Automatically display AutoComplete 🗸 🗸
Number of threads used in RI\$K calculation: 2	Paste parameters to functions and UDFs
Color	
Locked cells and case colums:	Workscreen Behavior
Baseline case title: Text Color 💌	Move direction on Enter: Right 🗸 🗸
	Sort bookmarks alphabetically
Uut of Date Result Text	Show cell choice list
Italic Bold Color: Text Color	Disable workscreen tree
Input All Dialog	Send To
Show advanced row settings in dialog	Email Client: Default Email Client 🗸
Open to last tab displayed in dialog (advanced)	Custom: Edit
	OK Cancel Help

MORE IN-DEPTH FEATURES

Multiple Instances and Multiple Monitors

Content Panes can be unpinned and moved to a second monitor



File > Options > User Settings

)	07 - Detailed LCC Estima	ate.acex - All Columns (BY2019\$K) - ACE 8.0
Info	Ontions	User Settings
New	options	
Open	General	Session Explorer
Save	Inflation	Numbering in WBS tree: r
Save As	Format	Maximum number of items in recent list: 20
Close	Variable Types	
	Advanced	Autocomplete
Print	User Settings	When to display: Automatically when typing *
e & Send		Paste parameters to functions and UDFs:
Options		Display
		Themes: Light Gray+ (Office 2013 Light Gray) *
Help		Chart palette: Metro *
Exit		Show animations: 🗹
		Hidden content panes: Show Floating *
		On main pane sheets: 🔽
		In Session Explorer: 🗹
		Sheet hierarchy indent:
		Editing
		Move on Enter: Down *
		Header drag behavior: Drag rows/columns to move or copy *
		Show choice list drop-down in Input Sheet cell:



ACE 7.5						A	CE 8.0		
				MORE IN-DEPT	H FEAT	URES			
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* BY Summary Se	ection	e. Castian	CES Description		*RI\$K1	Toggle and Metrics	ĻJ _₹	Row	WBS/CES De
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*Turn RI\$K On/O	ff		Summary Section		*INPUT	T VARIABLES		60	
*Estimate					RDT&E			70	Contractor P
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Catagory Columns

TRANSITIONING FROM ACE 7.5 TO 8.0

ACE 7.5

ACE 8.0

MORE IN-DEPTH FEATURES

category columns											
Service	Funding Source	Funding WBS Theater MDEP Expans									
	Edit Categ	Edit Category Column X									
	Enter uniq	Enter unique Category column title:									
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DECs

Create using Columns > Add DEC

Add New DEC	×
Column Title:	TechWeight
Column Description:	^
Column Identifier	Y
Unique ID: Wgt	Search ID List
	nange all instances of old ID to new ID?
Cell Content Normal - Colum Cost - Column H Comment - Colu Date - Column I	n holds non-cost data and/or equations iolds cost data and/or equations imn holds comments and text that is not evaluated iolds dates of the form DDMMMYYYY
Parent 'Roll-Up' Be Sum up results Do not sum up Store the minim Store the maxin	havior of children into their parents results of children (leave parents empty/zero) um of all children into their parents num of all children into their parents
Show in IRV "B	Y DEC Results'' View

Category Columns and DEC columns merged into Custom Columns Custom Columns

Input Form - Custom C	olumns 🔻 Inpu	t Sheet - Methodology 🔻	Results - Phased Costs	▼ Overrides - RI\$K ▼
Title: Contractor B				
Unique ID:	CES#:	WBS#:	PE Value: \$	526.255
Column Title 🔿	Column ID	Tag Type	Value	Group by: None
Approp Reportable BY	AppnRBY	Text		*
Comments	Comments	Comment		
Counter	Count	Non-cost	2	fx
Funding Source	Funding	Text		-
Service	Service	Text	Joint	•
TechWeight	Wgt	Non-cost	2300	fx
WBS Summary	WBS	Text		*

Custom Columns – Non-cost, Cost, Text, Date, Comment types Create using Columns > Add Custom Column

Add Custom Column	() L, X
Column Title:	TechWeight
Unique ID:	Wgt
Column Description:	
Tag:	
Custom Column Typ	e:
Non-cost - Colu	imn holds non-cost data and/or equations
🔿 Cost - Column	holds cost data and/or equations
🔿 Text - Column H	holds text that can be used for filtering
🔿 Date - Column	holds dates of the form DDMMMYYYY
O Comment - Col	umn holds comments and text that is not evaluated
Calculation Behavior:	· · · · · · · · · · · · · · · · · · ·
Sum up results of chi	ldren into their parents *
Show in custom co	lumn results
	OK Cancel



ACE 7.5

ACE 8.0



Overrides (Main Pane tab) Phased, Total/Year, RI\$K Use Cases Pane to create/select case Image: Construction Functions Reports Overrides (Construction Functions Reports Overrides Construction Functions Function

FILE HOME LAYOUT CONSTRU	JCTION FUNCTIONS	REPORTS OVER	RIDES					~ 👩
Image Image	xt Value 🔍 Next Row evious Value 💣 Previous F Find Override	Row From 201 To 203 Include Prior / To Year Range	4 ~ 5 ~ Complete	Freeze Column				
Session Explorer - Estimate 4	Columns Ing	out Sheet - Methodolog	ay ▼ Re	sults - Phased C	osts 🔻 📘	Overrides - F	vhased 🔻	
	Row WBS	/CES Description	FY 20	20 FY 2021	FY 2022	FY 2023	FY 2024	
-229: *Production Cost Inputs	237 4 *Production Quan	tity Inputs						
-230: Transportation Unit Cost	238 A Total Air Vehicle	e Buy Quantity						
-231: *Block Buy Unit Cost Pric	239 Air Force Bu	v Quantities						
-232: Block Buy Quantity Limit	240 Low Rate	Initial Production						
-233: Block Buy Cost at Quanti	241 Full Rate I	Production		15 25	50	25		
-234: GS Support pay rate per	242 Army Buy Qu	uantities						
-235: Ground Station Hardwar	243 Low Rate	Initial Production						741
236: Ground Station Transpor	244 Full Rate I	Production						
237: *Production Quantity Inputs	245 Army Transp	ortable Ground Station Quan	ity					Ŧ
🖹 238: Total Air Vehicle Buy Qua	4							•
-239: Air Force Buy Quantit	Casaa							2
-240: Low Rate Initial Pr	Cases							- <u> </u>
-241: Full Rate Production	+ 🗙 🗈 👒 🔍	5						0
242: Army Buy Quantities 243: Low Rate Initial Pr	Ca	se Name	Compare	Time Last Calcula	ted		Description	
-244: Full Rate Production	Point Estimate							
245: Army Transportable C	S Lower Cost Propuls	sion			Lower	Propulsion	T1 Cost	
-246: *Initial Spares Calculatio	New APF Budget and APF Budget APF Budget and APF Budget and APF Budget and APF Budget and APF	nd AF Buy Quantities			Overri	ide APF Budg	get row to	slip m
-247: Number of Initial Spares	Propulsion and O&	S Mods			Overri	ides to NREC	complexit	ty fact
-248: Number of Initial Spares					Overri	ides to NREC	complexit	ty fact
-249: GS Support people per y	Higher Uncertainty				Increa	sed uncerta	inty on Pro	ducti
= 250: *Production Factor Inputs 🔍					_			
	1							Þ
Estimate Traceback	Error Log Cases Visu	alization References						
eady					3		+	100%

* Some case names revised in the ACE 8.0 example files

- E X



ACE 7.5

ACE 8.0

Traceback Navigator Shows immediate Predecessors and Successors Traceback Navigator (07 - Detailed LCC Estimate.aces) X _ 77: Propulsion Row: \sim Copy Contents Case: Point Estimate \sim Arrange Columns... 2 0 Clear History Help Print Report... View Calc Details... Description ID ~ Equation - 📲 77: Prop 🖃 🔄 Equation PropMnth\$ * DevDuration * NRPropComplex 17: Propulsion DevStartDate - Start Date aStartDate 🗐 Finish Date aFinishDate DevEndDate - Predecessors 01JUL2012 - □ 170: Development Start Date DevStartDate 171: Development Duration (Months) DevDuration 40 172: Development End Date DevEndDate DATEADD(DevStartDate, 0, DevDuration, 0) 200: Propulsion Monthly Cost PropMnth\$ PropT1\$ / DevDuration 220: Nonrecurring Development - ... NRPropComplex 1.35 E Successors - 5: Air Force SUMIF(CAT("APPN"), "RDTEF", @RDTE\$) 🗐 19: Air Force SUMIF(CAT("APPN"), "RDTEF", @RDTE\$) -🖹 33: Air Force SUMIF(CAT("APPN"), "RDTEF", @RDTE\$) < >

DEBUGGING

Session Explorer Traceback Mode

Open with References and Successors Panes Traceback shows complete drill down for current row



References Pane *Shows immediate predecessors*

Referen	References - Rows used by Propulsion 🛛 🕄 🖻 🛪											
😰 📖 🔸 💑 🛺 -												
Row	WBS/CES Description	Approp	Unique ID	Equation	Result	Used In						
202	Propulsion Monthly Cost	APF	PropMnth\$	PropT1\$/DevDuration	\$ 13.160	Equation / Throughpu						
172	Development Duration (Months)		DevDuration	40	40	Equation / Throughpu						
224	Nonrecurring Development-Propulsion Cor		NRPropComplex	1.35	1	Equation / Throughpu						
171	Development Start Date		DevStartDate	01Jul2015	01JUL2015	Start Date						
173	Development End Date		DevEndDate	d(DevStartDate,0,DevDuration,0)	01NOV2018	Finish Date						
4						Þ						
Referer	ces Successors Favorite Rows Cases Vis	ualization	Error Log									

Successors pane Shows immediate successors

Succes	uccessors - Rows that use Propulsion 🖸 🖸 🗙												
😰 💷 🔶 🔝 🗌 Show Column Referen									es 🥹				
Row	WBS/CES	Description	L.	Jnique ID		Equation	Located In	Result					
5	Air Force				Sumi	f(Appn, "RDTEF", @RDTE\$) Equation / Throughput	\$ 59,747.930					
19	Air Force				Sumi	f(Appn, "RDTEF", @RDTE\$) Equation / Throughput	\$ 58,749.194					
33	Air Force				Sumi	f(Appn, "RDTEF", @RDTE\$) Equation / Throughput	\$ 58,490.391					
73	Air Vehicle			RDTEAV\$		Sum of childrer	Parent	\$ 6,696.175					
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ACE 7.5

ACE 8.0

ERROR LOG

Error Log - 07 - Detailed LCC Estimate.aces (BY2016\$K) X								
0 Unused Va	r 🛛 🕄 7 Info	rmation 🔒 1	Warning 📀 0 Fatal					
Error Code	Row #	Severity	Description	Colum				
NHZ891	92	Warning	BY method used without fiscal year or units specified.	Equation				
🗓 INF 122		Information	Not using most recent system inflation table.	Equation				
🗓 RSK726	53	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
🗓 RSK726	54	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
1 RSK726	56	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
🗓 RSK726	57	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
🗓 RSK726	59	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
3 RSK726	60	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation				
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et as Default			Goto Error Copy Close	Help				

Error Log - 8	total				C3 (2
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Error Code 🛛 🔻	Row# T	Severity T	Description T	Column Name 🛛 🔻	Case 🛛 🛪
PHZ891	91	Warning	BY method used without fiscal year or units specified.	Equation / Throughput	
INF122		Information	Not using most recent system inflation table.	Equation / Throughput	Point Estimate
RSK726	53	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate
RSK726	54	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate
RSK726	56	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate
RSK726	57	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate
RSK726	59	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate

Additional option to hide selected warnings and info messages

Error Log - 8	Error Log - 8 total										
😢 O Fatal	! 1 Warn	ing 🕕 6 In	formation	🖲 1 Hidden Types	۵ 🔸 🕲	0					
Error Code	Row # T	Severity T	Description T	Column Name 🛛 🔻	Hide the calected	A creat(c)					
PHZ891	91	Warning	BY method used without fiscal year or units specified.	Equation / Throughput	Thide the selected t	enor(s).					
RSK726	53	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate						
RSK726	54	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate						
RSK726	56	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate						
RSK726	57	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate						
RSK726	59	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate						
RSK726	60	Information	Referenced row contains no RI\$K statistics (using baseline).	Equation / Throughput	Point Estimate	7					
References	Successors	Favorite Ro	ws Cases Visualization Error Log		· · ·	e					