Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense	Date: February 2016
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
Total Program Element	116.205	43.248	39.581	32.429	-	32.429	38.400	37.952	37.645	38.384	Continuing	Continuing
P142: *Systems Engineering*	98.151	33.516	35.025	28.789	-	28.789	33.915	33.469	33.093	33.742	Continuing	Continuing
P143: *Program Protection*	13.048	4.397	4.556	3.640	-	3.640	4.485	4.483	4.552	4.642	Continuing	Continuing
P241: *Systems Engineering Research Center*	5.006	5.335	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

This Program Element (PE) establishes the dedicated funding line to carry out the duties as described in Title 10 US Code, Section 139, the Weapons Systems Acquisition Reform Act of 2009. The Deputy Assistant Secretary of Defense for Systems Engineering (DASD(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 Assistant Secretary of Defense for Research and Engineering (ASD(R&E)) on systems engineering, development planning, program protection and related technical fields in the Department of Defense (DoD). The DASD(SE) develops policies and guidance for (1) the use of systems engineering principles and best practices; (2) the use of systems, system security and software engineering planning and contracting approaches to enhance manufacturing, reliability, availability, maintainability, and software and hardware assurance, on major defense acquisition programs (MDAPs) and major automated information systems (MAISs); (3) the systems engineering plans (SEPs) and program protection plans (PPPs) for MDAPs and MAISs including software, and systems engineering considerations in support of lifecycle management and sustainability; and (4) the inclusion of provisions relating to systems engineering, assurance and reliability in requests for proposals. The DASD(SE) develops new methods, processes, and tools (MPTs) incorporating state of the practice into system engineering for the DoD in both weapon system design, and design tools. The DASD(SE) reviews and approves the SEP and PPP for each MDAP and MAIS, and monitors and reviews the systems engineering, program protection and development planning activities of MDAPs and other defense acquisition programs, as directed by the Secretary of Defense or the USD(AT&L). Based on the DASD(SE)'s continuous program engagement, the DASD(SE) advises and makes recommendations to the Secretary of Defense and the USD(AT&L) regarding systems engineering, development planning, program protection and the execution of these activities. As a member of the Defense Acquisition Board (DAB), the DASD(SE) provides independent assessments of defense acquisition program's systems engineering, development planning, program protection planning, technical execution, and risk. The DASD(SE) also 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 DASD(SE) issues guidance to, and consults with, the Services and Agencies with respect to systems engineering across the Department. DASD(SE) improves DoD's SE capabilities through advocacy, oversight, policy and guidance in: acquisition workforce responsible for Engineering, and Production, Quality & Manufacturing (PQM); Engineering Tools and Environments; and Specialty Engineering.

The DASD(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 DASD(SE) prepares and submits a bi-annual report to Congress on systems engineering activities and effectiveness.

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Office of the Secretary Of Defense	Date: February 2016
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*

This PE includes efforts by the office of the DASD(SE) in implementing the Department's Trusted Defense System Strategy. Specifically, the PE will develop and mature the critical sub discipline of systems engineering - system security engineering (SSE), Hardware and Software Assurance, and the Comprehensive Program Protection Planning process that implements a risk-based approach to protection of critical program information, critical components and mission functions, and information in acquisition programs. These efforts include study and maturation of policy, guidance, system security discipline fundamentals, such as engineering methods, tools, and best practices, and establishing a coalition of assurance activities across the DoD to provide analytical and technical support to acquisition programs. These activities will be promulgated in defense acquisition as a fundamental element of DASD(SE) systems engineering and technical reviews.

B. Program Change Summary ($ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	44.683	37.655	37.569	-	37.569
Current President's Budget	43.248	39.581	32.429	-	32.429
Total Adjustments	-1.435	1.926	-5.140	-	-5.140
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	2.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-1.418	-			
• Realignment for Higher Priority Programs	-	-	-4.210	-	-4.210
• FY15 Reprog. for Cancelled Account	-0.017	-	-	-	-
• FFRDC Reduction	-	-0.074	-	-	-
• Efficiency Reductions	-	-	-0.657	-	-0.657
• Economic Assumptions	-	-	-0.273	-	-0.273

Change Summary Explanation

The FY 2017 funding request includes reduction of $2.213 million to account for the availability of prior year execution balances.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense			Date: February 2016
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) P142 / *Systems Engineering*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P142: *Systems Engineering*	98.151	33.516	35.025	28.789	-	28.789	33.915	33.469	33.093	33.742	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Project P142 supports the execution of the missions of the Deputy Assistant Secretary of Defense for Systems Engineering (DASD(SE)) to: (1) provide flexible engineering policy, guidance, and workforce development requirements for the DoD acquisition workforce; (2) 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 (3) engage all stakeholders across government, industry, and academia to collectively advance systems engineering practice and achieve acquisition excellence. The outcome of this effort is to ensure systems engineering principles and disciplines are fully accepted and assimilated into the DoD acquisition workforce positioning the DoD for acquisition excellence and leading to a stronger national defense.

Activities include the following functions:

• Work with acquisition program managers to prepare systems engineering plans (SEPs) to document the technical management approach.
• Conduct periodic program engagements 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 (MDAPs) to ensure they are adequate to support fielding and the achievement of cost and performance goals including producibility, reliability, sustainment, and other considerations.
• Participate in Systems Engineering Integrated Project Teams (IPTs), Systems Engineering Working Integrated Project Teams (WIPTs), and Systems Engineering 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 MDAPs.
• Conceive plans and lead program support reviews and assessments of MDAP weapons systems and other programs (e.g., Major Automated Information Systems (MAIS)) 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).
• Establish engineering policy, guidance, and workforce development to drive the development of fully capable and supportable weapons systems.
• Oversee Component implementation of engineering initiatives and conduct independent assessments.
• Incorporate new MPTs into the engineering practice for development of weapon systems.
• Advance the principles of modularity and open systems and incorporate them when practicable in the design, and acquisition of weapon systems.
• Develop education and training materials for instructing, maintaining, and enhancing the defense acquisition workforce. Activities include: (1) developing guidance to enhance Engineering (ENG) and Production Quality and Manufacturing (PQM) acquisition career planning and progression; and (2) monitoring, and facilitating Defense Acquisition University (DAU) updates to the systems engineering, quality and specialty engineering courses, to ensure the curriculum represents the education and training requirements necessary to be a viable team member in the acquisition process.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

• Improving the DoD's capabilities in Specialty Engineering (e.g. reliability & maintainability, human-systems integration, weapons safety, value engineering and manufacturing) through policy, program oversight, fostering practice and technology improvements, initiating long-term strategic improvements, and collaborating with industry.
• Advance DoD engineering practices through the use of digital engineering and model-based systems engineering.
• Increase trust in computer hardware and software in warfighting systems by establishing a cadre of activities across the DoD capable of detecting and reducing or eliminating software and hardware vulnerabilities for systems in development and sustainment.
• Serve as the Defense Standardization Executive and oversee the Defense Standardization Program.
• Guide Service and other component organizations in the development planning process to ensure proposed MDAP programs are executable within acceptable levels of risk.
• Resolve long-term major systems engineering challenges such as systems of systems (SoS) systems engineering, systems engineering of complex systems, and pre-program formulation systems engineering trade off analysis.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Systems Engineering Initiatives	33.516	35.025	28.789
Description: The DASD(SE) provides objective assessments of program risk to support knowledge-based decision making by DoD leaders regarding DoD MDAPs and MAISs.			
FY 2015 Accomplishments: Strategic Thrust: Program Support • Conducted deep-dive systems engineering reviews of MDAPs and special interest programs. • Conducted SE and execution risk assessments. • Performed systems integration and development planning risk assessments. • Monitored programs and provided SE oversight to include all MDAPs, MAIS, and special interest programs. • Conducted systemic analysis and process management. • Conducted root cause analysis conducted during and after Program Support Assessments (PSAs). • Conducted detailed performance measurements and analysis. • Provided decision-quality information and recommendations to Defense Acquisition Boards (DABs), In Progress Reviews, Defense Space Acquisition Boards. • Reviewed MDAP Request for Proposals for critical engineering requirements. Strategic Thrust: Specialty Engineering • Developed engineering guidance and policies for the integration of specialty engineering functions as part of the SE responsibility in the acquisition process including, but not limited to, program protection/system security engineering; software; manufacturing, reliability, availability, and maintainability; modeling and simulation; configuration management; data management; and risk management.			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
• Conducted studies and analyses of methods, processes and tools to identify challenges and opportunities, and developed and promulgated best practices and guidance for applying SE to rapid development and acquisition. • Assessed challenges and impact and developed new guidance, best practices, methods, processes, and tools to more effectively implement SE for Systems of Systems. Strategic Thrust: Work Force Development • Carried out duties as Functional Lead for ENG, PQM, all Department non-construction engineering and assist software engineering. • Continued to build an enduring high performance engineering culture across the Department in Systems Engineering. • Updated and deployed courses with increased technical rigor and complex, case-based exercises. • Assessed engineering workforce capability and capacity, and, worked with Components to develop strategies to address identified gaps. • Performed outreach to focus the Department's attention and behavior on promoting an engineering culture. Strategic Thrust: Engineering Policy and Guidance • Developed and updated core SE policy, guidance and standards; reviewed all acquisition policy for SE implications. • Provided advice and made recommendations to the Secretary of Defense and the USD(AT&L) regarding systems engineering and development planning and the execution of these activities within and across Defense acquisition programs. Issued guidance to and consulted with the Heads of the DoD Components with respect to systems engineering and development planning in the DoD. • Provided guidance to Defense acquisition programs for developing and documenting each program's technical strategy and management approach in the SEP throughout the program's lifecycle. Strategic Thrust: Systems Engineering Capabilities Assessment • Worked jointly with Development, Test and Evaluation (DT&E) to develop and track new measurable performance criteria. • Periodically reviewed the organizations and capabilities of the Military Departments and Defense Agencies with respect to systems engineering, development planning, and lifecycle management and sustainability, and identified needed changes or improvements to such organizations and capabilities. • Stored and analyzed performance criteria in SEPs for MDAPs; developed program metrics to aid SE assessments and program execution. Strategic Thrust: Early Systems Engineering and Development Planning • Performed early acquisition risk assessment including pre-MS A engagement with Joint Requirements Oversight Council processes. • Supported Services and COCOMs in pre-MS A formulation.			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
• Supported requirements analyses and analysis of alternatives. • Supported initial capabilities document development. Strategic Thrust: Engineering Tools and Environments • Identified relevant engineering organizations who are currently engaging in, or would significantly benefit from digital engineering. • Established cross-service collaboration team to promote the use of digital engineering and model-based systems engineering across the DoD. • Led modularity and open systems architecture systems standards efforts to identify activities, successes, gaps, and best practices in open modular architectures and open standards for the FY 2015 NDAA and Better Buying Power, through the Defense Standardization Council.			
FY 2016 Plans: Strategic Thrust: Program Support Continue to: • Monitor programs, providing SE oversight and support to all MDAPs, Major Automated Information Systems (MAIS), and special interest programs. • Expand root cause analysis conducted during and after Program Support Assessments (PSAs). • Expand use of detailed performance measurement and analysis. • Provide decision-quality information and recommendations to DABs, In Progress Reviews, Peer Reviews, and PDR/CDR assessments. Strategic Thrust: Workforce Development • Carry out Functional Lead duties for Engineering (ENG), Production, Quality, and Manufacturing(PQM), conduct Key Leader Position board for PQM • Update and deploy courses with increased technical rigor and complex, case-based exercises. • Investigate workforce development initiatives including leadership development, specialized training, and improved instructional methods. • Assess engineering workforce capability and capacity, and, working with Components, develop strategies to address identified gaps. • Perform outreach to services and OSD to focus the Department's attention and behavior on promoting an engineering culture. Strategic Thrust: Engineering Policy and Guidance • Develop and update core SE policy, guidance and standards; review all acquisition policy for SE implications.			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
• Develop engineering guidance and policies for the integration of specialty engineering functions including, but not limited to, program protection/system security engineering; software; manufacturing, reliability, availability, and maintainability; modeling and simulation; configuration management; data management; and risk management. • Provide guidance to Defense acquisition programs for developing and documenting each program's technical strategy and management approach in the SEP throughout the program's lifecycle. Strategic Thrust: Systems Engineering Capabilities Assessment • Work jointly with DT&E to develop and track measurable performance criteria. • Develop and strengthen component SE organization and capabilities. • Periodically review the organizations and capabilities of the Military Departments and Defense Agencies with respect to systems engineering, development planning, and lifecycle management and sustainability, and identify needed changes or improvements to such organizations and capabilities. • Issue guidance to and consult with the Heads of the DoD Components with respect to systems engineering and development planning in the DoD. • Store and analyze performance criteria in SEPs and Test and Evaluation Master Plans (TEMPs) for MDAPs; develop program metrics to aid SE assessments and program execution. Strategic Thrust: Early Systems Engineering and Development Planning • Perform early acquisition risk assessment including pre-MS A engagement with Joint Requirements Oversight Council processes. • Provide the following support: (1) Services and COCOMs in pre-MS A formulation; (2) requirements analyses and analysis of alternatives; and (3) initial capabilities document definition and development. Strategic Thrust: Engineering Tools and Environments • Establish guidance and education to support digital engineering use in Systems Engineering. • Continue collaboration in digital engineering methods, processes, tools development and gap identification. • Oversee development of, and incorporation of modularity and open system technical enablers by Services in their acquisition efforts.			
FY 2017 Plans: Strategic Thrust: Program Support Continue to: • Monitor programs, providing SE oversight and support to all MDAPs, Major Automated Information Systems (MAIS), and special interest programs. • Expand root cause analysis conducted during and after Program Support Assessments (PSAs).			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
• Expand use of detailed performance measurement and analysis. • Provide decision-quality information and recommendations to DABs, In Progress Reviews, Peer Reviews, and PDR/CDR assessments. Strategic Thrust: Work Force Development • Carry out duties as Functional Lead for Engineering (ENG), Production, Quality, and Manufacturing(PQM), all Department non-construction engineering and assist software engineering. • Build an enduring high performance engineering culture across the Department in Systems Engineering. • Update and deploy courses with increased technical rigor and complex, case-based exercises. • Investigate workforce development initiatives including leadership development, specialized training, and improved instructional methods. • Assess engineering workforce capability and capacity, and, working with Components, develop strategies to address identified gaps. • Perform outreach to services and OSD to focus the Department's attention and behavior on promoting an engineering culture. Strategic Thrust: Engineering Policy and Guidance • Develop and update core SE policy, guidance and standards; review all acquisition policy for SE implications. • Develop engineering guidance and policies for the integration of specialty engineering functions as part of the SE responsibility in the acquisition process including, but not limited to, program protection/system security engineering; software; manufacturing, reliability, availability, and maintainability; modeling and simulation; configuration management; data management; and risk management. • Assess challenges and impact; develop new guidance, best practices, methods, processes and tools to more effectively implement SE for Systems of Systems. • Provide guidance to Defense acquisition programs for developing and documenting each program's technical strategy and management approach in the SEP throughout the program's lifecycle. Strategic Thrust: Systems Engineering Capabilities Assessment • Work jointly with DT&E to develop and track measurable performance criteria. • Develop and strengthen component SE organization and capabilities. • Periodically review the organizations and capabilities of the Military Departments and Defense Agencies with respect to systems engineering, development planning, and lifecycle management and sustainability, and identify needed changes or improvements to such organizations and capabilities. • Issue guidance to and consult with the Heads of the DoD Components with respect to systems engineering and development planning in the DoD.			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
• Store and analyze performance criteria in SEPs and Test and Evaluation Master Plans (TEMPs) for MDAPs; develop program metrics to aid SE assessments and program execution. Strategic Thrust: Early Systems Engineering and Development Planning • Perform early acquisition risk assessment including pre-MS A engagement with Joint Requirements Oversight Council processes. • Support: (1) Services and COCOMs in pre-MS A formulation; (2) requirements analyses and analysis of alternatives; and (3) initial capabilities document definition and development. Strategic Thrust: Engineering Tools and Environments • Establish guidance and education to support digital engineering use in Systems Engineering. • Continue collaboration in digital engineering methods, processes, tools development and gap identification. • Oversee development of, and incorporation of modularity and open system technical enablers by Services in their acquisition efforts.			
Accomplishments/Planned Programs Subtotals	33.516	35.025	28.789

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Improved the Systems Engineering effectiveness of the Department's acquisition enterprise and provided Department leadership with technical insights into acquisition program performance through:

• Systems engineering plans (SEPs) reviewed and approved to document each program's technical management approach.
• Program support assessments (PSAs) and periodic program engagements conducted and program technical reviews supported to confirm programs are executed in accordance with the SEP.
• Technical reviews conducted as requested (e.g., Nunn-McCurdy certification reviews, Non-Advocate Reviews, and focused technical assessments to identify and mitigate program risk).
• DABs, Overarching Integrated Product Teams (OIPTs), and other program review participation to provide technical insights to OSD stakeholders.
• Effective systems engineering policy and guidance established and promulgated throughout the Military Services and the Defense Acquisition System.
• A systems engineering workforce staffed, trained and certified with capable and experienced personnel.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P142 / *Systems Engineering*

• Improved reliability engineering, reliability growth management, and reliability monitoring in program development contracting, execution and sustainment.
• Service and other component organizations engaged and supported in the development planning process through effective policy, guidance, document reviews and program engagement to ensure proposed MDAP programs are executable within acceptable levels of risk.
• Increased use of digital artifacts in acquisition decision making and expansion of design options.
• Increased use of modular designs and design techniques in weapon systems, coupled with appropriate contracting language and follow through.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense			Date: February 2016
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) P143 / *Program Protection*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P143: *Program Protection*	13.048	4.397	4.556	3.640	-	3.640	4.485	4.483	4.552	4.642	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Department of Defense (DoD) must address cybersecurity 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, drives the need for diligent program protection planning and execution. Program Protection Planning includes protection of critical program information, critical components and mission functions, and integrates high level security policies and practical expertise to specific acquisition practices, systems engineering activities, and risk reduction activities. Through this initiative the Department is maturing system security engineering methodologies to protect controlled unclassified information, to include controlled technical information on contractor networks; improve mitigation of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, improve software assurance practices, mature processes to identify Critical Program Information and improve program protection planning. Activities carried out, support implementation of DoD Instruction 5200.44 Trusted Systems and Networks with the use of proven mitigation techniques and tools, the ongoing refinement of risk management processes, and creation of needed technology; implementation of DoD Instruction 5200.39 Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E) to identify and protect Critical Program Information; and implementation of Safeguarding Controlled Unclassified Information on contractor owned networks.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Program Protection	4.397	4.556	3.640

Description: DASD SE provides system security engineering policy, guidance and objective assessments to reduce risks in sharing and storing Controlled Technical Information, improve mitigation of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, improve software and hardware assurance practices and anti-tamper practices, mature processes to identify Critical Program Information and improve program protection planning. Activities carried out support implementation of DoD Instruction 5200.44 Trusted Systems and Networks with the use of proven mitigation techniques and tools, the ongoing refinement of risk management processes, and creation of needed technology; implementation of DoD Instruction 5200.39 Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E) to identify and protect Critical Program Information; and implementation of Safeguarding Controlled Unclassified Information on contractor owned networks.

FY 2015 Accomplishments:

• Provided support to Acquisition Category (ACAT) I programs to conduct broad program protection planning.
- Conducted criticality analyses to determine system vulnerabilities.
- Provided support to develop Program Protection Plans, and track progress to verify protection of critical program capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P143 / *Program Protection*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Reviewed ACAT I Program Protection Plans and provide recommendations for their approval to USD(AT&L). • Advanced the state of the practice of systems security engineering. - Continued to develop methodology to identify and mitigate security risk. - Led the development of DAU Courseware, matured guidance, mentored of Service teams, provided trainingand continued outreach activities with government and industry. - Developed updates to acquisition policy to address cyber security. - Supported implementation and tracking of industry activities to protect technical information. • Hardware and Software Assurance (HwA and SwA) - Managed DoD's efforts to establish and operate the Joint Federated Assurance Center (JFAC), including setting objectives for maturation and effectiveness of the enterprise, support the JFAC Steering Committee, establishing and monitoring annual and FYDP JFAC budgets. - Managed DoD's efforts in Anti-Tamper and Trusted Microelectronics. - Provided subject matter experts in hardware and software assurance to AT&L-led program reviews and acquisition oversight activities.			
FY 2016 Plans: Continue to: • Provide support to Acquisition Category (ACAT) I programs to conduct broad program protection planning. - Conduct criticality analyses to determine system vulnerabilities. - Develop Program Protection Plans, and track progress to verify protection of critical program capabilities. - Review ACAT I Program Protection Plans and provide recommendations for their approval to USD(AT&L). • Advance the state of the practice of systems security engineering. - Continue development of methodology to identify and mitigate system security, to include cybersecurity risk. - Continue to develop courseware, refine guidance, mentor Service teams, provide training, and outreach with government and industry. - Finalize policy for cybersecurity. - Track implementation of industry network security and protection of technical information. • Hardware and Software Assurance (HwA and SwA) - Support the activities of the JFAC steering council, run the AO Working Group. - Facilitate JFAC achieving IOC and conducting a capability gap analysis.			

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P143 / *Program Protection*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
- Provide SME support to acquisition program reviews and oversight. ***FY 2017 Plans:*** Continue to: • Provide support to Acquisition Category (ACAT) I programs to conduct broad program protection planning. - Conduct criticality analyses to determine system vulnerabilities. - Develop Program Protection Plans, and track progress to verify protection of critical program capabilities. - Review ACAT I Program Protection Plans and provide recommendations for their approval to USD(AT&L). • Advance the state of the practice of systems security engineering. - Continue development of methodology to identify and mitigate system security, to include cybersecurity risk. - Continue to develop courseware, refine guidance, mentor Service teams, provide training, and outreach with government and industry. • Hardware and Software Assurance (HwA and SwA) - Conduct hardware and software technical working groups, assurance oversight steering council and support group. - Approve HwA and SwA concept of operations for collaboration activities and program support. - Approve strategic plan: establish requirements and schedule for Initial Operating Capabilities (IOC) of HwA and SwA efforts. - Conduct comprehensive survey across HwA and SwA activities to: document capability and capacity, identify gaps, propose gap mediation investments.			
Accomplishments/Planned Programs Subtotals	4.397	4.556	3.640

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

The program protection project supports activities focused on: (1) improving system security engineering to reduce risks in sharing and storing controlled unclassified information, to include controlled technical information, (2) improve mitigation to supply chain risks, (3) Program Protection Plans reviewed and recommended for USD(AT&L) approval, (4) effective system security engineering policy and guidance, (5) improve software and hardware assurance and anti-tamper practices and implementation, (6) mature processes to identify and protect critical program information, critical components and mission functions.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense		Date: February 2016
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605142D8Z / *Systems Engineering*	**Project (Number/Name)** P143 / *Program Protection*

Impact of the program protection initiative is assessed based upon number of major acquisition programs supported with formal assessments, program protection plans reviewed and approved, and through engagement supporting acquisition policy initiatives related to program protection.

Exhibit R-2A, RDT&E Project Justification: PB 2017 Office of the Secretary Of Defense			Date: February 2016
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605142D8Z / *Systems Engineering*	Project (Number/Name) P241 / *Systems Engineering Research Center*	

COST ($ in Millions)	Prior Years	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total	FY 2018	FY 2019	FY 2020	FY 2021	Cost To Complete	Total Cost
P241: *Systems Engineering Research Center*	5.006	5.335	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Systems Engineering Research Center (SERC) is a University Affiliated Research Center (UARC) established in 2008. As a UARC, the SERC is a strategic resource to further systems research and increase its impact on the Department's ability to meet its mission. Greatly improved systems engineering is essential to the Department's strategy to field systems that are agile, affordably sustainable, flexible, and ready for a full range of contingencies in the face of declining budgets and a shrinking workforce. The SERC consists of a network of eighteen research universities from across the US that work collaboratively to bring the best talent in the nation to bear on DoD's systems engineering research problems.

This project code will transfer to the Engineering Science and Technology PE 0603832D8Z in FY 2016.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
Title: Systems Engineering Research Center	5.335	-	-
Description: The SERC is a DoD UARC which conducts University-based research that directly supports DoD's Strategic Plan through development of new systems engineering methods, processes and tools. ***FY 2015 Accomplishments:*** Enhanced engineering methods, processes and tools (MPTs) for improvement in the following areas: (1) Systems Engineering Transformation: transform current systems engineering methods to enable rapid, concurrent and scalable definition and affordable development of flexible systems that are responsive to changing threats and missions; (2) Enterprises and Systems of Systems: create foundational methods to develop and design enterprises and system of systems to provide an overwhelming competitive advantage over our adversaries; (3) Trusted Systems: secure defense systems from cyber and other threats through systemic security approaches that complement incomplete current perimeter/network defense methods; and			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2015	FY 2016	FY 2017
(4) Human Capital Development: speed the professional development of highly capable systems engineers and technical leaders in the Department and the Defense Industrial Base.			
Accomplishments/Planned Programs Subtotals	5.335	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

E. Performance Metrics

Develop and extend fundamental knowledge, advanced methods, processes and tools and cutting edge techniques for systems engineering of complex designs of relevance to the DoD mission.

- Generation and execution of relevant and appropriate SERC Research tasks.
- Promulgation of advanced SE approaches through research publications, presentations and monographs.