OSD RDT&E BUDGET ITEM JUSTIFICATION (R2 Exhibit)

Date: February 2006

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**

	Cost ($ in Millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
	Total Program Element (PE) Cost	19.982	30.762	26.594	29.648	30.340	30.942	31.710
P781	Software Engineering Institute (SEI)	17.784	22.788	21.812	23.507	24.190	24.735	25.418
P782	Software Intensive Systems	2.198	2.507	2.696	2.905	2.990	3.057	3.142
P783	Software Producibility Initiative	0.000	2.023	2.086	3.236	3.160	3.150	3.150
P784	Advanced Lithography	0.000	3.444	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Budget Item Justification: Software is key to meeting DoD's increasing demand for high-quality, affordable, and timely national defense systems. There is a critical need to rapidly transition state-of-the-art technology and best practices to improve the acquisition, engineering, fielding, and evolution of software-intensive DoD systems.

Project 781 funds the technology development and transition activities of the Software Engineering Institute (SEI) at Carnegie Mellon University. The SEI is an R&D Laboratory Federally Funded Research and Development Center (FFRDC) sponsored by the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. It was established in 1984 as an integral part of the DoD's software initiative to identify, evaluate, and transition high-leverage software engineering technologies and practices. The SEI fosters disciplined software engineering practices by DoD acquisition and life-cycle support programs and by the industrial base where the bulk of defense software is produced. The Institute works across government, industry, and academia to: (1) improve current software engineering activities from acquisition, technical, and management perspectives; (2) facilitate rapid, value-added transition of software engineering technology into practice; and (3) evaluate and calibrate emerging software engineering technologies to determine their potential for improving the evolution of software-intensive DoD systems.
The SEI enables the exploitation of emerging software technology by bringing engineering discipline to software acquisition, development, and evolution. The SEI focuses on software technology areas judged to be of the highest payoff in meeting defense needs. FY 2005 focus areas are: Acquisition Practices for DoD Software-Intensive Systems (including pilot demonstrations of new technologies, dissemination of lessons learned, and provision of selected important services to the DoD acquisition community); Software Engineering Technical Practices (including survivable systems practices, software architecture technology, software component technology, performance-critical systems, and integration of software-intensive systems); and Software Engineering Management Practices [including personal and team software development processes, software engineering measurement and analysis, and Capability Maturity Model Integration (CMMI)].

This funding line includes the Software Intensive Systems (SIS) effort under project 782. The SIS mission stems from the recommendations of the FY 2000 DSB Task Force on Software. The Assessments and Support organization within AT&L/Defense Systems/Systems Engineering manages the SIS mission to improve DoD system acquisition and sustainment. The A&S organization, because of its assessment activities, is strategically positioned to ensure that software acquisition and development technology and best practices are adopted and implemented by DoD acquisition programs. The comprehensive A&S resources ensure coverage of the breadth of responsibilities necessary to achieve the mission of improving system acquisition performance, and to act as the DoD software community focal point. The work is divided into 5 focus areas: Policy & Guidance, Education, Best Practices, Software Engineering Technology, and Collaboration. This DoD function is not affiliated with the Software Engineering Institute.

This funding line also includes the Software-Intensive Systems Produceability Initiative starting in FY 2006 as project 783. The role of software in major Defense acquisition programs has been steadily increasing. Much of the mission functionality demanded from programs such as F/A-22, JSF, Future Combat System, and many others is embodied in large, complex

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software systems. Shortcomings in software development often lead to schedule slippage, cost growth, and mission compromises. These shortcomings can frequently be traced to underpowered software development technologies not up to the task of developing the scale and complexity of software needed. Despite the large role of the commercial sector in advancing software technology, there are many key aspects of complex, distributed, robust systems crucial to DoD that are not being addressed directly by commercial technology efforts, as our experience over the past decade shows. The Software Produceability Initiative will focus on developing and transitioning more powerful and effective software development science, techniques, tools, and technologies to improve our ability to design, build, test and sustain software and software intensive systems.

B. Program Change Summary	FY 2005	FY 2006	FY 2007
Previous President's Budget (FY 2006)	21.096	25.209	26.180
Current BES/President's Budget (FY 2007)	19.982	30.762	26.594
Total Adjustments	-1.114	5.553	0.414
Congressional Program Reductions			
Congressional Rescissions		-0.497	
Congressional Increases		6.050	
Reprogrammings	-0.500		
SBIR/STTR Transfer	-0.586		
Other	-0.028		0.414

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Performance Metrics: Not Applicable.

OSD RDT&E PROJECT JUSTIFICATION (R2a Exhibit)

Date: February 2006

APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P781**

Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P781	Software Engineering Institute (SEI)	17.784	22.788	21.812	23.507	24.190	24.735	25.418

A. Mission Description and Project Justification: P781 Software is key to meeting DoD's increasing demand for high-quality, affordable, and timely national defense systems. There is a critical need to rapidly transition state-
of-the-art technology and best practices to improve the acquisition, engineering, fielding, and evolution of software-intensive DoD systems.

The SEI enables the exploitation of emerging software technology by bringing
engineering discipline to software acquisition, development, and evolution.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Acquisition Practices for DoD Software Intensive Systems:	2.167	2.445	2.077

FY 2005 Accomplishments:
- Conducted Acquisition Support Program, initiating pilot demonstrations of adopting new technology within the DoD program-office environment, coordinating and broadly disseminating lessons learned from these pilots, and providing selected and strategically important software engineering services to the DoD acquisition community.
- Enhanced support to those responsible for acquiring software in the Army, Navy, and Air Force, actively working with each service through Strategic Impact Programs (SIPs) for software-intensive systems.
- Established work plans with DoD programs identified as top priorities by the principal SEI sponsor, the Office of the Secretary of Defense (Acquisition, Technology, & Logistics), and increased interaction and support to DoD agencies and joint programs; the SEI participated with OSD on 804 activities. Activities included acquisition pilots and performing diagnostics to aid in early program and engineering risk identification.
- Delivered Software Leadership course to 25 members of the Army Senior Executive Service and General Officers and Software Acquisition Survival Skills course to 200 DoD professionals.
- Developed survey to assess systems engineering practices and results of defense contractors.
- Developed software case studies for use in DAU curriculum.

FY 2006 Plans:
- Work with key acquisition programs to continually understand and meet the needs of the acquisition community.
- Build delivery teams to support the needs of Army, Air Force, Navy, and civil agency acquisition programs.
- Determine gaps in current acquisition practices and strengthen those practices in support of acquisition programs.
- Define mechanisms to support active and ongoing collection and dissemination of lessons learned in support of the acquisition community.
- Develop tools and methods to improve management of software-intensive systems by program offices.
- Provide templates for collection and broad dissemination of best acquisition practices and lessons.
- Integrate and transition knowledge gained from acquisition engagements.
- Support the development of the CMMI Acquisition model.

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P781**

FY 2007 Plans:
- Drawing on SEI expertise in software engineering, help DoD and other government acquirers improve their ability to acquire, deploy, and sustain systems and capabilities. Identify opportunities for the SEI to create, apply, and amplify technologies that respond to customer needs.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Software Engineering Technical Practices:	11.709	15.203	14.752

FY 2005 Accomplishments:
- Released tool suite, piloted course summarizing traffic and tracking security trends on DoD networks.
- Published practices for Internet forensics.
- Completed prototypes, piloted technology to analyze malicious code.
- Developed process to define security requirements.
- Created prototype method to assess commercial software vendors for mission-critical applications.
- Designed prototype methods to increase Internet traceability and trade off anonymity; investigated policy implications.
- Published guidance to improve robustness of security programs.
- Published guidance to reduce insider threats to critical infrastructure.
- Developed information assurance curriculum to enhance computer science graduates.
- Published technical reports on incorporating sound architecture practices in Acq Strats, RFPs, and SOWs.
- Developed architecture, integrated development environment, and key reasoning frameworks for an automated architecture assistant to provide expert design guidance.
- Published report to aid in understanding the effects of service-oriented architectures on system quality attributes.
- Released economic model to support making the business case for using a product line approach for similar systems.
- Developed variability model that helps manage differing features, platforms, etc., across similar systems in a product line.
- Developed a three-course sequence to help organizations adopt sound product line practices.
- Developed infrastructure and development environment for a technology to make runtime behavior predictable in quality-critical systems.
- Released model-checking reasoning framework that applies model checking to software component technology.
- Published reports on moving existing systems to service-oriented architectures, model-driven architecture, evolution of systems-of-systems, interoperability impacts on the acquisition process, and modeling embedded control systems.
- Conducted experiments, published results on analyses of technologies for interoperability to improve understanding of moving toward net-centricity.
- Developed extensions for the Society for Automotive Engineers Architecture Analysis and Design Language (AADL) standard to improve reliability and fault modeling.
- Established an open source AADL tool environment as a low-cost entry point; automates analyses and encourages contributions from users.

FY 2006 Plans:
- Improve technologies to collect and examine netflow data on large systems to rapidly detect threats and problems.
- Continue development of a virtual training environment for network defense to support Army training needs; transition to other services.
- Continue development of framework and courses for enterprise security management, including information security risk management.
- Publish techniques to embed software assurance throughout the system life cycle, resulting in more secure systems.
- Establish resource center with line and U.S. Secret Service funding to analyze electronic crimes and provide a knowledgebase of practices.

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- Evolve automated analysis of malicious code to rapidly resolve incidents.
- Enhance processes, develop tools for security requirements engineering.
- Design interactive learning environment to identify and analyze insider threats and prevent attacks.
- Release Web portal on secure software development practices to reduce vulnerabilities in COTS products.
- Extend capability of intelligent, automated architect's assistant; validate with DoD and industry-funded pilots.
- Develop architecture technology appropriate in the systems engineering context, appropriate for Future Combat Systems (FCS) et al.
- Develop effective architecture connections to new technologies such as aspect-oriented development, service-oriented architectures, and autonomic systems.
- Release new quality attribute models, reasoning frameworks, and methods to improve architecture practices.
- Publish guides on practical adoption, automated support, and acquisition strategies for product line practice to improve viability.
- Extend prediction-enabled component technology to address security; validate in the laboratory as well as with DoD and industry-funded pilots.
- Develop and release a starter kit, methods, and courses to make it easy and cost-effective for organizations to use prediction-enabled component technology in quality-critical systems.
- Produce methods for analyzing interoperability risks and guiding programs to service-oriented architectures, such as FCS and DISA Network Centric Enterprise Services.
- Publish guidance on technologies and methods for interoperability to aid in moving to net-centricity.
- Identify DoD software needs, improve decision making for net-centricity; include costs/risks, management, acquisition related to interoperability.
- Publish user guide for modeling and analyzing embedded real-time systems using AADL; transition to community with courses.
- Release additional extensions for the AADL standard to support modeling of partitioned systems and reference architectures.
- Identify assurance case patterns for specialized aspects of embedded systems and develop user guide.
- Develop security assurance case with collaborators to work out issues and demonstrate the method.
- Conduct work in producibility. Enable DoD to "manage the supply chain" for software, hiking productivity, reducing delays, and closing gaps in predicting/understanding development of mission-critical systems.
- Conduct work in systems engineering, which is increasingly inseparable with software engineering; also, improvements in software engineering can inform best practices in systems engineering, and vice versa.

FY 2007 Plans:
- Survivable Systems: Ensure that appropriate technology and systems management practices are being used to design and implement networked systems to recognize, resist, and recover quickly from attacks.
- Product Line Practice: Provide the technical, business, and acquisition techniques and guidance required to achieve the significant cost, schedule, and quality benefits associated with using a product line approach for similar systems.
- Software Architecture Technology: Harness innovations in quality attribute reasoning and software architecture technology for practical use. Provide an effective, integrated, and widely available set of architectural practices, enabling and maximizing automated support.
- Predictable Assembly from Certifiable Components: Provide support for predicting properties of assemblies of components. Ensure that the builders of systems have the ability to select software components on the basis of their predicted runtime behavior within specific assemblies and therefore to predict the runtime behavior of these assemblies or systems.
- Integration of Software-Intensive Systems: Provide principles, methods, and techniques to accomplish broad-based and sustainable integration and interoperation across components, systems, and systems of systems.
- Performance-Critical Systems: Establish a model-based software systems engineering practice for embedded real-time systems. Develop and mature methods for creating and documenting structured rationales showing how evidence gathered during system design and test supports dependability and real-time performance claims for specific systems.
- Initiatives in high-performance computing and ultra-large-scale systems.

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P781**

Software Engineering Management Practices:	3.908	5.140	4.983

FY 2005 Accomplishments:
- Held workshops, delivered courses, conducted Standard Capability Maturity Model Integration (CMMI) Appraisal Method for Process Improvement (SCAMPI) appraisals, provided direct assistance to organizations, and supported a vast transition partner program to ensure that the acquisition and development communities can implement process improvement programs, understand the applicability and coverage of CMMI best practices, and understand the relationships these models have to other sets of best engineering, management, workforce, and acquisition practices and standards. More than 40,000 people have been trained in line-developed CMMI methodology.
- Completed the architecture and development strategy, and built the infrastructure for creating CMMI v1.2 model, appraisal methods, and training to improve software and systems processes for DoD, industry.
- Produced secure software development process and training course to reduce developer-injected vulnerabilities; piloted at Naval Oceanographic Office.
- Developed initial software metrics framework to improve acquisition of software-intensive systems; piloted at the Software Engineering Directorate-Aviation and Missile Research, Development, and Engineering Center.
- Investigated ways to measure and evaluate quality of software requirements specifications for software-intensive systems.
- Identified emerging practices for building secure software-intensive systems.

FY 2006 Plans:
- Release Version 1.2 of the CMMI with DoD and industry-recommended updates to model, appraisal methods, and training to improve software and systems processes.
- Develop CMMI acquisition model for DoD acquisition organizations.
- Complete framework for DoD acquisition metrics, including technical reports with guidance for implementation and courses needed for transition to practice
- Publish guidance for use of CMMI by small organizations and Tier 2 and Tier 3 DoD contractors.
- Release a secure software development process; produce courses and transition into defense and commercial industry.
- Investigate application of Team Software Practice (TSP) management practices to DoD acquisition; extend with pilots.
- Research risk indicators for DoD system-of-systems integration efforts.
- Use additional STE for work in risk management. As system complexity increases, the ability to identify and manage risk becomes more critical. A key focus is risk identification for teams developing distributed interoperable systems.

FY 2007 Plans:
- Capability Maturity Model Integration: Provide stewardship for and transition into practice an integrated Capability Maturity Model (CMMI) product suite that provides the DoD and industry with support for process and product improvement.
- Team Software Process: Define explicit team process techniques whose use predictably improves the cost, schedule, quality, and survivability of software-intensive systems developed by an integrated engineering team. Determine cost, schedule, and quality performance that the DoD can expect from teams using the TSP and establish metrics for use in software acquisition.
- Software Engineering Measurement and Analysis: Develop measurement and analysis guidance, information resources, and practices that assist DoD and industry software organizations in managing and improving their software engineering practices.

C. Other Program Funding Summary: Not Applicable.

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D. Acquisition Strategy: Not Applicable.

E. Major Performers

Category	Name	Location	Type of Work and Description	Award Date
Labs				
	Electronic Systems Center	Hanscom AFB, MA	Funds provided to enable the exploitation of emerging software technology by bringing engineering discipline to software acquisition, development, and evolution.	16 NOV 2004

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RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P782**

Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P782	Software Intensive Systems	2.198	2.507	2.696	2.905	2.990	3.057	3.142

A. Mission Description and Project Justification: P782 Software- Intensive Systems (SIS). The Systems Engineering Directorate (AT&L/Defense Systems) manages the Software Intensive Systems (SIS) mission to improve DoD SIS acquisition and sustainment. The SE Directorate is the focal point for DoD initiatives that reduce software risk. The SIS mission stems from the recommendations of the FY 2000 DSB Task Force on Software. The SE Directorate is organized into elements that ensure coverage of the breadth of responsibilities necessary to achieve the mission of improving SIS acquisition performance, and to act as the DoD software community focal point. These elements focus on Policy & Guidance, Education, Best Practices, Software Engineering Technology, and Collaboration. SE Directorate conducts its SIS efforts by understanding DoD needs, issues, and solutions; and acting on/transitioning improvements to DoD Enterprise-, Program- and practitioner-levels.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Software Intensive Systems:	2.198	0.000	0.000

FY 2005 Accomplishments:
Policy and Guidance:
- Complete implementation of Section 804 and transition monitoring function to the Systems Engineering Forum.
- Revise and publish CMMI AM based on pilot feedback.
- Align systems engineering process guidance and software acquisition/development processes.

Best Practices:
- DoD Best Practices Clearinghouse: Develop two prototypes for operational evaluation. Populate Clearinghouse with initial practice set.
- Actively participate in assessments and systemic analysis activities to identify software-related best practices and practice gaps.

Technology:
- Support research into the integration of iterative software development into the traditional systems engineering process.
- Develop technology for program assessments and systemic analysis
- Continue technology watch activities and software engineering technology needs studies

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P782**

Collaboration:
- Continue collaborative efforts across DoD and the international community

FY 2005 Plans:
Policy and Guidance:
- Complete implementation of Section 804 and transition monitoring function to the Systems Engineering Forum.
- Revise and publish CMMI AM based on pilot feedback.
- Align systems engineering process guidance and software acquisition/development processes.

Best Practices:
- DoD Best Practices Clearinghouse: Develop two prototypes for operational evaluation. Populate Clearinghouse with initial practice set.
- Actively participate in assessments and systemic analysis activities to identify software-related best practices and practice gaps.

Technology:
- Support research into the integration of iterative software development into the traditional systems engineering process.
- Develop technology for program assessments and systemic analysis
- Continue technology watch activities and software engineering technology needs studies

Collaboration:
- Continue collaborative efforts across DoD and the international community

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Software Intensive Systems:	0.000	2.507	2.696

FY 2006-2007 Plans:
Policy and Guidance:
- Support systemic analysis of program assessments for software-related issues, inadequate or ineffective guidance, or unintended consequences.

Best Practices:
- DoD Best Practices Clearinghouse: Initiate operations and transfer responsibility to DAU. Continue to support clearinghouse population and update.
- Continue to participate in acquisition program assessments

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Technology:
- Continue the technology watch activities and software engineering technology needs studies

Collaboration:
- Continue collaborative efforts across DoD and the international community

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers Not Applicable.

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RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P783**

Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P783	Software Producibility Initiative	0.000	2.023	2.086	3.236	3.160	3.150	3.150

A. Mission Description and Project Justification: P783 Software Produceability Initiative. The role of software in major Defense acquisition programs has been steadily increasing. Much of the mission functionality demanded from programs such as F/A-22, JSF, Future Combat System, and many others is embodied in large, complex software systems. Shortcomings in software development often lead to schedule slippage, cost growth, and mission compromises. These shortcomings can frequently be traced to underpowered software development technologies not up to the task of developing the scale and complexity of software needed. Despite the large role of the commercial sector in advancing software technology, there are many key aspects of complex, distributed, robust systems crucial to DoD that are not being addressed directly by commercial technology efforts, as our experience over the past decade shows.

This initiative will conduct integrated program of research from basic through dem-val that advances the state-of-the art in produceability of software for DoD systems, particularly those systems characterized by high complexity, need for robustness, information assurance, real-time performance, and physical distribution. Research and transition efforts will pursue technical goals to (1) meet and ensure mission-critical requirements; (2) control complexities; (3) enable system evolution; (4) ensure seamless interoperability; and (5) model behavior and performance.

Invest in promising software technologies involving (1) specification of complex requirements; (2) correct-by-construction software development; (3) composable and customizable frameworks; (4) high-confidence system software and middleware; (5) system architectures for network-centric environments; (6) technologies for testing, verification, and validation, and (7) modeling and metrics. Establish cost avoidance goals of 10% - requirements phase, 60% - design phase, 80% - code/unit test phase and 40% - integration and test phase in the software development lifecycle. Based on these goals, annuals cost avoidance is estimated at $10.6 billion. Additionally, these software experts would directly advise ongoing acquisition programs.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
	0.000	2.023	2.086

FY 2005 Accomplishments:
N/A

FY 2006 Plans:
Start initial effort to define the Systems and Software Test Track to provide a place (possibly virtual and not a single physical location) for experimental verification of Software-Intensive Systems Producibility technologies due to their novelty and the potential complexity of the underlying theories. The experimental platforms will incorporate software technology to instrument, monitor and test large-scale applications. Challenge problems for the open experimental platforms will be made accessible for all the research teams. The experimental platform research will include subtasks to conduct large-scale

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coordination experiments, and to develop methods and tools for evaluating aggregate performance of applications. This environment will provide a full range of collaborative technology challenges, run-time platforms and applications, experiments, evaluations, and demonstrations. A Common infrastructure will enable control and data flow between both kinds of application components for a distributed environment. The open experimentation environment provides the fundamental reference architecture and underpinnings helping researchers to develop and test their designs as well as facilitates transition of promising technologies into production use.

Initiate a research topic in Interoperability to address software techniques to improve system of system interoperability. Develop and transition new methodologies, tools, technologies and techniques that improve DoD's ability to acquire software for large, net-centric warfighting systems of systems. Key in this effort is to develop and establish principles of interoperability as a foundation for hardware-software. These principles will enable the precise description of components, their construction and their acceptable interactions, leading to new approaches for building and assembling systems.

Conduct a third workshop on software producibility focused on industry needs, interests and motivations.

FY 2007- FY 2008 Plans:
In FY 2007, we will implement the Systems and Software Test track concepts developed in 2006 including establishing facilities, staff, and development artifacts. We will begin collaborative efforts between industry, DoD and academia to prototype and assess new tools and technologies against real-world problems. The testbed will serve to focus the diverse research projects on common problem statements, thereby facilitating comparison of new techniques and measurement of effectiveness in controlled analyses. The supportability aspects of new technologies will be addressed, including tool documentation, maintenance, integration, and upgrade.
We will conduct the second year and the optional third year of interoperability research to deliver useable software methodologies, prototypes, or tools which can be tested and incorporated into DoD R&D programs.
In 2008, begin partial funding for the on-going HPEC-SI program to provide standardized signal processing software for MDAPs, including Joint Strike Fighter. This core funding will allow continued evolution of the code base to new languages and processors, and initiate increasing available functionality to include image processing.
We will also complete the study by the National Academy of Sciences on Advancing Software-Intensive System Producibility.
Depending upon the Service and Agency commitment of research funds for related initiatives and successful completion of the 2006 industry workshop, we will coordinate joint university/industry/Government research efforts to take promising prototype software techniques and tools and mature them for applicability to Defense acquisition programs. We intend to obtain substantial participation, and possible cost sharing, by traditional Defense contractors and commercial software tool vendors, and also by standards bodies for open source development, industry associations, and consortia (such as ESCHER research institute) for tech transition.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers Not Applicable.

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APPROPRIATION/ BUDGET ACTIVITY	PE NUMBER AND TITLE	PROJECT
RDT&E/ Defense Wide BA# 3	**0603781D8Z - Software Engineering Institute (SEI)**	**P784**

Cost ($ in Millions)		FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
P784	Advanced Lithography	0.000	3.444	0.000	0.000	0.000	0.000	0.000

A. Mission Description and Project Justification: FY 2006 resources will fund thin film mask technology development.

B. Accomplishments/Planned Program:

Accomplishment/Planned Program Title	FY 2005	FY 2006	FY 2007
Advanced Lithography	0.000	3.444	0.000

Congression add for thin film mask technology development.

C. Other Program Funding Summary: Not Applicable.

D. Acquisition Strategy: Not Applicable.

E. Major Performers Not Applicable.