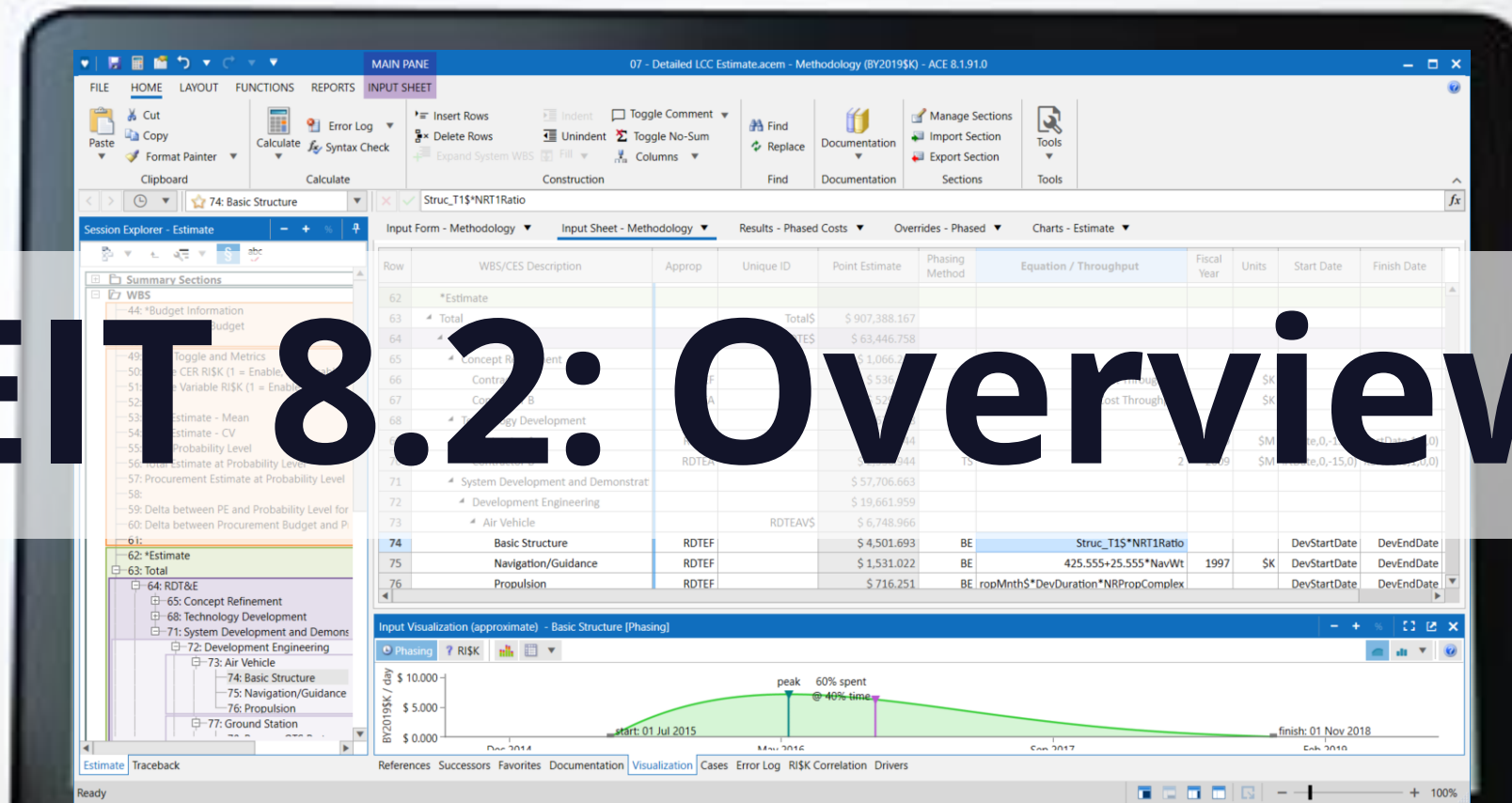
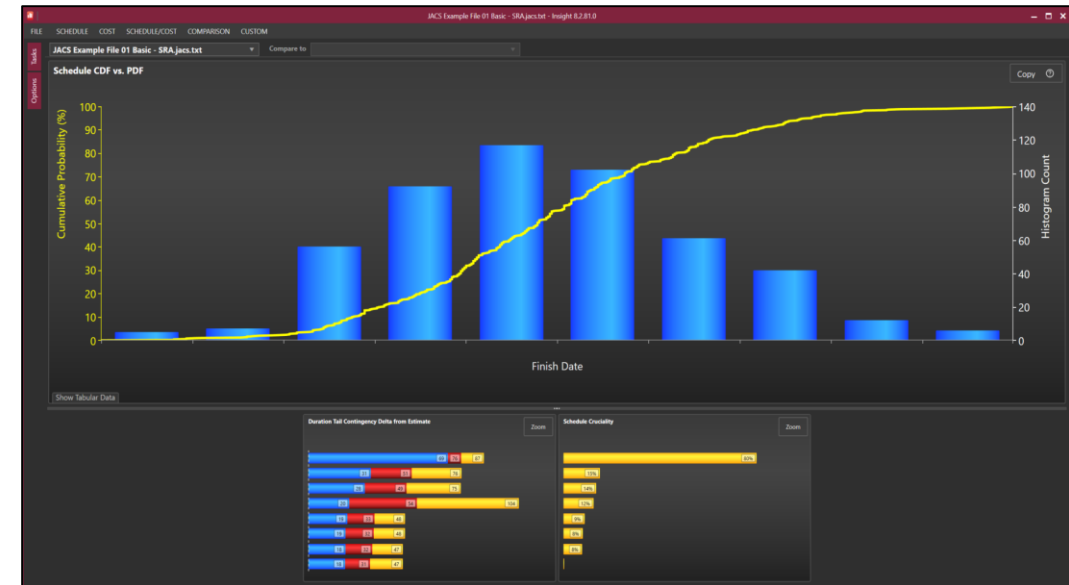
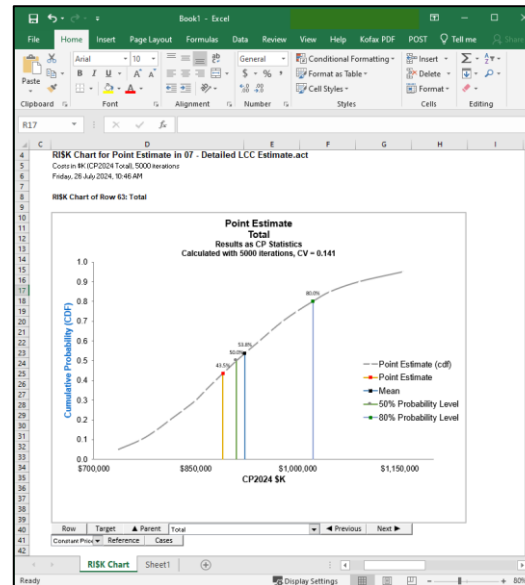
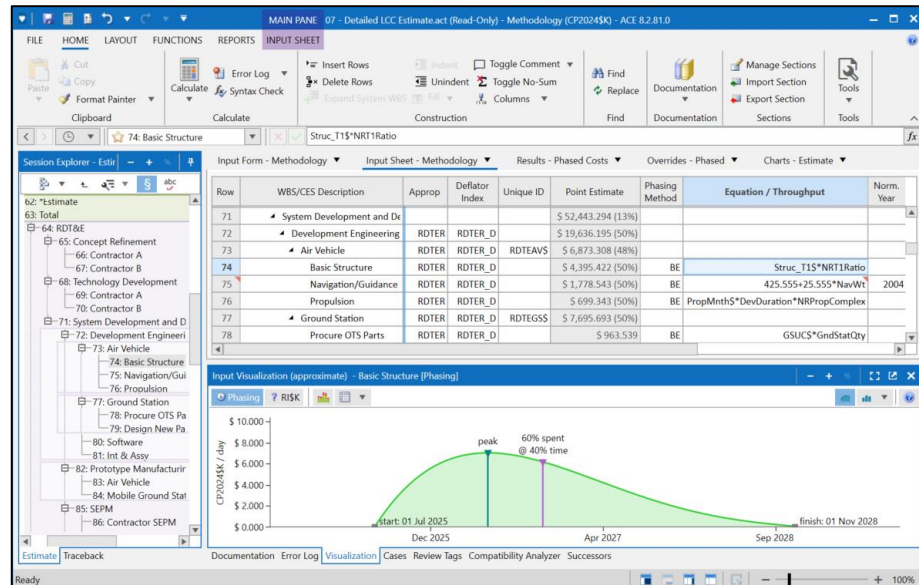


ACEIT 8.2: Overview



Do you understand ^{All} the costs of your project?

- **ACEIT** is a cost-estimating suite consisting of ACE, CO\$TAT, POST and JACS offering full program life cycle support. It is the premier tool for analyzing, developing, sharing, and reporting cost estimates, providing a framework to standardize the estimating process.
- **ACEIT** is not a black-box estimator. It offers robust model-building tools for developing high quality cost estimates with uncertainty.



ACEIT: Designed to Support Best Practices

Since the 1980's, ACEIT has been designed to...










Provide a **standardized framework** to support estimating processes for US Government and other organizations



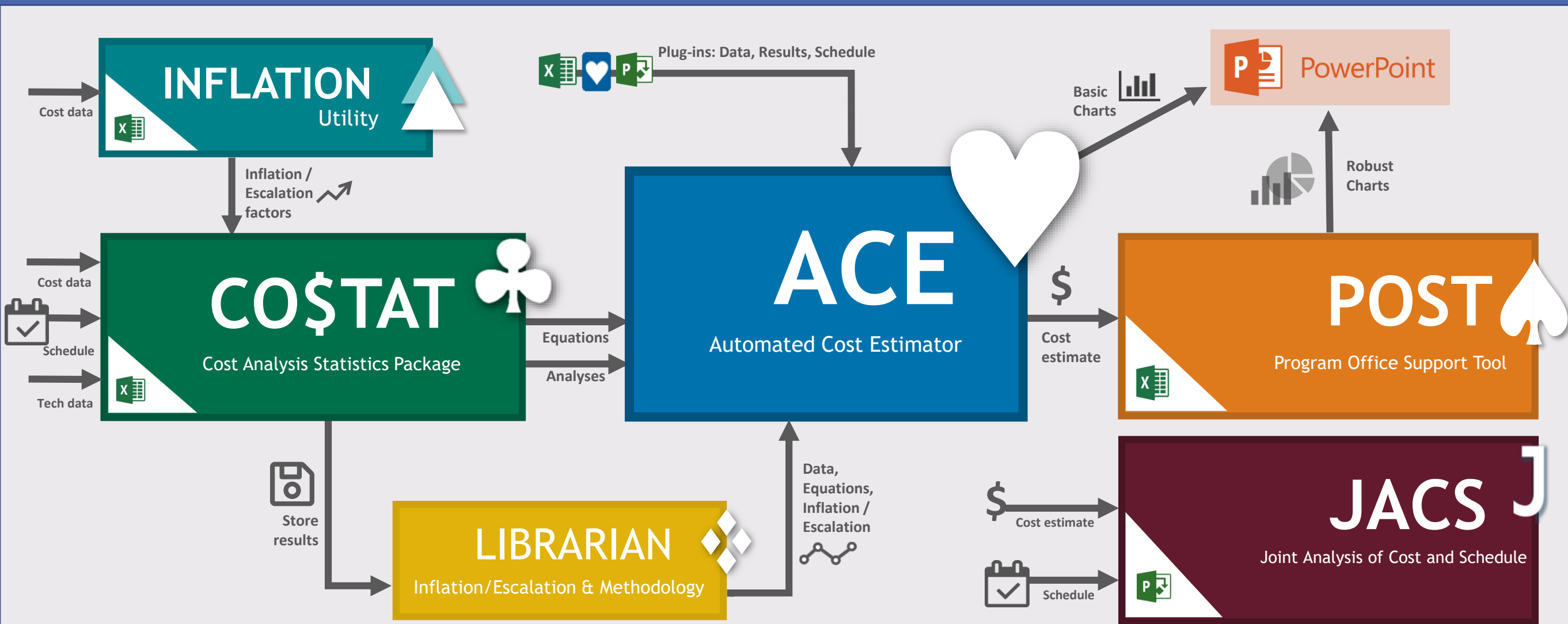
Support cost analysts to follow **established best practices** with analysis, model development, uncertainty, and reporting

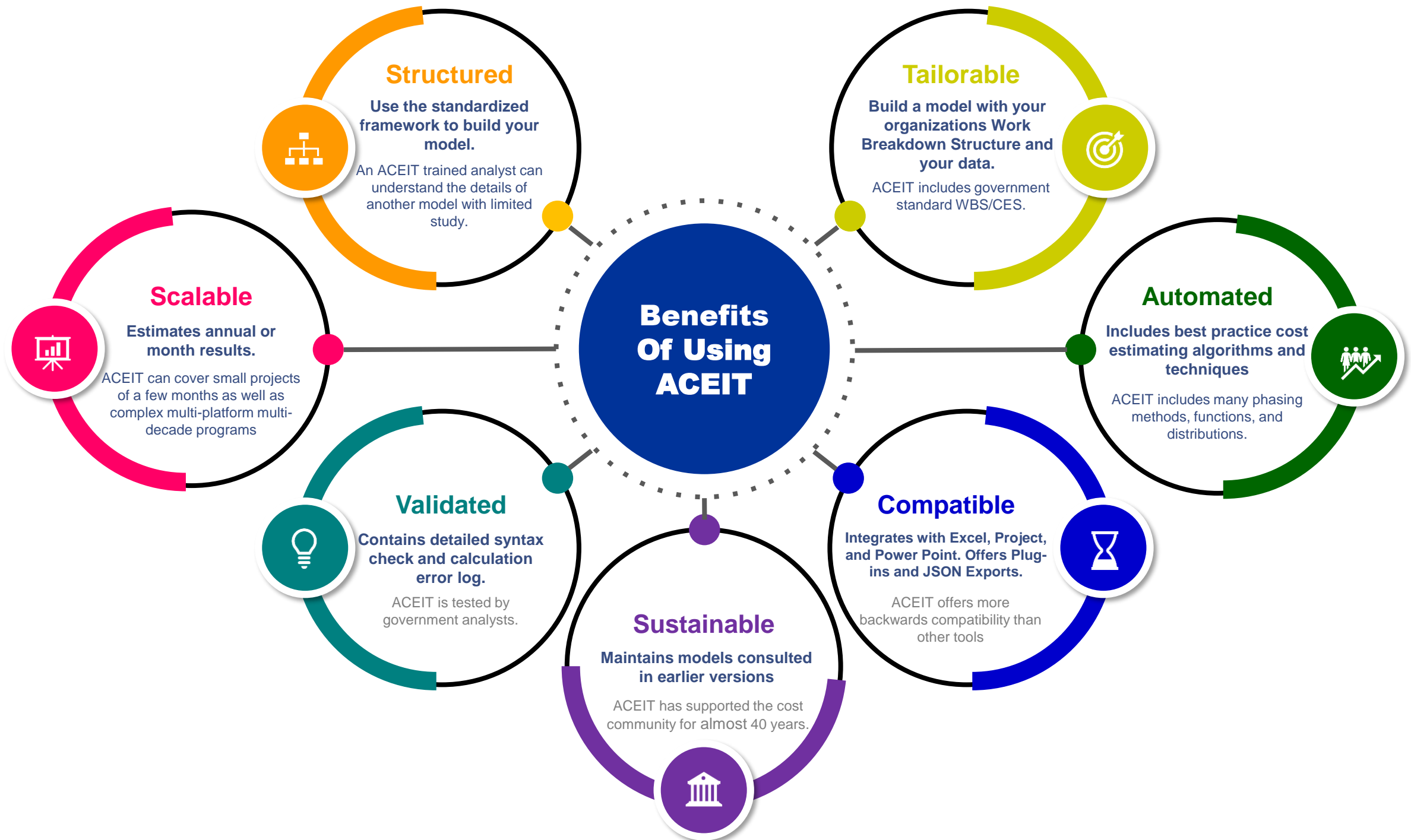
Developed by cost analysts for cost analysts

Automated Cost Estimator and Integrated Tools

  ACE	 CO\$TAT	 POST	 INFLATION	 JACS	 LIBRARIAN
<u>Automated Cost Estimator</u> <ul style="list-style-type: none">• build a robust, accurate, and defensible cost model• includes inflation/escalation, learning, phasing, uncertainty, documentation, and other essential cost estimating processes	<u>Cost Statistics</u> <ul style="list-style-type: none">• perform cost estimating statistics and regression analysis	<u>Program Office Support Tool</u> <ul style="list-style-type: none">• automate what-if drills• charts/tables from Excel• Includes automated transfer of results to PowerPoint	<u>Inflation Utility</u> <ul style="list-style-type: none">• access latest ACEIT-provided government inf/esc indices in Excel	<u>Joint Analysis of Cost and Schedule</u> <ul style="list-style-type: none">• perform cost and schedule analyses• Utilizes the schedule logic and framework of MS Project or P6 with ACEIT engine for processing	<u>Inflation and Methodology</u> <ul style="list-style-type: none">• manage and share custom inf/esc indices and CER Libraries
Full suite provides a complete solution					

ACEIT 8.2 Architecture





ACE: Automated Cost Estimator



Workspace

- ✓ Session Explorer
- ✓ Main Pane
- ✓ Content Panes
- ✓ Reports

Main Pane

- ✓ Input Form - Methodology, RI\$K, Custom Columns
- ✓ Input Sheets - Methodology, WBS/CES, Learning, RI\$K
- ✓ Results - Phased, Total, RI\$K, Custom Columns
- ✓ Overrides - Phased, Total, RI\$K, Custom Columns
- ✓ Charts – Estimate, Comparative, RI\$K, Analysis

Session Explorer

- ✓ Estimate Tree
- ✓ Model Sections
- ✓ Data Tables
- ✓ Milestone Phasing
- ✓ Custom RI\$K CDF
- ✓ Model Traceback

Content Panes

- ✓ Documentation
- ✓ Favorites
- ✓ Error Log
- ✓ Cases
- ✓ References
- ✓ Successors
- ✓ Drivers
- ✓ Visualization
- ✓ Revision Log
- ✓ Calculation Log
- ✓ Calculation Details
- ✓ Chart Data
- ✓ RI\$K Correlation
- ✓ Compatibility Analyzer
- ✓ Review Tags
- ✓ Watch Windows

Reports

- ✓ Phased
- ✓ Narrative
- ✓ Learning
- ✓ RI\$K Statistics
- ✓ Inflation/Escalation
- ✓ Documentation
- ✓ What-if
- ✓ Delta
- ✓ Input Sheet
- ✓ Cost Category
- ✓ Budgetary
- ✓ Data Table
- ✓ Cost Comparison
- ✓ Executive Summary
- ✓ More

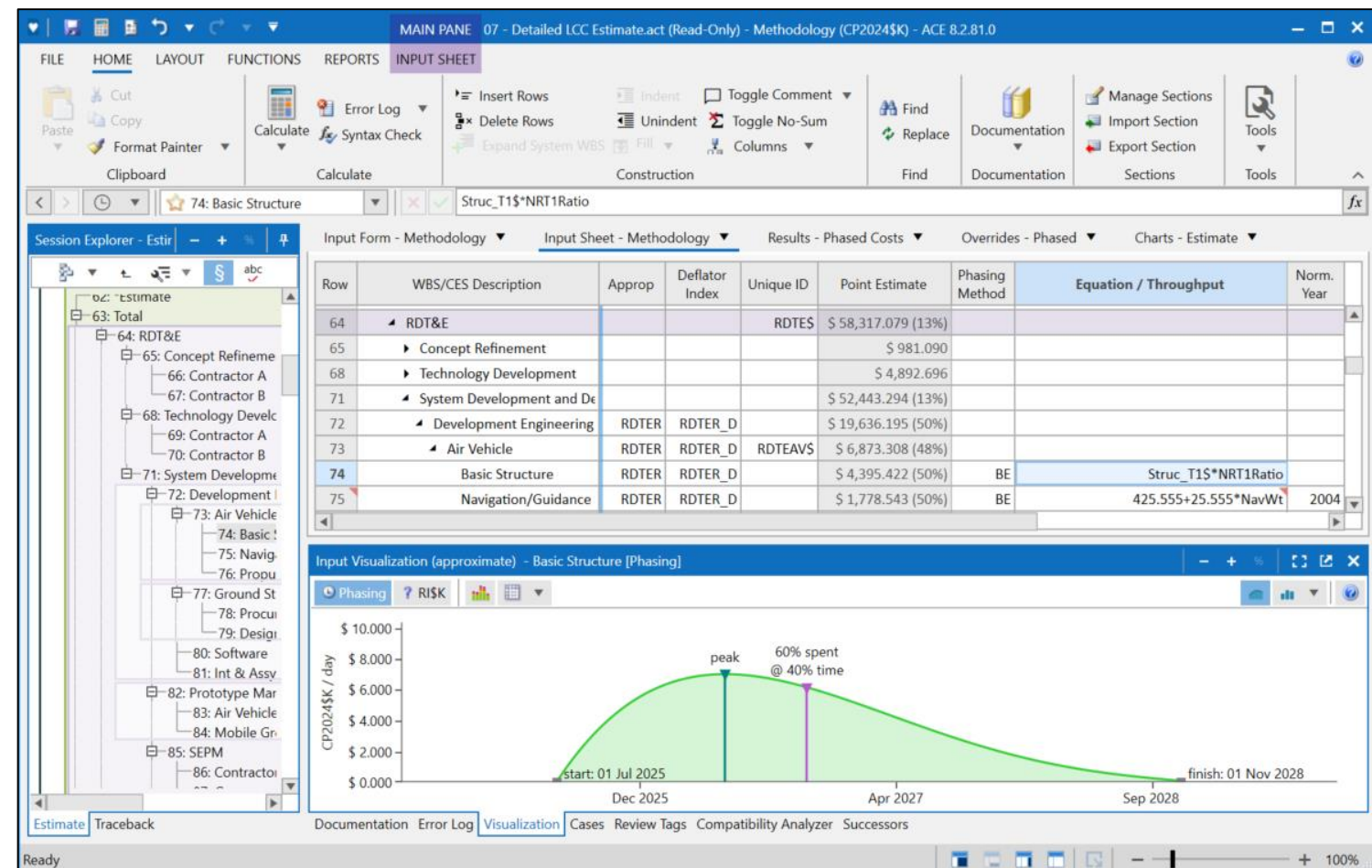
Other

- ✓ Phasing Methods
- ✓ Cost Types
- ✓ Sunk Costs
- ✓ Functions
 - ✓ ACE Specific
 - ✓ Date
 - ✓ Economic Analysis
 - ✓ Inf/Esc
 - ✓ Logic
 - ✓ Math
 - ✓ Matrix
 - ✓ Operational RI\$K
 - ✓ Time Phased
- ✓ Uncertainty RI\$K
- ✓ Plug-ins
- ✓ Session Analyzer

ACE is a Structured Estimating Platform

Structured framework to build consistent cost estimating models that span the entire analysis process

- Generate a WBS/CES
- Enter estimating inputs and Methodologies
- Document within the structure
- Store data in data tables
- Integrate uncertainty analysis
- Generate results in various cost types
- Conduct what-ifs
- Make reports
- Generate charts



Configure the Workspace

Tailorable workspace: Arrange panes on multiple monitors

Session Explorer

Input Sheet

Content Panes

Results

The software interface is shown on two monitors. The left monitor displays the Session Explorer (a tree view of project structure), the Input Sheet (a table with columns for Row, WBS/CES Description, Approp, Deflator Index, Unique ID, Point Estimate, Phasing Method, and Equation / Throughput), and the Content Panes (a graph showing project progress over time). The right monitor displays the Results pane, which shows a table of project costs over time.

Row	WBS/CES Description	Total: Point Estimate	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
63	Total	\$ 889,652.446	\$ 1,793.666	\$ 3,360.627	\$ 21,846.986	\$ 35,359.625	\$ 34,950.014	\$ 24,205.5
64	RDT&E	\$ 58,317.079	\$ 1,793.666	\$ 3,360.627	\$ 21,846.986	\$ 17,468.564	\$ 13,360.792	\$ 486.4
65	Concept Refinement	\$ 981.090	\$ 981.090					
68	Technology Development	\$ 4,892.696	\$ 466.249	\$ 2,474.853	\$ 1,951.594			
71	System Development and D	\$ 52,443.294	\$ 346.327	\$ 885.775	\$ 19,895.391	\$ 17,468.564	\$ 13,360.792	\$ 486.4
72	Development Engineering	\$ 19,636.195	\$ 287.905	\$ 9,019.472	\$ 6,885.917	\$ 3,336.722	\$ 106.1	
73	Air Vehicle	\$ 6,873.308	\$ 287.832	\$ 3,536.128	\$ 2,488.853	\$ 558.133	\$ 2.3	
74	Basic Structure	\$ 4,395.422	\$ 184.066	\$ 2,261.324	\$ 1,591.600	\$ 356.921	\$ 1.5	
75	Navigation/Guidance	\$ 1,778.543	\$ 74.480	\$ 915.011	\$ 644.018	\$ 144.423	\$ 0.6	
76	Propulsion	\$ 699.343	\$ 29.286	\$ 359.793	\$ 253.235	\$ 56.789	\$ 0.2	
77	Ground Station	\$ 7,695.693		\$ 4,201.668	\$ 3,225.568	\$ 268.458		
78	Procure OTS Parts	\$ 963.539		\$ 526.070	\$ 403.857	\$ 33.612		
79	Design New Parts	\$ 6,732.154		\$ 3,675.598	\$ 2,821.711	\$ 234.846		
80	Software	\$ 2,881.844	\$ 0.073	\$ 1,281.677	\$ 1,178.496	\$ 428.599		
81	Int & Assy	\$ 2,185.350				\$ 2,081.532	\$ 103.8	

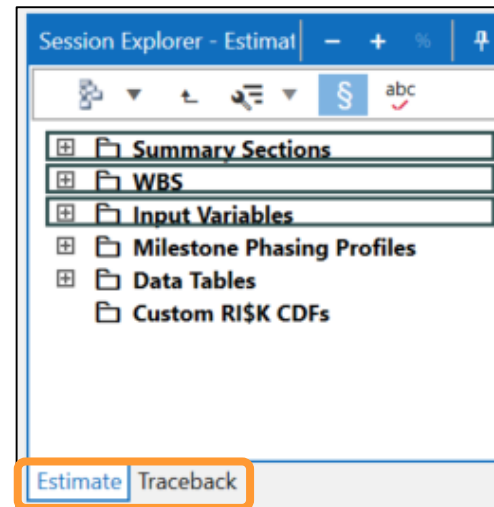
Explore the Session

Use the Session Explorer to understand the detail of an estimate

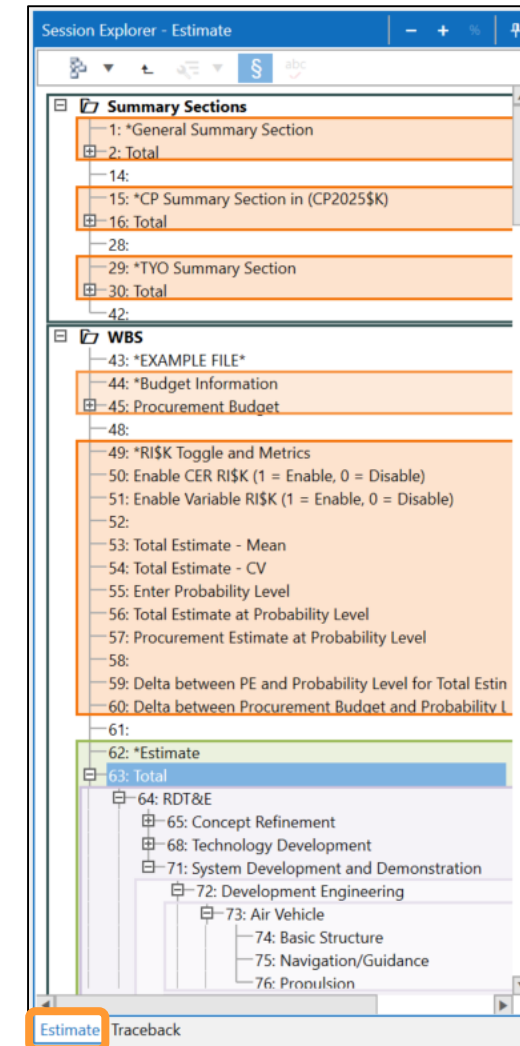
Session is organized into five major sections

Provides two modes to explore the session:

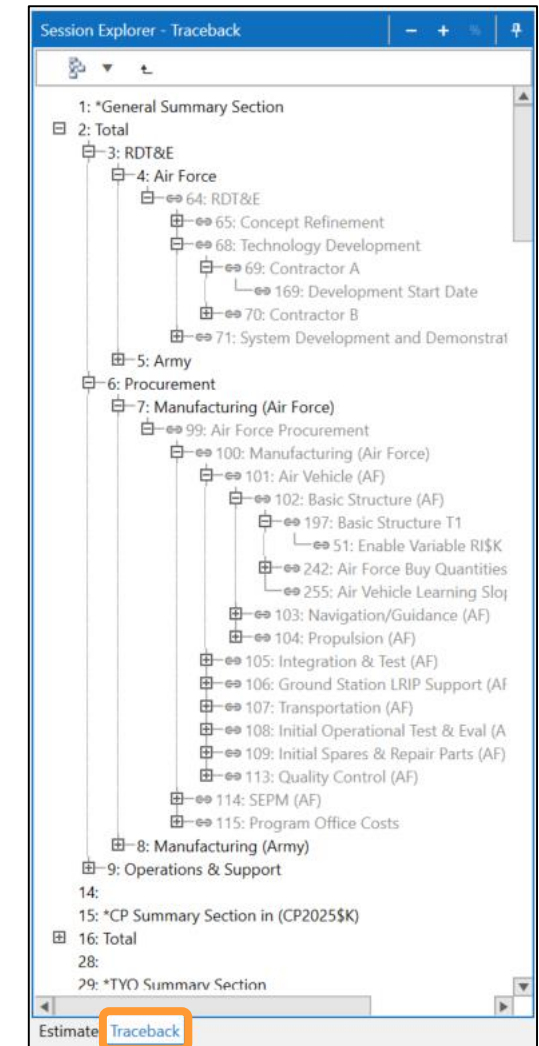
- **Estimate** - View session WBS tree
- **Traceback** - Assist with tracing the logical row connections in the model



Estimate



Traceback



Construct the Estimate

Enter data, equations, methods and inputs from the Input Form or Input Sheet

- Input forms **guides** less experienced cost estimators through Methodology and RI\$K entry
- Input sheets offer extensive data entry capability across rows; **build large models quickly**

Input Form

Input Form - Methodology ▾ Input Sheet - Methodology ▾ Results - Phased Costs ▾ Overrides - Phased ▾ Charts - Estimate ▾

Title: Design New Parts

Unique ID: CES#: WBS#: PE Value: \$ 6,732.154 (50%)

Equation/Value

4500*GSCComplex

\$ Approp: RDTER ▾ Deflator Index: RDTER_D ▾ Norm. Year: 2017 ▾ Units: \$K ▾

Start Date: DateAdd(DevStartDate,0,0,120) Finish Date: DateAdd(aStartDate,0,30)

Spent (%): 60

Time (%): 40

Peakness: Medium ▾

Status: Complete

Calculate: Annual ▾ Lead/Lag: None

RISK Specification: Form=Normal, PE=Mode, Spread=Low, GrpID=GroundCosts, GrpStr=0.8367, Enabled=CERRISK, Seed=700130

Equation/Value

Beta Curve

Weibull

Rayleigh

Trapezoid

Percent

Milestone

Input Sheet

Row	WBS/CES Description	Approp	Deflator Index	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Norm. Year	Trans. Year	Units
62	*Estimate									
63	Total			Total\$	\$ 889,652.446 (43%)					
64	RDT&E			RDTE\$	\$ 58,317.079 (13%)					
65	Concept Refinement				\$ 981.090					
66	Contractor A	RDTER	RDTER_D		\$ 491.593	TYO	[Cost Throughput]			\$K
67	Contractor B	RDTEW	RDTEW_D		\$ 489.497	TYO	[Cost Throughput]			\$K
68	Technology Development				\$ 4,892.696					
69	Contractor A	RDTER	RDTER_D		\$ 2,455.890	TC		2	2016	\$M
70	Contractor B	RDTEW	RDTEW_D		\$ 2,436.806	TS		2	2016	\$M
71	System Development and Der				\$ 52,443.294 (13%)					
72	Development Engineering	RDTER	RDTER_D		\$ 19,636.195 (50%)					
73	Air Vehicle	RDTER	RDTER_D	RDTEAV\$	\$ 6,873.308 (48%)					
74	Basic Structure	RDTER	RDTER_D		\$ 4,395.422 (50%)	BE	Struc_T1\$*NRT1Ratio			
75	Navigation/Guidance	RDTER	RDTER_D		\$ 1,778.543 (50%)	BE	425.555+25.555*NavWt	2004		\$K
76	Propulsion	RDTER	RDTER_D		\$ 699.343 (50%)	BE	PropMnth\$*DevDuration*NRPropComplex			
77	Ground Station	RDTER	RDTER_D	RDTEG\$	\$ 7,695.693 (50%)					
78	Procure OTS Parts	RDTER	RDTER_D		\$ 963.539	BE	GSUC\$*GndStatQty			
79	Design New Parts	RDTER	RDTER_D		\$ 6,732.154 (50%)	BE	4500*GSCComplex	2017		\$K
80	Software	RDTER	RDTER_D	RDTEWS\$	\$ 2,881.844 (50%)	MS	SWLab\$*SWManMonths			

View Results

View estimate results with uncertainty in the Results, Overrides, and Charts Panes

- View Results for Phased, Total, RISK and Custom Columns
- Add Cases and then conduct What-if drills on total, time phased, and custom columns from Overrides
- Use the Charts to view case results with and without uncertainty and compare what-if cases

Results

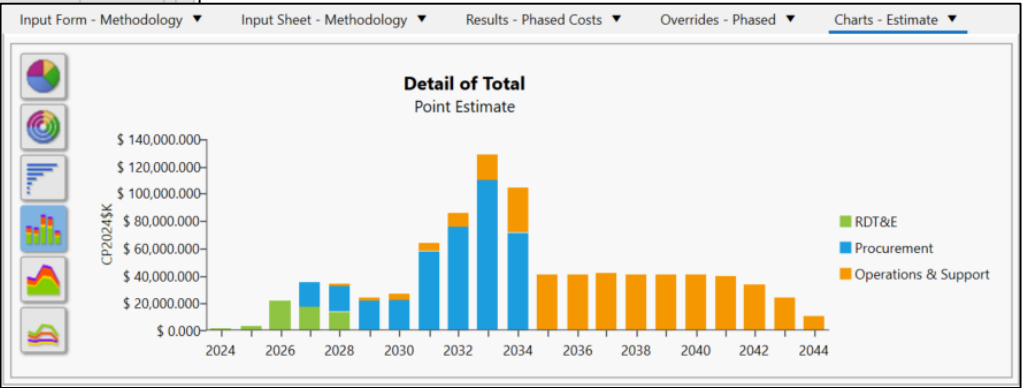
Input Form - Methodology ▼ Input Sheet - Methodology ▼ Results - Phased Costs ▼ Overrides - Phased ▼ Charts - Estimate ▼								
Row	WBS/CES Description	Total: Point Estimate	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
63	▲ Total	\$ 889,652.446 (43%)	\$ 1,793.666	\$ 3,360.627	\$ 21,846.986	\$ 35,359.625	\$ 34,950.014	\$ 24,205.510
64	▲ RDT&E	\$ 58,317.079 (13%)	\$ 1,793.666	\$ 3,360.627	\$ 21,846.986			
65	▲ Concept Refinement	\$ 981.090	\$ 981.090					
66	Contractor A	\$ 491.593	\$ 491.593					
67	Contractor B	\$ 489.497	\$ 489.497					
68	▲ Technology Development	\$ 4,892.696	\$ 466.249	\$ 2,474.853	\$ 1,951.594			
69	Contractor A	\$ 2,455.890	\$ 190.190	\$ 1,242.413	\$ 1,023.287			
70	Contractor B	\$ 2,436.806	\$ 276.059	\$ 1,232.440	\$ 928.307			
71	▲ System Development and	\$ 52,443.294 (13%)	\$ 346.327	\$ 885.775	\$ 19,895.393			
72	▲ Development Engineeri	\$ 19,636.195 (50%)		\$ 287.905	\$ 9,019.472			
73	▲ Air Vehicle	\$ 6,873.308 (48%)		\$ 287.832	\$ 3,536.128			

Overrides

Input Form - Methodology ▼ Input Sheet - Methodology ▼ Results - Phased Costs ▼ Overrides - Phased ▼ Charts - Estimate ▼						
Row	WBS/CES Description	Cost Interpretation	Total: Lower Cost	FY 2024	FY 2025	FY 2026
195	*RDT&E Cost Inputs					
196	▲ Air Vehicle T1		\$ 1,909.275			
197	Basic Structure T1		\$ 1,255.835			
198	Navigation/Guidance T1		\$ 160.590			
199	Propulsion T1	CP2020\$K	\$ 450.000			
200	Propulsion Monthly Cost		\$ 12.321			

Cases			
Case Name	Compare	Time Last Calculated	Description
Point Estimate	<input checked="" type="checkbox"/>	7/29/2024 11:16:41 AM	
Lower Cost Propulsion	<input type="checkbox"/>	7/29/2024 11:14:19 AM	Override propulsion unit cost with lower
New APF Budget and AF Buy Quantities	<input type="checkbox"/>	7/29/2024 11:14:32 AM	Override APF Budget row to slip money

Charts



Calculates using the WBS Hierarchy

Uses an indenture structure to sum lower level elements ensuring **proper calculation** of parent rows at all times

- Tree-view allows for expansion and collapse of model rows
- Easily insert new WBS rows without updating parent levels

Session Explorer - Estimate

Summary Sections

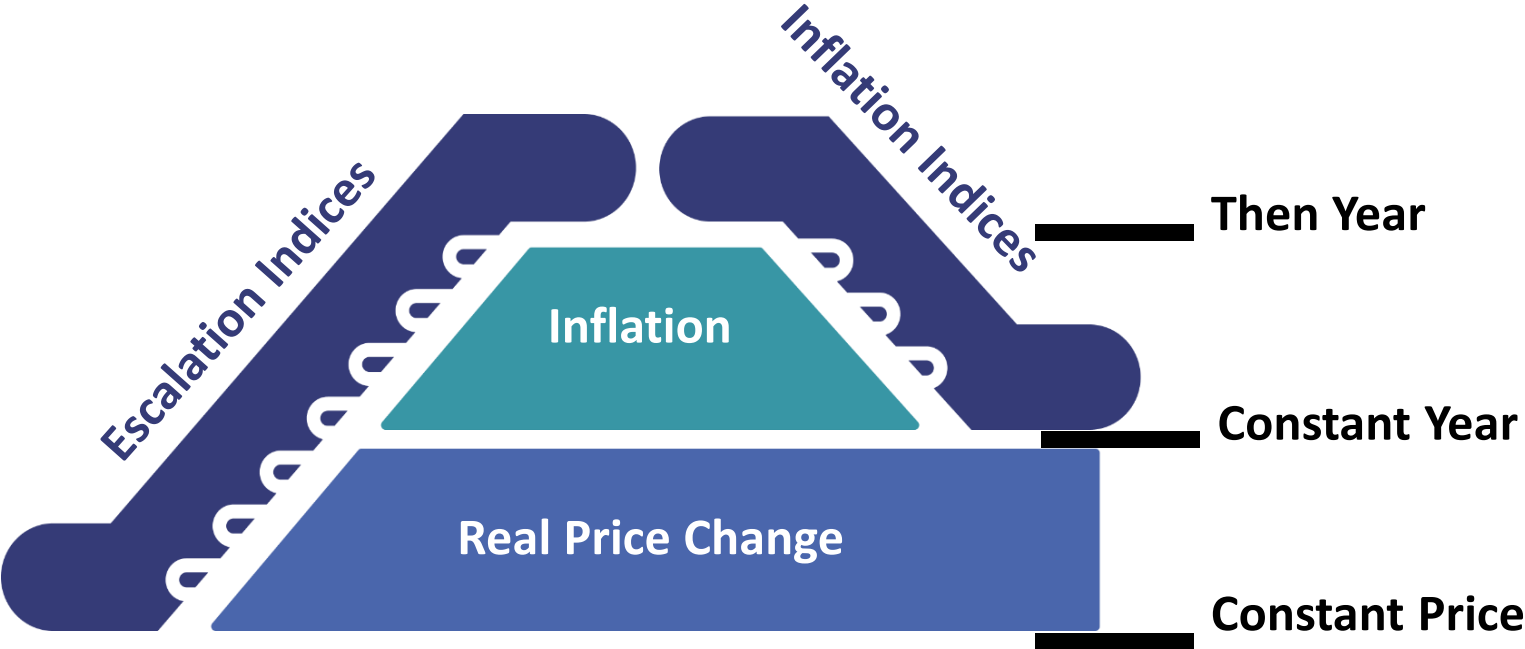
- WBS
 - 2: *Estimate
 - 3: Total
 - 4: Manufacturing
 - 5: Air Vehicle
 - 6: Integration & Test
 - 7: SEPM
 - 8: Program Office Costs
- Input Variables
 - 10: *Production Inputs
 - 11: *Cost Inputs
 - 12: Air Vehicle T1
 - 13: *Quantity Inputs
 - 14: Buy Quantity
 - 15: *Technical Inputs
 - 16: Air Vehicle Takeoff Weight (lbs)
 - 17: Air Vehicle Range (nmi)

Row	WBS/CES Description	Unique ID	Point Estimate	Equation / Throughput
	WBS			
2	*Estimate			
3	Total		\$ 58,016.272	
4	Manufacturing	Mfg\$	\$ 41,099.050	
5	Air Vehicle	AV\$	\$ 35,738.304	AV_UC\$*BuyQty
6	Integration & Test		\$ 5,360.746	0.15*AV\$
7	SEPM		\$ 15,206.648	0.37*Mfg\$
8	Program Office Costs		\$ 1,710.574	[Cost Throughput]

Parent row is always the sum of its children - no equation

Supports Escalation and Inflation Calculations

Supports Data Entry and Results in Constant Price, Then Year Obligations, Then Year Expenditures, Constant Year Obligations and Constant Year Expenditures



In ACE:

Escalation defined in **Approp** column

WBS/CES Description	Approp	Deflator Index
Basic Structure (AF)	APR	APR_D

Inflation defined in **Deflator Index** column

WBS/CES Description	Approp	Deflator Index
Basic Structure (AF)	APR	APR_D

Breakdown of a Session

Elements of the session that calculate the result

WBS – Row Hierarchy builds to create the estimate

1

Input Variables – Inputs needed to calculate the estimate

2

Unique ID – row identifiers used in equations

3

Equations/Throughput – equation or throughput used to calculate row

4

Row	WBS/CES Description	Approp	Deflator Index	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Norm. Year	Trans. Year	Units
1	WBS									
2	*Estimate									
3	Total				\$ 51,769.239 (37%)					
4	Manufacturing			Mfg\$	\$ 36,539.172 (49%)					
5	Air Vehicle	APR	APR_D	AV\$	\$ 31,773.193 (46%)	R	AV_UC\$			
6	Integration & Test	APR	APR_D		\$ 4,765.979 (63%)	FP	0.15*AV\$			
7	SEPM	APR	APR_D		\$ 13,519.494 (26%)	FP	0.37*Mfg\$			
8	Program Office Costs	APR	APR_D		\$ 1,710.574 (50%)	TYO	[Cost Throughput]			\$K
9										
10	*Production Inputs									
11	*Cost Inputs									
12	Air Vehicle T1	APR	APR_D	AV_UC\$	\$ 8,934.576 (46%)	C	(959*TW^.243+189*RANGE^.652)/2	2020		\$K
13	*Quantity Inputs									
14	Buy Quantity			BuyQty	4.000	IS	[Input Throughput]			
15	*General Inputs									
16	Air Vehicle Learning Slope			AVSlope	90.000	C	90			
17	*Technical Inputs									
18	Air Vehicle Takeoff Weight (TW	12,000.000 (25%)	C	12000			
19	Air Vehicle Range (nmi)			RANGE	250.000 (42%)	C	250			

Phasing Method – directs the cost phased calculation

5

Approp/Deflator – directs the normalization calculations

6

Point Estimate – the calculated total result for each row

7

Uncertainty Simulation Results – shows the probability level of each uncertain result

8

Includes automated methods and functions

Choose from an extensive library of phasing methods and functions to develop basic to complex estimates

- Phase Methods directs calculating costs over time while functions offer standard calculations

The screenshot displays the software's 'Input Form - Methodology' tab. At the top, there are navigation tabs: 'Input Form - Methodology', 'Input Sheet - Spread Total', 'Results - Phased Costs', 'Overrides - Phased', and 'Charts - Estimate'. The 'Input Form - Methodology' tab contains a 'Title' field with 'SEPM (Army)', and 'Unique ID', 'CES#', 'WBS#', and 'PE Value' fields with '\$ 0.000'. Below these are four method selection boxes: 'Periodic (Yearly/Monthly) Calculation or Constant', 'Time Phased (Yearly/Monthly) Inputs', 'Spread Total over Time Calculation', and 'Learning Curve Calculation'. Each box has a descriptive text below it. To the right, the 'FUNCTIONS' menu is open, showing a 'Function Library' with icons for 'ACE Specific', 'Date', 'Economic Analysis', 'Inflation / Escalation', 'Logic', 'Math', 'Matrix', 'Operational Life', 'RISK', 'Time Period', and 'Function Help'.

Input Form - Methodology | Input Sheet - Spread Total | Results - Phased Costs | Overrides - Phased | Charts - Estimate

Title: SEPM (Army)

Unique ID: | CES#: | WBS#: | PE Value: \$ 0.000

Periodic (Yearly/Monthly) Calculation or Constant

Specify an Equation/Value to be calculated periodically or a Constant value (cost, non-cost, or date).

Time Phased (Yearly/Monthly) Inputs

Specify time phased cost (CP, TY obs., TY exp., CY obs., or CY exp.) or non-cost values.

Spread Total over Time Calculation

Specify total value/equation, and how to spread it over time using Beta curve, Weibull, Rayleigh, Trapezoid, Percentages or Milestone phasing profile.

Learning Curve Calculation

Specify cost improvement curve parameters to calculate learning curve.

FILE | HOME | LAYOUT | **FUNCTIONS** | REPORTS | INPUT SHEET

ACE Specific | Date | Economic Analysis | Inflation / Escalation | Logic | Math | Matrix | Operational Life | RISK | Time Period | Function Help

Function Library

Store Documentation within your Estimate Files

- Enter documentation for any cell
- Create narrative reports from the embedded documentation
- Manage model-wide documentation for updates and review
- Attach documents to the session for further documentation

Input Form - Methodology ▾

Input Sheet - Methodology ▾

Results - Phased Costs ▾

Overrides - Phased ▾

Charts - Estimate ▾

Row	WBS/CES Description	Approp	Deflator Index	Unique ID	Point Estimate	Phasing Method	Equation / Throughput
71	System Development and Der				\$ 52,443.294		
72	Development Engineering	RDTER	RDTER_D		\$ 19,636.195		
73	Air Vehicle	RDTER	RDTER_D	RDTEAV\$	\$ 6,873.308		
74	Basic Structure	RDTER	RDTER_D		\$ 4,395.422	BE	Struc T1\$*NRT1Ratio
75	Navigation/Guidance	RDTER	RDTER_D		\$ 1,778.543	BE	425.555+25.555*NavWt
76	Propulsion	RDTER	RDTER_D		\$ 699.343	BE	PropMnth\$*DevDuration*NRPropComplex

Documentation - Row 75: Navigation/Guidance

Equation / Throughput

DEVELOPMENT CER - Navigation and Guidance Suite (Nonrecurring)

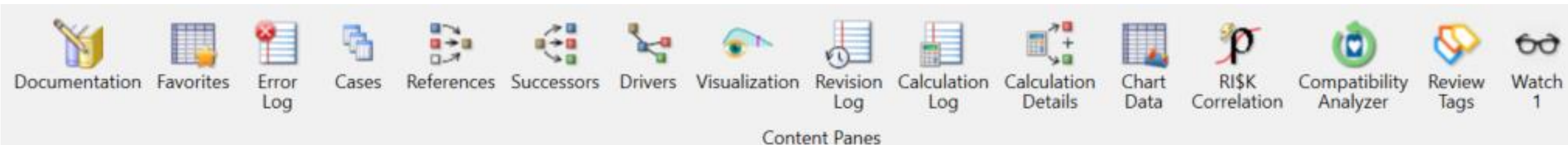
DESCRIPTION - This CER estimates the Navigation and Guidance Suite cost in thousands of FY04 dollars excluding fee. Cost is estimated as a function of the Navigation and Guidance Suite Weight.

This CER estimates Nonrecurring costs which are associated with all of the effort/activity of designing, developing, manufacturing and testing of a space vehicle qualification model. For those systems which use a proto-flight concept, nonrecurring costs include only that portion of the proto-flight costs which can be identified as nonrecurring. Additionally, the cost of acquiring program peculiar support equipment such as mechanical and electrical aerospace ground equipment (AGE) are also considered nonrecurring.

Documentation

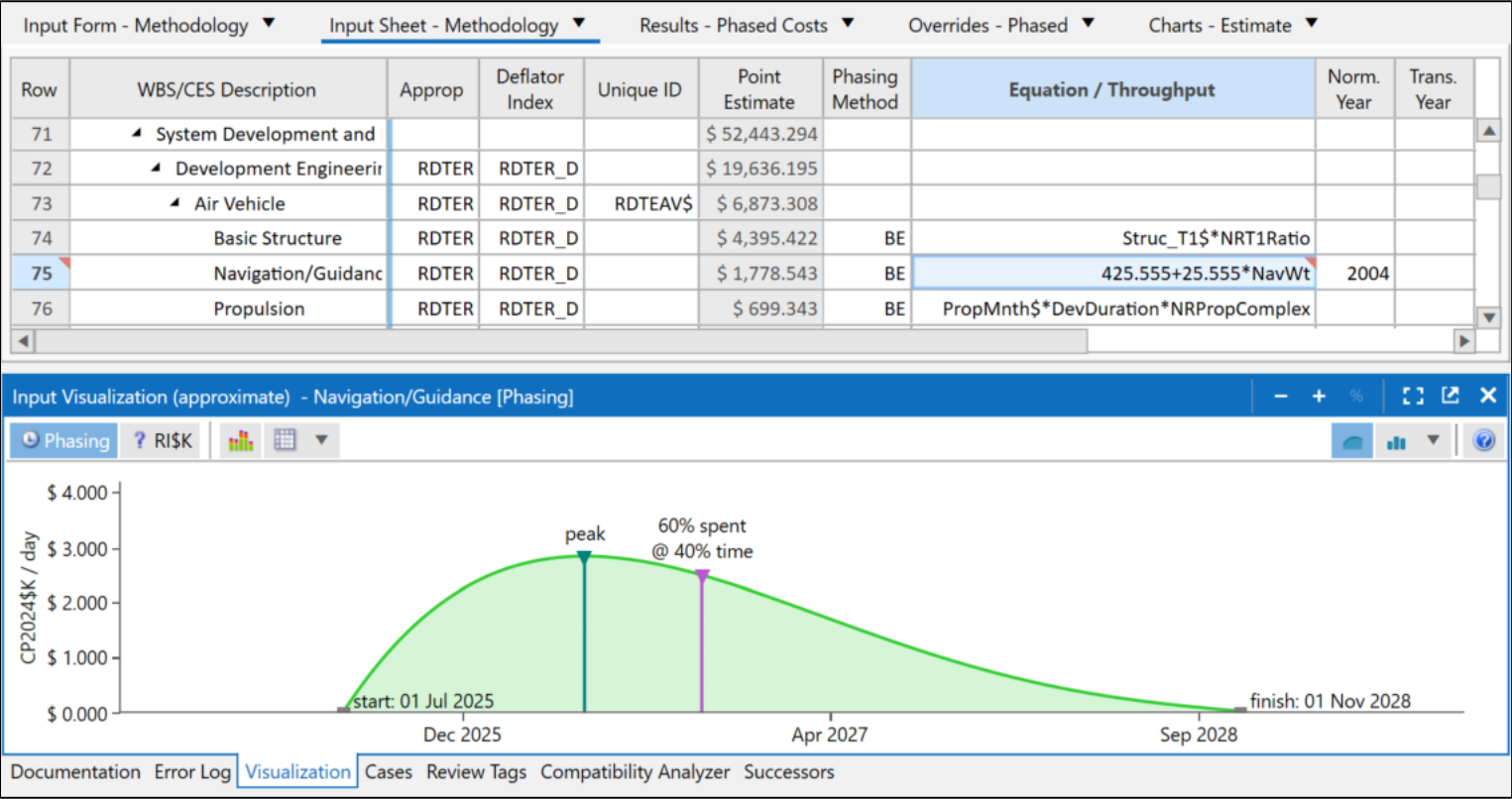
Error Log Visualization Cases Review Tags Compatibility Analyzer Successors

Use Content Panes to aid Productivity



Content panes add **insight** to the workspace

- Many views covering documentation, visualization, cases, error log, reference rows, driver rows, revision log, calculation details, and more

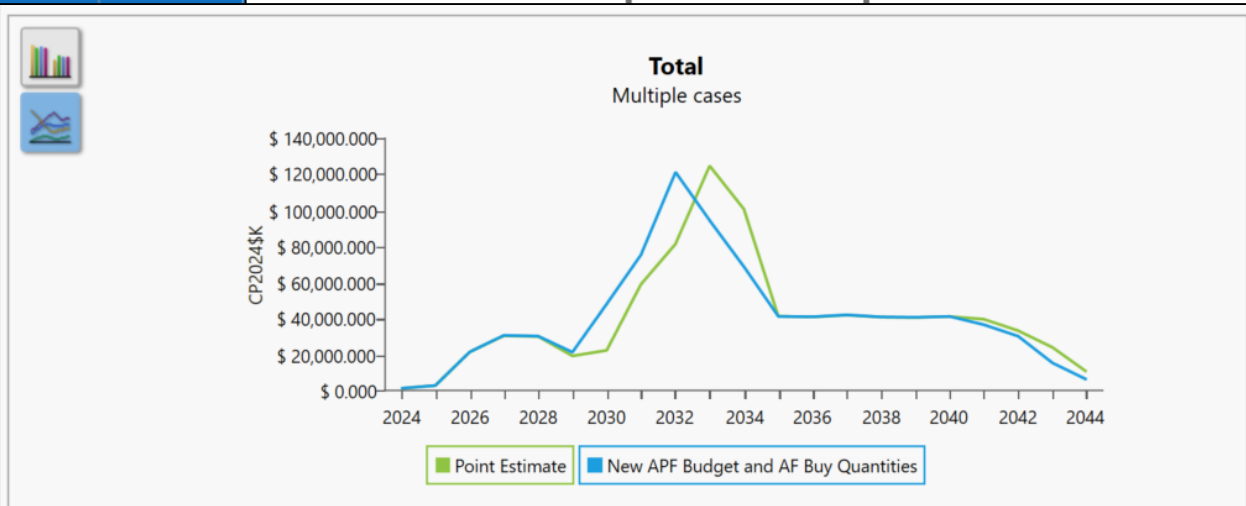


Create Unlimited What – if Cases

- Create unlimited number of cases saved in the *same* file
- Override inputs to view and compare results of alternate scenarios

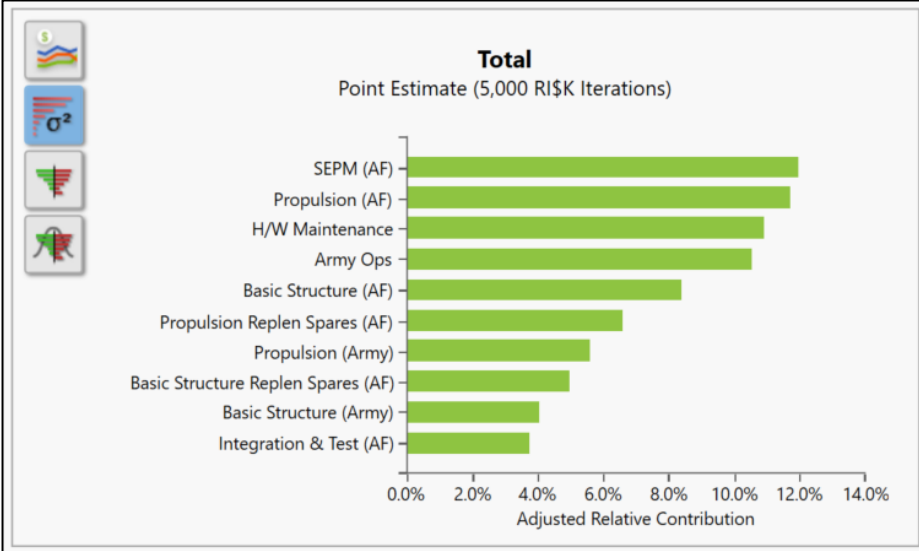
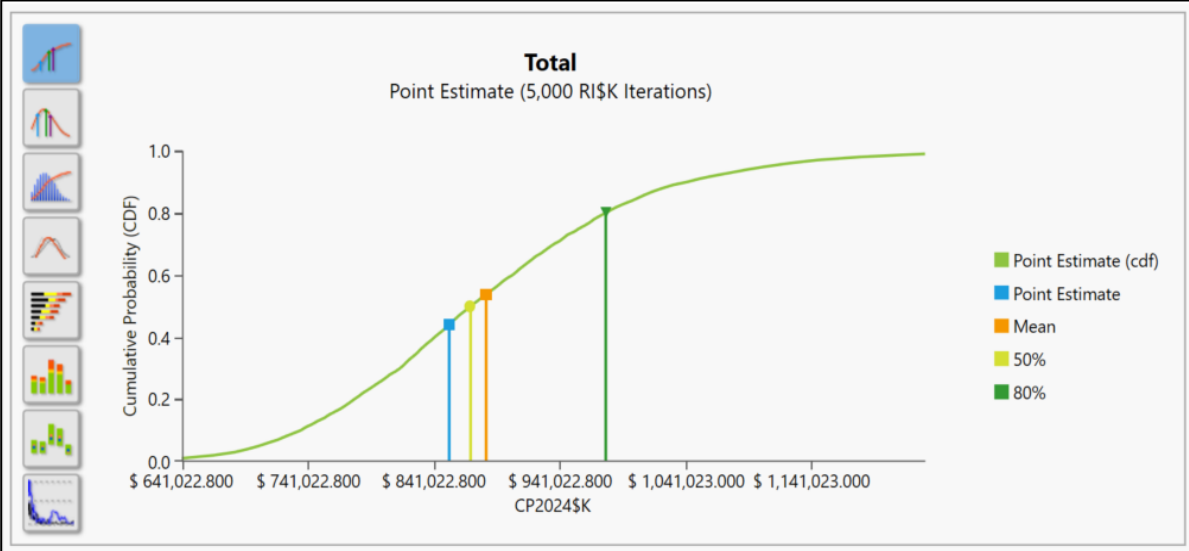
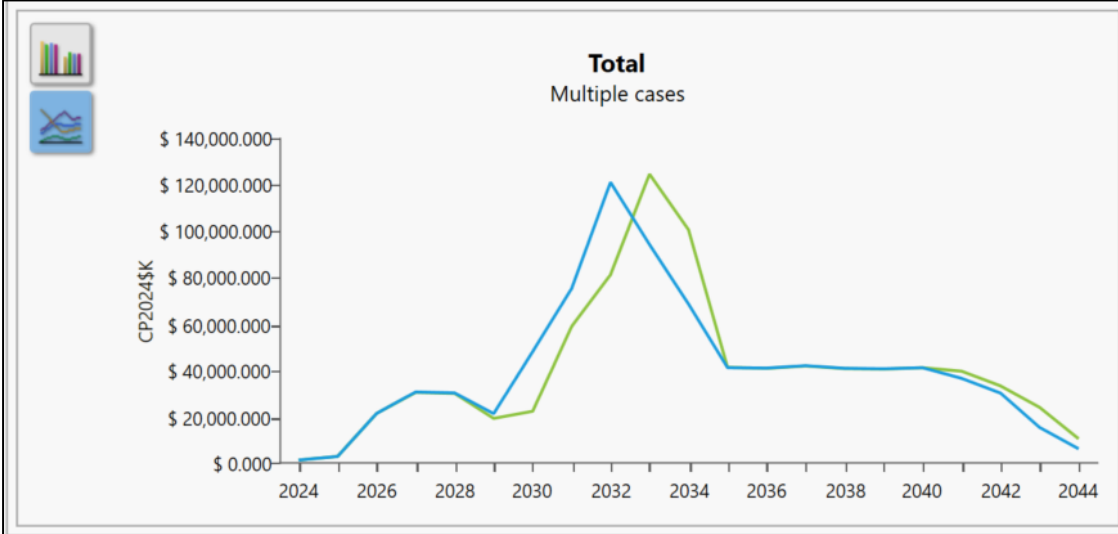
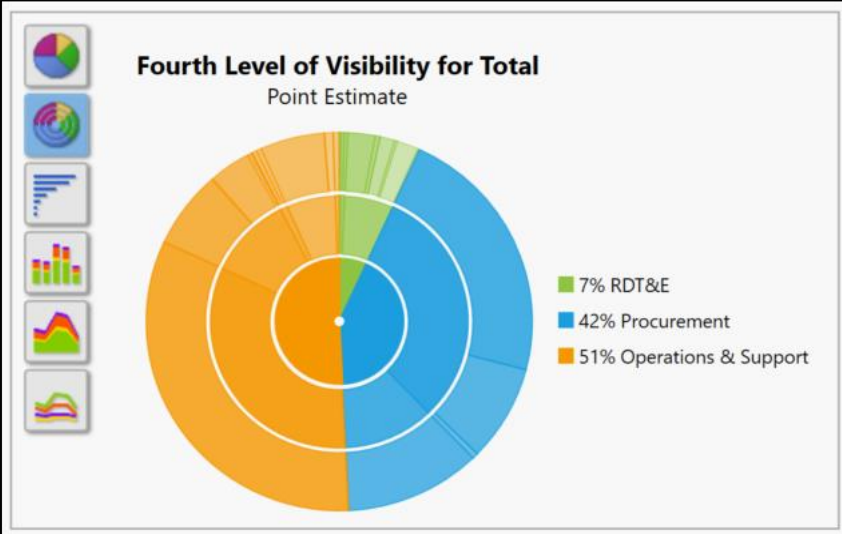
Input Form - Methodology ▾ Input Sheet - Methodology ▾ Results - Phased Costs ▾ Overrides - Phased ▾ Charts - Estimate ▾												
Row	WBS/CES Description	Total: New APF Budget	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
240	*Production Quantity Inputs											
241	◀ Total Air Vehicle Buy Quantity	177.000				1.000	1.000	3.000	17.000	35.000	65.000	40.000
242	◀ Air Force Buy Quantities	120.000				1.000	1.000	2.000	16.000	25.000	50.000	25.000
243	Low Rate Initial Production	5.000		0	0	1	1	2	1			
244	Full Rate Production	115.000						0	15	25	50	25

Cases				
<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>				
	Case Name	Compare	Time Last Calculated	Description
<input checked="" type="checkbox"/>	Point Estimate	<input checked="" type="checkbox"/>	7/29/2024 12:44:49 PM	
<input checked="" type="checkbox"/>	Lower Cost Propulsion	<input type="checkbox"/>	7/29/2024 11:14:19 AM	Override propulsion unit cost with lower cost.
<input checked="" type="checkbox"/>	New APF Budget and AF Buy Quantities	<input type="checkbox"/>	7/29/2024 2:44:44 PM	Override APF Budget row to slip money to later years
<input checked="" type="checkbox"/>	Propulsion and O&S Mods	<input type="checkbox"/>	1/1/0001 12:00:00 AM	Overrides to NREC complexity factor and Propulsion
<input checked="" type="checkbox"/>	Propulsion, Ground Station, and O&S Mods	<input type="checkbox"/>		Overrides to NREC complexity factor and Propulsion
<input checked="" type="checkbox"/>	More Detailed Uncertainty	<input type="checkbox"/>		Changed uncertainty to put low and high percent
<input checked="" type="checkbox"/>	Change Approp	<input type="checkbox"/>		Changes All Approps to No Inflation as a Global O



Generate Robust Charts

- Estimate
 - One case
- Case Comparative
 - Multiple cases
- Uncertainty
 - CDF
 - PDFs
 - Contributors
- Analysis



POST: Program Office Support Tool



Open ACE Session in Excel

- ✓ Excel add-in
- ✓ Open Session
- ✓ View Inputs/Results
- ✓ Create POST Cases

Manage Session in POST

- ✓ Open, close, and update Sessions in the POST Environment

Reports and Charts

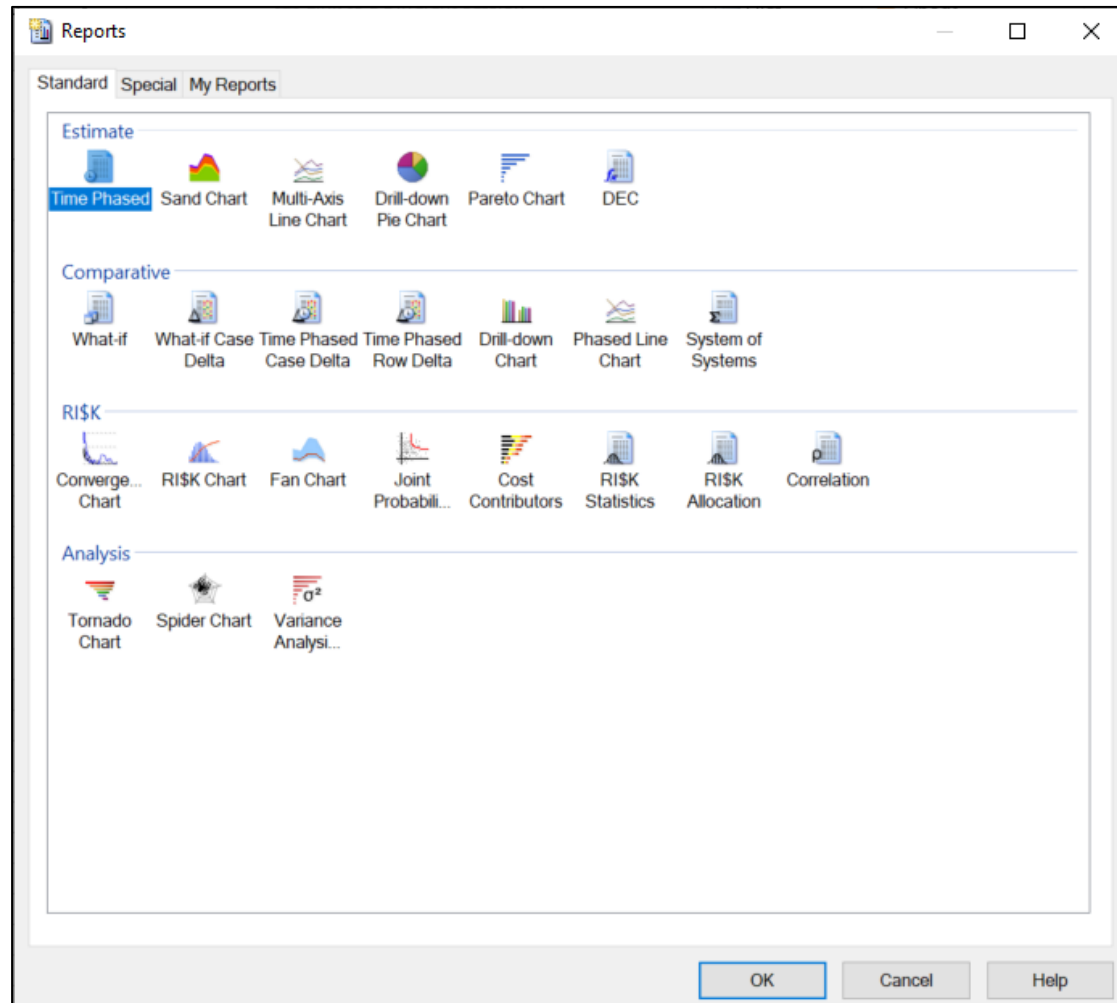
- ✓ Create Reports and Charts from multiple Sessions
- ✓ Reports
 - ✓ Estimate
 - ✓ Comparative
 - ✓ RI\$K
- ✓ Charts
 - ✓ Estimate
 - ✓ Comparative
 - ✓ RI\$K
 - ✓ Analysis
- ✓ Format Reports and Charts with Excel graphics

Export to PowerPoint

- ✓ Export reports and charts to PowerPoint
- ✓ Automatically update exported reports and charts

Use POST to Tell the Story of Your Project

Offers various reports and charts



Tabular Reports

- **Estimate:**
 - Time Phased
 - DEC
- **Comparative:**
 - What If
 - What If Case Delta
 - Time Phased Case Delta
 - Time Phased Row Delta
 - System of Systems
- **RISK:**
 - Statistics
 - Allocation
 - Correlation

Graphical Charts

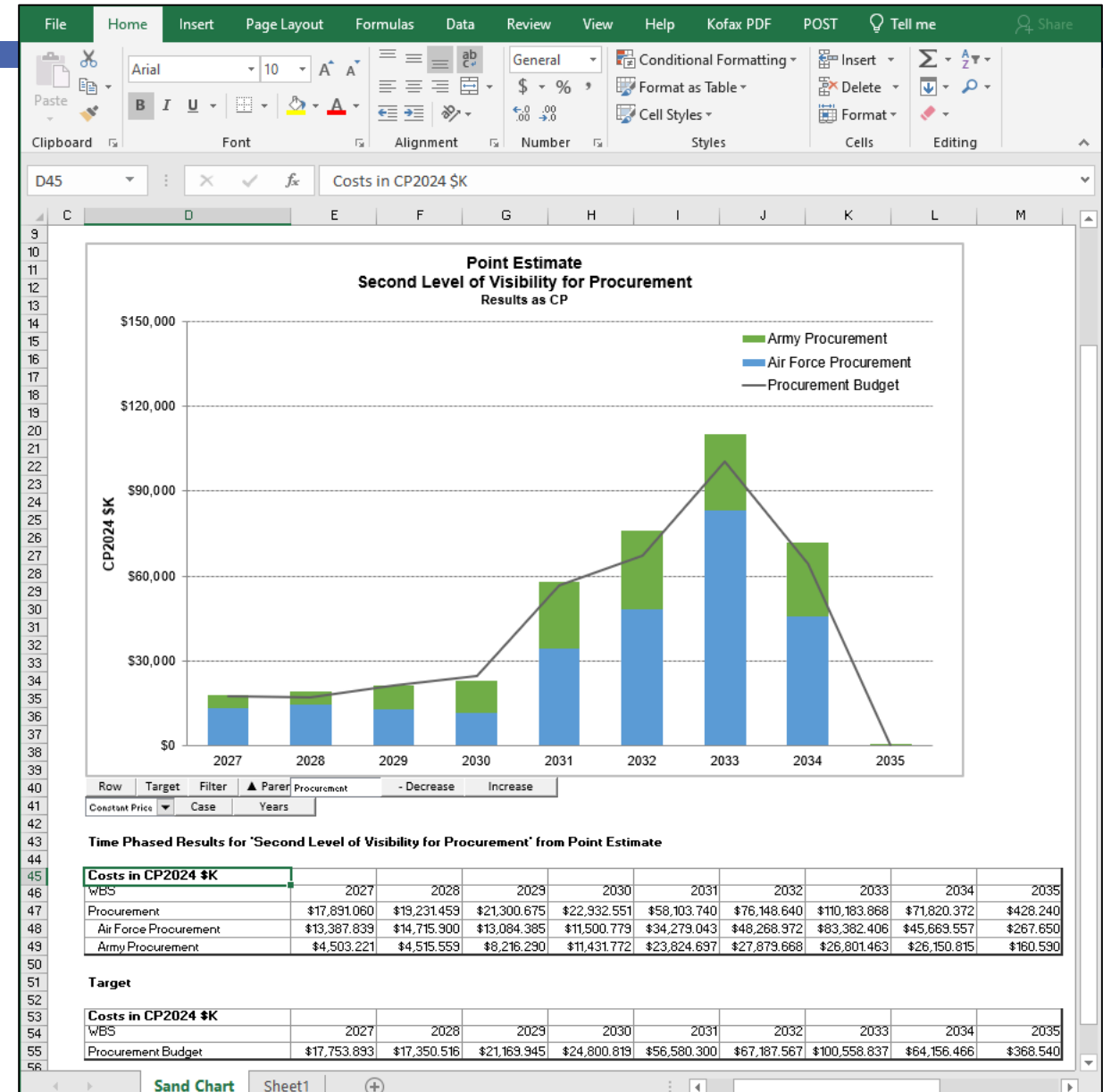
- **Estimate:**
 - Sand
 - Multi-Axis Line
 - Drill-Down Pie
 - Pareto
- **Comparative:**
 - Drill-Down
 - Phased Line
- **RISK:**
 - Histogram/CDF
 - Fan
 - Joint Probability
 - Convergence
 - Contributors
- **Analysis:**
 - Tornado
 - Spider
 - Variance Analysis

Manage Charts/Reports in Excel Workbooks

Create charts/reports for ACE or POST cases

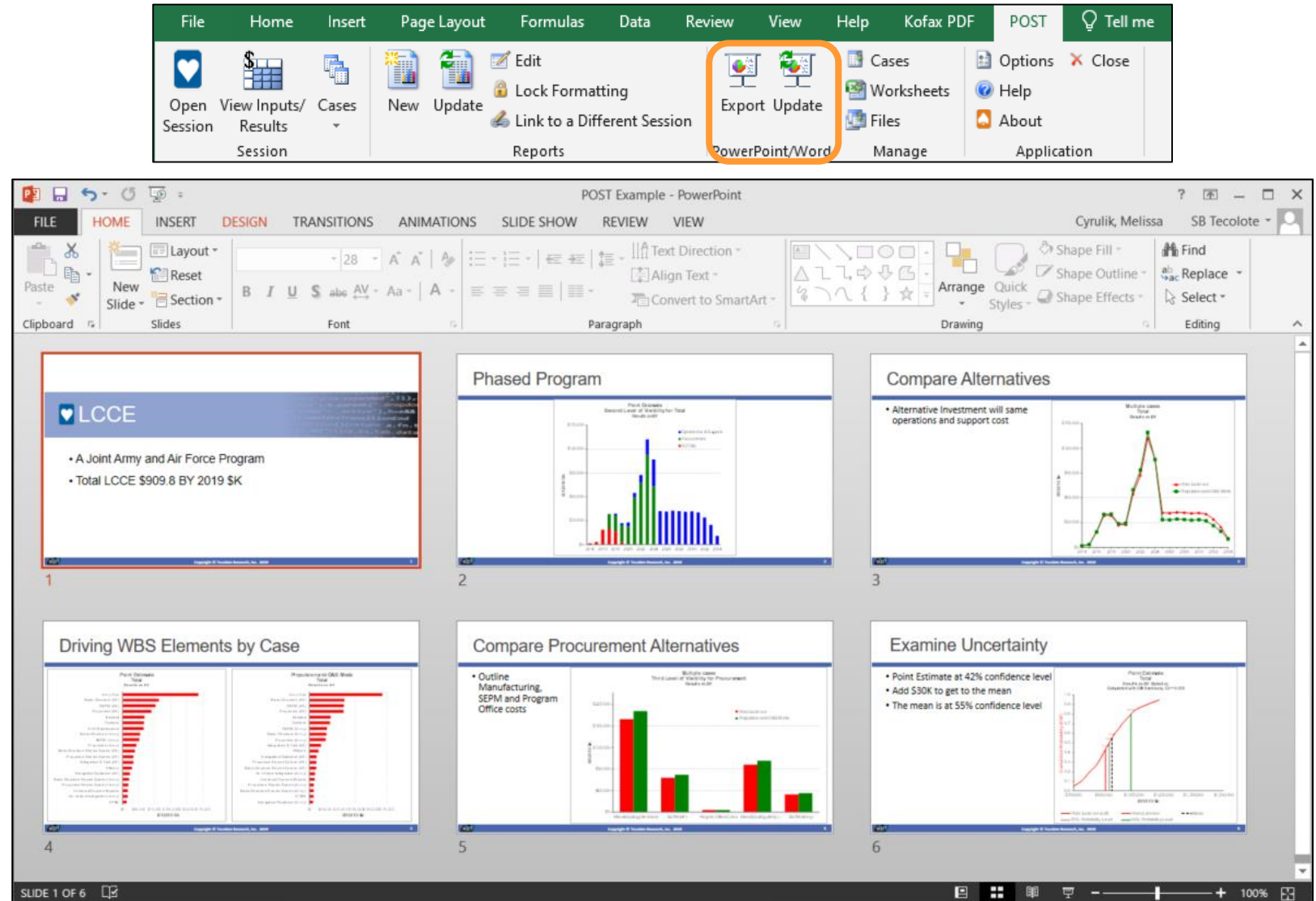
- Save charts/reports in individual worksheets
- Generate charts from the data stored on the worksheet
- Change cases, cost properties, rows with the worksheet buttons
- Generate visuals with cases from different ACE Sessions
- Save the charts/reports in an Excel file
- Share Excel workbook with other stake holders

*Charts/reports can be viewed by all in Excel. ACEIT is required on the machine to activate the worksheet buttons



Create and Automatically-Update Presentations

- Manage and update estimate briefings
- Export charts and reports to MS PowerPoint
- **Automate** presentation updates in easy, three-step process
 1. Modify ACE session
 2. Update POST charts
 3. Update PowerPoint



CO\$TAT: Cost Analysis Statistical Package



Basic Operation

- ✓ Excel Hosted
- ✓ Format Dataset
- ✓ Test Hypotheses
- ✓ Understand a dataset
- ✓ Develop a CER
- ✓ Develop a Learning Curve
- ✓ Determine data distributions
- ✓ Generate a Prediction Interval

Analysis Results

- ✓ Understand data correlations
- ✓ Generate Statistical Reports
- ✓ Apply Rules of Thumb
- ✓ Interpret the CER
- ✓ Export Analyses to ACE

Analysis

- ✓ Pairwise
- ✓ Distribution Finder
- ✓ Univariate
- ✓ Beta
- ✓ Learning
- ✓ Linear
- ✓ LogLinear
- ✓ NonLinear
- ✓ Ridge Regression
- ✓ Stepwise
- ✓ Prediction Intervals
- ✓ Weighted Regression
- ✓ Outlier
- ✓ Dummy Variables
- ✓ MUPE
- ✓ ZMPE

Available Statistics

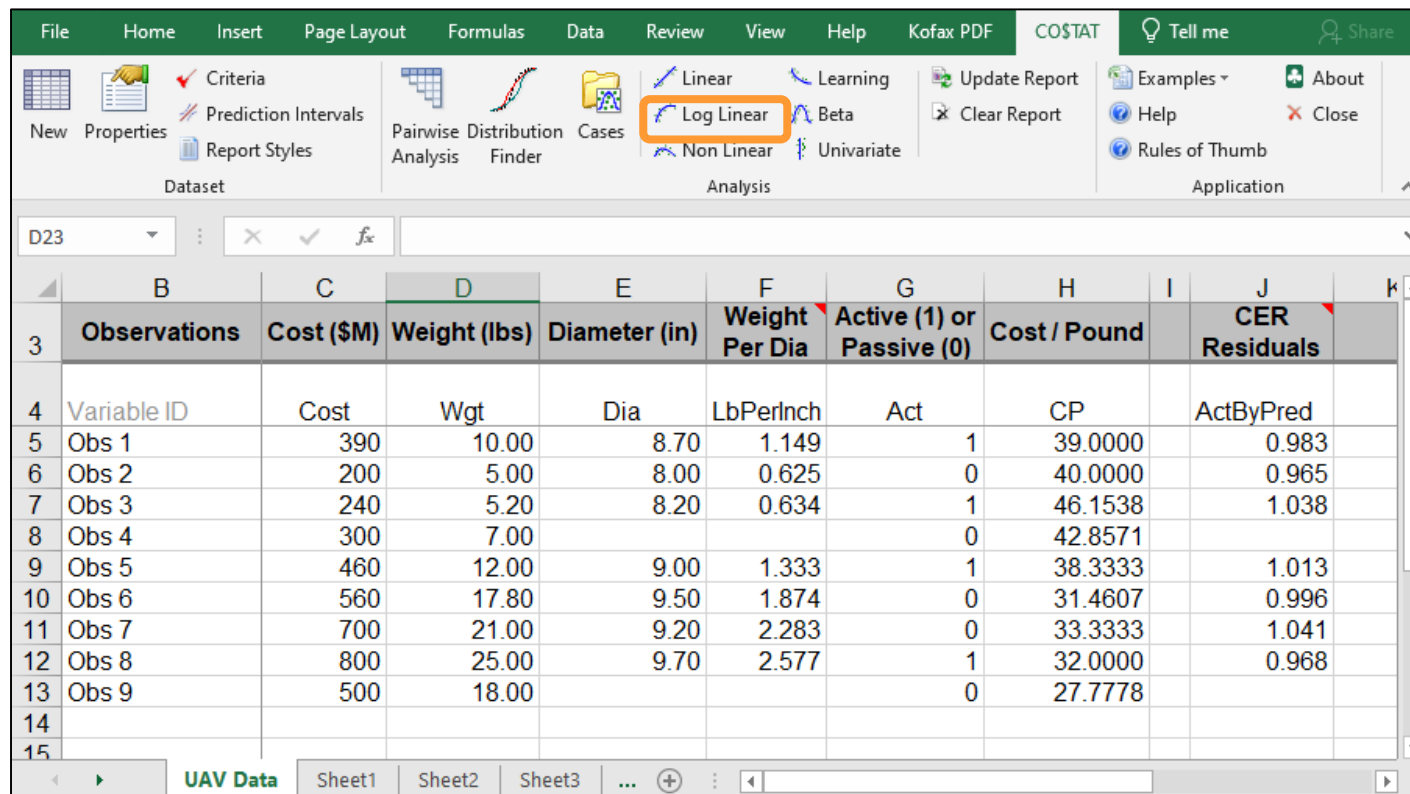
- ✓ P-value / Prob Not Zero
- ✓ Coefficient of Determination (R2)
- ✓ Coefficient of Determination - Adjusted (R2 Adj)
- ✓ Coefficient of Variation Based upon the MAD of the Residuals
- ✓ Coefficient of Variation Based upon the Standard Error
- ✓ Cooks D
- ✓ F Ratio
- ✓ Individual % Error
- ✓ Leverage Value
- ✓ Mean Absolute Deviation % Errors
- ✓ Root Mean Square % Error
- ✓ Standard Error of Slope Coefficients
- ✓ Standard Error of the Estimate
- ✓ Standardized Residual
- ✓ T-Test

Manage Datasets and Run Analysis

Easily create, update, and manage datasets in Excel workbooks

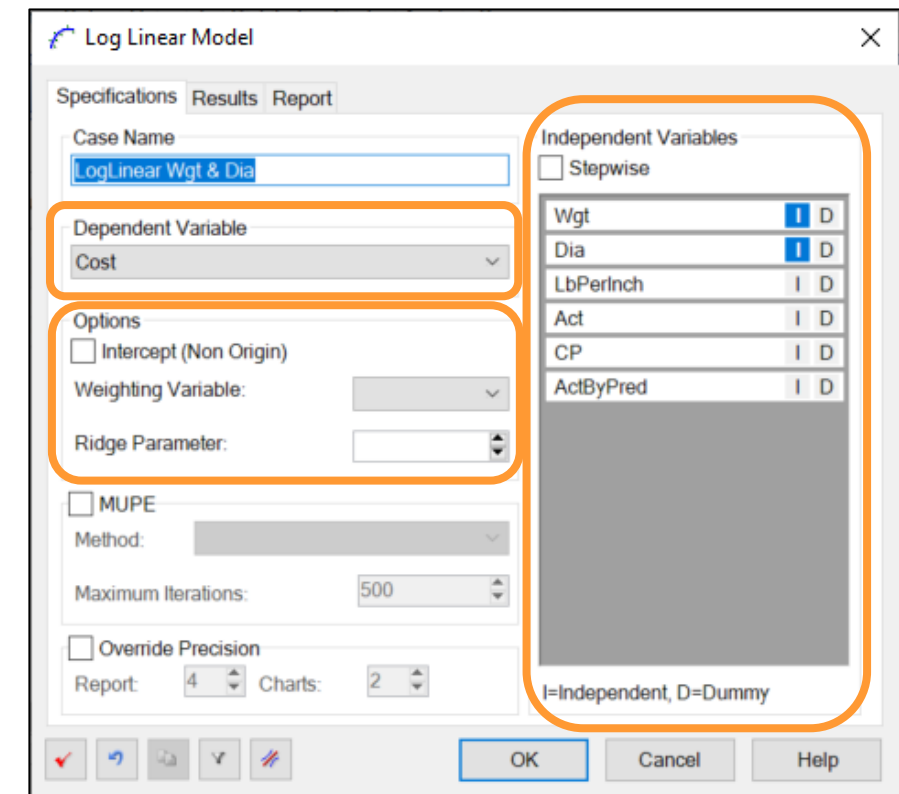
Set analysis options and select dependent and independent variables

UAV Dataset



	B	C	D	E	F	G	H	I	J
3	Observations	Cost (\$M)	Weight (lbs)	Diameter (in)	Weight Per Dia	Active (1) or Passive (0)	Cost / Pound		CER Residuals
4	Variable ID	Cost	Wgt	Dia	LbPerInch	Act	CP		ActByPred
5	Obs 1	390	10.00	8.70	1.149	1	39.0000		0.983
6	Obs 2	200	5.00	8.00	0.625	0	40.0000		0.965
7	Obs 3	240	5.20	8.20	0.634	1	46.1538		1.038
8	Obs 4	300	7.00			0	42.8571		
9	Obs 5	460	12.00	9.00	1.333	1	38.3333		1.013
10	Obs 6	560	17.80	9.50	1.874	0	31.4607		0.996
11	Obs 7	700	21.00	9.20	2.283	0	33.3333		1.041
12	Obs 8	800	25.00	9.70	2.577	1	32.0000		0.968
13	Obs 9	500	18.00			0	27.7778		

Set up Analysis



Log Linear Model

Specifications Results Report

Case Name: LogLinear Wgt & Dia

Dependent Variable: Cost

Options:

- ☐ Intercept (Non Origin)
- Weighting Variable: [Dropdown]
- Ridge Parameter: [Slider]
- ☐ MUPE
- Method: [Dropdown]
- Maximum Iterations: 500
- ☐ Override Precision
- Report: 4 Charts: 2

Independent Variables:

Wgt	I	D
Dia	I	D
LbPerInch	I	D
Act	I	D
CP	I	D
ActByPred	I	D

I=Independent, D=Dummy

OK Cancel Help

View Comprehensive Statistics

View statistical results and charts in reports stored in the Excel workbook

LogLinear Analysis for Dataset UAV Data, LogLinear Wgt & Dia

Tuesday, 30 July 2024, 12:21 PM

I. Model Form and Equation Table

Model Form:	Unweighted Log-Linear model
Number of Observations Used:	7
Equation in Unit Space:	Cost = Wgt^0.572 * Dia^2.133

II. Fit Measures (in Fit Space)

Coefficient Statistics Summary

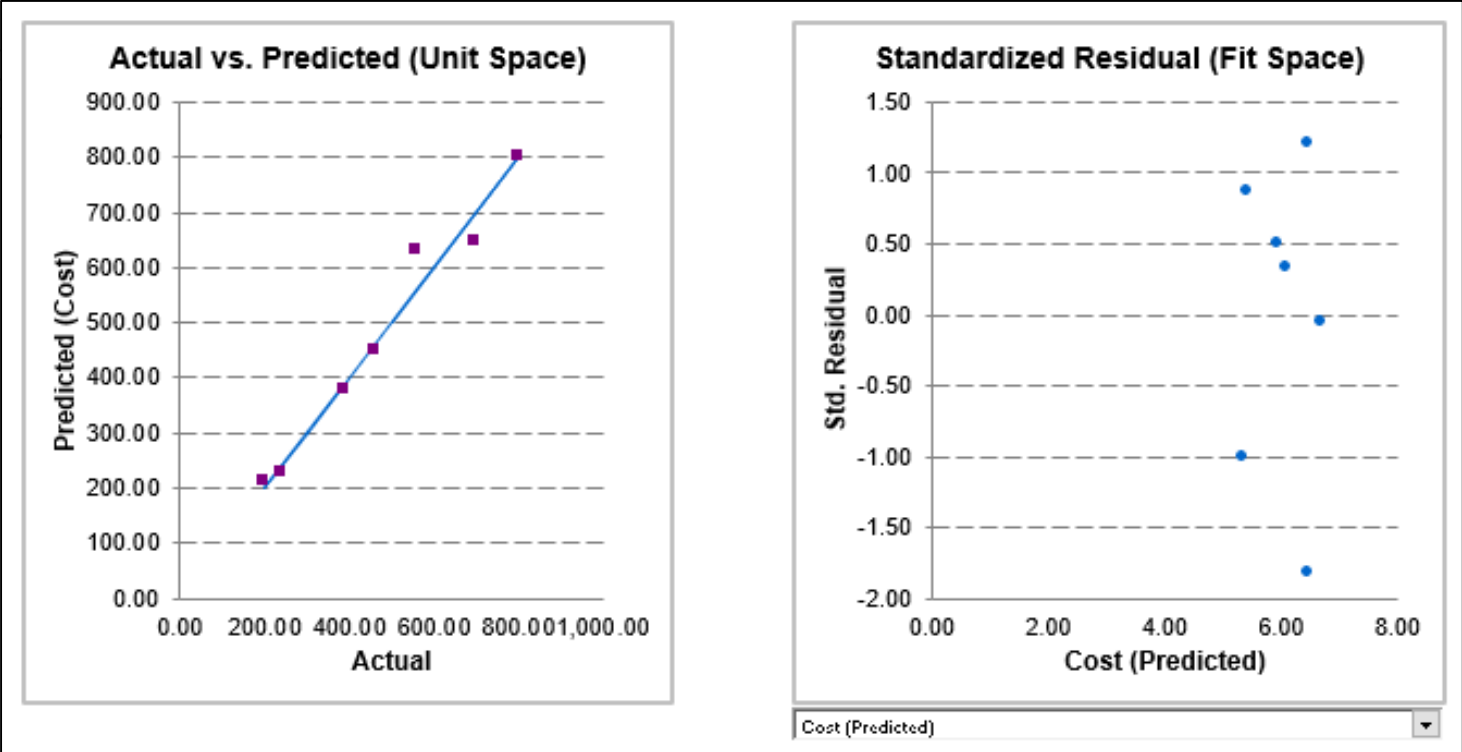
Variable	Coefficient	Std Dev of Coef	Beta Value	T-Statistic (Coef/SD)	P-Value	Prob Not Zero
Intercept						
Wgt	0.5720	0.0539	0.2377	10.6140	0.0001	0.9999
Dia	2.1329	0.0623	0.7662	34.2154	0.0000	1.0000

Goodness-of-Fit Statistics

Std Error (SE)	R-Squared	R-Squared (Adj)	Pearson's Corr Coef	PRESS	R-Squared (Predicted)
0.0748	99.99%	99.98%	0.9999	0.0543	99.98%

Analysis of Variance

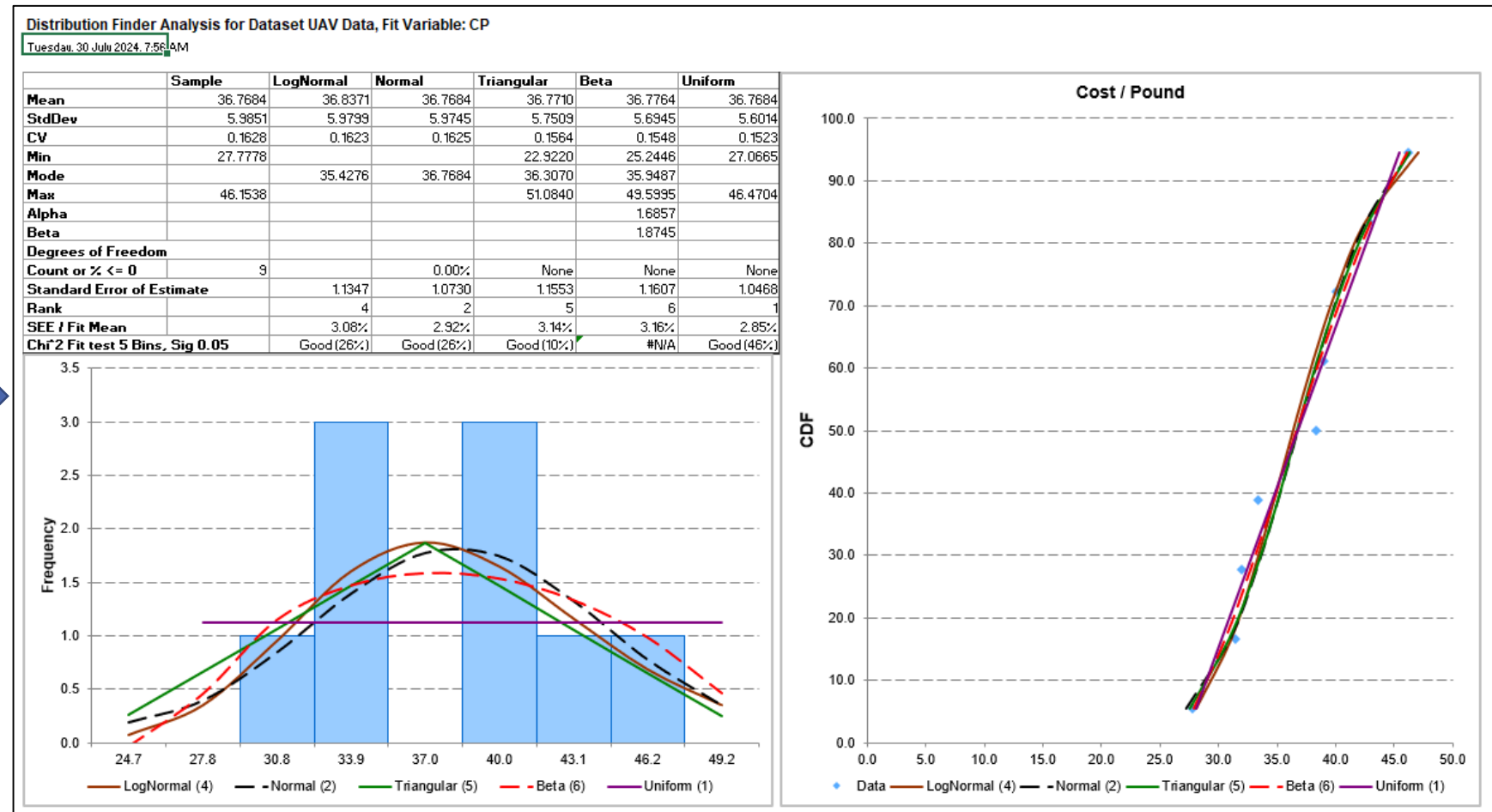
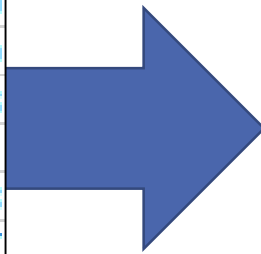
Due To	DF	Sum of Sqr (SS)	Mean SQ = SS/DF	F-Stat	P-Value	Prob Not Zero
Regression	2	258.9119	129.4560	23158.3798	0.0000	1.0000
Residual (Error)	5	0.0280	0.0056			
Total	7	258.9399				



Understand Data Distributions

Analyze the distribution shape of a data set to inform uncertainty analysis

Observations	Cost / Pound
Variable ID	CP
Obs 1	39.0000
Obs 2	40.0000
Obs 3	46.1538
Obs 4	42.8571
Obs 5	38.3333
Obs 6	31.4607
Obs 7	33.3333
Obs 8	32.0000
Obs 9	27.7778



Select the “Best fit” Equation and Export it to the Estimate

Compare metrics for different equation attempts to select the “Best fit”

Export CER to ACE

Click here to add filter criteria

Type	Name	Status	Equation	Pro...	Pro...	Pro...	Pro...	(%)	(fit space)
Linear	Linear Weight	Passed Criteria	Cost = 92.93 + 27.39 * Wgt	0.98...	1.00...			95.6943	42.2261
Linear	Linear Wgt &...	Passed Criteria	Cost = 27.85 * Wgt + 10.85 * Dia						
Linear	Linear LbPeri...	Passed Criteria	Cost = 46.07 + 289 * LbPerInch						
Linear	Linear LbPeri...	Passed Criteria	Cost = 21.31 + 291.9 * LbPerInch + 35.68 * A						
Log Linear	LogLinear Wei...	Passed Criteria	Cost = 61.59 * Wgt + 0.3618						
Log Linear	LogLinear Wg...	Passed Criteria	Cost = Wgt ^ 0.572 * Dia ^ 2.133						
Log Linear	LogLinear Lb...	Passed Criteria	Cost = 338.4 * LbPerInch + 0.9006						
Log Linear	LogLinear Lb...	Passed Criteria	Cost = 317.7 * LbPerInch ^ 0.9088 * 1.101 * Act						
Univariate	Univariate on...	Passed Criteria	[CP] 36.77						
Distributio...	Fit Cost Per P...	Calculated	CP = Uniform(27.07, 46.47)						
Distributio...	Fit CER Resid...	Calculated	ActByPred = Beta(0.3823, 0.4347, 0.9643, 1.0...						
Distributio...	Fit CER Resid...	Calculated	ActByPred = Beta(0.3759, 0.4298, 0.9291, 1.0...						

Select CER

Actual vs. Predicted (Unit Space)

DOCUMENTATION MAIN PANE 01 - Basic ACE.act (Read-Only) - Methodology (CP2...

FILE HOME LAYOUT FUNCTIONS REPORTS EDIT INPUT SHEET

Paste Cut Copy Format Painter Clipboard Calculate Error Log Syntax Check Construction Find Replace Documentation Sections Tools

12: Air Vehicle T1 [Similar Risk Bounds] Wgt ^ 0.572 * Dia ^ 2.133

Input Form - Methodology Input Sheet - Methodology Results - Phased Costs Overrides - Phased Charts - Estimate

Row	WBS/CES Description	Approp	Deflator Index	Unique ID	Point Estimate	Phasing Method	Equation / Throughput	Norm. Year	Trans. Year	Units
3	Total				\$ 58,016.272					
4	Manufacturing			Mfg\$	\$ 41,099.050					
5	Air Vehicle	APR	APR_D	AV\$	\$ 35,738.304	FP	AV_UC\$*BuyQty			
6	Integration & Test	APR	APR_D		\$ 5,360.746	FP	0.15*AV\$			
7	SEPM	APR	APR_D		\$ 15,206.648	FP	0.37*Mfg\$			
8	Program Office Costs	APR	APR_D		\$ 1,710.574	TYO				
10	*Production Inputs									
11	*Cost Inputs									
12	Air Vehicle T1	APR	APR_D	AV_UC\$	\$ 8,934.576		[Similar Risk Bounds] Wgt ^ 0.572 * Dia ^ 2.133	2020		SK

Documentation - Row 12: Air Vehicle T1

Equation / Throughput

Model Form and Equation Table

Model Form:	Unweighted Log-Linear model
Number of Observations Used:	7
Equation in Unit Space:	Cost = Wgt ^ 0.572 * Dia ^ 2.133

Documentation Error Log Visualization Cases Review Tags Compatibility Analyzer Successors

JACS: Joint Analysis Cost and Schedule

J

Basic Operation

- ✓ Conduct a Schedule Risk Analysis
- ✓ Conduct a Joint Confidence Cost and Schedule Analysis

Capture Uncertainties

- ✓ Durations
- ✓ Time Dependent (TD)
- ✓ Time Independent (TI)
- ✓ Risk Events/Risk Register

JACS Components

- ✓ JACS Add-in (MS Project)
- ✓ JACS Application (P6)
- ✓ JACS Insight

Concepts Covered

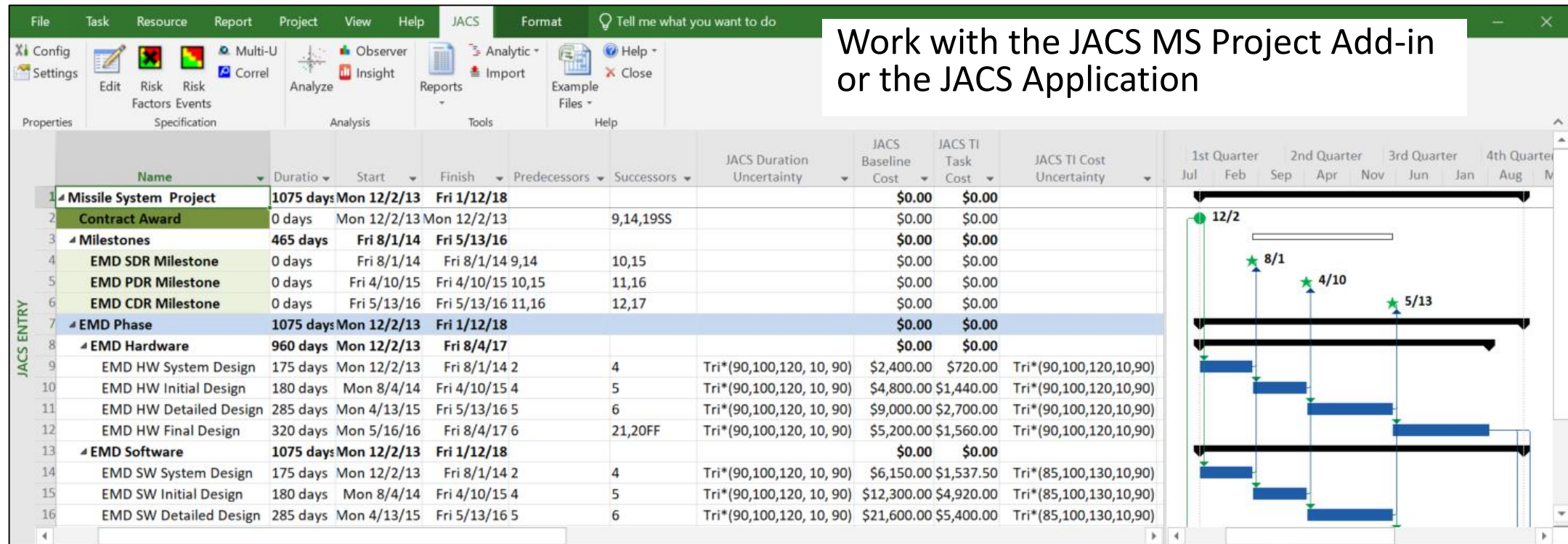
- ✓ Analysis Schedule
- ✓ Program Events
- ✓ Risk Events
- ✓ Risk Factors
- ✓ Critical Path
- ✓ Slack
- ✓ Cruciality
- ✓ Hammock Tasks
- ✓ Correlation
- ✓ Custom Fields
- ✓ RIFT

Charts

- ✓ Cash Flow
- ✓ Drivers
- ✓ Gantt
- ✓ Overlay
- ✓ Sand
- ✓ Scatterplot
- ✓ Contribution to Estimate - Schedule
- ✓ Contribution to Estimate - Cost
- ✓ Estimate Total Slack
- ✓ Estimate Annual Cost
- ✓ Schedule CDF vs PDF
- ✓ Cost CDF vs PDF
- ✓ Criticality Index
- ✓ Cost Cruciality Index
- ✓ Schedule Cruciality
- ✓ Correlation to Total Duration
- ✓ Correlation to Total Cost Uncertainty
- ✓ Duration Tail Contingency Delta
- ✓ Cost Tail Contingency Delta
- ✓ Cost Contributor
- ✓ Finish Date vs Total Cost
- ✓ Multi-Metric Driver
- ✓ Annual Cost Uncertainty
- ✓ Cost CDF Comparison
- ✓ Schedule CDF Comparison
- ✓ Scatter Comparison
- ✓ Criticality Index Comparison
- ✓ Convergence

JACS Provides Three Levels of Integration and Analysis

1. Conduct a schedule risk analysis
2. Integrate cost into the schedule risk analysis
3. Perform joint confidence level (JCL) analysis: uncertain cost/schedule & risk events

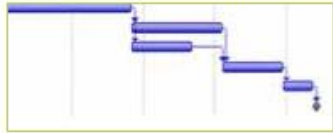


JACS provides a Standard Process for Assembling JCL

The Four Key JCL Inputs

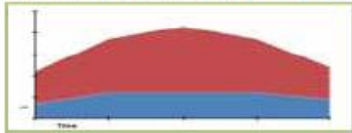
Schedule

The network schedule of activities is the foundation of the JCL analysis.



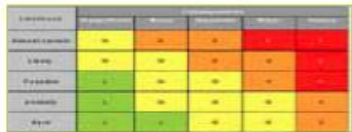
Cost

Project cost data by element is linked to the schedule and mapped to activities.



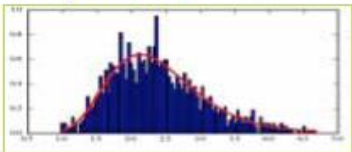
Risk

An itemized list of risks with likelihood and impact is included in the JCL.

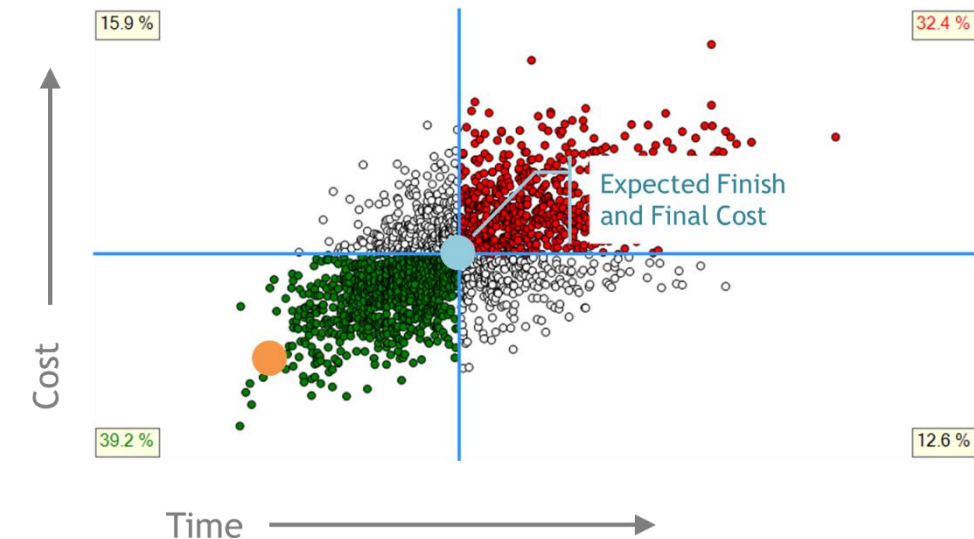


Uncertainty

Uncertainty in the cost and duration can capture additional unknown risk.

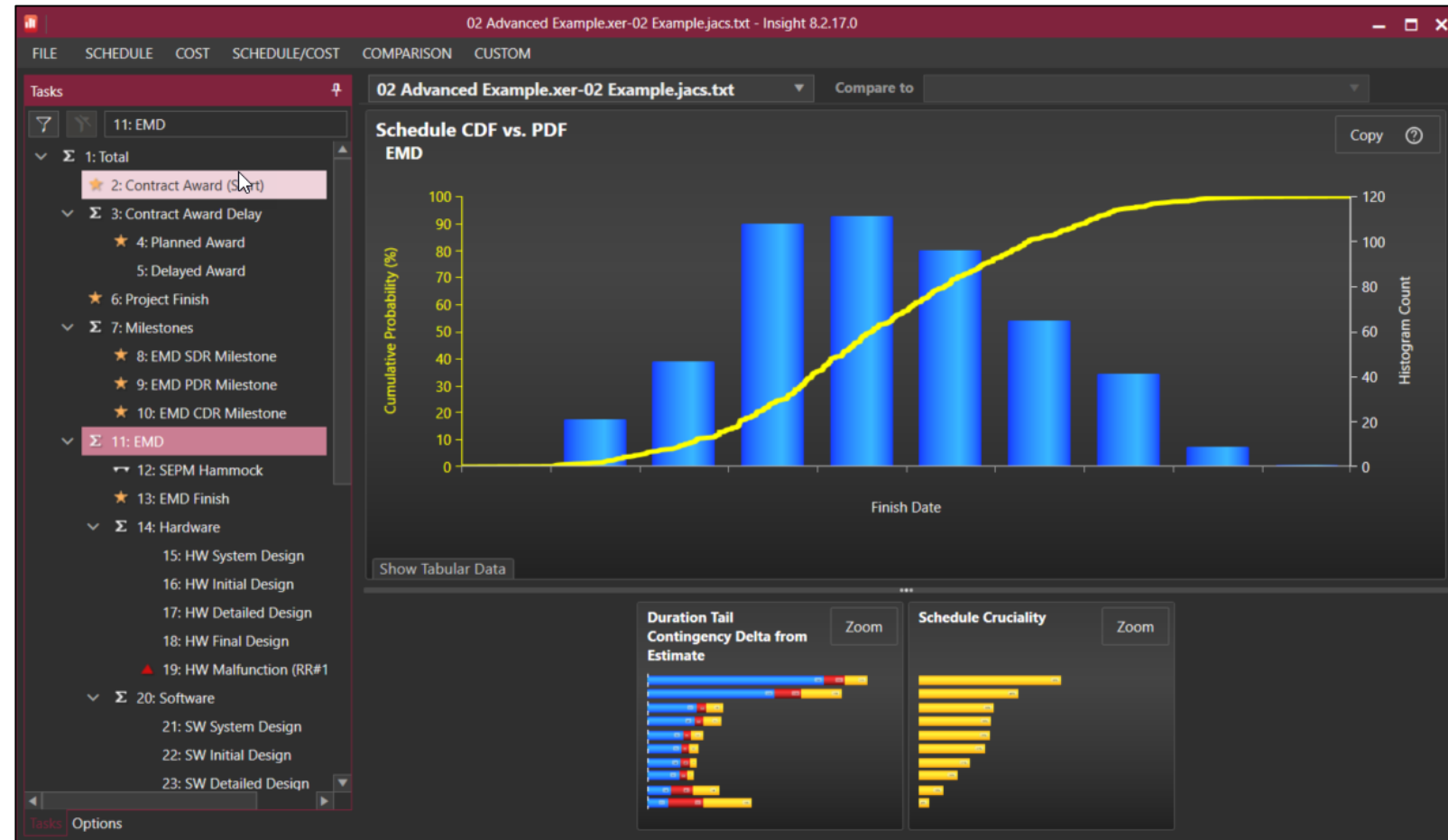


- 1. Build a JCL schedule/logic network**
 - Logic network
 - Minimize use of constraints
 - Link to major milestones
 - Schedule health check for viability for analysis
- 2. Cost load the schedule**
 - Map cost to schedule
 - Load as resources if using schedule system
 - Determine phased fixed/variable costs and assign to schedule/logic network
- 3. Implement risk list**
 - Quantify likelihood and cost/schedule impacts
 - Link to schedule/network activities
 - Load risks
- 4. Conduct uncertainty analysis**
 - Schedule uncertainty
 - Cost uncertainty
 - Discrete Risk uncertainty
- 5. View results & plot**
- 6. Analyze results and refine (steps 1-5)**



JACS Dashboard Charting Tool: Insight

- View Risk Adjusted Schedules
 - Generate updated schedules with higher confidence of completion
 - Understand schedule drivers
- Quickly view JACS top-level results in dashboard format
- Customize the dashboard to your areas of interest



ACEIT 8.2 Training

Instructors with real-world experience with ACEIT provide hands-on training.



In-person



Self-paced



Onsite



ACEIT for Model Builders

- Construct an estimate
- Enter methods
- Incorporate Uncertainty
- Generate a CER
- Create What-if Cases
- Open estimate in POST

Introductory Course
4 Days of Instruction



ACEIT for Reviewers

- Review an estimate
- Understand methods
- Understand Uncertainty
- Generate Reports

Introductory Course
2 Days of Instruction



ACEIT for Advanced Model Builders

- Modeling Durations
- Advanced Functions
- Data Table
- Advanced Uncertainty Analysis
- Model Integration

Advanced Course
4 Days of Instruction



ACEIT for CER Developers

- Dataset Organization
- Understand the dataset
- Analyze the dataset
- Validate the analysis
- Document

Independent Course
2 Days of Instruction



ACEIT for Schedulers

- Introduction to Joint Confidence, JACS, and MS Project
- Using JACS to build a JCL
- Analysis Results
- Working with JACS files

Independent Course
2 Days of Instruction

Contact Us for Sales and Training

- Visit www.ACEIT.com
- Please contact ACEIT Sales
Email: aceit_sales@tecolote.com
Phone: (805) 964-6963