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Exhibit R-2, PB 2010 Office of Secretary Of Defense RDT&E Budget Item Justification **DATE:** May 2009

| APPROPRIATION/BUDGET ACTIVITY | | | | | R-1 ITEM NOMENCLATURE | | | | | |
|--|-----------------------|-------------------------|-------------------------|-------------------------|---|-------------------------|-------------------------|-------------------------|-------------------------|-------------------|
| 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD) | | | | | PE 0603680D8Z Defense Wide Manufacturing Science and Technology Program | | | | | |
| COST (\$ in Millions) | FY 2008 Actual | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
| Total Program Element | 22.415 | 18.280 | 14.638 | | | | | | Continuing | Continuing |
| P680: Manufacturing Science and Technology Program | 22.415 | 18.280 | 14.638 | | | | | | Continuing | Continuing |

A. Mission Description and Budget Item Justification

Manufacturing Science and Technology (MS&T) provides the Department a comprehensive manufacturing program to achieve the strategic goals of focused technology, improved acquisition across the life cycles, and cost-effective logistics. By designing for manufacturability early in development, anticipated results will have an impact on increasing reliability and decreasing the life cycle burden of weapon systems.

MS&T will: 1) address manufacturing enterprise issues beyond a single Component or platform and, 2) establish and mature cross-cutting manufacturing processes required for transitioning emerging technologies which impact the timelines, affordability, and producibility of acquisition programs and shorten the deployment cycle times.

The MS&T program is fundamental to a coordinated development process. Concurrent development of manufacturing processes with the technology prototype enables the use of emerging technologies such as ceramic matrix composites for advanced turbine engines, affordable low observables materials for increased survivability in the kill chain of high value targets, and system-on-chip electronics for communication platforms.

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B. Program Change Summary (\$ in Millions)

| | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> |
|---|----------------|----------------|----------------|----------------|
| Previous President's Budget | 23.594 | 11.981 | 14.906 | |
| Current BES/President's Budget | 22.415 | 18.280 | 14.638 | |
| Total Adjustments | -1.179 | 6.299 | -0.268 | |
| Congressional Program Reductions | | | | |
| Congressional Rescissions | | -0.101 | | |
| Total Congressional Increases | | 6.400 | | |
| Total Reprogrammings | -0.471 | | | |
| SBIR/STTR Transfer | -0.661 | | | |
| Undistributed Reduction | -0.047 | | | |
| Adjustment reflects internal realignment of funds | | | -0.075 | |
| Other | | | -0.193 | |

Congressional Increase Details (\$ in Millions)

Project: P680, High Performance Manufacturing Technology Initiative

This Congressional add is to fund efforts to identify, advance, and accelerate manufacturing processes and technologies that will achieve productivity and efficiency gains in the defense manufacturing base. Activities include maturing manufacturing process development, strategic planning and roadmapping, development of prototypes and test beds, workshops, incentives, and outreach.

| | FY 2008 | FY 2009 |
|--|----------------|----------------|
| | | 6.400 |

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| COST (\$ in Millions) | FY 2008 Actual | FY 2009 Estimate | FY 2010 Estimate | FY 2011 Estimate | FY 2012 Estimate | FY 2013 Estimate | FY 2014 Estimate | FY 2015 Estimate | Cost To Complete | Total Cost |
| P680: Manufacturing Science and Technology Program | 22.415 | 18.280 | 14.638 | | | | | | Continuing | Continuing |

A. Mission Description and Budget Item Justification

The Manufacturing S&T program has a two-pronged approach: 1) technology initiatives and 2) single specific projects. Technology initiatives, in collaboration with the Joint Defense Manufacturing Technology Panel (JDMTP) and industry, identify and develop investment strategies to advance the manufacturing processes needed to support the specific technology. Above-the-shop-floor investments focus on new manufacturing processes that have potential to significantly improve manufacturing efficiencies. Single specific projects address investment opportunities not associated with selected technology initiatives and enable the program to respond to urgent, compelling manufacturing needs and provide seed funding to more high risk-high payoff technologies.

Data calls will be launched annually by the JDMTP to identify technology initiatives and single specific issues requiring investment. The JDMTP is comprised of the ManTech Directors from the Services, Defense Logistics Agency (DLA), Missile Defense Agency (MDA) and Office of Secretary of Defense (OSD). The call will be distributed through the ManTech Directors to the three JDMTP sub panels: Metals Processing and Fabrication Subpanel, Composites Processing and Fabrication Subpanel, and Electronics Processing and Fabrication Subpanel. Potential candidates will be evaluated by the JDMTP based on criteria set forth in the call and announcements and down-selected for further development prior to final selection. Priority will be given to investments that support affordability and producibility of critical enabling manufacturing technologies that cut across multiple platforms. Investments will also balance defense priorities in specialty materials, electronics, propulsion and power, and manufacturing processes including "above the shop floor" (lean and business technologies facilitating interoperable manufacturing). Final projects are selected by the OSD ManTech Director in collaboration with the JDMTP and in consultation with the Office of Deputy Under Secretary of Defense (Advanced Systems and Concepts) and the Director, Defense Research & Engineering. Technology initiatives and projects will be executed at the Component level.

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

| | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
|---|----------------|----------------|----------------|----------------|
| Ceramic Matrix Composite (CMC) Manufacturing Initiative | 1.740 | 4.246 | 0.396 | |
| <p>Turbine engines are the main propulsion system for virtually all DoD aircraft and helicopters and also power an array of ships and tanks. Improvements in manufacturing process technology must be achieved with each new generation of engines for these challenging new designs to be manufactured with acceptable quality, cost, and delivery rate to meet the warfighters' needs. This initiative seeks to advance and establish the manufacturing technologies for CMCs needed to support the development, production</p> | | | | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p>and sustainment of advanced gas turbine engines. Successful efforts will enable the use of CMCs for defense systems, resulting in significant life cycle cost avoidance through improved fuel efficiencies and greatly reduced maintenance costs over metallic flaps and seals and vanes for turbine engines.</p> <p>Outcome: demonstrate the advancement of CMC manufacturing technologies that result in: 1) improved Non-Destructive Evaluation (NDE) techniques, 2) reduced production time, 3) consistent performance of the CMC materials, and 4) reduced unit cost such that CMC materials can be incorporated Advanced Turbine Engines resulting in 1) reduced weight, 2) increased engine performance, 3) decreased maintenance, 4) increased production flow through, and 5) increased safety. Advanced manufacturing material processes will reduce re-work, increase production capacity, and enable production rate requirements for engine components. Life cycle cost avoidance for this initiative is projected in the billions, with technology maturity within 3-5 years.</p> <p><i>FY 2008 Accomplishments:</i> Execution of this budget baseline project was accomplished in coordination with the High Performance Manufacturing Technology Initiative FY 2008 funded CMC efforts described later in this exhibit. Initiated Phase 1 for in-tow coating of silicon carbide (SiC) fiber process improvements, candidate experiments defined, developed and finalized; process model constructed, modified, then used to support conceptual design.</p> <p><i>FY 2009 Plans:</i> 1) NDE Phase 2 specimen design and fabrication refined and completed with NDE process optimized, 2) optimization of production-scale coating of SiC fabrics for CMCs material handling, 3) in-line tow coating equipment modified/validated to support experiments performed on the modified tow coater, and 4) 3-D airfoil inspection sensor-rotor tilt table developed and completed with follow-on system testing and integration.</p> <p><i>FY 2010 Plans:</i> 1) Full-scale concept validation on modified tow coating, real time process metrology finalized, 2) 3D airfoil inspection system process and functionality demonstration with measurement of new process key</p> | | | | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| characteristics, and 3) demonstration of 80m capability of SiC fabric coating with reduction of acceptance time/cost and next generation equipment definition. | | | | |
| <p>Low Observable Material Manufacturing Initiative</p> <p>Manufacturing Scale-up for Low Observable (LO) Materials and Platforms</p> <p>Outcome: Three key areas: 1) precision component fabrication, 2) multi-spectral LO integration, and 3) minimization of sustainment cost and cycle time drivers. Investment in the three key areas are projected to have a significant multi-million dollar payback throughout the Future Years' Defense Plan and beyond. Technology is expected to mature beginning in FY 2010. Execution of this project is accomplished in coordination with the FY 2008 Disruptive Manufacturing Technology Initiative.</p> <p><i>FY 2009 Plans:</i> Initial scale-up of the key project to meet near-term flight demonstration. Producibility assessment to establish process control, quality goals, and variability reductions. Initial evaluation of pertinent Key Performance Parameters (KPP's). Final scale-up of the key project to meet initial DoD-level needs. Additional flight testing.</p> | 0.000 | 2.135 | 0.000 | |
| <p>Prosthetics and Orthotics Manufacturing Initiative</p> <p>This project was previously titled " Custom Composite Orthotics and Prosthetics" in the FY 2009 President's Budget.</p> <p>New manufacturing technologies are required for the development of custom composite orthotics and prosthetics for injured men and women of the armed services. Orthotics and prosthetics present a two-fold challenge in that they contain a high degree of customization in design and a labor intensive means of manufacturing. Recent advances in solid modeling, reconfigurable tooling, room temperature resin chemistry, automated fabrication of custom fiber architectures, and novel resin infusion methods have created the potential to develop a highly integrated, low cost, custom orthotic and prosthetic technology to address the unique requirements and needs of the armed services. Rapid prototyping technologies and new composite manufacturing solutions have shown the potential to provide a 24-hour turnaround</p> | 1.333 | 1.778 | 0.699 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p>time for component fabrication. The current state-of-the-art for orthotics is to thermoform plastic materials such as polypropylene to create a custom fit orthotic. New manufacturing techniques integrated with advanced polymer composite technologies have allowed for initial prototyping work using woven glass reinforced adiprene. These new materials are compliant, but sufficiently rigid for use with prosthetics. The integration of composite materials could provide up to a 20 percent weight savings and an approximate 40% reduction in skin contact over current thermoform plastic solutions.</p> <p>Outcome: New rapid prototyping and affordable manufacturing processes resulting in 20 percent weight savings and 40 percent reduction in skin contact. Improved reliability of new composite prosthetics.</p> <p><i>FY 2008 Accomplishments:</i> Coordinated with the National Naval Medical Center (NNMC) and Walter Reed Hospital (WRH) to establish a team to develop manufacturing technologies. Conducted Phase 1 - Integration of fiber with new fabrication prototyping of prosthetics and orthotics and conducted proof-of-concept of rapid custom composite prosthetics.</p> <p><i>FY 2009 Plans:</i> Full-scale manufacturing capability for custom composite orthotics and prosthetics.</p> <p><i>FY 2010 Plans:</i> Train NNMC and WRH on prototyping technology.</p> | | | | |
| <p>System-On-Chip (SOC)</p> <p>Manufacturing Science & Technology (MS&T) investments will enable smaller, less costly Global Positioning Systems (GPS) for artillery platforms by developing the manufacturing technologies to enable reduced weight, size and power consumption to provide leap-ahead communication and sensor capability by maturing technologies that move heavy, high volume/power demand systems to small, power efficient System-On-Chip (SOC) packaging technology.</p> | 1.739 | 0.926 | 1.275 | |

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| <p>Outcome: MS&T will move the basic packaging technology from Manufacturing Readiness Level (MRL) 3 to qualification for application in the Ground-Based GPS Receiver Application Module (GB-GRAM) 105mm Smart artillery round (PKG II) as the initial adopter. Manufacturing S&T investments will refine the fabrication process, develop design rules for complex integration of non optimized mixed devices on same silicon, and accelerate the development and integration of the transmit and receive module that can be used for downstream system application..</p> <p><i>FY 2008 Accomplishments:</i> Completed baseline technical milestones. Initiated L1/L2 Radio Frequency (RF) Module Development deliverable, defined requirements and began design phase.</p> <p><i>FY 2009 Plans:</i> Continue L1/L2 RF module development work, concluding design, fabrication, test/evaluation, and documentation phases; deliver functional modules. Begin requirements definition of GPS module development deliverable. Continue GPS module development work, completing design, fabrication, test/evaluation, and documentation phases. Deliver functional modules and characterization data.</p> <p><i>FY 2010 Plans:</i> Complete design/integrate into GB-GRAM deliverable, including specifications development, design, fabrication, integration/test, documentation, and the issuance of a final technical report.</p> | | | | |
| <p>Direct Digital Manufacturing Inspection and Distortion Control</p> <p>Develop inspection methods for direct digital manufacturing via electron beam free form fabrication (EBFFF) of metallic components for air, sea, and land based systems to ensure quality parts. Develop thermal control strategies to alleviate thermal residual stresses built up via EBFFF that would put the part out of dimensional tolerances and sacrifice structural properties required for service applications.</p> <p><i>FY 2009 Plans:</i> Initiate efforts in inspection and distortion control of EBFFF metallic components.</p> | 0.000 | 0.569 | 1.541 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <i>FY 2010 Plans:</i> Deliver inspection methods and new processes for distortion control for EBFFF metallic components. | | | | |
| <p>Manufacturing Readiness Assessment (MRA) Capability</p> <p>OSD is establishing a capability which will include a requirement for Department of Defense major acquisition programs to perform an MRA prior to major milestone reviews. This is intended to address the large and continuing unfavorable deviations in cost and schedule performance in major acquisition programs which have been attributed in part to insufficient knowledge of manufacturing readiness of technologies as well as insufficient knowledge of the manufacturing readiness of the industrial capabilities (production processes, equipment, systems, tooling, materials and supplier base) that produce the systems. The MRA capability will provide for the following: input to the development of related Defense Acquisition University (DAU) curriculums; provide competent technical advice to Defense Acquisition Board (DAB) principals on manufacturing readiness issues and policies; review and analyze the results of field-conducted MRAs; participate, as appropriate, in MRAs conducted by field organizations to support DAB milestone decisions; conduct independent MRAs; and provide advice to field organizations on manufacturing readiness matters.</p> <p>Outcome: A capability which will include a requirement for major DoD acquisition programs to perform an MRA prior to major milestone reviews. This is intended to address the large and continuing unfavorable deviations in cost and schedule performance in major acquisition programs which have been attributed in part to insufficient knowledge of manufacturing readiness of technologies as well as insufficient knowledge of the manufacturing readiness of the industrial capabilities (production processes, equipment, systems, tooling, materials and supplier base) that produce the systems.</p> <p><i>FY 2009 Plans:</i> Implement MRA requirements across the Department; develop DAU curriculum and establish training requirements; assist in initial MRA performed at field activities to develop a most efficient process and appropriate guidance.</p> | 0.000 | 2.250 | 5.000 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p><i>FY 2010 Plans:</i> Implement MRA requirements across the Department; develop Defense Acquisition University (DAU) curriculum and establish training requirements; assist in initial MRA performed at field activities to develop a most efficient process and appropriate guidance. Full complement of personnel and staffing arrive onboard and engaged in the MRA initiative.</p> | | | | |
| <p>Emerging Manufacturing</p> <p>Emerging Manufacturing is a series of new efforts addressing advanced manufacturing technologies and enterprise business practices for defense applications. Initiatives and projects under development will continue to identify and transition advanced manufacturing processes/technologies and business practices that will achieve significant productivity and efficiency gains in the defense manufacturing base. There are four key focus areas: directed energy, survivability, disruptive green and electronic technology, and manufacturing best practices.</p> <p>In directed energy, manufacturing improvements are sought for ground, sea, air, and space based directed energy weapons to enable fielding of these weapons on cost and schedule. In addition, manufacturing improvements are also sought for human and sensor protection against directed energy threats.</p> <p>In survivability, manufacturing improvements are sought for ballistic protection for both personnel and weapon systems, for low observables, and for countermeasures so that our personnel and systems can be protected affordability and on schedule.</p> <p>In disruptive green and electronic technology, manufacturing improvements are sought for improvements in power and energy sources such as lithium ion batteries, solar cells, and fuel cells to enable affordable and reliable fielding of these energy sources, in green technologies such as lead-free solder, nanotechnology for electronics, and other environmentally friendly manufacturing methods to reduce the hazardous waste stream in the industrial base and in the logistics depots, and in fuel efficiency through lightweight structures and advanced propulsion for ground, sea, air, and space structures.</p> | 0.000 | 0.000 | 5.727 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p><i>FY 2010 Plans:</i> Launch programs in the areas of directed energy, survivability, disruptive green and electronic technology, and manufacturing best business practices.</p> | | | | |
| <p>High Performance Manufacturing Technology Initiative</p> <p>These FY 2008 and FY 2009 Congressional adds (as adjusted for DoD Appropriation General Provisions) are provided to fund efforts to identify, advance, and accelerate manufacturing processes and technologies that will achieve productivity and efficiency gains in the defense manufacturing base. Activities include maturing manufacturing process development, strategic planning and roadmapping, development of prototypes and test beds, workshops, incentives, and outreach.</p> <p><i>FY 2008 Accomplishments:</i></p> <ul style="list-style-type: none"> - Network centric manufacturing provided a proof of concept "process" pilot demonstration on critical spare parts for the M2 machine gun. It modeled, simulated, created and stored qualified manufacturing processes; linked design and manufacturing process information at Army Engineering Support Activities; established agile supply chains based upon end item weapon system heuristics; and transitioned pilot demonstration results to the industrial base - Modeled Based enterprise to develop processes for the integration of design models with analysis tools; identification of critical design features based on technology and manufacturing maturity, cost, quality, reliability or schedule risk; visualization of assembly operations at multiple levels of detail; integration of high fidelity cost models at all levels of design and system integration; and, prediction and analysis of supply chain risks. - Ceramic Matrix Composites (CMC): Executed in coordination with the CMC project described earlier in this exhibit. Initiated Phase 1 for optimizing and validating Non-Destructive Evaluation (NDE) techniques for CMCs, Organic Matrix Composites (OMC) and Metallic airfoils. Phase 1 included; 1) initiated processing and NDE of CMCs to mature reliability and repeatability of manufacturing processes; initiated the design and fabrication of CMC specimens containing material, processing or geometric defects for validation of NDE processes, 2) established leader cloth attachment refinement for silicon carbide (SiC) fabric coating throughput improvements, and 3) initiated optimization and validation of alternative dimensional inspection methods for complex three-dimensional (3D) airfoils. | 7.690 | 6.376 | 0.000 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p><i>FY 2009 Plans:</i></p> <ul style="list-style-type: none"> - Conduct joint government and industry workshops including 1) workshop for incentives and hurdles to adopting new manufacturing technologies, and 2) a joint DoD/NASA workshop on innovation from product design to manufacturing process. - Benchmark both commercial and Defense product lines to establish state-of-the-art and best practices to develop model-based enterprise and collaborative manufacturing investment strategies and thrusts. - Establish additional network centric manufacturing pilot demonstrations in conjunction with other services and agencies. - Deliver model based enterprise tools for: integration of design models with analysis tools; identification of critical design features based on technology and manufacturing maturity, cost, quality, reliability or schedule risk; visualization of assembly operations at multiple levels of detail; integration of high fidelity cost models at all levels of design and system integration; and, prediction and analysis of supply chain risks. | | | | |
| <p>Disruptive Manufacturing Technology Initiative</p> <p>This is an FY 2008 Congressionally added effort to mature manufacturing processes needed to transition emerging, disruptive technologies which offer leap ahead capability for future warfighting within the next decade.</p> <p>This initiative will execute the following capability areas:</p> <ul style="list-style-type: none"> - Solder free electronics: The development and deployment of solder free electronic subsystems would likely result in 1) increased reliability (through elimination of main failure modes); 2) reduced size and weight due to novel packaging techniques; 3) enhanced system performance due to greater individual device tolerances; and 4) reduced hazardous material waste streams. - Fixed and rotary wing airframes: the aim of this program will be to dramatically reduce the overall cycle and turnaround times in order to reduce both costs and lead times for airframes for fixed and/or rotary wing aircraft. Results will include: 1) Achievement of dramatic reductions in nonrecurring fabrication and assembly tooling (jig) costs, numbers, and leadtime; 2) widespread application of unitized structures for | 7.690 | 0.000 | 0.000 | |

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| <p>composite and metallic aircraft; 3) innovative approaches reducing capital requirements for drilling and milling for structural assembly.</p> <ul style="list-style-type: none"> - Conformal load bearing antennas: objective of this program is to dramatically reduce the manufacturing cost and lead times of conformal, load-bearing antenna structures (CLAS) by identifying and refining the requisite manufacturing technologies required for future manned and unmanned platforms - Low Observable Material Manufacturing Initiative: Develop flexible, affordable process meeting multiple weapon system requirements, scale up process to meet demand, <p><i>FY 2008 Accomplishments:</i> FY 2008 Accomplishment: Contracts awarded to develop alternatives:</p> <ul style="list-style-type: none"> - Solder in defense electronics: eliminated the use of leaded solder in the manufacture, assembly of electronic systems and demonstrated applicable repair and rework techniques to support the sustainment portion of the system life cycle - Fixed and rotary wing airframes: enable fundamental changes to airframe manufacturing to significantly reduce cost and schedule: provide a design and manufacturing approach that is rate flexible; provide increased design and manufacturing flexibility for multi-variant platforms; easily accommodate structural design changes into the manufacturing process - Conformal load bearing antennas: 1) maturation of the manufacturing capability which automates, controls and reduces CLAS fabrication and assembly costs with improved fidelity and accuracy; 2) scale up of innovative materials and manufacturing processes that can be readily incorporated into a CLAS production facility; 3) CLAS manufacturing technology issues including but not limited to modular design concepts, low cost tooling concepts, process controls and inspection methods for both structural and electrical components, material handling and compatibility, deposition of conductive or dielectric materials onto complex surfaces; 4) identification of current, planned or proposed weapon systems would benefit from the identified CLAS cost reduction techniques/technologies with anticipated cost savings and/or capability improvements - Low Observable (LO) Material Manufacturing Initiative: 1) Precise component fabrication; 2) multi-spectral LO integration; 3) minimize sustainment cost and cycle time drivers | | | | |
| Global Collaborative Manufacturing Architecture | 0.300 | 0.000 | 0.000 | |

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| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p>This project was funded via a below-threshold reprogramming in FY 2008.</p> <p>Development of a Global Collaborative Manufacturing Architecture (GCMA) in support of the FY 2008 National Defense Authorization Act direction to the SecDef to develop a Manufacturing Technology program strategic framework and a strategic plan to guide both government and industry high potential investments in Manufacturing Technology in order to leverage benefits in industrial technology availability, acquisition and sustainment program cost, schedule and performance risk reduction.</p> <p>Outputs and efficiencies: Develop a strategy and approach for the creation, development and maintenance of a GCMA based on the principles and best practices. The process developed as part of this task will lead to an extensible frame work for the GCMA, plus tools for gap analysis, transition planning, investment management, and assessment of capability improvement. The planning and development process will include plans for capturing and incorporating important initiatives such as Model-Based Enterprise, Network Centric Manufacturing, the Supply-Chain Operations Reference (SCOR) supply chain management model, and acquisition reform strategies. The process will encompass aerospace & defense industry representatives as well as global manufacturing best practices from the commercial sector. The framework description shall include the use of a DoD architecture framework (DoDAF) overlay (Roundtrip Matrix) to serve as the guide and measure for the GCMA scope and expected outcomes as well as establishing the requirements for participation by GCMA stakeholders.</p> <p><i>FY 2008 Accomplishments:</i></p> <ul style="list-style-type: none"> - Developed a strategy and approach for the creation, development and maintenance of a GCMA based on the principles and best practices. - Developed a Plan of Action and Milestones (POA&M) that will describe further Increments of the GCMA. - Created a high level GCMA framework and other DoDAF products that shall be the basis of future development for the GCMA. These products shall be referred to as Increment 0 of the GCMA and shall include an Overview Description (AV-1), the GCMA Integrated Definitions and Dictionary (AV-2) and the high-level, Capabilities-based GCMA Activity Diagram (OV-5). | | | | |
| Clafin University Detections and Remediation Response to Biological and Chemical Weapons Project | 1.923 | 0.000 | 0.000 | |

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| APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD) | R-1 ITEM NOMENCLATURE PE 0603680D8Z Defense Wide Manufacturing Science and Technology Program | | PROJECT NUMBER P680 | |
| B. Accomplishments/Planned Program (\$ in Millions) | FY 2008 | FY 2009 | FY 2010 | FY 2011 |
| <p>The 1.923 was placed in the wrong PE and subsequently moved to realign for proper execution.</p> <p>This actions realigns \$1.923 million funding for the Clafin University Detections and Remediation Response to Biological and Chemical Weapons Project within the Research, Development, Test, and Evaluation, Defense-Wide, 08/09, appropriation for proper execution. The funds are realigned to BA1 Basic Research from BA3, Advanced Technology Development. This is a congressional special interest item.</p> <p><i>FY 2008 Accomplishments:</i> This actions realigns \$1.923 million funding for the Clafin University Detections and Remediation Response to Biological and Chemical Weapons Project within the Research, Development, Test, and Evaluation, Defense-Wide, 08/09, appropriation for proper execution. The funds are realigned to BA1 Basic Research from BA3, Advanced Technology Development. This is a congressional special interest item.</p> | | | | |

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| Exhibit R-2a, PB 2010 Office of Secretary Of Defense RDT&E Project Justification | | | | | | | | DATE: May 2009 | | |
| APPROPRIATION/BUDGET ACTIVITY 0400 - Research, Development, Test & Evaluation, Defense-Wide/BA 3 - Advanced Technology Development (ATD) | | | | R-1 ITEM NOMENCLATURE PE 0603680D8Z Defense Wide Manufacturing Science and Technology Program | | | | PROJECT NUMBER P680 | | |
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | |
| | <u>FY 2008</u> | <u>FY 2009</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>FY 2012</u> | <u>FY 2013</u> | <u>FY 2014</u> | <u>FY 2015</u> | Cost To Complete | Total Cost |
| (BA3) 0603680F/Air Force ManTech | 0.000 | 56.376 | 40.523 | | | | | | Continuing | Continuing |
| (BA7) 0708045A/Army ManTech | 91.305 | 90.782 | 69.479 | | | | | | Continuing | Continuing |
| (BA7) 0708011F/Air Force ManTech | 50.186 | 0.000 | 0.000 | | | | | | 0 | 50.186 |
| (BA7) 0708011N/Navy ManTech | 56.862 | 61.713 | 57.513 | | | | | | Continuing | Continuing |
| (BA7) 0708011S/DLA ManTech | 56.057 | 55.130 | 20.803 | | | | | | Continuing | Continuing |
| D. Acquisition Strategy | | | | | | | | | | |
| N/A | | | | | | | | | | |
| E. Performance Metrics | | | | | | | | | | |
| N/A | | | | | | | | | | |

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