The Dashboard Tool

Taking Cost Analysis to the Next Step by Combining Costs with Capabilities to Evaluate COAs

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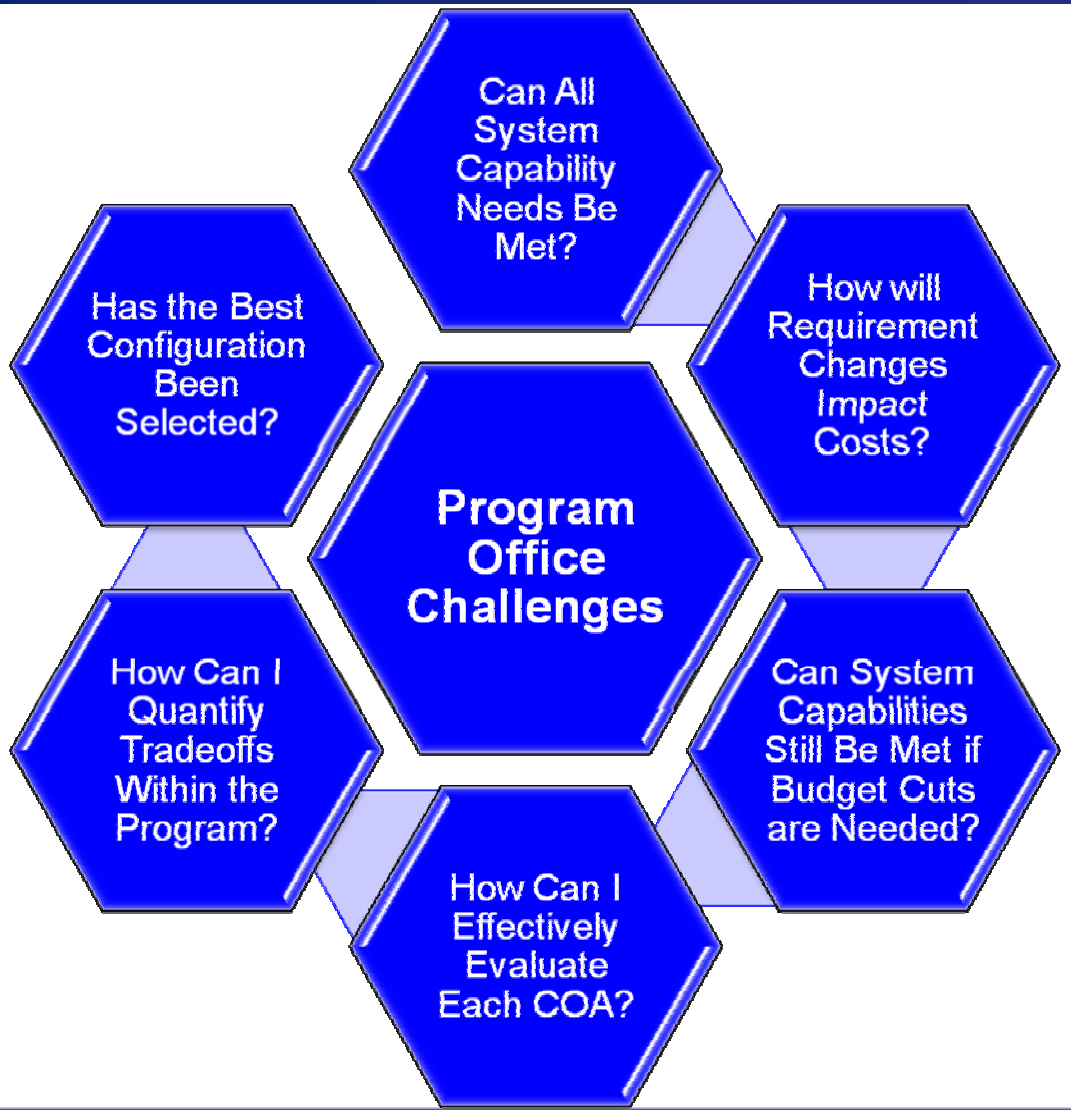
Agenda

- Program Office Challenges
- Current Cost Estimating Process
- Dashboard Capabilities & Process
- The Dashboard Tool

Program Office Challenges



Challenge:
Does the Program Office have the information needed to answer each question?

Current Cost Estimating Process

Challenge: **Program Offices generate snapshots of program costs for system configurations selected at each milestone.**
This may potentially limit the PM's ability to answer outstanding questions.

What Can Dashboard Do?

Dashboard examines the tradeoffs between capability and cost as it builds LCCEs for different Program alternatives selected

Dashboard Quantifies the increase in Capabilities and the Cost Impact for each Alternative selected

Program Cost Impact

Program Capabilities

Quantity

Capability

USMC Program Trade-Offs

Cost ($)

Status Quo LCCE

Dashboard Produces Estimates to Determine Cost Impact of Program Alternatives Selected

Alternative LCCE

Alternative LCCE

Alternative LCCE

Dashboard Aligns Program Costs With Capabilities Achieved

KPP / $

KPP / $

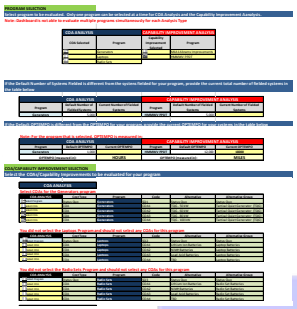
KPP / $

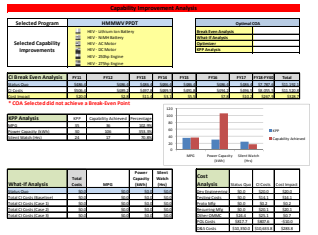
Dashboard Capabilities

- To help Program Offices in evaluating alternatives, Dashboard can:
  - Estimate both the costs and capabilities achieved for each alternative
  - Compare the capabilities achieved to capability targets to determine if a program's Key Performance Parameters (KPPs) can be achieved
  - Enable users to conduct What-If Analyses for selected alternatives
  - Quantify the cost impact associated with incremental increases in system capabilities to evaluate tradeoffs

- Dashboard quickly evaluates the alternatives selected from both a cost and capabilities perspective

How Does Dashboard Function?





Step 1
Users select alternatives to be evaluated and provide programmatic information

Step 2
Users can Review/Override KPPs, Program Parameters and perform What-If Analyses

Step 3
Cost models are used to calculate the life cycle costs and the cost impact of each alternative

Step 4
Capabilities of each alternative are identified and capability increases are determined

Step 5
The cost impact and capabilities of each alternative are combined and compared to the KPPs for the program

Step 6
Users can view the cost impact and compare the capabilities achieved to KPPs for each alternative

The Dashboard Process (1 of 3)

- Dashboard develops the life cycle cost estimate (LCCE) for the Program in the Status Quo state which include the following cost elements:
  - Development Engineering Costs
  - DT&E Costs
  - IOT&E Costs
  - LFT&E Costs
  - Prototype Manufacturing Costs – Hardware & Integration Costs
  - Initial Spares Costs
  - Recurring Production Costs – Hardware & Integration Costs
  - Transportation Costs
  - Training Costs
  - Reparables and Consumables Costs
  - Petroleum, Oil and Lubricants Costs
  - Disposal Costs
- Dashboard identifies the KPPs for the Program in the Status Quo state

The Dashboard Process (2 of 3)

- The Program LCCE and KPPs in the Status Quo state establish the Program Baseline in which alternatives can be compared
- Dashboard identifies the cost elements which are impacted for each alternative and updates the estimates. The specific costs of each alternative are linked to the corresponding alternatives
- Dashboard compares the LCCEs of Program with each alternative to the Baseline LCCE to determine the cost impact associated with each alternative
- Dashboard identifies the capabilities achieved with each alternative and compares them to the KPPs established in the Program Baseline to determine the capability increases.

The Dashboard Process (3 of 3)

- Dashboard enables users to select combinations of alternatives for each Program

- Dashboard then displays the cost impact and the capabilities achieved for the set of alternatives selected and compares them to the KPPs to determine if the Program Capability Needs can be achieved.

The Dashboard Tool (1 of 5)

Dashboard Input Form

PROGRAM SELECTION

Please select the New and Upgrade Programs to be included in the Asset portfolio to be evaluated.

NEW PROGRAMS		UPGRADE PROGRAMS	
Program Selected	Asset	Program Selected	Asset
☑	Generators	☑	M1A1 Abrams Improvements
☐	Laptops	☑	HMMWV HMMT
☐	Radio Sets		

ALTERNATIVE SELECTION

Select alternatives to be evaluated for each program selected

NEW PROGRAMS

Select Alternatives for the Generators Program

COA ANALYSIS	Cost Type	Program	Code	Alternative	Alternative Group
☑ Select Program	Status Quo	Generators	P1001	Status Quo	Status Quo
☑ Select COA	Alternative	Generators	P1ALT1	TQG - 50 kW	Tactical Quiet Generator (TQG)
☑ Select COA	Alternative	Generators	P1ALT2	TQG - 60 kW	Tactical Quiet Generator (TQG)
☑ Select COA	Alternative	Generators	P1ALT3	TQG - 80 kW	Tactical Quiet Generator (TQG)
☑ Select COA	Alternative	Generators	P1ALT4	TQG - 100 kW	Tactical Quiet Generator (TQG)

Select Alternatives for the Laptops Program

COA ANALYSIS	Cost Type	Program	Code	Alternative	Alternative Group
☑ Select Program	Status Quo	Laptops	P2001	Status Quo	Status Quo
☑ Select COA	Alternative	Laptops	P2ALT1	Lithium Ion Batteries	Laptop Batteries
☑ Select COA	Alternative	Laptops	P2ALT2	NiMH Batteries	Laptop Batteries
☑ Select COA	Alternative	Laptops	P2ALT3	Lead Acid Batteries	Laptop Batteries
☑ Select COA	Alternative	Laptops	P2ALT4	TBD	Laptop Batteries

Select Alternatives for the Radio Sets Program

COA ANALYSIS	Cost Type	Program	Code	Alternative	Alternative Group
☑ Select Program	Status Quo	Radio Sets	P3001	Status Quo	Status Quo
☑ Select COA	Alternative	Radio Sets	P3ALT1	Lithium Ion Batteries	Radio Set Batteries
☑ Select COA	Alternative	Radio Sets	P3ALT2	NiMH Batteries	Radio Set Batteries
☑ Select COA	Alternative	Radio Sets	P3ALT3	Lead Acid Batteries	Radio Set Batteries
☑ Select COA	Alternative	Radio Sets	P3ALT4	TBD	Radio Set Batteries

UPGRADE PROGRAMS

Select Capability Improvements

Upgrade Analysis	Cost Type	Program	Code	Alternative	Alternative Group
☑ Select Program	Status Quo	M1A1 Abrams Improvements	P4001	Status Quo	Status Quo
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT1	APU 1	APU
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT2	APU 2	APU
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT3	1400hp Diesel Engine	Engine
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT4	1400hp Turbine Engine	Engine
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT5	Battery 1	Battery
☐ Select Capability Improvement	Alternative	M1A1 Abrams Improvements	P4ALT6	Battery 2	Battery

Select Capability Improvements

Upgrade Analysis	Cost Type	Program	Code	Alternative	Alternative Group
☑ Select Program	Status Quo	HMMWV	P5001	Status Quo	Status Quo
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT1	HEV - Lithium Ion Battery	Battery Pack
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT2	HEV - NiMH Battery	Battery Pack
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT3	HEV - AC Motor	Motors
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT4	HEV - DC Motor	Motors
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT5	HEV - 270hp Engine	PPDT
☐ Select Capability Improvement	Alternative	HMMWV	P5ALT6	HEV - 370hp Engine	PPDT

- The Input Form enables users to select the appropriate alternatives to be included in the analysis.

The Dashboard Tool (2 of 5)

Dashboard Program Schedule Form

GENERATORS		START YEAR DATES	
Program	# of Systems Currently Fielded	Dev Engineering	Disposal
STATUS QUO	5,000	2011	2034
ALT 1	5,000	2011	2034
ALT 2	5,000	2011	2034
ALT 3	5,000	2011	2034
ALT 4	5,000	2011	2034

STATUS QUO														
Schedule	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Prototype Mfg	5	0	0	0	0	0	0	0	0	0	0	0	0	0
DT&E	3	0	0	0	0	0	0	0	0	0	0	0	0	0
IOT&E	0	1	0	0	0	0	0	0	0	0	0	0	0	0
LFT&E	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Recurring Production	0	0	100	100	100	100	100	100	100	0	0	0	0	0
Recurring Production Fielding	0	0	100	100	100	100	100	100	100	0	0	0	0	0

Cumulative Fielding	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Status Quo	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000	5000
Status Quo (Less New Production)	5000	5000	4900	4800	4700	4600	4500	4400	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300	4300
New Production Fielding	0	0	100	200	300	400	500	600	700	700	700	700	700	700	700	700	700	700	700
Status Quo (Less New Production) Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Systems Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- The Program Schedule Form enables users to provide the schedules for each alternative selected
- Dashboard uses the schedule information to develop the LCCEs for each alternative selected

The Dashboard Tool (3 of 5)

Dashboard Program Parameters Form

PROGRAM PARAMETERS

NEW PROGRAM - PROGRAM 1

Generators		KEY PERFORMANCE PARAMETERS			START YEAR DATES		OPTEMPO		LEARNING CURVE/RATE EFFECT			
Program	# of Systems Currently Fielded	kW	Battery Lifecycle (months)	Gallons /kWH	Dev Engineering	Disposal	Value	Measured in	Prior Units Produced	Learning Curve	Rate Effect (Lot Size)	Rate Effect
Status Quo	5,000	100	18	150	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
TQG - 50 kW	5,000	100	18	150	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
TQG - 60 kW	5,000	100	18	150	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
TQG - 80 kW	5,000	100	18	150	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
TQG - 100 kW	5,000	100	18	150	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%

NEW PROGRAM - PROGRAM 2

Laptops		KEY PERFORMANCE PARAMETERS			START YEAR DATES		OPTEMPO		LEARNING CURVE/RATE EFFECT			
Program	# of Systems Currently Fielded	Operating Hours without Recharge	Reliability (%)	MTBF	Dev Engineering	Disposal	Value	Measured in	Prior Units Produced	Learning Curve	Rate Effect (Lot Size)	Rate Effect
Status Quo	50,000	6	98.0%	1,000	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
Lithium Ion Batteries	50,000	6	98.0%	1,000	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
NiMH Batteries	50,000	6	98.0%	1,000	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
Lead Acid Batteries	50,000	6	98.0%	1,000	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%
TBD	50,000	6	98.0%	1,000	2011	2034	1,000	HOURS	0	93.0%	1000	97.0%

- The Program Parameters Form enables users to review and override the program parameter values that are not applicable.
- Dashboard uses the program parameters to develop LCCEs for each alternative selected.

The Dashboard Tool (4 of 5)

Dashboard What-If Analysis Form

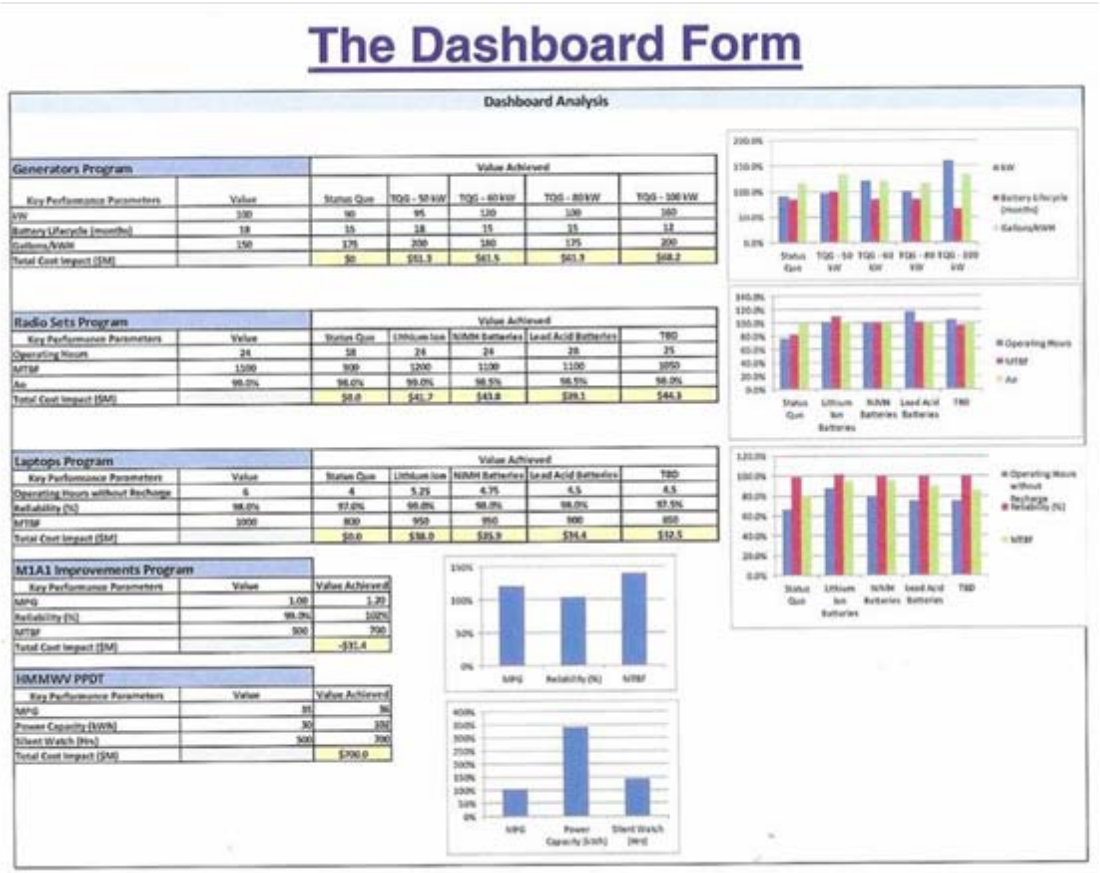
CASE 1		PARAMETERS			START YEAR DATES		OPTEMPO		LEARNING CURVE/RATE EFFECT			
COA	# of Systems Currently Fielded	kW	Battery Lifecycle (months)	Gallons /kWH	Dev Engineering	Disposal	Value	Measured In	Prior Units Produced	Learning Curve	Rate Effect (Lot Size)	Rate Effect
Case 1	5,000	100	18	150	2011	2034	500	HOURS	0.00	0.93	1000	0.97

Schedule	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25
Prototype Mfg	5	0	0	0	0	0	0	0	0	0	0	0	0	0
DT&E	3	0	0	0	0	0	0	0	0	0	0	0	0	0
IOT&E	0	1	0	0	0	0	0	0	0	0	0	0	0	0
LFT&E	0	1	0	0	0	0	0	0	0	0	0	0	0	0
Recurring Production	0	0	100	1000	100	100	100	100	100	0	0	0	0	0
Fielding	0	0	100	1000	100	100	100	100	100	0	0	0	0	0

Cumulative Fielding	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Status Quo (Less COA 1 Production)	5000	5000	4900	3900	3800	3700	3600	3500	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400	3400
CASE 1 Fielding	0	0	100	1100	1200	1300	1400	1500	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600
Status Quo (Less COA 1) Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CASE 1 Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Disposal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

- The What-If Analysis Form enables users to change the schedule and program parameter values to create cases. Users can create up to four (4) cases for each alternative
- Dashboard uses the new information provided in the What-If Analysis Form to develop LCCEs for each case created.

The Dashboard Tool (5 of 5)



- The Dashboard Form displays the information and analysis for the alternatives selected. Users can view how the set of selected alternatives perform in terms of costs and capabilities achieved.

Questions?

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