



Introduction to the Operating & Support Cost Analysis Model



OSCAM Program Office
Overview to SCEA Conference 2011
June 2011





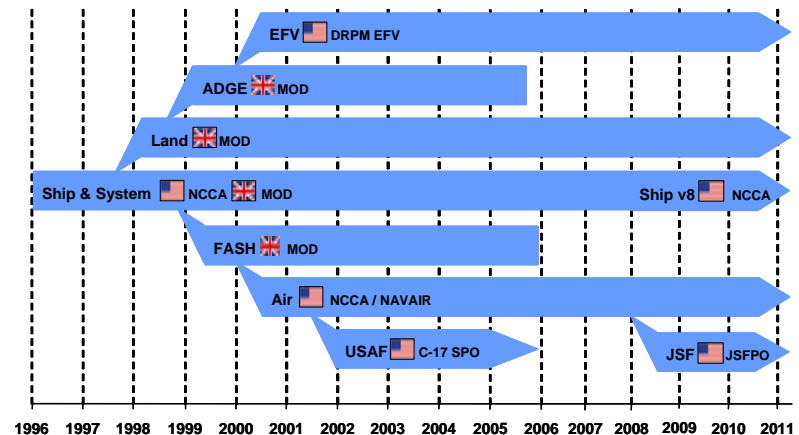
What is OSCAM?



- **OSCAM – Operating and Support Cost Analysis Model**
 - OSCAM is a jointly developed, NCCA sponsored, family of software tools used to help develop Operating and Support Cost Estimates that meet a wide range of requirements

– The US Suite of Models is comprised of:

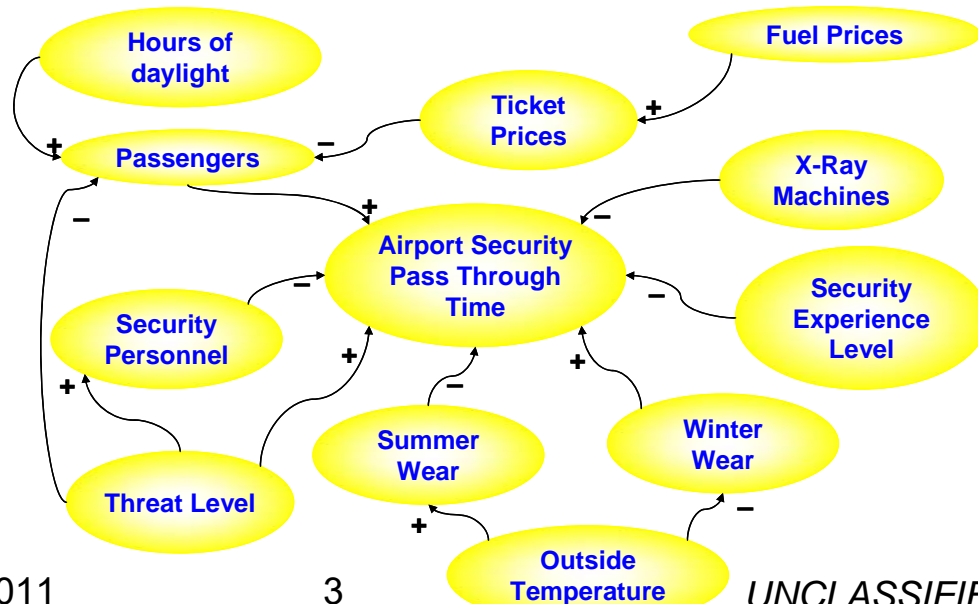
- OSCAM Ship v8.0
- OSCAM Ship v7.0
- OSCAM Shipboard System v7.0
- OSCAM Air v3.0
- OSCAM EFV
- OSCAM USAF
- OSCAM JSF



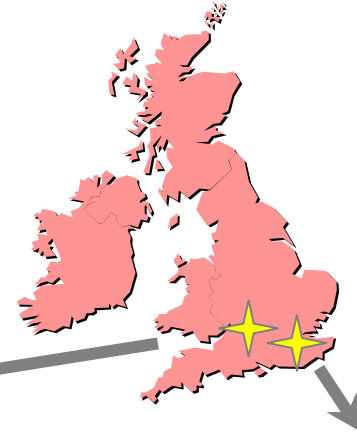
- OSCAM can be used to support life cycle cost estimates, what-if scenarios, trade-off studies, analysis of alternatives, budget drills and taskings related to platform O&S costs
- The OSCAM models are built using System Dynamics

- System Dynamics theory models the relationships, behaviors, and influences of entities in the system being studied
- The OSCAM models use System Dynamics to model each month of the life cycle of the platform
- This provides a more powerful technique than traditional methods like Excel based models
- System Dynamics promotes an understanding of O&S processes, O&S costs, and the interdependencies that exist

Example: How much time does it take a traveler to get through airport security?



OSCAM was developed through a strategic partnership between the Naval Center for Cost Analysis (NCCA) and the UK Ministry of Defence (UK MoD) with support from QinetiQ Ltd.



Ministry of Defence
Bristol, United Kingdom

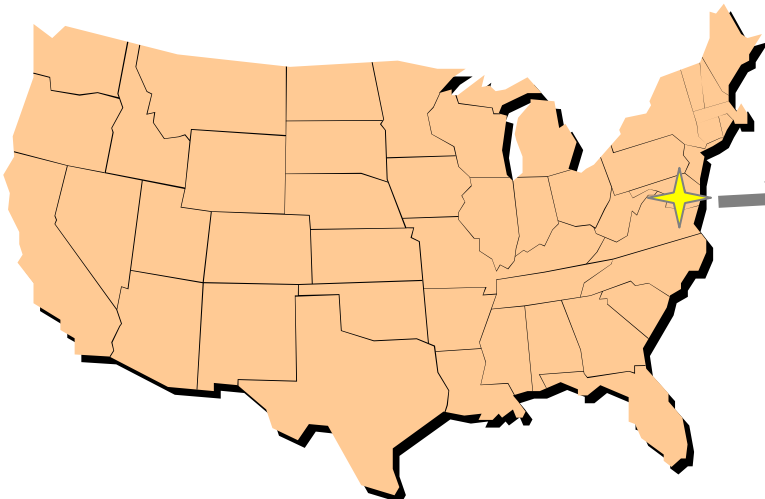


- OSCAM Program Management for UK

QinetiQ Ltd
Farnborough, United Kingdom



- OSCAM Software Development
- OSCAM Web Site Administration
- UK Help Desk



Naval Center for Cost Analysis & Naval Surface Warfare Center, Carderock Division



Washington DC, United States of America

- OSCAM Program Management for US
- US Help Desk



How is OSCAM different?



- **OSCAM models are a time based simulation which makes it more powerful than Excel based models**
 - OSCAM can discretely model depot maintenance periods and account for aging, for example, because of the time based approach
- **Model openness**
 - OSCAM is not a black box model
 - OSCAM users have complete insight into the equations and relationships that are used via the built-in help functions and model structure document
 - The model facilitates understanding of O&S processes, O&S costs, and the interdependencies that exist
- **Historical databases**
 - VAMOSC based historical datasets are provided with the OSCAM Ship, OSCAM Sys, and OSCAM Air models. Historical datasets are prepared for most platforms in the Naval VAMOSC database
- **Supports a team approach**
 - OSCAM encourages a team approach; it can be used throughout the life cycle by logisticians, cost analysts, engineers, etc., because the results offer both cost and non-cost outputs



OSCAM Family Common Features



- Simplified or detailed analysis for major cost elements
- Sensitivity and Uncertainty Analysis
- Throughput facility for additional costs or unique requirements
- Ability to compare multiple model runs
- Delta and Aggregation tools
- Automated tracking of data sources



Additional Potential Model Uses

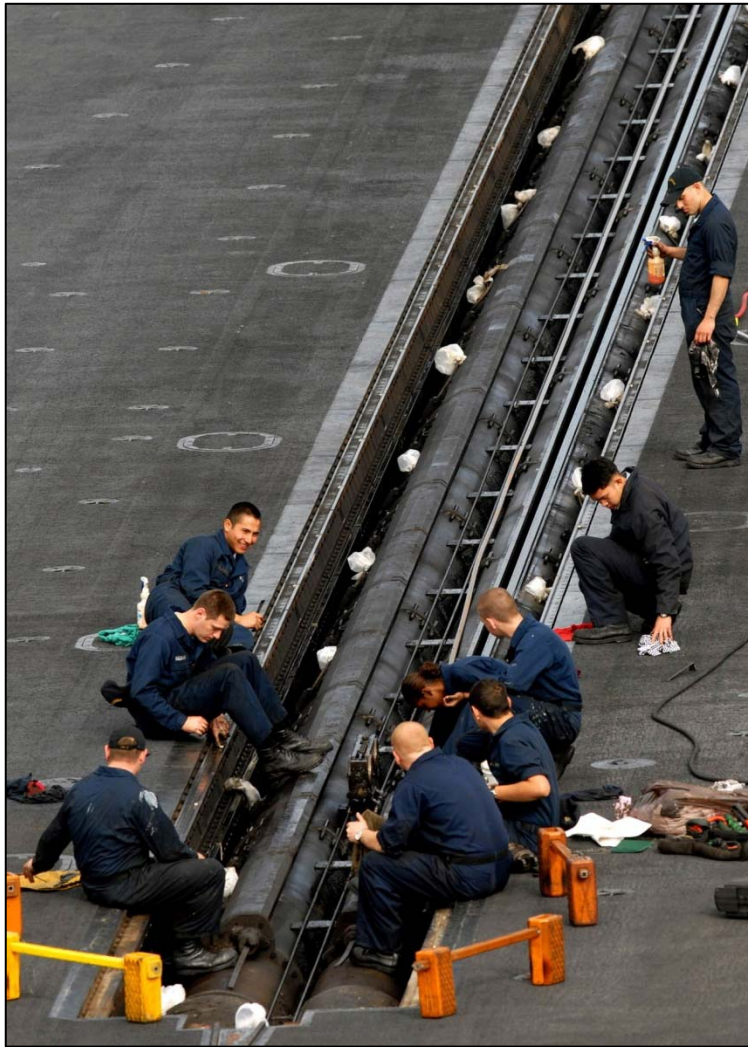


- **OPTEMPO**
 - OPTEMPO impact on Fuel Consumption
 - OPTEMPO impact on Maintenance Requirements
 - Aircraft Shortfall impact on OPTEMPO
 - Materially Available Vessel Day analysis
- **Aging**
 - Age Impact on Fuel Consumption
 - Age Impact on Maintenance Requirements
- **Maintenance**
 - Impact of Different Maintenance Philosophies
 - Maintenance impact on Personnel Utilization
 - Modernization impact on Aircraft Age and /or Organizational- and Intermediate-Level Maintenance
 - Training Requirements Impact on Maintenance / Availability
 - Overhaul Cycle Impacts on Depot Capacity
 - Overhaul Impacts on System Age
 - Overhaul Requirement Impacts on O / I-Level Maintenance
 - Crewing Level Impacts on Maintenance / Availability

- **OSCAM Ship v8.0**

- Appropriate for all types of ships, boats, and submarines, including nuclear
- Models up to 60 ships at a time
- Allows scheduling of deployments and explicit planning of depot maintenance cycles
- Results mapped to 2007 CAIG structure
- Expanded uncertainty analysis
- 3 level of detail for inputs
- Historical VAMOSC datasets provided for 98 ship classes





- OSCAM Sys v7.0
 - Developed with the UK MoD
 - Models a specific system that may exist on several ship platforms
 - Software, modernization, and ETS are modeled in greater detail than in the ship model
 - Historical datasets provided for 66 systems

- OSCAM Air v3.0
 - Appropriate for both fixed and rotary wing type/model/series (TMS) as well as UAV programs
 - Models deployed and non-deployed aircraft for Active, Reserve, FRS, and “Other” environments
 - Explicitly models squadron and maintenance personnel
 - Simplified and Detailed inputs in a single database structure
 - Historic databases are provided for 21 TMS



- Parametric Costing Tool
 - Updated for Ship v8.0
 - Allows for ROM estimates very early in the design process
 - 4 required inputs: ship type, lightship displacement, propulsion type, cost of fuel (per barrel)
 - Uses CERs built from historical VAMOSOC data to project costs for most CAPE O&S cost elements
 - Allows CER values to be overwritten if better information is available



- Data Management Tool
 - Each model has its own Data Management Tool
 - The DMT is a way to model maintenance data to the lowest level applicable
 - DMT is ideal for trade off studies and obsolescence drills
 - Ship and Sys DMTs build a tree structure based on Work Breakdown Structure (WBS); Air builds its tree structure based on Work Unit Code (WUC)
 - Datasets are not provided with the DMTs but assistance in building a DMT dataset is available
 - A dataset generator tool is available for the Air model



- **OSCAM EFV**
 - Bespoke model built by the USMC EFV program office
 - Based on the UK Land model

- **OSCAM USAF**
 - Built by the C-17 program office but made generic enough for all Air Force programs
 - Based on the Navy Air model

- **OSCAM JSF**
 - Currently in v1.0
 - For use by all 9 partner countries as a common O&S tool



These models are not managed by NCCA but points of contact can be provided upon request.



User Support for Navy Models



- US Help Desk – supported by the OSCAM program office
- F1 Help functionality – displays the appropriate influence diagram for each input and/or output which allows the user to trace relationships and interdependencies
- Structure documents – contain the influence diagrams and are available for every model and DMT
- User Guides – provide direction on how to use the model, available for every model and DMT
- Automated Tutorials – “movies” to show how to use the models, available at www.oscamtools.com
- Historical dataset guide
 - explain how the datasets are developed and list data processing assumptions and methodologies

- Air
 - Joint Strike Fighter (JSF)
 - Navy Unmanned Combat Air System (N-UCAS)
 - E-2C/D Analysis in Industry
 - EA-18G NCCA Estimates
- Ship
 - Littoral Combat Ship (LCS) PLCCE and BCA
 - Joint High Speed Vessel (JHSV) – used by both the Navy and Contractor teams
 - DDG-1000 for Milestone Reviews
 - DDG 51 for Milestone Reviews and ongoing studies
 - Sea Based Strategic Deterrent (SBSD) AoA – Trident replacement program
 - Virginia Class Submarine (VCS) MS III PLCCE update



Who has used OSCAM?



- Ship

- T-AKE cargo ship source selection – estimate was within 4% of CAIG estimate
- LHA Replacement program MS B PLCCE – estimate was within 6% of CAIG
- Maritime Pre-positioned Force (Future) (MPF(F)) – amphibious ship estimates
- CG(X) Analysis of Alternatives Study – new cruiser program
- Unmanned Naval Surface Combatant
- US Coast Guard Deepwater Program

- Air

- Vertical Takeoff Unmanned Aerial Vehicle (VT-UAV) MS C – both program office and ICE team used OSCAM



OSCAM Demo v8.0/v3.0



- The OSCAM Demonstration Version is intended to raise interest in OSCAM by demonstrating some of its capabilities to potential users and to encourage interested analysts to:
 - Attend OSCAM training
 - Obtain OSCAM Full Version of Ship or Air
 - Learn more about OSCAM
- The OSCAM Demonstration Version has been simplified for untrained users through provision of a pre-loaded demonstration dataset. This dataset is not specific to any particular Ship Class or Type/Model/Series.
- Contact the OSCAM program office if you are interested in a copy.

The Demonstration Version is not intended for actual program analysis.



OSCAM Training Courses



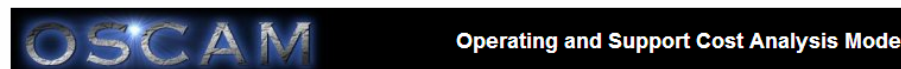
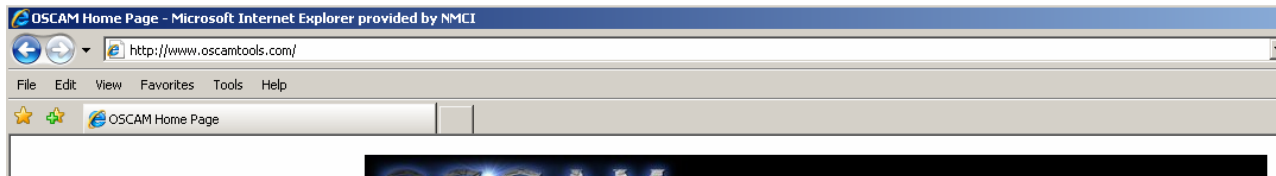
- Three day “hands-on” training courses
 - Includes OSCAM training, the model software, and all subsequent updates as well as access to the US Help Desk
 - **OSCAM Ship and Sys Training Courses**
 - To be held at the Admiral Gooding Center at the Washington Navy Yard
 - **OSCAM Air Training Courses**
 - To be held in Southern MD, near the PAX NAS
 - To register for a course and see the latest training schedule, please visit www.oscamtools.com

The course fee has been waived for the upcoming training courses for government personnel and government sponsored contractors!



The OSCAM website is one-stop shopping for:

- Model downloads
- Dataset downloads
- Upcoming training course and conference dates
- Training registration
- Model Tutorials
- OSCAM POCs



- Home
- Products
- Downloads
- Training
- Help
- Feedback
- Learn More
- Contact Us



Ship Sys Air JSF EFV

What Is OSCAM?

The Operating and Support Cost Analysis Model (OSCAM) began as a joint program, in 1996, between the US/UK aimed at developing a model that estimated the O&S costs of Ships and Shipboard Systems and captured the interdependencies that exist between the cost elements across the program. Using System Dynamics, OSCAM represents the business processes that drive costs and their relationships to management policies in order to assess the impact of technical, operational, and programmatic decisions on the cost and availability of these assets. Since the inception of OSCAM, there have been subsequent product developments that not only enhanced the Ship and Shipboard Systems model, but established new product lines encompassing both Land and Air Vehicles. To learn more about each specific OSCAM model type, please visit the [Products](#) section of the website.

OSCAM Updates

OSCAM Air Training

June 2011						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

14-16 June 2011
Patuxent River, MD
[More information](#)

OSCAM Ship Training

March 2011						
M	T	W	T	F	S	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

29-31 Mar 2011
Washington, DC
[More information](#)

OSCAM JSF Training

May 2011						
M	T	W	T	F	S	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

May 2011 (TBC)
Location TBC
[More information](#)



Points of Contact



OSCAM US Help Desk

OSCAM.NSWCCD@navy.mil

QinetiQ Help Desk

oscam@qinetiq.com

Related Web Sites

www.oscamtools.com

www.ncca.navy.mil

www.vamosc.navy.mil

www.qinetiq.com



BACKUP



OSCAM Air Front Screen



The screenshot shows the OSCAM Air software interface. At the top, there is a menu bar with 'File', 'Window', 'Tools', and 'Help'. Below the menu bar is a toolbar with several icons: 'Open', 'Save', 'Run', 'Results', 'Profile', 'Personnel', 'Ops', 'Maint', 'Training', 'Indirect', 'Other', 'Thru'put', and 'Details'. A 'Record' dropdown menu is set to 'Demo Data'. On the right side, there is a 'Base Year' field set to '2007'. The main area of the screen displays a background image of an aircraft carrier and a fighter jet. Below the main area, there is a 'Simulation Control Tool Bar' window. This window contains a 'Simulation Duration (Years)' field set to '40', a 'Current Year' field set to '40', a 'Warp Speed Option' checkbox which is checked, and a 'Progress' indicator showing '0%'. There are also several control buttons: a play button (highlighted with a yellow box), a stop button, a pause button, and a refresh button. A 'READY' button is also present. At the bottom of the window, it says 'Powersim Model : AIR_V3'. The text 'OSCAM Air Demonstration Version' is displayed at the bottom of the main screen area.

To run the model with the demo dataset, press the simulation button. When the Simulation Control Form appears, you simply press the Run button. After the model has run, the Results Screen will be displayed (see following slide).

To edit the demo dataset, press any of the input form icons. There are separate input forms for:

- Program Profile data
- Personnel data
- Operations data
- Maintenance data
- Training data
- Indirect Support data
- Other data
- Throughput Cost data



OSCAM Air Example Input Screen



OSCAM Air - [Personnel Data Input Form]

File Window Tools Help

Record **Demo Data** Open Save Run Results Profile Personnel Ops Maint Training Indirect Other Thru/put Details Base Year 2007

Personnel Data Input Form

In the input forms, any data field can be edited. By default, the data source is the record name "Demo Data." When a field is modified, the record name is highlighted in red and the data source changes to "User." This is one of OSCAM's audit trail features. New in v3.0 is the ability to set the data source to whatever the user chooses. The example here shows J. Smith.

The Online Help facility can be accessed by pressing the "F1" key when the cursor is in any input cell. This brings up a window that depicts how that input is used within the model.

PS51. Pilot Turnover (%)

PS53. NFO Turnover (%)

PS55. Enlisted Aircrew Turnover (%) Demo Data

Maintenance Personnel

PS56. Officers (Pers/Sqn) Demo Data

PS57. Enlisted (Pers/Sqn) User

PS58. SEAOPDET (Pers/Sqn) Demo Data

PS59. Maintenance Personnel (Pers/Sqn) J. Smith

PS60. Maintenance Personnel Turnover (Part-Time) Demo Data

As well as its short description, each input field has a long description that provides more information. It is displayed at the bottom of the screen by hovering the mouse over the input field.

OSCAM (Air)

Interactive Help

User Inputs

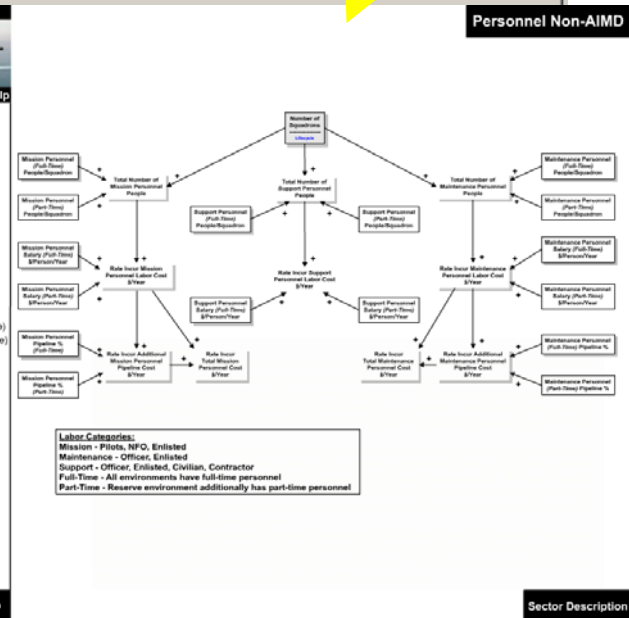
- Mission Personnel (Full-Time)
- Mission Personnel (Part-Time)
- Mission Personnel Salary (Full-Time)
- Mission Personnel Salary (Part-Time)
- Mission Personnel Turnover (Full-Time)
- Mission Personnel Turnover (Part-Time)
- Support Personnel (Part-Time)
- Support Personnel Salary (Full-Time)
- Support Personnel Salary (Part-Time)
- Maintenance Personnel (Full-Time)
- Maintenance Personnel (Part-Time)
- Maintenance Personnel Salary (Full-Time)
- Maintenance Personnel Salary (Part-Time)
- Maintenance Personnel Turnover (Full-Time)
- Maintenance Personnel Turnover (Part-Time)

Variables from Other Sectors

Outputs

- Total Mission Personnel Cost
- Total Support Personnel Cost
- Total O-Level Maintenance Personnel Cost

Close Window Key Help



The number of Support Officers required per squadron. Historical datasets use VAMOSOC Personnel Universe data for a representative squadron.



OSCAM Air Example Results Screen



OSCAM Air - [Results Display Form]

File Window Tools Help

Record **Demo Data** Open Save Run Results Profile Personnel Ops Maint

Headings	Totals	1998	1999
01 Quantity of Systems in Service (Systems)	N/A	0	40
* Total Operational and Support Costs + Throughput Costs (\$M)	21,702.704	0.000	128.204
02 Total Operational and Support Costs (\$M)	21,702.704	0.000	128.204
03 Total Personnel Cost (\$M)	7,624.769	0.000	39.888
70 Unit-Level Consumption Cost (\$M)	6,019.750	0.000	37.161
71 Fuel Cost (\$M)	2,002.741	0.000	5.425
72 Consumable/Repair Parts Cost (\$M)	2,277.645	0.000	12.323
79 Unscheduled Depot Maintenance Cost (\$M)	2,016.386	0.000	15.501
80 Aircraft Unscheduled Maintenance Cost (\$M)	2,016.386	0.000	15.501
81 AVDLR (\$M)	2,016.386	0.000	15.501
82 False Removal (\$M)	0.000	0.000	0.000
83 Engine Unscheduled Maintenance Cost (\$M)	0.000	0.000	0.000
86 Ordnance Cost (\$M)	716.243	0.000	3.875
87 Temporary Duty Cost (\$M)	6.752	0.000	0.035
88 Intermediate Maintenance Cost (\$M)	347.566	0.000	1.818
106 Total PDM/Overhaul Cost (\$M)	1,202.801	0.000	6.496

Demo Data Run 1 | Demo Data Run 2 | Demo Data Run 3

Graph Series Format: Annual Cumulative Show Markers

Total Operational and Support Costs

Legend: Demo Data Run 1 (red squares), Demo Data Run 2 (green circles), Demo Data Run 3 (blue triangles)

Model results are displayed in both tabular and graphical format. The results table can be expanded and collapsed by clicking the "+" and "-" boxes. Any data line can be displayed in the graph by double-clicking on that line.

Up to 20 result sets can be displayed in the table and graph.

The results can be displayed annually or cumulatively.



OSCAM Air DMT Input Example



OSCAM Air DMT - [Breakdown Structure Form]

File Window Settings Tools Help

Record **New** Base Year 2007 WBS **Demo DMT Data** Base Year 2007

Profile Personnel Ops Maint Training Indirect Other Thru'put WBS Form Set To DMT Transfer Details

Breakdown Structure Form

Study Aircraft Structure Reference Aircraft Structure

- Aircraft
 - Airframe
 - Power Plant Installation
 - Avionics
 - Systems
 - Aux Power Unit
 - Lighting
 - Hydraulics
 - Fuel System
 - Fuel Tank
 - Engine Fuel Supply System
 - Boost Pump**

Simplified Data Events: MTBR Action Rate

Data Input Graphical Display

Element Name Engine Part

Boost Pump

WUC Quantity

A2 40 2 1 0 1

Element Description

	Aircraft	Engine
MTBR	0	33,333.3
Action Rate/1000 Hrs	0	0.03000
At O-Level		
% Repair at O-Level	0.00	80.00
% Refer to I-Level	0.00	20.00
% To Depot Repair/Replace	0.00	0.00
% False Removal	100.00	0.00
At I-Level		
% Repair at I-Level	0.00	80.00
% To Depot Repair/Replace	0.00	20.00
% False Removal	100.00	0.00

Unscheduled Actions Costs and Labor

The breakdown structure is defined by the user.

Unscheduled maintenance data is entered for components at the lowest level. The DMT then aggregates this data to the aircraft level, where it can be exported to OSCAM for further analysis. Data is entered separately for Aircraft and Engine parts.



OSCAM Air DMT Output Example



OSCAM Air DMT - [Breakdown Structure Form]

File Window Settings Tools Help

Record Base Year WBS

Profile Personnel Ops Maint Training Indirect Other Thru/put

While the primary function of the DMT is to create OSCAM datasets, it is also an analysis tool. In this example, the user can identify the major maintenance drivers within the "Aircraft" element. This view shows a comparison of Actions/1,000 Flying Hours:

- Green denotes Actions due to Engine parts;
- Red denotes Actions due to Aircraft parts.

Breakdown Structure Form

Simplified Data Events: MTBR Action Rate

Data Input Graphical Display

Actions (/1000 Hrs)

O-Level Repairs (/1000 Hrs)

I-Level Repairs (/1000 Hrs)

Depot Repairs (/1000 Hrs)

False removals (/1000 Hrs)

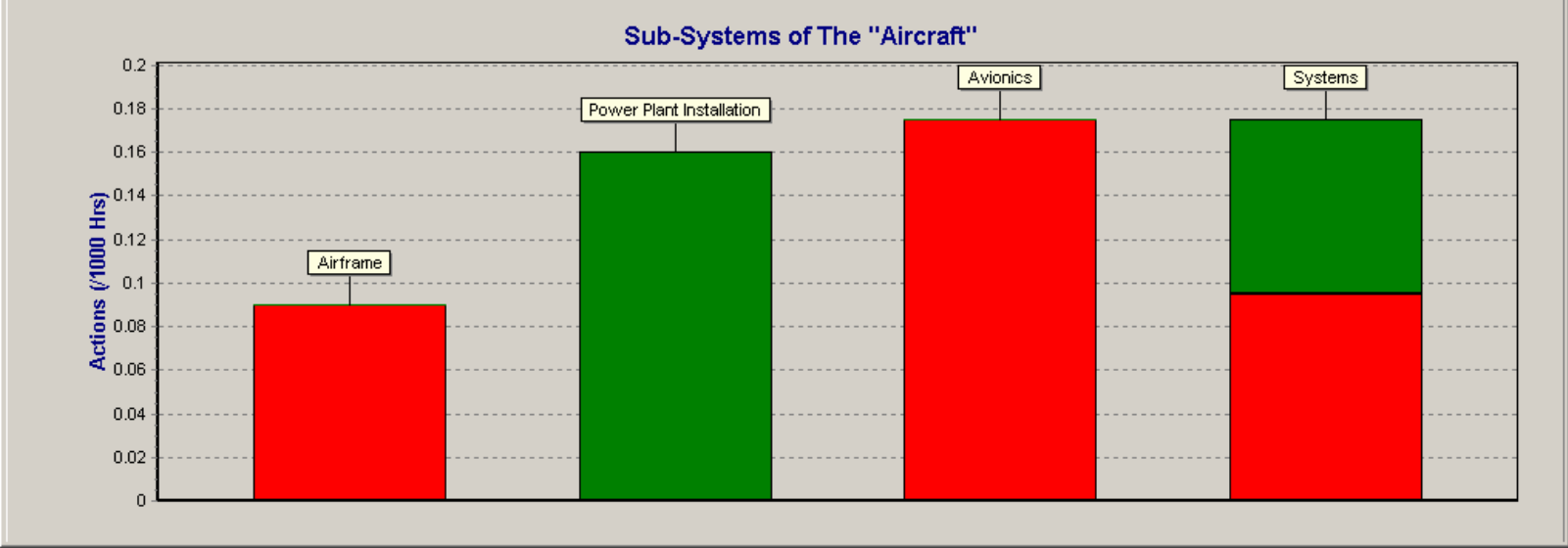
Average Cost (\$/Action)

O-Level Consumables (\$/Action)

I-Level Consumables (\$/Action)

Depot Repair (\$/Action)

False Removal (\$/Action)





OSCAM Ship Front Screen



The screenshot shows the OSCAM SHIP software interface. At the top, there is a menu bar with 'File', 'Window', 'Tools', and 'Help'. Below the menu bar, there are two text boxes for 'Primary Data Record Name' (containing 'Demo Data') and 'Detailed Data Record Name'. To the right of these boxes is a 'Cost Year' dropdown set to '2007' and a 'US Mode' checkbox. A toolbar contains various icons, including a simulation button (a play icon) and several input form icons (represented by small colored squares with icons). A yellow box highlights the simulation button and the input form icons. A yellow arrow points from the simulation button to a text box on the left. Another yellow arrow points from the input form icons to a text box on the right. In the center, there is a large image of a ship at sea. At the bottom, a 'Simulation Control Form' dialog box is open, showing 'Simulation Duration (Yrs)' set to 40, a 'Warp Speed' checkbox checked, a '1/2 Month Timestep' checkbox unchecked, and a 'READY' button. A yellow box highlights the play button in the simulation control form, with a yellow arrow pointing to it from the left text box. To the right of the simulation control form is a 'Progress' indicator showing '0%'.

Primary Data Record Name: Demo Data

Detailed Data Record Name:

Cost Year: 2007

US Mode:

Simulation Control Form:

Simulation Duration (Yrs): 40

Warp Speed

1/2 Month Timestep

READY

Progress: 0%

PowerSim Model: **OSCPLTV7**

To run the model with the demo dataset, press the simulation button. When the Simulation Control Form appears, you simply press the Run button. After the model has run, the Results Screen will be displayed (see following slide).

To edit the demo dataset, press any of the input form icons. There are separate input forms for:

- Throughput Cost Data
- Operations data
- Organizational level maintenance data
- Intermediate maintenance ashore data
- Intermediate maintenance afloat data
- Other data
- Scheduled overhaul / Operating profiles data
- Overhaul types data
- Program profile data



OSCAM Ship Example Input Screen



OSCAM SHIP - [Operations Input Form]

File Window Tools Help

Primary Data Record Name: **Demo Data** (highlighted in red)

Detailed Data Record Name: []

Cost Year: 2007 US Mode

Operations Input Form

In the input forms, any data field can be edited. By default the data source is the record name "Demo Data." When a field is modified, the record name is highlighted in red and the data source changes to "User." This is one of OSCAM's audit trail features. New in v7.0 is the ability to set the data source to whatever the user chooses. The example here shows J. Smith.

The Online Help facility can be accessed by pressing the "F1" key when the cursor is in any input cell. This brings up a window that depicts how that input is used within the model.

As well as its short description, each input field has a long description that provides more information. It is displayed at the bottom of the screen by hovering the mouse over the input field.

The number of enlisted personnel assigned per ship.

Manning		
5. Enlisted Crew per Ship	325	User
6. Officer Crew per Ship	25	Demo Data
7. Enlisted Monthly Pay Rate \$K	4.000	J. Smith
8. Officer Monthly Pay Rate \$K	6.400	Demo Data
9. Enlisted Personnel/Yr	0.005	Demo Data
10. Officer Personnel/Yr	0.10	Demo Data
11. Handling Personnel/Yr	140.00	Demo Data

Disposal Requirements

18. Disposal Cost per Long Ton (\$K)

3. % Not Underway On Ext Power IFT (%)

Fuel Requirements

12. Bbls of Fuel

13. Pals of Fuel

14. Cost per B

15. Other POL

Ordnance Requirements

16. Expendable

17. Handling C

OSCAM (Navy) Interactive Help

Ship Model

Primary Level Inputs

- General Stores/Supplies Cost
- Publications Cost

Detailed Level Inputs

- N/A

Variables from Other Sectors

- Current Total Crew
- Total Ships in Service

Outputs

- Rate Incur General Stores Cost
- Rate Incur Publications Cost

CONSUMABLES AND PUBLICATIONS

```

graph LR
    MANNING[MANNING] -- "+" --> RISC[Rate Incur General Stores Cost]
    RISC -- "+" --> OPS[OPERATIONS Gen Stores / Supplies Cost]
    
    SHIP_PROF[SHIP PROF] -- "+" --> RIPC[Rate Incur Publications Cost]
    RIPC -- "+" --> OPS_PUB[OPERATIONS Publications Cost]
  
```

Close Window Help

Sector Description



OSCAM Ship Example Results Screen



OSCAM SHIP - [Results Display Form]

File Window Tools Help

Primary Data Record Name: Demo Data

Detailed Data Record Name: [Empty]

Headings	Totals	2006	2007	2008	2009	2010	2011	2012	2013	2014
01 Ships In Service (Ships)	N/A	0.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
* Total Operating & Support Costs + Throughput Costs (\$M)	1,391.423	0.000	31.801	34.755	34.755	34.755	34.755	34.755	34.755	34.755
02 Total Operating & Support Costs (\$M)	1,391.423	0.000	31.801	34.755	34.755	34.755	34.755	34.755	34.755	34.755
03 Operations Costs (\$M)	888.512	0.000	26.434	25.469	25.469	25.469	25.469	25.469	25.469	25.469
04 Alongside Support Services Costs (\$M)	0.000	0.000	0.800	0.800	0.800	0.800	0.800	0.800	0.800	0.800
05 Personnel Costs (\$M)	613.270	0.000	17.522	17.522	17.522	17.522	17.522	17.522	17.522	17.522
06 Personnel Costs (Officer) (\$M)	67.200	0.000	1.920	1.920	1.920	1.920	1.920	1.920	1.920	1.920
07 Personnel Costs (Enlisted) (\$M)	546.070	0.000	15.602	15.602	15.602	15.602	15.602	15.602	15.602	15.602
08 Publications Costs (\$M)	4.900	0.000	0.140	0.140	0.140	0.140	0.140	0.140	0.140	0.140
09 Supplies Costs (\$M)	2.450	0.000	0.070	0.070	0.070	0.070	0.070	0.070	0.070	0.070
10 Fuel Costs (\$M)	167.105	0.000	5.823	4.857	5.823	4.374	5.340	1.478	4.374	4.374
16 Ordnance Costs (\$M)	72.800	0.000	2.080	2.080	2.080	2.080	2.080	2.080	2.080	2.080
17 Disposal Costs (\$M)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
18 Maintenance Costs (\$M)	243.870	0.000	3.342	6.042	3.342	8.742	4.962	17.922	10.902	10.902
19 O-Level Maintenance Costs (\$M)	38.535	0.000	1.101	1.101	1.101	1.101	1.101	1.101	1.101	1.101
24 I-Level Maintenance Costs (\$M)	32.935	0.000	0.941	0.941	0.941	0.941	0.941	0.941	0.941	0.941

Demo Data Run 1 | Demo Data Run 2 | Demo Data Run 3

Graph Series Format: Annual Cumulative Show Markers

Total Operating & Support Costs

\$M

Year Ending

Legend: Demo Data Run 1, Demo Data Run 2, Demo Data Run 3

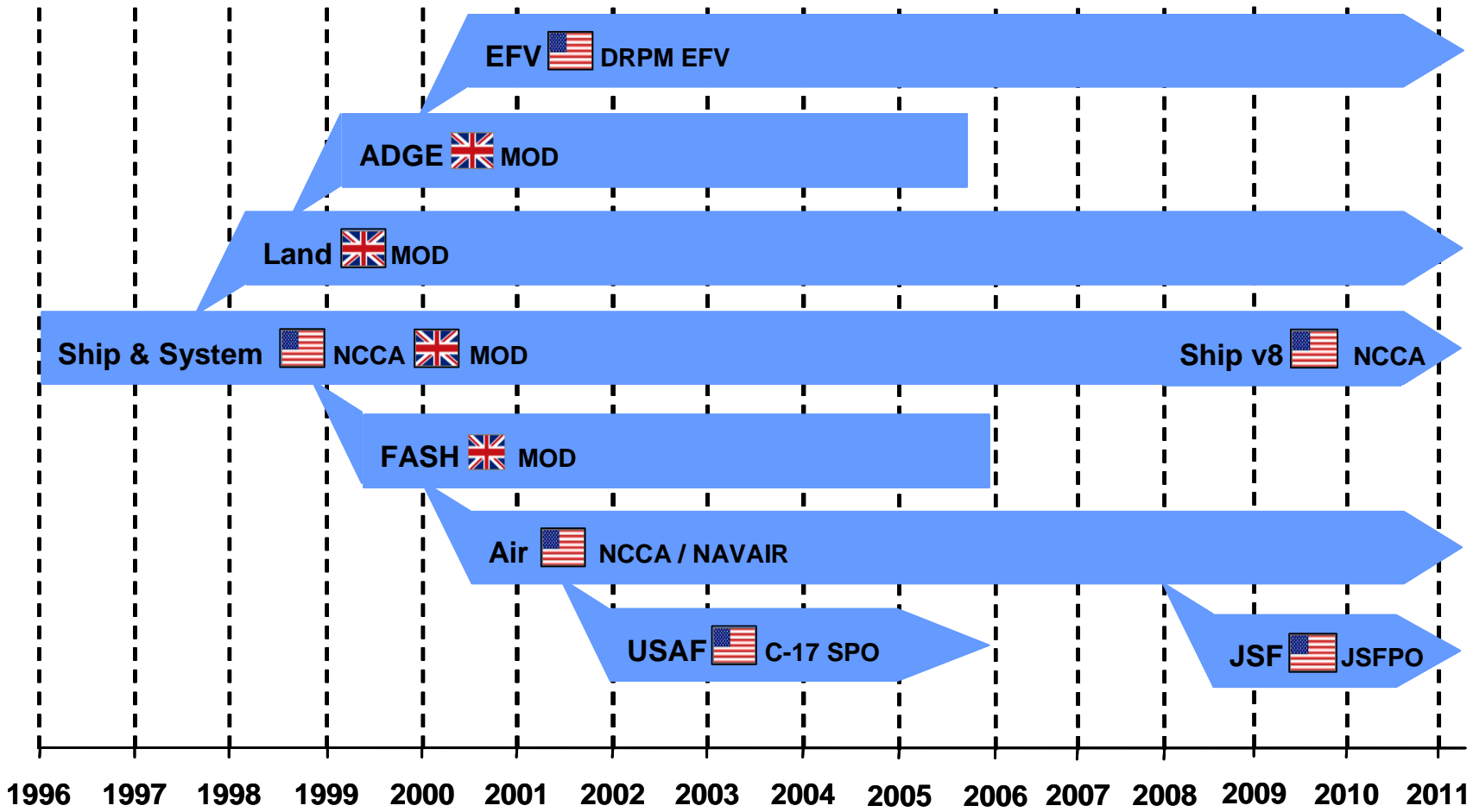
Model results are displayed in both tabular and graphical format. The results table can be expanded and collapsed by clicking the "+" and "-" boxes. Any data line can be displayed in the graph by double-clicking on that line.

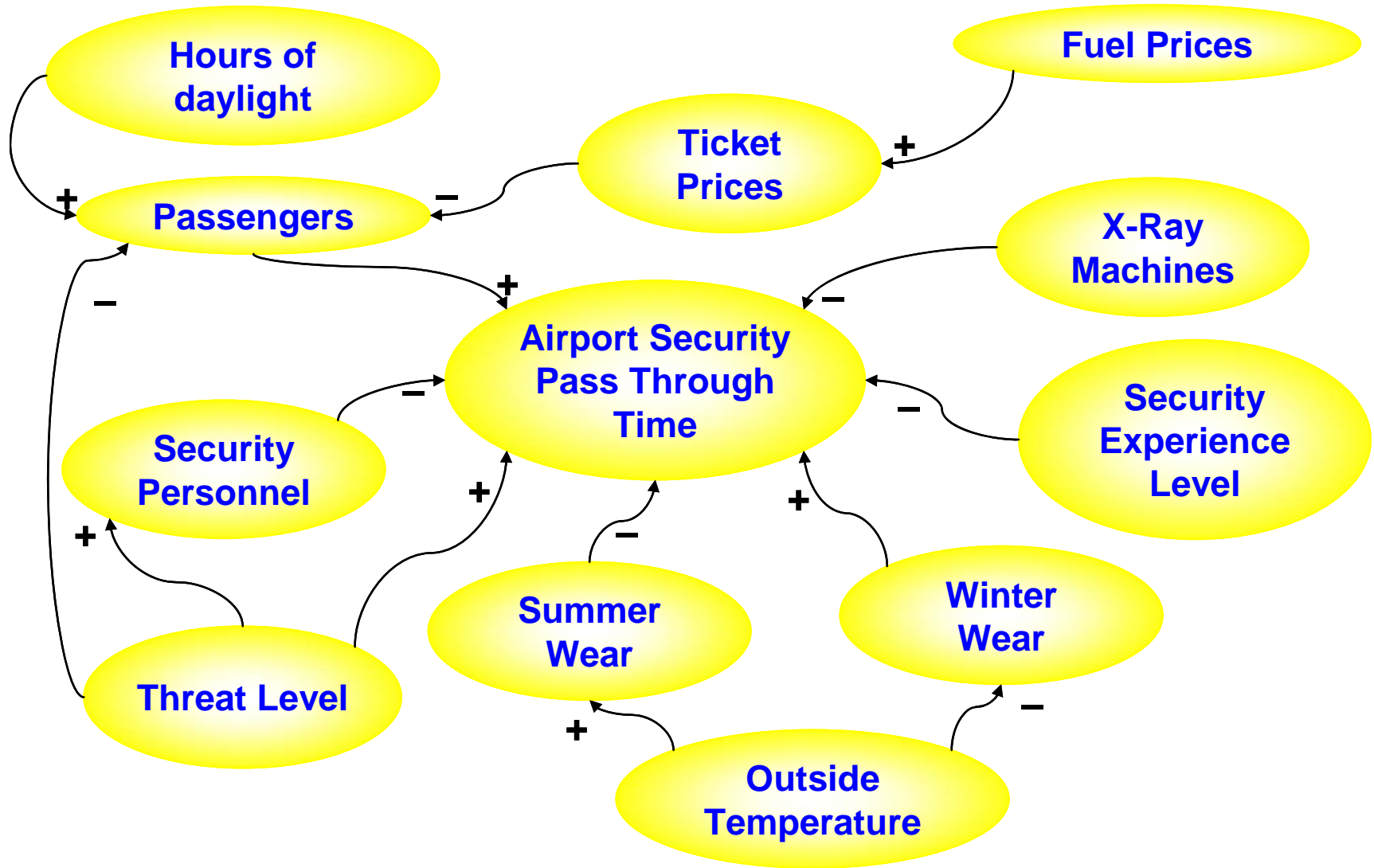
Up to 20 result sets can be displayed in the table and graph.

The results can be displayed annually or cumulatively.



OSCAM Family of Models





- PEO F/A-99 wants to upgrade its weapon control systems. The AN/ASQ-228(V)2 TARGET DESIGNATOR SET has been rendered obsolete and needs replacement. The Program Office has a COTS system, the AN/ASQ-3000, ready to be installed and wants to know how to adjust their operating budgets through the FYDP.
 - The AN/ASQ-3000 has an AVDLR \$/HR of 10/HR
 - The AN/ASQ-3000 has an Consumables \$/HR of \$0.25/HR

- The DMT provides a fast and easy way to evaluate this problem with a bottoms up approach.



All information and data in the scenario is fictitious and used for demonstration purposes only.

- **New platform**
- **The Navy had proposed a new helicopter, the ZZ-10, to replace the current AH-1W.**
 - ZZ-10 will enter service in 2022 with 12 aircraft per year for 12 years (144 total new helos)
 - 50% will go to active squadrons, 25% to reserve, and 25% to FRS
 - Flying hours and squadron manning will remain the same as the current AH-1W
 - The fuel usage will be 15% more efficient than AH-1W, but AVDLR and Consumables costs are estimated to be +20% for unscheduled work
- **What are the estimated O&S costs for the new platform?**



All information and data in the scenario is fictitious and used for demonstration purposes only.

- In service platform
- For budgeting purposes, what are the expected O&S costs for the existing LHD 1 and LHA 1 classes for the remaining years of service life?



All information and data in the scenario is fictitious and used for demonstration purposes only.

- Updated platform
- All CIWS systems will undergo a major upgrade in the 10th year of service.
 - It will take 5 years to complete all the upgrades
 - 100K SLOC is estimated to be added by the upgrade
 - The upgrade will reduce the effective age of the system by half
 - Estimated cost will not exceed 25% of the original procurement cost
 - After the upgrade the system will require 10% less maintainers
- What are the expected O&S costs for the platform with this anticipated upgrade?



All information and data in the scenario is fictitious and used for demonstration purposes only.