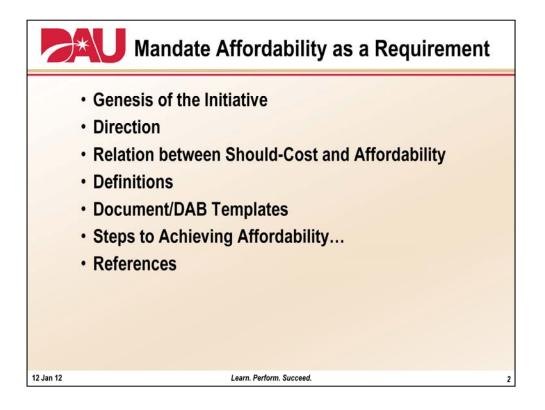


"Mandate affordability as a requirement" is the first specific initiative in the first area of the Better Buying Power initiatives "target affordability and control cost growth".

In his September 14, 2010, Memorandum for Acquisition Professionals, Dr. Carter outlined 23 initiatives to improve efficiency in defense spending. Although these initiatives span the entire acquisition process, they have one clear objective: to ensure our nation can afford the systems it acquires.

In the decade following 9/11, defense budgets have seen tremendous growth. Along with this growth in funding, however, has come an increase in non-valueadded costs. For example, the current defense budget supports a force with essentially the same size, structure, and capabilities as in FY 2001, but at a 35 percent higher cost. Given the current US fiscal condition, we expect defense budgets to decrease over the coming years. Yet, we still need to modernize our systems and restore our equipment. As a result, we'll need to "do more without more".

Mandating affordability as a requirement seeks to set the overall constraint on future spending.



Our mission training module will cover the following:

Genesis of the Initiative: why do we need to do this?

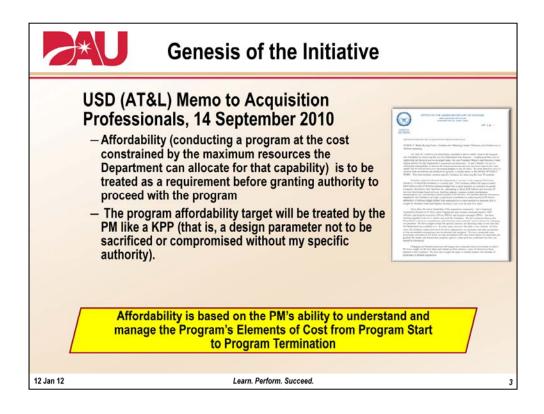
Direction: what specifics does our guidance provide?

Definitions: what do certain terms mean exactly?

DAB templates: what information does the program office need to provide?

Steps to Achieving Affordability...self explanatory

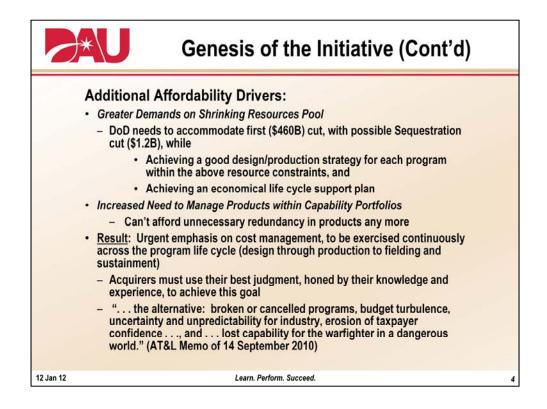
References: what are our sources?



In his initial guidance to the acquisition workforce, Dr. Carter defined what he meant by affordability and what we can expect to happen if we can't achieve affordability goals.

Basically, affordability means to manage programs for weapons or information systems without exceeding our available resources. Those resources include funding, schedule, and manpower.

If we fail to live within our resources, we can expect to waste more time, effort and money on cancelled programs; see more budget uncertainty; lose the confidence of taxpayers and our industry partners alike; and, most importantly, place our warfighter's lives at risk because we've failed to provide them the weapons they need.



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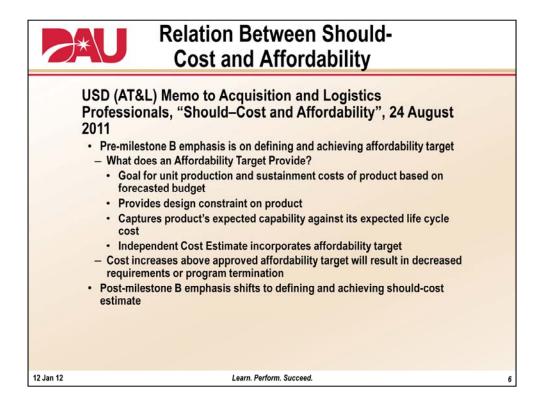


Here are the affordability requirements which DoD has implemented at milestone reviews.

At Milestone A, programs must establish an affordability target, or program cost. This target will be the functional equivalent of a Key Performance Parameter, such as speed, power or data rate. That is, the affordability target is a design parameter not to be sacrificed with the specific authority of the USD(AT&L). The initial metrics for setting and tracking the target will be the average unit acquisition cost and the average annual unit operations and support cost. This target will serve as the basis for pre-milestone B decision making and tradeoff analysis. This analysis will show the results of capability excursions around expected design performance points to highlight elements suitable to establish the cost and schedule trade space. This analysis will also be in the context of the portfolio or mission area. In the case of new programs, the analysis must show the adjustments necessary to absorb the new program within the portfolio.

At Milestone B, programs must present a systems engineering tradeoff analysis showing how cost varies in relation to design and schedule parameters. This analysis will pay due attention to spiral upgrades. As part of this analysis, programs must provide cost tradeoff curves, or trade space around major affordability drivers, to show how the program has established a cost-effective design point for these affordability drivers.

At Milestone C, the USD(AT&L) will approve a schedule for production based on economical production rates. To enforce adherence to the schedule, the USD(AT&L) will revoke the program's milestone if the program deviates from the schedule without express approval.



On August 24, 2011, Dr. Carter released a memo to explain the differences between should-cost and affordability. The primary difference between the two relates to the program life cycle.

Prior to Milestone B, the emphasis should be on defining and achieving the affordability target. Program offices need to set targets in terms of two metrics: the average unit acquisition cost and the average annual unit operations and support cost. These targets need to be:

•Within what the Department or Service can pay, i.e., be within expected budgets.

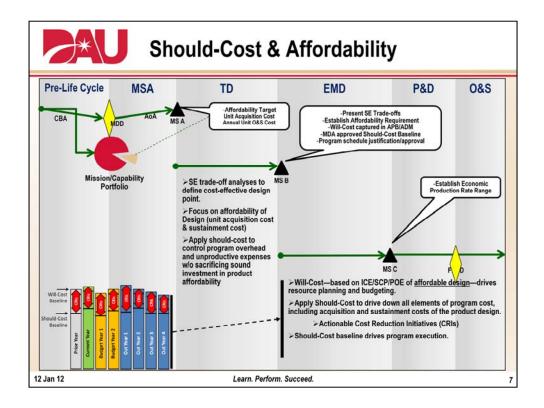
•Drive design trades and choices about affordable priorities, i.e., provide a design constraint on the products we build, procure, and sustain.

•The basis for trades between capability and cost.

Independent cost estimates (will-cost estimates) incorporate the affordability requirements.

After Milestone B, the emphasis shifts to defining and staying within the should-cost estimate.

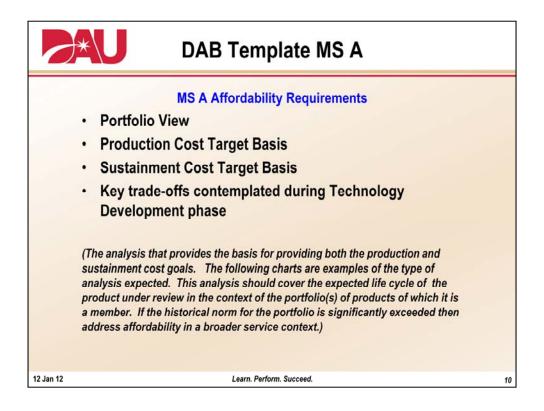
If, however, costs increase above the affordability target, program management must meet with the MDA to determine which requirements to drop or if the program must be terminated.



A picture of what we've just been discussing...

	Affordability: Acquisition Strategy / Technology Development Strategy	
	Specific requirements (see Section 8.2 of the TDS/AS Template):	
	 List established cost goals and the rationale supporting them (If a TDS) 	
	 Indicate the Affordability target – should be presented in the context of the total resources available to the portfolio(s) or mission area(s) of the program 	
	 If a new start: provide the quantitative analytical basis for stating the resources expected to be available in the portfolio/mission area can support the program 	
	Discuss the rationale for program procurement rate and schedule, as referenced to the Program's Economic Order Quantity, and Affordability Target	
	For "Should Cost"	
	 Summarize "should cost" application to the 	
	 Identify the should cost initiatives planned for the program acquisition (provide a tabular summary) 	
	 Specify how these should cost initiatives will play in contract negotiations 	
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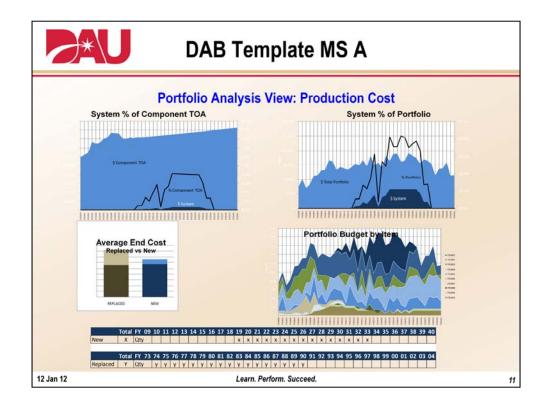




At Milestone A, program Managers will need to establish affordability targets and perform capability excursions. They'll present their results using the Defense Acquisition Board templates. These templates present:

- •The results of analyses within the context of the weapons system portfolio.
- •The basis for the program acquisition cost metric.
- •The basis for the operations and support cost metric.
- •The trade-offs expected at Milestone B.

The slides which follow show examples of the affordability requirements charts within the template. program office personnel must be determine the analyses behind the information contained in these charts. [Note: DAU's efforts going forward should be on assisting, clarifying, and standardizing the analyses needed to produce these charts.]



The first affordability chart in the DAB template present the results of analysis within the weapons system portfolio context. It also shows how the cost of a new system compares to the cost of the system being replaced. These graphs are only examples. Program office personnel should use graphs which present information in a clear, unambiguous, and easy-to-understand format.

	Metrics Data									
Current (initial CLS Future (sub-system	Metric	Antecedent Actual	Original Goal	Current Goal	Current Estimate/ Actual					
sues	Materiel Availability	76%	80%	77%	71%					
 Shortfall in O&M fur Reliability and avail 	Materiel Reliability	37 hrs	50 hrs	50.5 hrs	48 hrs					
 LCSP requires update 	Ownership Cost	245.6B	385.5B	395.1B	395.1B					
 POM request for O8 	Mean Down Time	12 hrs	20 hrs	18 hrs	15 hrs					
Reliability improvement plan with clear RAM goals up for final signature LCSP in draft				* Test or fielding event data derived from Notes:						
Sustainment Schedule			O&S Data							
MSB MSC IOC FI	RP FOC	Sustainmen	t	Cost Eler	ment	Antecedent Cost	ABC Original Baseline	Cost		
$\Delta \rightarrow \Delta$			+	1.0 Unit-Level Manpo	wer	3.952	5.144	5.750		
🔶 BCA 🛛 🔶 BC	A 🔶 BCA	🔶 BCA		2.0 Unit Operations		6.052 0.739	6.851	6.852		
LCSP PBL Recompete LRIP Contract Award Avionics		npete	ete		3.0 Maintenance		0.605	0.688		
		all man and a second		4.0 Sustaining Suppo		2.298	2.401	2.401		
		Avionics PBL		5.0 Continuing System	m improvements	0.129	0.025	0.035		
💧 o	LS Start	🔶 PBL	Recompete	6.0 Indirect Support	Total	1.846	1.920	1.900		
		•	Cost based on average annua							
			Total Q&S Costs			Antecedent ABC				
•				Total	O&S Costs	- A				
• Depot	Standup Blended Part				O&S Costs		102 995 2	184.011.9		

Program office personnel need to define how they will present the results of their sustainment cost analysis. One approach may be a sustainment quad chart. The chart shows the:

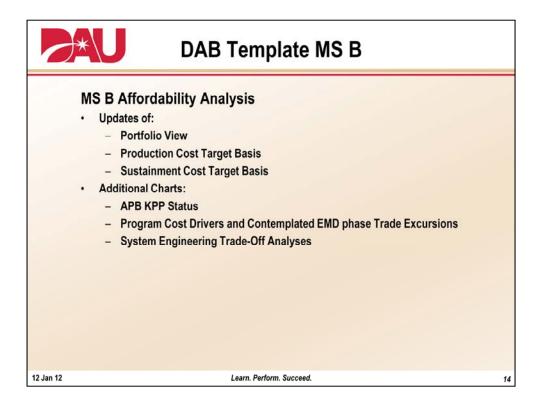
- •Product support strategy in the upper left quadrant.
- •Sustainment schedule in the lower left quadrant.
- •Metrics data in the upper right quadrant.
- •O&S data (total and per unit) in the lower left quadrant.

This is an example of a sustainment quad chart.

*	U	DAB Ter	mplate MS A					
		MS A Afforda	bility Requirements					
	Affordabil	ity Targets	Cost Drivers & Trade Excursions Plan					
	Description	Cost Target	Description	Trade Excursion	Date			
	PAUC	\$27.8M	- Range Readjustment	Speed/Range Tradeoff Review	2Q FY11			
	O&S	\$40.3B	- Reliability Growth	RAM Study	3Q FY11			
			- Engine Redesign	NAVAIR /CTR Focus Group	3Q FY11			
			- Prognostics & Health Mgmt.	Independent Logistics Assessment	3Q FY12			
			- F/A-XY Avionics Reuse	NAVAIR Tiger Team	3Q FY12			
			- Reduced Ordnance Load	JROC Review	4Q FY12			
12 Jan 12		Learn.	Perform. Succeed.					

The Milestone A affordability requirements chart presents the affordability metrics for production and O&S. The metrics are unit costs: average acquisition cost and average annual O&S cost. Also on this chart are the cost drivers and proposed trade excursions, along with the their dates.

Technical personnel in the program office will need to determine the cost drivers, while cost personnel will need to determine the affordability targets based on the life cycle cost.



At Milestone B, Program Managers will need to establish engineering trades and perform trade-off analyses to show how varying key design feature affects target cost. They'll present their results using the Defense Acquisition Board templates. These templates present:

- •The results of analyses within the context of the weapons system portfolio.
- •The basis for the program acquisition cost metric.
- •The basis for the operations and support cost metric.
- •The trade-offs expected during the EMD phase.

The slides which follow show examples of the affordability requirements charts within the template. Program office personnel must be determine the analyses behind the information contained in these charts. [Note: DAU's efforts going forward should be on assisting, clarifying, and standardizing the analyses needed to produce these charts.]

APB Key Performance Parameters								
Characteristic	Objective	Threshold	Demonstrated	Current Est.	Why they matter			
AH-1Z								
MFHBA (Ivs)	35	24	26.7	50.6				
MMH/FH (hrs)	3.6	4.3	2.8	3.2				
Cruise Speed (kts)	165	135	138	138				
Payload (Hot Day) (lbs)	3500	2500	3179	3179				
Weapon Stations Universal Mounts	6	4	4	4				
Precision Guided Munitions	16	12	16	16				
Maneuverability / Agility (G's)	-0.5 to 2.5	-0.5 to 2.5	-0.5 to 2.79	-0.5 to 2.5				
Mission Radius (nm)	200 x 1 (Aux Fuel)	110 x 1	135nm x 1	135nm x 1				
Shipboard Compatibility	Yes	Yes	Yes	Yes				
Interoperability	All Top Level IERs	All Critical Top Level IERs	All Critical Top Level IERs	All Critical Top Level IERs				
UH-1Y		1						
MFHBA (hrs)	40.2	33.1	55.8	52.3				
MMH/FH (hrs)	2.9	3.9	2.5	2.4				
Cruise Speed (kts)	165	140	156	156				
Payload (Hot Day) (lbs)	4500	2800	3079	3079				
Weapon Stations	2 Univ. Mounts	2 Hard Mounts	2 Hard Mounts	2 Hard Mounts				
Maneuverability / Agility (G's)	-0.5 to 2.3	-0.5 to 2.3	-0.5 to 2.3	-0.5 to 2.3				
Mission Radius (nm)	200 x 1 (Aux Fuel)	110 x 1	129nm x 1	129nm x 1				
Shipboard Compatibility	Yes	Yes	Yes	Yes				
Interoperability	All Top Level IERs	All Critical Top Level IERs	All Critical Top Level IERs	All Critical Top Level IERs				

This chart shows the key performance parameter chart established at Milestone A and included in the acquisition program baseline. It also shows the objective, threshold, demonstrated, and current values for each KPP.

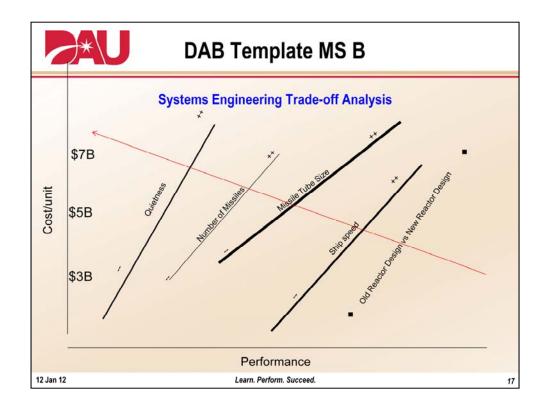
This chart sets the baseline for performing trade excursions, as shown on the following chart.

After setting the KPP values at Milestone A, technical personnel will have to monitor performance in order to determine demonstrated values and current estimates.

MS B Affordability Requirements									
Proposed Affordability Targets Cost Drivers & Trade Excursions									
Descript	ion Affordability Requirement	Current Estimate	Description	APUC	PAUC	RDT&E	Proc.	08S	Schedu Impac
PAUC	\$22.6M	\$24.4M	Original Cost Estimate	\$26.7M	\$32.3M	\$1.32B	\$15.1B	\$39.1B	N/A
Contractor of the	\$22.0M	əz4.41VI	Range Readjustment	-\$0.3M	-\$0.4M	+\$2M	-\$75M	-\$100M	None
O&S	\$32.9B	\$35.6B	- Reliability Growth	+\$2.2M	+\$2.3M	+\$15M	+\$50M	-\$1.58	+6 Mont
TBD			- Engine Redesign	-\$0.7M	-\$1.1M	+\$4M	\$-125M	-\$75.0M	+3 Mon
	XXX	XXX	Prognostics & Health Management	+\$0.2M	\$0.3M	\$0.0M	\$0.0M	-\$2.0B	None
TBD	XXX	xxx	- F/A-XY Avionics Reuse	-\$1.9M	-\$2.4M	-\$16M	-\$50M	+\$200M	-6 Mon
TBD	XXX	ххх	Reduced Ordnance Load	-\$1.8M	-\$2.0M	+\$2M	-\$15M	\$0.0M	None
			Current Cost Estimate	\$24.4M	\$29.0M	\$1.31B	\$14.9B	\$35.6B	N/A

The Milestone B affordability requirements chart presents the affordability metrics for production and O&S. The metrics are unit costs: average acquisition cost, average annual O&S cost, and other targets as may be determined. Also on this chart are the cost drivers and the results of trade excursions. Excursion results show how varying the cost drivers affects the affordability targets, program costs, and the program schedule.

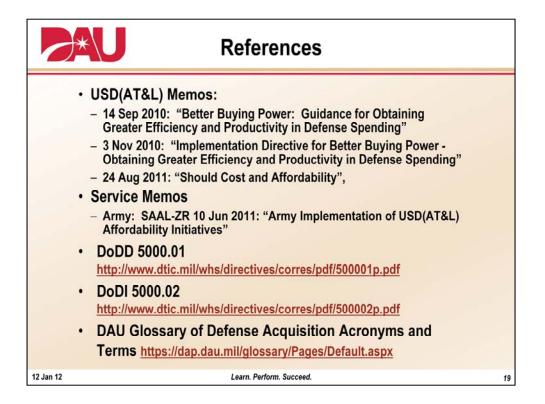
Technical, logistics, and cost personnel in the program office will need to work together to perform the trade excursions and document the results.



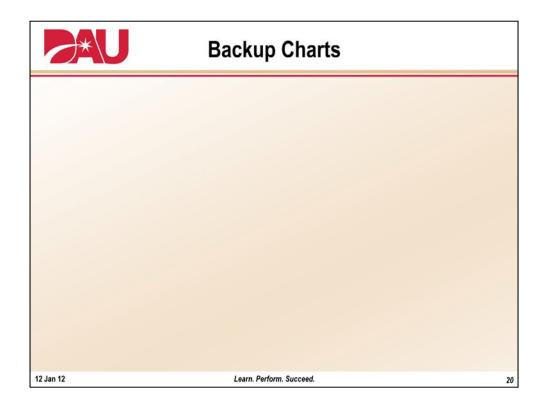
This chart is an example of how the Program Manager Office may want to present the results of the cost drivers and trade excursions in a graphical format. Technical personnel within the PMO should determine how best to format this chart.

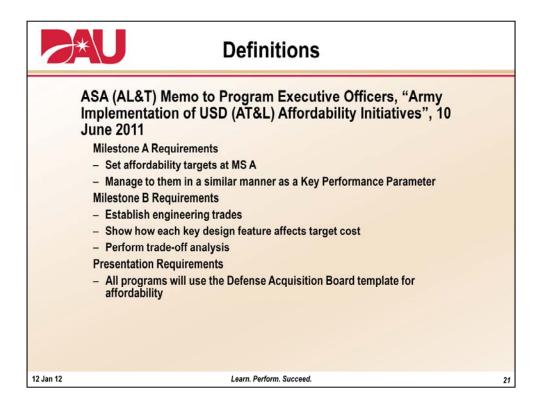


This chart presents a summary outline of how program office personnel may proceed in organizing their efforts for milestone reviews. This outline may serve as a planning document, which then leads to more detailed analyses, and then to the construction of the DAB template. [Note: DAU's efforts going forward should be on assisting, clarifying, and standardizing the analyses needed to produce these charts.]



This chart presents a summary reference of current guidance regarding the BBP affordability initiative.





ASA(AL&T) issued an implementing directive to the Army acquisition workforce on June 10, 2011. This directive primarily addressed will cost / should cost, but it did contain limited guidance on the affordability initiative.

At Milestone A, programs will set affordability targets which are the functional equivalents of key performance parameters. Program will then manage to the targets.

Independent cost estimates (will-cost estimates) incorporate the affordability requirements.

At Milestone B, programs will establish engineering trades and show how each key design feature affects target cost. Then, programs will perform trade-off analysis to ensure program cost stays below target.

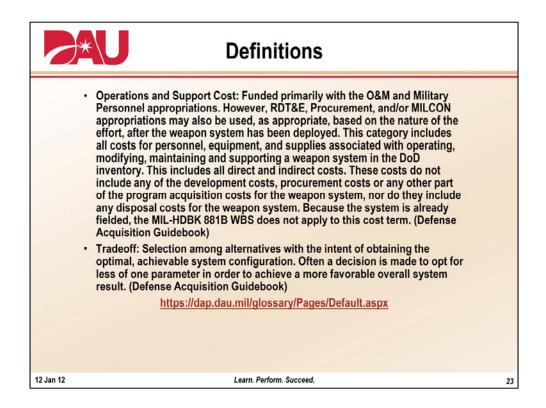
Finally, program offices will have to use Defense Acquisition Board templates for affordability at milestones and other important decision points.



DoDD 5000.01 defines affordability in terms of resources available at both the Service and Department levels. This definition provides the basis for the meaning of affordability with the BBPi context.

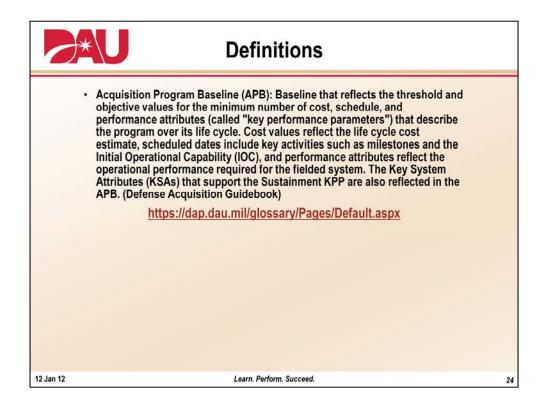
DoDI 5000.02 defines Milestone A as the point where the MDA determines if a program should proceed into the Technology Development phase. In the BBPi context, Milestone A is the point at which programs set affordability targets. These targets will be the basis for pre-MS B decision making and systems engineering tradeoff analysis.

DoDI 5000.02 defines Milestone B as the point where the MDA determines if a program should proceed into the Engineering and Manufacturing Development phase. For BBPi purposes, Milestone B is the point at which programs will perform systems engineering tradeoff analyses and provide COSt tradeoff curves around major affordability drivers.

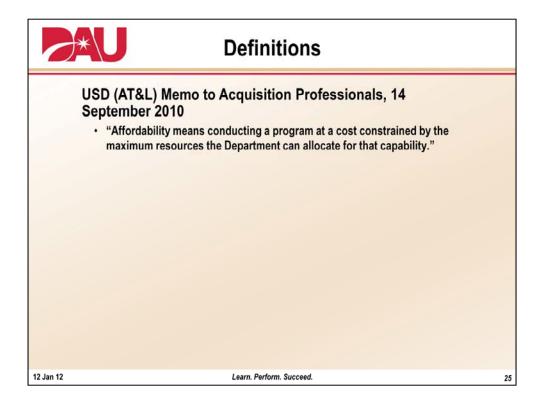


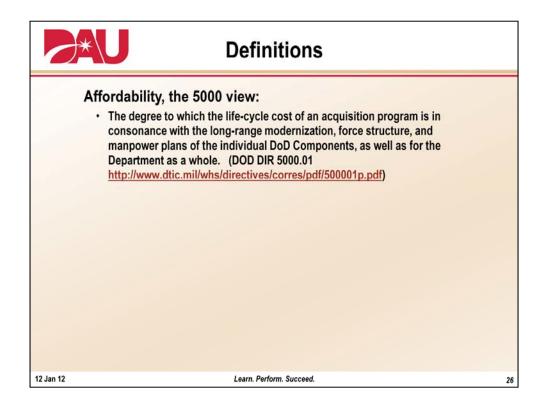
Operations and support cost includes all the personnel, equipment, and supply costs associated with operating, modifying, maintaining, and supporting a weapons system. The O&S phase of the program's life cycle begins when the first operational unit activates and ends when the last operational reaches the end of its service life.

A tradeoff is a selection among alternatives to obtain the optimal system configuration. For BBPi purposes, after the program manager sets affordability targets at Milestone A, program office personnel must perform trade-off analyses between cost and system design parameters to ensure the program stays within the affordability targets.



The acquisition program baseline is a program document that specifies the threshold and objective values for cost, schedule and performance over a program's life cycle. Costs values include total cost for each program phase, average production unit cost (APUC), and program acquisition unit cost (PAUC). Schedule values are key program dates, and performance values are key performance parameters.

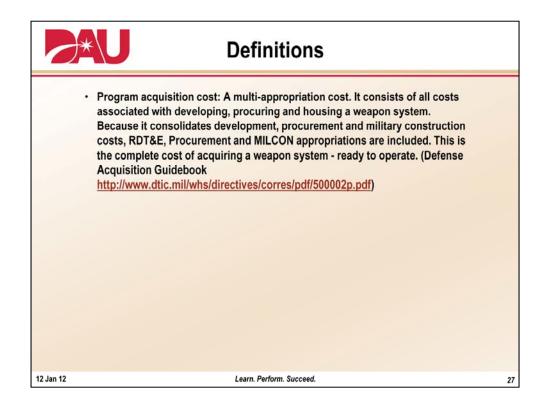




DoDD 5000.01 defines affordability in terms of resources available at both the Service and Department levels. This definition provides the basis for the meaning of affordability with the BBPi context.

DoDI 5000.02 defines Milestone A as the point where the MDA determines if a program should proceed into the Technology Development phase. In the BBPi context, Milestone A is the point at which programs set affordability targets. These targets will be the basis for pre-MS B decision making and systems engineering tradeoff analysis.

DoDI 5000.02 defines Milestone B as the point where the MDA determines if a program should proceed into the Engineering and Manufacturing Development phase. For BBPi purposes, Milestone B is the point at which programs will perform systems engineering tradeoff analyses and provide COSt tradeoff curves around major affordability drivers.



DoDI 5000.02 defines Milestone C as the point where the MDA determines if a program should proceed into the Production and Deployment phase. For BBPi purposes, Milestone B is the point at which the USD(AT&L) can approve the program's range of production rates.

Program acquisition cost is the complete cost of acquiring a weapon system. It consists of all costs necessary to develop, procure, and house the system. It includes RDTE, Procurement, and MILCON appropriations.