

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>
--	---

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	0.000	0.000	29.824	0.000	29.824	26.983	30.834	29.062	32.517	Continuing	Continuing
P142: <i>Systems Engineering</i>	0.000	0.000	22.646	0.000	22.646	22.047	23.674	24.038	25.180	Continuing	Continuing
P143: <i>Program Protection</i>	0.000	0.000	7.178	0.000	7.178	4.936	7.160	5.024	7.337	Continuing	Continuing

A. Mission Description and Budget Item Justification

This is not a new start. This is a new Program Element based on the Weapons Systems Acquisition Reform Act (WSARA) of 2009 which directed the establishment of the Director, Systems Engineering and amended Section 139 of Title 10, U.S. Code to assign certain specific missions, functions and duties to the Director, Systems Engineering. The new Office of the Director, Systems Engineering (D, SE) was leveraged from resources which in FY 2010, resided in the former Director, Systems and Software Engineering which was under the former Deputy Under Secretary of Defense (Acquisition and Technology).

The responsibilities of D, SE includes both responsibilities previously conducted in the Office of the Director, Systems and Software Engineering (D, SSE) as well as new responsibilities required by WSARA.

This Program Element (PE) establishes the dedicted funding line to carry out those duties, as described in the WSARA of 2009. The Director, Systems Engineering (D, SE) is the principal advisor to the Secretary of Defense, the Under Secretary of Defense for Acquisition, Technology and Logistics (USD(AT&L)) and the Director, Defense Research and Engineering (D,DR&E) on systems engineering, development planning, and related technical fields in the Department of Defense. The D, SE develops policies and guidance for the use of systems engineering principles and best practices, the use of systems and software engineering planning and contracting approaches to enhance reliability, availability, and maintainability on major defense acquisition programs; the development of systems engineering plans (SEP) for major defense acquisition programs including software, and systems engineering considerations in support of lifecycle management and sustainability; and the inclusion of provisions relating to systems engineering and reliability in requests for proposals. The D, SE reviews and approves the SEP for each major defense acquisition program and monitors and reviews the systems engineering and development planning activities of major defense acquisition programs and other defense acquisition programs as directed by SECDEF or USD(AT&L). Based on this continuous program engagement, the D, SE advises and makes recommendations to the Secretary of Defense and the USD(AT&L) regarding systems engineering, development planning and the execution of these activities; provides independent assessments of defense acquisition program systems engineering, development planning, technical execution and risk as a member of the Defense Acquisition Board. The D, SE provides input on the inclusion of systems engineering requirements as part of the Joint Requirements Oversight Council's process for joint military requirements; to include developing specific inputs relating to each capabilities development document.

The D, SE issues guidance to and consults with the Services and Agencies with respect to SE in the Department and provides advocacy, oversight, and guidance

UNCLASSIFIED

R-1 Line Item #144

Page 1 of 9

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>
--	---

to elements of the acquisition workforce responsible for systems engineering, development planning, and lifecycle management and sustainability functions and developing policies and guidance for the integration of specialty engineering functions as part of the systems engineering responsibility for Mission Assurance in the acquisition. The ,SE periodically reviews the organizations and capabilities of the military departments with respect to systems engineering, development planning, and lifecycle management and sustainability, and identifies needed changes or improvements to such organizations and capabilities.

The Director, Systems Engineering prepares and submits an annual report to Congress on systems engineering activities and effectiveness.

This PE includes effort by the office of the D, SE in implementing the Department’s Cyber initiatives. Specifically, the PE will develop and address the critical subdiscipline of systems engineering - system security engineering. This will include study and maturation of discipline fundamentals such as best practices, tools, guidance and policy, and will also pilot system security practices in defense acquisition as a fundamental element of systems engineering and technical reviews. Efforts in this area are directly driven by cyber and malicious supply chain threats that the Department faces, and therefore, will include implementing Department directives and regulations to protect critical program information.

B. Program Change Summary (\$ in Millions)

	<u>FY 2009</u>	<u>FY 2010</u>	<u>FY 2011 Base</u>	<u>FY 2011 OCO</u>	<u>FY 2011 Total</u>
Previous President's Budget	0.000	0.000	0.000	0.000	0.000
Current President's Budget	0.000	0.000	29.824	0.000	29.824
Total Adjustments	0.000	0.000	29.824	0.000	29.824
• Congressional General Reductions		0.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		0.000			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Re-allocation of funds from DTE (0605804D8Z) to SE (0605142D8Z)	0.000	0.000	21.244	0.000	21.244
• WSARA	0.000	0.000	8.450	0.000	8.450
• Other Adjustments	0.000	0.000	0.130	0.000	0.130

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: P143: *Program Protection*

FY 2009	FY 2010

UNCLASSIFIED

R-1 Line Item #144

Page 2 of 9

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Office of Secretary Of Defense		DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>	
<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2009	FY 2010
Congressional Add: *** PLEASE ENTER CONGRESSIONAL ADD TITLE ***		0.000	0.000
Congressional Add Subtotals for Project: P143		0.000	0.000
Congressional Add Totals for all Projects		0.000	0.000
<u>Change Summary Explanation</u>			
<p>The Under Secretary of Defense (Acquisition, Technology & Logistics) initiated implementation of the Weapons Systems Acquisition Reform Act (WSARA) by establishing a new office of the Director, Systems Engineering and reallocating resources from the former Office of the Director, Systems and Software Engineering, which resided in PEs 0604875D8Z and PE 0605804D8Z.</p> <p>In FY 2011, funding in the amount of \$21.244, from 0605804D8Z, was re-allocated to this Systems Engineering Program Element. The Base Year funding amount also includes a WSARA adjustment of \$8.450.</p>			

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>	PROJECT P142: <i>Systems Engineering</i>
--	---	--

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>P142: Systems Engineering</i>	0.000	0.000	22.646	0.000	22.646	22.047	23.674	24.038	25.180	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

This (P127) program supports the execution of the missions of the Director, Systems Engineering to provide flexible engineering policy, guidance, and workforce development requirements for the DoD acquisition workforce, to foster an acquisition environment of collaboration, teamwork, and joint ownership of program success through a proactive program oversight process ensuring appropriate levels of systems engineering discipline are applied through all phases of the acquisition life cycle and to engage all stakeholders across government, industry, and academia to collectively advance systems engineering practice and achieve acquisition excellence. The outcome of this effort is ensure systems engineering principles and disciplines are fully accepted and assimilated into the DoD acquisition workforce positioning the DoD for acquisition excellence leading to a stronger national defense.

Activities include the following--

Program Support Functions:

- Working with program managers to prepare system engineering plans (SEPs) to document the technical management approach.
- Conduct periodic visits in support of technical reviews to confirm programs are executed in accordance with the SEP.
- Review all aspects of the systems engineering process for major defense acquisition programs to ensure they are adequate to support fielding and the achievement of cost and performance goals including reliability, sustainment and other mission assurance considerations.
- Participate in Systems Engineering (SE) IPTs and SE WIPTs and SE technical reviews, especially Preliminary Design Reviews and Critical Design Reviews.
- Work with DoD Service program managers, their staffs, and other organizations, technical authorities, and oversight organizations to develop and implement technical management programs for major defense acquisition program (MDAPS).
- Conceive plans and lead program support reviews and assessments of MDAP weapons systems and other programs (e.g., Major Automated Information Systems) to shape technical planning and management to ensure program success.
- Conduct other technical reviews as requested e.g. Nunn-McCurdy certification reviews, Non-Advocate Reviews, focused technical assessments and software readiness reviews to identify and mitigate program risk.

Mission Assurance Functions:

- Establish Mission Assurance policy, guidance and workforce development to drive the development of fully capable and supportable weapons systems.

UNCLASSIFIED

R-1 Line Item #144

Page 4 of 9

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>	PROJECT P142: <i>Systems Engineering</i>
--	---	--

- Oversee Component implementation of Mission Assurance incentives and conduct independent Mission Assurance assessments.
- Develop education and training materials for instructing, maintaining and enhancing the defense acquisition workforce. Activities include developing guidance to enhance SPRDE and PQM acquisition career planning and progression, monitoring and facilitating Defense Acquisition University (DAU) updates systems engineering, quality and Soft ware engineering course to ensure curriculum represents the education and training requirements necessary to be a viable team member in the acquisition process.
- Drive an overall improvement in weapon system reliability through improved reliability engineering, reliability growth management, and reliability monitoring in program development contracting, execution and sustainment.
- Prepare and submit annual reports to Congress on the Department’s capabilities and effectiveness in systems engineering and development planning.

System Analysis Functions:

- Execute the Acquisition system elements of the National Cyber Security Strategy including cyber security, systems security and program protection planning.
- Guide Service and other component organizations in the development planning process the ensure proposed MDAP programs are executable within acceptable levels of risk.
- Resolve long-term major SE challenges such as systems of systems systems engineering, SE Complexity Analysis and systems engineering based technical trade off analysis and pre program formulation stages.
- Provide necessary modeling and simulation policy and guidance, clarifies the application of distributed simulation standards and works with the DoD modeling and simulation community to identify and prioritize required capabilities and competencies needed to support acquisition modeling and simulations.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Systems Engineering Initiatives The Director, Systems Engineering provides objective assessments of program risk to support knowledge-based decision making by Department of Defense (DoD) leaders regarding DoD Major Defense Acquisition Programs (MDAPs) and Major Automated Information Systems (MAIS). <i>FY 2011 Base Plans:</i> Strategic Thrust: Major Program Support •Deep-dive systems engineering (SE) reviews of Major Acquisition Defense Acquisition Programs (MDAPs) and special interest programs.	0.000	0.000	22.646	0.000	22.646

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>		PROJECT P142: <i>Systems Engineering</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<ul style="list-style-type: none"> •Foster early integration of systems safety, reliability, maintainability and life cycle sustainment into pre-MDAPs, MDAPs and pre-material development decision (MDD) activities. Strategic Thrust: Early Systems Engineering and Development Planning •Develop policy and guidance for development planning and early system engineering; oversee its establishment within Services. •Perform early acquisition risk assessment including pre-Milestone A engagement with Joint Requirements Oversight Council processes. •Support Services and Combatant Command (COCOMs) in pre-milestone (MS) A formulation. •Support requirements analyses and analysis of alternatives. •Support initial capabilities document definition and development. •Oversee and execute modeling, simulation and analysis for DoD. •Enhance modeling and simulation (M&S) support to analysis of alternatives. •Lead SE research, systems of systems research and collaboration across Services to identify areas of improvement; develop and establish best practices. •Oversee SE Research University Affiliated Research Center (UARC) and conduct studies and analysis. 								
Accomplishments/Planned Programs Subtotals				0.000	0.000	22.646	0.000	22.646
C. Other Program Funding Summary (\$ in Millions)								
N/A								
D. Acquisition Strategy								
Not applicable.								
E. Performance Metrics								
N/A								

UNCLASSIFIED

R-1 Line Item #144

Page 7 of 9

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense **DATE:** February 2010

APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>	R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>	PROJECT P143: <i>Program Protection</i>
--	---	---

COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
<i>P143: Program Protection</i>	0.000	0.000	7.178	0.000	7.178	4.936	7.160	5.024	7.337	Continuing	Continuing
Quantity of RDT&E Articles											

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) must address cyber security and supply chain risks to DoD networks, weapons systems and information stored and processed on both DoD and Defense Industrial Base (DIB) unclassified networks that support DoD programs. Increased reliance on the internet as a vehicle for sharing information, globalization of the supply chain, and advanced persistent threats (APTs) that can evade commercially available security tools and defeat generic security best practices, drive the need better and smarter program protection planning and execution. The President's Cyber Initiative has moved to counter these threats and mitigate the risks. The proposed Acquisition Cyber Security Initiative links high level policies and great thoughts to specific acquisition practices, systems engineering activities, and risk reduction activities. Through this initiative the Department will pilot activities with the DIB to reduce risks in sharing and storing critical program information, better understand and mitigate supply chain risks, improve program protection planning, and improve and streamline program protection engineering.

B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Program Protection <i>FY 2011 Base Plans:</i> - Program Protection – Publish Program Protection Plan Guidebook. Implement Program Protection Plan (PPP) procedures with programs as they approach major milestone reviews. Conduct pilots and develop guidance for criticality analysis with Services to augment current research technology protection focused activity with procedures to ensure protection of critical components. - Supply Chain Risk Management (SCRM)--Develop acquisition guidance for SCRM, incorporating lessons learned from vulnerability assessments conducted in FY09. Assess sustainment issues for SCRM.	0.000	0.000	7.178	0.000	7.178

UNCLASSIFIED

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2011 Office of Secretary Of Defense				DATE: February 2010				
APPROPRIATION/BUDGET ACTIVITY 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> BA 6: <i>RDT&E Management Support</i>		R-1 ITEM NOMENCLATURE PE 0605142D8Z: <i>Systems Engineering</i>		PROJECT P143: <i>Program Protection</i>				
B. Accomplishments/Planned Program (\$ in Millions)								
				FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
<ul style="list-style-type: none"> - Defense Industrial Base Cyber Security (DIB CS)–Chair the Cyber Acquisition Joint Analysis Team (JAT), and oversee the public comment period for the DFARS rule on protection of defense program information; develop and implement process for adjudicating public comments. Provide acquisition support to DIB CS program. - Horizontal Protection–Transition the acquisition security database from Service-led to jointly overseen program. Develop horizontal protection requirements, develop a strategy for oversight and implementation of horizontal protection. 								
Accomplishments/Planned Programs Subtotals				0.000	0.000	7.178	0.000	7.178
				FY 2009	FY 2010			
Congressional Add: *** PLEASE ENTER CONGRESSIONAL ADD TITLE *** <i>FY 2009 Accomplishments:</i> [*** PLEASE ENTER CONGRESSIONAL ADD TEXT FOR PRIOR YEAR. ***]				0.000	0.000			
Congressional Adds Subtotals				0.000	0.000			
C. Other Program Funding Summary (\$ in Millions)								
N/A								
D. Acquisition Strategy								
N/A								
E. Performance Metrics								
*** PLEASE ENTER TEXT ***								

UNCLASSIFIED

R-1 Line Item #144

Page 9 of 9