

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2017 Navy **Date:** February 2016

Appropriation/Budget Activity 1319: <i>Research, Development, Test & Evaluation, Navy / BA 3: Advanced Technology Development (ATD)</i>					R-1 Program Element (Number/Name) PE 0603680N / (U) <i>Manufacturing Technology Program</i>							
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	0.000	0.000	57.074	56.712	-	56.712	57.797	58.832	60.706	60.711	Continuing	Continuing
1050: <i>Manufacturing Tech</i>	0.000	0.000	57.074	56.712	-	56.712	57.797	58.832	60.706	60.711	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Manufacturing Technology (ManTech) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development, optimization, and transition of enabling manufacturing technologies to key naval suppliers. In general, investments transition emerging Science and Technology (S&T) results to acquisition programs; improve industrial capabilities in production, maintenance, repair and industrial base responsiveness; and advance manufacturing technology to reduce cost, improve performance, and responsiveness. Currently, the ManTech Program is focused on affordability improvements for specific key acquisition platforms as defined in the Navy ManTech Investment Strategy. Key platforms currently targeted include: VIRGINIA Class Submarine (VCS)/ OHIO Replacement Program (ORP); DDG 51 Class Destroyer; CVN 78 Class Carrier; Joint Strike Fighter (JSF); and CH-53K Heavy Lift Helicopter. ONR ManTech helps these Navy programs achieve their respective affordability goals by transitioning developed manufacturing technology which, when implemented, results in needed cost reduction or cost avoidance.

This Program Element, new as of FY16, is the result of the re-alignment of funds from PE Industrial Preparedness 0708011N and the Manufacturing Science and Technology activity from PE 0603758N.

B. Program Change Summary (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Previous President's Budget	0.000	57.074	57.955	-	57.955
Current President's Budget	0.000	57.074	56.712	-	56.712
Total Adjustments	0.000	0.000	-1.243	-	-1.243
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Rate/Misc Adjustments	0.000	0.000	-1.243	-	-1.243

Change Summary Explanation

Technical: Not applicable.
Schedule: Not applicable.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy										Date: February 2016		
Appropriation/Budget Activity 1319 / 3					R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program				Project (Number/Name) 1050 / Manufacturing Tech			
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
1050: <i>Manufacturing Tech</i>	0.000	0.000	57.074	56.712	-	56.712	57.797	58.832	60.706	60.711	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Manufacturing Technology (ManTech) Program is intended to improve the productivity and responsiveness of the U.S. defense industrial base by funding the development, optimization, and transition of enabling manufacturing technologies to key naval suppliers. In general, investments transition emerging Science and Technology (S&T) results to acquisition programs; improve industrial capabilities in production, maintenance, repair and industrial base responsiveness; and advance manufacturing technology to reduce cost, improve performance, and responsiveness. Currently, the ManTech Program is focused on affordability improvements for specific key acquisition platforms as defined in the Navy ManTech Investment Strategy. Key platforms currently targeted include: VIRGINIA Class Submarine (VCS)/ OHIO Replacement Program (ORP); DDG 51 Class Destroyer; CVN 78 Class Carrier; Joint Strike Fighter (JSF); and CH-53K Heavy Lift Helicopter. ONR ManTech helps these Navy programs achieve their respective affordability goals by transitioning developed manufacturing technology which, when implemented, results in needed cost reduction or cost avoidance.

This Program Element, new as of FY16, is the result of the re-alignment of funds from PE 0708011N and the Manufacturing Science and Technology R2A activity from PE 0603758N.

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
Title: Composites Processing and Fabrication	0.000	6.000	5.871	0.000	5.871
<p>Description: The primary technical goal of the Composites Processing and Fabrication activity is improving weapon systems affordability, enhancing weapon system effectiveness and improving reliability/war-fighter readiness through the increased utilization of composite materials and structures. This is being achieved through the development, maturation, and transition of affordable and robust manufacturing, assembly, and repair processes that fully exploit the benefits of composite materials. Concentration is on affordability for the following platforms: VIRGINIA Class Submarine (VCS)/OHIO Replacement Program (ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter.</p> <p>Funding for FY 2016 and beyond has been re-aligned from PE 0708011N and PE 0603758N. At the R2A level, FY 2016 Funding of \$4.800M from Composites Processing and Fabrication in PE 0708011N and funding of \$1.200M from Manufacturing Technology S&T from PE06030758N has been re-aligned to PE 0603680N Composites Processing and Fabrication for a total of \$6.000M.</p> <p>FY 2015 Accomplishments:</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Initiate Composite Materials and Process Improvement Thrust for VCS/ORP Affordability Initiative. Includes efforts to develop/optimize composite materials fabrication technology for reduced cost VCS and ORP construction. - Initiate Composite Materials and Process Improvement Thrust for DDG-51 Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost DDG-51 construction. - Initiate Composite Materials and Process Improvement Thrust for CVN-78 Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost CVN-78 construction. - Initiate Composite Materials and Process Improvement Thrust for JSF Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost JSF construction. - Initiate Composite Materials and Process Improvement Thrust for CH-53K Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost CH-53K construction. - Initiate Composite Materials and Process Improvement Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue Composite Materials and Process Improvement Thrust for VCS/ORP Affordability Initiative. Includes efforts to develop/optimize composite materials fabrication technology for reduced cost VCS and ORP construction. - Continue Composite Materials and Process Improvement Thrust for DDG-51 Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost DDG-51 construction. - Continue Composite Materials and Process Improvement Thrust for CVN-78 Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost CVN-78 construction. - Continue Composite Materials and Process Improvement Thrust for JSF Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost JSF construction. - Continue Composite Materials and Process Improvement Thrust for CH-53K Affordability Initiative. Includes efforts to develop / optimize composite materials fabrication technology for reduced cost CH-53K construction. - Continue Composite Materials and Process Improvement Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. <p>FY 2017 OCO Plans:</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Electronics Processing and Fabrication</p> <p>Description: The primary technical goal of the Electronics Processing and Fabrication activity is improving electronic weapon systems affordability by developing and transitioning affordable, robust manufacturing processes and capabilities for electronics critical to defense applications over their full life-cycle. Efforts create new and improved electronics/electro-optics manufacturing processes for transition to the production floor. Emphasis is on affordability for the following shipbuilding platforms: VIRGINIA Class Submarine (VCS)/OHIO Replacement Program (ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter.</p> <p>Funding for FY 2016 and beyond has been re-aligned from PE 0708011N and PE 0603758N. At the R2A level, FY 2016 Funding of \$10.543M from Electronics Processing and Fabrication in PE 0708011N and funding of \$0.957M from Manufacturing Technology S&T from PE06030758N has been re-aligned to PE 0603680N Electronics Processing and Fabrication for a total of \$11.500M.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p> <ul style="list-style-type: none"> - Initiate Electronics/Electro-Optics Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for VCS and ORP construction. - Initiate Electronics/Electro-Optics Thrust for DDG-51 Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for DDG-51 construction. - Initiate Electronics/Electro-Optics Thrust for CVN-78 Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for CVN-78 construction. - Initiate Electronics/Electro-Optics Thrust for JSF Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for JSF construction. - Initiate Electronics/Electro-Optics Thrust for CH-53K Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for CH-53K construction. - Initiate Electronics/Electro-Optics Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. <p>FY 2017 Base Plans:</p>	0.000	11.500	11.253	0.000	11.253

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<p>- Continue Electronics/Electro-Optics Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for VCS and ORP construction.</p> <p>- Continue Electronics/Electro-Optics Thrust for DDG-51 Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for DDG-51 construction.</p> <p>- Continue Electronics/Electro-Optics Thrust for CVN-78 Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for CVN-78 construction.</p> <p>- Continue Electronics/Electro-Optics Thrust for JSF Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for JSF construction.</p> <p>- Continue Electronics/Electro-Optics Thrust for CH-53K Affordability Initiative. Includes efforts to improve electronics/electro-optics affordability for CH-53K construction.</p> <p>- Continue Electronics/Electro-Optics Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components.</p> <p>FY 2017 OCO Plans: N/A</p>					
<p>Title: Metals Processing and Fabrication</p> <p>Description: The primary technical goal of the Metals Processing and Fabrication activity is to develop affordable, robust manufacturing and repair processes/capabilities for metals and special materials critical to Navy weapon system applications. Major areas that support this objective include: processing methods, special materials, joining, machining, coating/cladding, assembly, and inspection and compliance resulting in reduced cost of fabrication for components. Emphasis is on affordability for the following platforms: VIRGINIA Class Submarine (VCS)/OHIO Replacement Program (ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter. This activity also includes the development, optimization, and transition of repair technology for the repair, overhaul, and sustainment of key navy systems.</p> <p>Funding for FY 2016 and beyond has been re-aligned from PE 0708011N. At the R2A level, FY 2016 Funding of \$15.500M from Metals Processing and Fabrication in PE 0708011N has been re-aligned to PE 0603680N Metals Processing and Fabrication.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans:</p>	0.000	15.500	15.168	0.000	15.168

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Initiate Metals Processing Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve affordability for VCS and ORP construction. - Initiate Metals Processing Thrust for DDG-51 Affordability Initiative. Includes efforts to improve affordability for DDG-51 construction. - Initiate Metals Processing Thrust for CVN-78 Affordability Initiative. Includes efforts to improve affordability for CVN-78 construction. - Initiate Metals Processing Thrust for JSF Affordability Initiative. Includes efforts to improve affordability for JSF construction. - Initiate Metals Processing Thrust for CH-53K Affordability Initiative. Includes efforts to improve affordability for CH-53K construction. - Initiate Metals Processing Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. - Initiate Repair Technology (RepTech) Thrust to develop, optimize, and transition repair technology for key naval platforms at depots and logistics centers. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue Metals Processing Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve affordability for VCS and ORP construction. - Continue Metals Processing Thrust for DDG-51 Affordability Initiative. Includes efforts to improve affordability for DDG-51 construction. - Continue Metals Processing Thrust for CVN-78 Affordability Initiative. Includes efforts to improve affordability for CVN-78 construction. - Continue Metals Processing Thrust for JSF Affordability Initiative. Includes efforts to improve affordability for JSF construction. - Continue Metals Processing Thrust for CH-53K Affordability Initiative. Includes efforts to improve affordability for CH-53K construction. - Continue Metals Processing Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. - Continue Repair Technology (RepTech) Thrust to develop, optimize, and transition repair technology for key naval platforms at depots and logistics centers. <p>FY 2017 OCO Plans:</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
<p>Title: Manufacturing Enterprise/Other</p> <p>Description: The Manufacturing Enterprise / Other activity includes: (1) efforts targeted towards improving, in general, the manufacturing enterprise for the production of key naval platforms (both shipbuilding and aircraft), (2) energetic efforts, (3) naval research enterprise and laboratory support for key projects, and (4) technical program support. Manufacturing Enterprise addresses the development, optimization, and transition of manufacturing enterprise technology to key naval platform suppliers. Emphasis is on affordability for the following shipbuilding platforms: VIRGINIA Class Submarine (VCS)/OHIO Replacement Program (ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter.</p> <p>Manufacturing enterprise technology areas include, but are not limited to Design for Producibility/Design for Manufacturability; development of build/assembly strategies; modeling and simulation technologies; model-based tools and approaches to optimize producibility; intelligent manufacturing planning and factory execution; elimination of inefficiencies in design optimization, material usage, labor utilization, work flow, etc.; supply chain procedures and improvements (such as network centric manufacturing capabilities to facilitate resilient and adaptable supply chains); development of more efficient structural fabrication product lines; and inspection technologies. Energetics efforts concentrate on developing energetics solutions to ensure the availability of safe, affordable, and quality energetics products largely in support of Program Executive Office (PEO) Integrated Warfare Systems (IWS).</p> <p>Funding for FY 2016 and beyond has been re-aligned from PE 0708011N and PE 0603758N. At the R2A level, FY 2016 Funding of \$1.200M from Metals Processing and Fabrication, \$3.581M from Corporate Investments and \$13.955M from Other all in PE 0708011N and funding of \$5.338M from Manufacturing Technology S&T from PE 0603758N has been re-aligned to PE 0603680N Manufacturing Enterprise/Other for a total of \$24.074M.</p> <p>FY 2015 Accomplishments: N/A</p> <p>FY 2016 Plans: - Initiate Manufacturing Enterprise Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve affordability for VCS and ORP construction.</p>	0.000	24.074	24.420	0.000	24.420

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

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

	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
<ul style="list-style-type: none"> - Initiate Manufacturing Enterprise Thrust for DDG-51 Affordability Initiative. Includes efforts to improve affordability for DDG-51 construction. - Initiate Manufacturing Enterprise Thrust for CVN-78 Affordability Initiative. Includes efforts to improve affordability for CVN-78 construction. - Initiate Manufacturing Enterprise Thrust for JSF Affordability Initiative. Includes efforts to improve affordability for JSF construction. - Initiate Manufacturing Enterprise Thrust for CH-53K Affordability Initiative. Includes efforts to improve affordability for CH-53K construction. - Initiate Manufacturing Enterprise Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. - Initiate Energetics Thrust for PEO IWS and Other Acquisition Programs. Includes energetics efforts to support PEO IWS and other acquisition programs. - Initiate efforts to provide naval research enterprise and laboratory support for key projects. - Initiate efforts to provide technical engineering support for the ManTech Program. <p>FY 2017 Base Plans:</p> <ul style="list-style-type: none"> - Continue Manufacturing Enterprise Thrust for VCS/ORP Affordability Initiative. Includes efforts to improve affordability for VCS and ORP construction. - Continue Manufacturing Enterprise Thrust for DDG-51 Affordability Initiative. Includes efforts to improve affordability for DDG-51 construction. - Continue Manufacturing Enterprise Thrust for CVN-78 Affordability Initiative. Includes efforts to improve affordability for CVN-78 construction. - Continue Manufacturing Enterprise Thrust for JSF Affordability Initiative. Includes efforts to improve affordability for JSF construction. - Continue Manufacturing Enterprise Thrust for CH-53K Affordability Initiative. Includes efforts to improve affordability for CH-53K construction. - Continue Manufacturing Enterprise Thrust for other high interest NAVSEA, NAVAIR, and Marine Corps platforms and components. - Continue Energetics Thrust for PEO IWS and Other Acquisition Programs. Includes energetics efforts to support PEO IWS and other acquisition programs. - Continue efforts to provide naval research enterprise and laboratory support for key projects. - Continue efforts to provide technical engineering support for the ManTech Program. <p>FY 2017 OCO Plans:</p>					

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2017 Navy		Date: February 2016
Appropriation/Budget Activity 1319 / 3	R-1 Program Element (Number/Name) PE 0603680N / (U)Manufacturing Technology Program	Project (Number/Name) 1050 / Manufacturing Tech

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2015	FY 2016	FY 2017 Base	FY 2017 OCO	FY 2017 Total
N/A					
Accomplishments/Planned Programs Subtotals	0.000	57.074	56.712	0.000	56.712

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

D. Acquisition Strategy

Efforts are focused on affordability improvements (both acquisition and life-cycle) for specific key acquisition platforms as defined in the Navy ManTech Investment Strategy. Currently, the majority of Navy ManTech efforts are focused on affordability improvements for: VIRGINIA Class Submarine (VCS)/OHIO Replacement Program (ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter.

E. Performance Metrics

The ManTech Program's overall goal is to transition production technology to reduce the cost of Navy weapon systems. Metrics are currently collected on the cost savings per hull or per aircraft for each of the primary affordability platforms: VIRGINIA Class Submarine/OHIO Replacement Program (VCS/ORP), DDG-51 Class Destroyer, CVN-78 Class Carrier, Joint Strike Fighter (JSF), and CH-53-K Heavy Lift Helicopter.

UNCLASSIFIED

THIS PAGE INTENTIONALLY LEFT BLANK

UNCLASSIFIED