

# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

**February 2008**

APPROPRIATION/ BUDGET ACTIVITY  
**RDTE, Defense Wide BA 04**

PE NUMBER AND TITLE  
**0605017D8Z - Reduction in Total Ownership Cost (RTOC)**

COST (\$ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate
P017 Reduction in Total Ownership Cost Projects	25.141	25.006	24.765	25.089	25.631	26.299	26.978

**A. Mission Description and Budget Item Justification:** The Under Secretary of Defense (Acquisition, Technology & Logistics), (USD(AT&L)), defined mission for the Reduction in Total Ownership Cost (R-TOC) program is the reduction of ownership costs for defense systems. The R-TOC program provides funding for activities and initiatives that will:

1. Increase the reliability, maintainability, supportability and thus increase readiness of new or existing defense systems
2. Reduce logistics footprint
3. Generate future cost reductions in total ownership cost

These individual initiatives are complete efforts within themselves that yield complete redesigns that the Services are committed to put into production and operation. The initiatives optimize cost avoidance, ultimately reducing the operating and support costs for systems.

The USD(AT&L) has set an FY 2010 R-TOC goal of reducing the total defense systems inflation increase in Operations and Support (O&S) cost by 30 percent between FY 2004 and FY 2010. This Program Element (PE) provides a major portion of the program funding to achieve this goal. The successful demonstration of the R-TOC program initiatives should stimulate additional initiatives by the Services to achieve even greater cost avoidances.

The R-TOC program lead is within DUSD(A&T) and is supported by the Institute for Defense Analyses (IDA). Individual R-TOC Project Management rests with the Services and their Project Managers. Each Service has an active R-TOC Point of Contact (POC) for the initial interface between Office of Secretary of Defense (OSD) and the R-TOC Project Managers.

The average Return on Investment (ROI) for FY 2008 projects (based on discounted cash flow calculations) is approximately 51:1 with \$1.298 billion in cost avoidances across the life cycle of the affected systems. These cost avoidances will be lost without the requested funding in FY 2009, which is needed to complete the projects begun with FY 2008 funding. The average Return on Investment (ROI) for these FY 2009 new start projects (based on discounted cash flow calculations) is approximately 92:1 with \$2.190 billion in cost avoidances across the life cycle of the affected systems. The remaining FY 2010 funding and out-year funding has been grouped into three project areas: Reliability Improvements, Maintainability Improvements, and Supportability Improvements. These three areas have proven to be the highest payoff areas for cost reductions and corresponding increases in system readiness.

<b><u>B. Program Change Summary</u></b>	FY 2007	FY 2008	FY 2009
Previous President's Budget (FY 2008)	25.144	25.225	24.805
Current BES/President's Budget (FY 2009)	25.141	25.006	24.765
Total Adjustments	-0.003	-0.219	-0.040

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Congressional Program Reductions				
Congressional Rescissions				
Congressional Increases				
Reprogrammings				
SBIR/STTR Transfer				
Other	-0.003	-0.219	-0.040	

**C. Other Program Funding Summary** Not applicable for this item.

**D. Acquisition Strategy** There is an annual USD(AT&L) call for proposed project plans in October. Projects are submitted by the Services annually in January. The project plan format is provided with the call for submission of Service projects. Each project plan contains:

1. Problem statement
2. Impact statement
3. Technical description
4. Risk analysis
5. Proposed phases
6. Expected deliverables and results or outcomes
7. Program management
8. Cost/benefit analysis
9. Schedule
10. Implementation plan

The project evaluation criteria are also provided as part of the call for use by the Services in arriving at their prioritized project list. There are eleven categories for evaluation:

Objective measures:

1. ROI (Future Years Defense Program), Score 10, 5, or 3 points, respectively for high (>10:1), medium (between 10:1 and 5:1), low (<5:1)
2. ROI (System's or Program's Life Cycle), Score 10, 5, or 3 points, respectively for high (>20:1), medium (between 20:1 and 10:1), low (<10:1)
3. Service ranking, Score 10, 5, 1 points, respectively for top 1/3, middle 1/3, and bottom 1/3
4. Crossover year (return greater than investment), Score 5, 3, 1 points, respectively for <5 years, 3 years, >3 years
5. Payback year (total return greater than total investment), Score 5, 3, 1 points, respectively for <4 years, 4 years, >4 years

Subjective measures:

1. Operational readiness improvement, 10, 5, 1 points, respectively strong, medium, weak discussion of operational readiness improvements
2. Benefits credibility, 5, 3, 1 points, respectively strong, medium, weak discussion of projected benefits

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3. Technology maturity, 3, 2, 1 points, respectively strong, medium, weak discussion of technology maturity  
 4. Schedule confidence, 3, 2, 1 points, respectively strong, medium, weak discussion of schedule confidence  
 5. Budget confidence, 3, 2, 1 points, respectively strong, medium, weak discussion of budget confidence  
 6. Management support, 3, 2, 1 points, respectively strong, medium, weak discussion of management support  
 The Services receive project plans and make a Service priority ranking based on detailed analysis of each proposed initiative against the eleven evaluation criteria. This priority ranking is sent to the OSD lead. Upon acceptance and approval of the projects by OSD, the projects are briefed to the R-TOC Forum and Congressional staff, as required. Funding is distributed equally between the Services based on priority and the evaluation process results.

Upon final funding approval, OSD transfers individual project funding to the appropriate funding sites that are provided by the Services. After receiving the project funding, the Services are responsible for the funding and management of the projects. OSD retains oversight and direction of the R-TOC Initiative through the OSD lead office.

A Semi-annual Project Report format has been defined, approved by the Services, and is required for each funded project. These reports require:

1. Statement of progress
2. Outstanding issues
3. Upcoming events
4. Schedule status
5. Current investment status
6. Current estimate of savings or cost avoidance

These reports are submitted to the OSD R-TOC Initiative lead office. OSD analyzes project status, progress and project statistics and informs the Service POCs of any project problems. Projects are also required to report verbally at the quarterly R-TOC Forums, as appropriate.

**E. Performance Metrics:**

FY	Strategic Goals Supported	Existing Baseline	Planned Performance Improvement / Requirement Goal	Actual Performance Improvement	Planned Performance Metric / Methods of Measurement	Actual Performance Metric / Methods of Measurement
07	See below					
08	See below					
09	See below					

Comment: Comment: The vision is that all defense systems will perform with increasing readiness and capability while avoiding increased operations and support costs and improve logistics footprint by institutionalizing the continuous implementation of innovative process and hardware improvement. Existing Baseline: FYDP O&S Costs for FY 2004; Planned Performance Improvement/Requirement Goal: The goal is to "maximize cost avoidance on total defense systems FY 2010 O&S costs by offsetting 30 percent of

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the inflation predicted from an FY 2004 baseline. Actual Performance Improvement: Unknown at this time. FY 2006 projects are still in development and implementation. Planned Performance Metric/Methods of Measurement: Return on Investment (ROI) measured over the Life Cycle (LC) of each system. Actual Performance Metric/Methods of Measurement: Return of Investment (ROI) measured over the Life Cycle (LC) of each system.

Comment: The objective of each of the projects is the reduction of operations and support (O&S) costs for the affected systems. ROI is the primary performance metric for the projects and for the R-TOC initiative. Each project plan includes a cost/benefit analysis, which is based on discounted cash flow calculations of project investment costs and projected cost avoidances. OMB discount rates are used to provide real comparisons of future value against current uses of resources. Projected cost avoidances are based on engineering estimates of the benefits provided by project implementations. Sources of cost avoidances are defined as part of the project submittal and come from any O&S cost source (fewer spares, lower maintenance hours, faster turnaround times, reduced scheduled maintenance, etc.). Updated ROI calculations are part of the required semi-annual project reports to provide tracking of this metric.

# OSD RDT&E BUDGET ITEM JUSTIFICATION (R2a Exhibit)

**February 2008**

<b>APPROPRIATION/ BUDGET ACTIVITY</b> <b>RDTE, Defense Wide BA 04</b>		<b>PE NUMBER AND TITLE</b> <b>0605017D8Z - Reduction in Total Ownership Cost (RTOC)</b>					<b>PROJECT</b> <b>P017</b>	
COST (\$ in Millions)	FY 2007 Estimate	FY 2008 Estimate	FY 2009 Estimate	FY 2010 Estimate	FY 2011 Estimate	FY 2012 Estimate	FY 2013 Estimate	
P017 Reduction in Total Ownership Cost Projects	25.141	25.006	24.765	25.089	25.631	26.299	26.978	

**A. Mission Description and Budget Item Justification:** The Under Secretary of Defense(Acquisition, Technology & Logistics)(USD(AT&L))-defined mission for the Reduction in Total Ownership Cost (R-TOC) program is the reduction of ownership costs for defense systems. The R-TOC program provides funding for activities and initiatives that will:

1. Increase the reliability, maintainability, supportability and thus increase readiness of new or existing defense systems
2. Reduce logistics footprint
3. Generate future cost reductions in total ownership cost

These individual initiatives are complete efforts within themselves that yield complete redesigns that the Services are committed to put into production and operation. The initiatives optimize cost avoidance, ultimately reducing the operating and support costs for systems.

The USD(AT&L) has set an FY 2010 R-TOC goal of reducing the total defense systems inflation increase in Operations and Support (O&S) cost by 30 percent between FY 2004 and FY 2010. This Program Element (PE) provides a major portion of the program funding to achieve this goal. The successful demonstration of the R-TOC program initiatives should stimulate additional initiatives by the Services to achieve even greater cost avoidances.

The OSD R-TOC program lead is within DUSD(A&T) and is supported by the Institute for Defense Analyses (IDA). Individual R-TOC Project Management rests with the Services and their Project Managers. Each Service has an active R-TOC Point of Contact (POC) for the initial interface between OSD and the R-TOC Project Managers.

The average Return on Investment (ROI) for FY07 projects (based on discounted cash flow calculations) is approximately 6.1:1 with \$582 million in cost avoidance across the Future Years Defense Program (FYDP). The ROI is approximately 31.5:1 with \$3.1 billion in cost avoidances across the life cycle of the affected systems. These cost avoidances will be lost without the requested funding in FY 2008, which is needed to complete the projects begun with FY 2007 funding. The average Return on Investment (ROI) for these FY 2008 new start projects (based on discounted cash flow calculations) is approximately 7.0:1 with \$266 million in cost avoidance across the FYDP. The ROI is approximately 46.8:1 with \$1.424 billion in cost avoidances across the life cycle of the affected systems. The remaining FY 2009 funding and out year funding has been grouped into three project areas: Reliability Improvements, Maintainability Improvements, and Supportability Improvements. These three areas have proven to be the highest payoff areas for cost reductions and corresponding increases in system readiness.

**B. Accomplishments/Planned Program:**

<b><u>Accomplishments/Planned Program Title:</u></b>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Army	8.007	8.185	8.118

<b>OSD RDT&amp;E BUDGET ITEM JUSTIFICATION (R2a Exhibit)</b>		<b>February 2008</b>		
APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT		
<b>RDTE, Defense Wide BA 04</b>	<b>0605017D8Z - Reduction in Total Ownership Cost (RTOC)</b>	<b>P017</b>		
The following programs were funded for RTOC efforts being managed by the Army:				
Stryker Software Load Version VDT New Barrel Coating HH-60M ECS AH-64 Servos				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Navy		8.218	8.185	8.167
The following programs were funded for RTOC efforts being managed by the Navy:				
Ship's Material Condition Model CVN Magnetic Coupling H-1 Rear UGHW V-22 WRA IU Fault Code Translation IR Camera Power Con. Mgt. Fiber Optic Network				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
Air Force		8.418	8.185	8.029
The following programs were funded for RTOC efforts being managed by the Air Force:				
F101-GE-102 F110 X-Ray Fluorescence Portable Lube System Debris Analyzer Advanced Composite Tower Restoration of Dimensional Tolerances Field Backstop Test data Collection and Analysis System F119 Engine Ti Repair F119 Engine Ni 100 Integrally Bladed Rotor Repair FPS-117 Radome Fleet Replacement F110-GE-129/129B RCM Calculator				
<b><u>Accomplishments/Planned Program Title:</u></b>		<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
IDA (FFRDC)		0.498	0.451	0.451
Total Ownership Cost Program Support				

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PROJECT  
**P017**

**C. Other Program Funding Summary** Not applicable for this item.

**D. Acquisition Strategy** There is an annual USD(AT&L) call for proposed project plans in October. Projects are submitted by the Services annually in January. The project plan format is provided with the call for submission of Service projects. Each project plan contains:

1. Problem statement
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9. Schedule
10. Implementation plan

The project evaluation criteria are also provided as part of the call for use by the Services in arriving at their prioritized project list. There are five objective and six subjective categories for evaluation.

The Services receive project plans and make a Service priority ranking based on detailed analysis of each proposed initiative against the eleven evaluation criteria. This priority ranking is sent to the OSD lead. Upon acceptance and approval of the projects by OSD, the projects are briefed to the R-TOC Forum and Congressional staff, as required. Funding is distributed equally between the Services based on priority and the evaluation process results.

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A semi-annual Project Report format has been defined, approved by the Services, and is required for each funded project. These reports are submitted to the OSD R-TOC Initiative lead office. OSD analyzes project status, progress and project statistics and informs the Service POCs of any project problems. Projects are also required to report verbally at the quarterly R-TOC Forums, as appropriate.

**E. Major Performers** Not applicable for this item.

# OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY			PE NUMBER AND TITLE								PROJECT	
4 - Advanced Component Development and Prototypes (ACDP)			0605017D8Z - Reduction in Total Ownership Cost (RTOC)								P017	
I. Product Development	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Army				7508	1Q	8185	1Q	8018	1Q		23711	
Navy				8616	1-3Q	8185	1Q	8078	1Q		24879	
Air Force				8567	1Q	8185	1Q	8218	1Q		24970	
Subtotal:				24691		24555		24314			73560	
II. Support Costs	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
											450	
Subtotal:											450	
III. Test And Evaluation	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
Subtotal:												
IV. Management Services	Contract Method & Type	Performing Activity & Location	Total PYs Cost	FY 2007 Cost	FY 2007 Award Date	FY 2008 Cost	FY 2008 Award Date	FY 2009 Cost	FY 2009 Award Date	Cost To Complete	Total Cost	Target Value of Contract
RTOC Program Support and Analysis (IDA)				450	1Q	451	1Q	451	1Q	Cont.	Cont.	
Subtotal:				450		451		451		Cont.	Cont.	

# OSD RDT&E COST ANALYSIS (R3)

February 2008

BUDGET ACTIVITY <b>4 - Advanced Component Development and Prototypes (ACDP)</b>	PE NUMBER AND TITLE <b>0605017D8Z - Reduction in Total Ownership Cost (RTOC)</b>	PROJECT <b>P017</b>
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<b>Project Total Cost:</b>		<b>25141</b>		<b>25006</b>		<b>24765</b>		<b>Cont.</b>	<b>Cont.</b>
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# Schedule Profile (R4 Exhibit)

February 2008

BUDGET ACTIVITY  
**4 - Advanced Component Development and Prototypes (ACDP)**

PE NUMBER AND TITLE  
**0605017D8Z - Reduction in Total Ownership Cost (RTOC)**

PROJECT  
**P017**

Event Name	FY 07				FY 08				FY 09				FY 10				FY 11				FY 12				FY 13			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

**Schedule Detail (R4a Exhibit)**

**February 2008**

BUDGET ACTIVITY  
**4 - Advanced Component Development and Prototypes (ACDP)**

PE NUMBER AND TITLE  
**0605017D8Z - Reduction in Total Ownership Cost (RTOC)**

PROJECT  
**P017**

<u>Schedule Detail</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u>	<u>FY 2013</u>
Contract Preparation		2Q - 4Q	1Q - 4Q	1Q - 2Q			
System Development	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Quality Design and Build	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Developmental Technical Testing	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			
Developmental Evaluation	1Q - 4Q	1Q - 4Q	1Q - 4Q	1Q - 4Q			