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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Office of the Secretary Of Defense **Date:** May 2021

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| Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i> | R-1 Program Element (Number/Name) PE 0605797D8Z I <i>Maintaining Technology Advantage</i> |
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| COST (\$ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|--|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| Total Program Element | 0.000 | 20.244 | 25.561 | 25.889 | - | 25.889 | - | - | - | - | - | - |
| 138: <i>S&T Protection</i> | 0.000 | 9.230 | 8.340 | 6.363 | - | 6.363 | - | - | - | - | - | - |
| 139: <i>Joint Acquisition Protection Exploitation Cell (JAPEC)</i> | 0.000 | 5.379 | 6.157 | 6.532 | - | 6.532 | - | - | - | - | - | - |
| 158: <i>Program and Technology Protection</i> | 0.000 | 5.635 | 5.354 | 6.039 | - | 6.039 | - | - | - | - | - | - |
| 043: <i>Technology Innovation Base</i> | 0.000 | 0.000 | 5.710 | 6.955 | - | 6.955 | - | - | - | - | - | - |

A. Mission Description and Budget Item Justification

This Program Element provides funding to support efforts to maintain the Department of Defense's (DoD)'s technology advantage. Maturing and implementing the Office of the Under Secretary of Defense (Research and Engineering)'s (OUSD(R&E)) technology priorities requires a healthy and capable National Security Innovation Base (NSIB). Additionally, the targeting of U.S. capabilities by our strategic competitors creates the potential to degrade core U.S. military technological advantages through unwanted technology transfer from the innovation base. The technology transfer, including unclassified technology, threatens DoD's ability to maintain the technology advantage required to support the lethality and survivability of the Joint Force.

DoD is executing a plan to maintain DoD's technology advantage.

(1) DoD is promoting strategic technology investments to promote and protect DoD access to new and innovative technology. These investments provide OUSD(R&E)'s ability to determine strategies for future investments to establish and maintain a robust academic and industrial base capable of creating breakthroughs in key areas of basic research, fostering transition and decreasing time to market, and harvesting technologies within the U.S. innovation ecosystem or with likeminded allies.

(2) DoD must ensure its strategic technology investments are protected against unwanted technology transfer by developing and maintaining the tools and techniques that enable the U.S. engage in technology transfer at the time, place, and parties of our choosing.

(3) DoD must combat adversaries' attempts to thwart the U.S. NSIB and associated technology security mechanisms to control technology transfer.

The Department will support these three efforts by developing the appropriate suite of analytic tools, a data acquisition strategy, and protection activities across the science and technology (S&T) enterprise and programs to address the threat over the long term. S&T protection focuses on ensuring the integrity of the research enterprise through development of policy and conducting adequate due diligence on researchers. 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 RDA practices, systems engineering activities, software assurance 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,

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| Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 6: RDT&E Management Support</i> | R-1 Program Element (Number/Name) PE 0605797D8Z I <i>Maintaining Technology Advantage</i> |
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enhance the use of software assurance capability, improve integration of cybersecurity into the engineering processes, mature processes to identify Critical Program Information integration of defense exportability features, expand software assurance capabilities provided by the Joint Federated Assurance Center (JFAC), established in National Defense Authorization Act (NDAA) Sec 937, and improve program protection planning. FY 2021 and FY 2022 program growth adds the Technology Innovation Base (TIB) effort to develop near- and long-term strategies and employs mechanisms to retain the U.S. advantage in current and emerging modernization technology priorities by addressing the capabilities of the innovation base to develop, test, manufacture, and sustain them. This project provides support to technology priority leaders in identifying innovation base needs; characterizing and assessing priority technology investments, identifying and mitigating issues and risks impacting the innovation base, and exploiting opportunities to advance technology development, testing, and manufacturing.

| B. Program Change Summary (\$ in Millions) | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget | 20.936 | 29.566 | 29.149 | - | 29.149 |
| Current President's Budget | 20.244 | 25.561 | 25.889 | - | 25.889 |
| Total Adjustments | -0.692 | -4.005 | -3.260 | - | -3.260 |
| • Congressional General Reductions | - | -4.005 | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -0.688 | - | | | |
| • Cancelled Account Reduction | -0.004 | - | - | - | - |
| • Program Adjustments | - | - | -3.260 | - | -3.260 |

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

Project: 138: *S&T Protection*

Congressional Add: *Securing American Science and Technology*

| | FY 2020 | FY 2021 |
|--|---------|---------|
| Congressional Add Subtotals for Project: 138 | 3.000 | - |
| Congressional Add Totals for all Projects | 3.000 | - |

Change Summary Explanation

The FY 2022 funding request was reduced by \$1.352 million to account for the availability of prior year execution balances.

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| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 138 / <i>S&T Protection</i> |
|--|---|---|

| COST (\$ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
|--------------------------------|-------------|---------|---------|--------------|-------------|---------------|---------|---------|---------|---------|------------------|------------|
| 138: <i>S&T Protection</i> | 0.000 | 9.230 | 8.340 | 6.363 | - | 6.363 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | - | - |

A. Mission Description and Budget Item Justification

As the Department develops advanced technologies, it must use a rigorous, repeatable methodology to protect technology advantage beyond current Program Protection Planning policy. The production of Technology Area Protection Plans (TAPPs) will generate consistent and balanced protection of critical technology, provide foundational guidance for communicating about the technology to particular audiences, and inform protection and controls integrated with technology promotion activities. This will encompass the lifecycle of basic and applied research, advanced technology development, prototyping, and technology transition to programs. The Department will establish policy to protect critical technology in science and technology (S&T) investments through program protection. The implementation of these policies and TAPPs will have broad impacts across DoD and interagency-wide activities associated with critical technologies, including export controls, Committee on Foreign Investment in the United States (CFIUS) mitigations, Foreign Investment Risk Review Modernization Act (FIRRMA) decisions, international agreements, counterintelligence and law enforcement priorities, and development of protection practices with DoD research performers (e.g., DoD and national laboratories, academia, small businesses, and the broader innovation base).

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

| | FY 2020 | FY 2021 | FY 2022 |
|--|---------|---------|---------|
| Title: Science and Technology (S&T) Protection | 6.230 | 8.340 | 6.363 |
| Description: This project supports efforts to maintain DoD's technology advantage by establishing activities to promote and ensure accountability for mitigating adversary exploitation of technologies critical to national security objectives. This project will develop and oversee S&T policy and practices for informed horizontal protection of emerging and critical technology areas. | | | |
| FY 2021 Plans: The program will continue efforts to address S&T protection activities: - Establish/oversee S&T protection policy guidance. - Produce, deploy and maintain TAPPs for each modernization initiative/critical technology area. - Develop S&T protection curriculum to S&T/Acq program and Protection (IC/CI/Security) work force. - Engage Universities, University Affiliated Research Centers (UARCs), DoD Laboratories and develop/deploy tailored S&T protection practices and lessons learned. - Develop models of the research community to analyze implications of policy on U.S. S&T enterprise. | | | |
| FY 2022 Plans: The program will continue efforts to address S&T protection activities: - Oversee S&T protection policy guidance and track implementation. - Develop modules to promote DoD research. | | | |

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| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 138 / <i>S&T Protection</i> |
|--|---|---|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2020 | FY 2021 | FY 2022 |
|--|---------|---------|---------|
| <ul style="list-style-type: none"> - Oversee TAPPs for each modernization initiative/critical technology area. - Deliver/deploy S&T protection curriculum to S&T/Acquisition program and Protection (IC/CI/Security) work force. <p>FY 2021 to FY 2022 Increase/Decrease Statement: The decrease in funding from FY 2021 to FY 2022 significantly impacts the ability to: (1) create new Technology Area Protection Plans (TAPPs) for any newly identified modernization initiatives; and (2) continually enhance existing TAPPs to track progress in the respective areas.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 6.230 | 8.340 | 6.363 |

| | FY 2020 | FY 2021 |
|--|---------|---------|
| <p>Congressional Add: Securing American Science and Technology</p> <p>FY 2020 Accomplishments: In FY 2020, initiated a contract with the National Academy to establish a roundtable in order to meet the objectives of the FY 2020 congressional add. This is an ongoing four-year effort.</p> <p>The Roundtable is a standing body which provides a venue to address the mutual concerns of the national security, law enforcement, and academic research communities.</p> <p>The Roundtable will: 1) Explore critical issues related to protecting U.S. national and economic security; 2) Identify and consider security threats and risks associated with federally funded research and development; 3) Identify effective approaches to communicating threats and risks; 4) Share best practices for addressing and mitigating the threats and risks; and 5) Examine potential near- and long-terms responses by stakeholders in the research enterprise to mitigate and address the risks associated with foreign threats.</p> <p>Proceedings of the Roundtable discussions will be produced, as well as an overarching summary, at the end of four years.</p> | 3.000 | - |
| Congressional Adds Subtotals | 3.000 | - |

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

N/A

Remarks

D. Acquisition Strategy

N/A

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-----------------------|-------------------------|-------------------|
| Exhibit R-2A, RDT&E Project Justification: PB 2022 Office of the Secretary Of Defense | | | | | | | | | | Date: May 2021 | | |
| Appropriation/Budget Activity 0400 / 6 | | | | | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | | | | Project (Number/Name) 139 / <i>Joint Acquisition Protection Exploitation Cell (JAPEC)</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
| 139: <i>Joint Acquisition Protection Exploitation Cell (JAPEC)</i> | 0.000 | 5.379 | 6.157 | 6.532 | - | 6.532 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | - | - |

A. Mission Description and Budget Item Justification

DoD established a joint analysis capability (Joint Acquisition Program and Exploitation Cell (JAPEC)) to conduct comprehensive assessments of controlled unclassified technical information losses, and engage acquisition, intelligence, counterintelligence, and law enforcement sources, to determine consequences and appropriate preventative/mitigation actions against unwanted technology transfer. The JAPEC requires the ability to detect and characterize past technology losses, conduct damage assessments of lost information, and provide various insights with predictive value to support and promote activities. Together with supporting organizations, the JAPEC enables comprehensive, detailed assessments of U.S. military technological vulnerability, as well as inform the development and application of effective policies, countermeasures, and enforcement actions to preserve U.S. technical superiority in all warfighting domains.

JAPEC, and supporting organizations, require an analytic capability to synchronize, integrate, coordinate and inform DoD efforts in order to protect the acquisition and investment in sensitive U.S. technologies from adversaries and better exploit opportunities to deter, deny and disrupt adversary activities. JAPEC will conduct trend analysis of protection efforts for the Department's critical acquisition programs and technologies, incorporate findings into protection processes and activities, and analyze losses, to determine consequences and appropriate requirements, acquisition, programmatic, and strategic courses of action to include deterring our strategic competitors and identifying opportunities to promote our innovation base.

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

| | FY 2020 | FY 2021 | FY 2022 |
|--|----------------|----------------|----------------|
| Title: Joint Acquisition Protection Exploitation Cell (JAPEC) | 5.379 | 6.157 | 6.532 |
| Description: Integrate controlled unclassified information, to include Controlled Technical Information (CTI) protection efforts across DoD to proactively mitigate losses resulting from unwanted technology transfer and exploit opportunities to deter, deny, and disrupt adversaries that may threaten U.S. military advantage. | | | |
| FY 2021 Plans: | | | |
| <ul style="list-style-type: none"> - Partner and develop international (bilateral/multilateral) protection practices integrated with promotion activities with select allies. - Develop and coordinate operationalization of critical program and technology enhanced protection. - Integrate with national efforts (e.g., National Cyber Incident Joint Task Force (NCIJTF)/National Counterintelligence Task Force (NCITF)/MDCO/national law enforcement to provide targeted engagements. - Develop and implement consistent protection activities. - Scale specialized protection activities to counter strategic competitor illicit transfer of technology. | | | |
| FY 2022 Plans: | | | |

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| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 139 / <i>Joint Acquisition Protection Exploitation Cell (JAPEC)</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2020 | FY 2021 | FY 2022 |
| <p>The program will continue efforts to counter strategic competitor technology transfer activities:</p> <ul style="list-style-type: none"> - Continued partnering and development of international (bilateral/multilateral) protection practices with select allies. - Integrate counter activities to support promote and protect efforts. - Continued development and operationalization of critical program and technology enhanced protection. - Continue to integrate with national CI and LE efforts to counter unwanted strategic competitor activities. <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> The FY 2022 funds reflect a realignment to support other priority areas.</p> | | | | |
| Accomplishments/Planned Programs Subtotals | | 5.379 | 6.157 | 6.532 |
| C. Other Program Funding Summary (\$ in Millions) | | | | |
| N/A | | | | |
| Remarks | | | | |
| D. Acquisition Strategy | | | | |
| N/A | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2022 Office of the Secretary Of Defense | | | | | | | | | | Date: May 2021 | | |
| Appropriation/Budget Activity 0400 / 6 | | | | | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | | | | Project (Number/Name) 158 / <i>Program and Technology Protection</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
| 158: <i>Program and Technology Protection</i> | 0.000 | 5.635 | 5.354 | 6.039 | - | 6.039 | - | - | - | - | - | - |
| 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 Department of Defense (DoD) networks, weapons systems, and information stored and processed on both DoD and Defense Industrial Base (DIB) unclassified contractor information 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. Activities carried out include supporting implementation of DoDI 5000.83, Technology and Program Protection to Maintain Technological Advantage. Program Protection Planning includes protection of classified and unclassified controlled technical information, critical program information, critical components and critical mission functions, and integrates high level security policies and practical expertise to specific acquisition and S&T 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 information networks; improve mitigation and management of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, improve software assurance practices, mature processes to identify and protect Critical Program Information, mature processes to integrate defense exportability features, 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 DoD Instruction 8582.01 Security of Unclassified DoD Information on Non-DoD Information Systems for Safeguarding Controlled Unclassified Information on contractor owned networks.

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

| | | | |
|--|----------------|----------------|----------------|
| Title: Program and Technology Protection | FY 2020 | FY 2021 | FY 2022 |
| Description: This project provides system security engineering policy, guidance and technical implementation assessments to inform and reduce risks in sharing and storing Controlled Technical Information and data, improve mitigation of supply chain risk management risks, improve integration of cybersecurity into the engineering processes, integrate defense exportability and anti-tamper practices, mature processes to identify Critical Program Information and improve program protection planning. Activities carried out support engineering implementation of DoD instruction 5000.83, Technology and Program Protection to Maintain Technological Advantage; DoD Instruction 5200.44 Trusted Systems and Networks with the use of proven mitigation techniques and tools, the ongoing refinement of risk management processes; implementation of DoD Instruction 5200.39 Critical Program Information (CPI) Identification and Protection Within Research, Development, Test, and Evaluation (RDT&E) to identify and | 5.635 | 5.354 | 6.039 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2022 Office of the Secretary Of Defense | | Date: May 2021 |
| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 158 / <i>Program and Technology Protection</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2020 | FY 2021 | FY 2022 |
|--|----------------|----------------|----------------|
| <p>protect Critical Program Information; and implementation of DoD Instruction 8582.01 Security of Unclassified DoD Information on Non-DoD Information Systems for Safeguarding Controlled Unclassified Information on contractor owned networks.</p> <p>FY 2021 Plans: Provide support to Independent Technical Review Assessment and Cyber Vulnerability Review Assessment teams in conduct of broad program protection planning activities to assess:</p> <ul style="list-style-type: none"> - Conduct of criticality analyses to determine capability, systems and technology vulnerabilities. - Conduct of Critical Program Information analysis to determine capability, systems and technology anti-tamper protections. - Conduct Program Protection planning activities, and track progress to verify protection of capability, systems and technologies. • Advance the state of the practice of systems security engineering: <ul style="list-style-type: none"> - Continue development of methodology to identify and mitigate system security risk, to include cybersecurity and supply chain risk. - Continue to develop courseware, refine guidance, provide training, and outreach with government and industry. - Refine guidance, tools and mitigation approaches to mitigate capability, system and technology risks. • Safeguard Controlled Unclassified Information, including Controlled Technical Information: <ul style="list-style-type: none"> - Refine implementation and guidance of marking and dissemination of distribution of technical information. - Refine safeguarding information protection methods for contractor unclassified information networks. • Safeguard Critical Program Information: <ul style="list-style-type: none"> - Refine implementation, guidance and tools to identify Critical Program Information. - Develop and refine Anti-Tamper protections methods to safeguard Critical Program Information. • Defense exportability features integration: <ul style="list-style-type: none"> - Mature processes, methods and guidance for defense exportability features integration. - Develop and refine defense exportability protection methods to improve planning for the exportability of U.S. Defense systems. <p>FY 2022 Plans: Continue to:</p> <ul style="list-style-type: none"> • Provide support to Independent Technical Review Assessment and Cyber Vulnerability Review Assessment teams in conduct of broad program protection planning activities to assess: <ul style="list-style-type: none"> - Conduct of criticality analyses. - Conduct of Critical Program Information analysis to determine anti-tamper protections. - Conduct of Program Protection planning activities, and track progress to protections of capability, systems and technologies. • Advance the state of the practice of systems security engineering: <ul style="list-style-type: none"> - Continue development of methodologies to identify and mitigate system security risk, to include cybersecurity and supply chain risk. | | | |

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| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 158 / <i>Program and Technology Protection</i> |

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2020 | FY 2021 | FY 2022 |
|---|----------------|----------------|----------------|
| <ul style="list-style-type: none"> - Continue to develop courseware, refine guidance, provide training, and outreach with government and industry. - continue to refine guidance, tools and mitigation approaches to mitigate capability, system and technology risks. • Safeguard Controlled Unclassified Information, including Controlled Technical Information: <ul style="list-style-type: none"> - Continue to refine implementation and guidance of marking and dissemination of distribution of technical information. - continue to refine safeguarding information protection methods for contractor unclassified information networks. • Safeguard Critical Program Information: <ul style="list-style-type: none"> - Continue to refine implementation, guidance and tools to identify Critical Program Information. - Continue to refine Anti-Tamper protections methods to safeguard Critical Program Information. • Defense exportability features integration: <ul style="list-style-type: none"> - Continue to mature processes, methods and guidance for defense exportability features integration. - Continue to develop and refine defense exportability protection methods to improve planning for the exportability of U.S. Defense systems. <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> Changes reflect minor budget fluctuations.</p> | | | |
| Accomplishments/Planned Programs Subtotals | 5.635 | 5.354 | 6.039 |

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

N/A

Remarks

D. Acquisition Strategy

N/A

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|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|----------------|-------------------------|-------------------|
| Appropriation/Budget Activity 0400 / 6 | | | | | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | | | | Project (Number/Name) 043 / <i>Technology Innovation Base</i> | | | |
| COST (\$ in Millions) | Prior Years | FY 2020 | FY 2021 | FY 2022 Base | FY 2022 OCO | FY 2022 Total | FY 2023 | FY 2024 | FY 2025 | FY 2026 | Cost To Complete | Total Cost |
| 043: <i>Technology Innovation Base</i> | 0.000 | 0.000 | 5.710 | 6.955 | - | 6.955 | - | - | - | - | - | - |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

A. Mission Description and Budget Item Justification

The Technology Innovation Base (TIB) effort develops near- and long-term strategies and employs mechanisms to retain the U.S. advantage in current and emerging modernization technology priorities by addressing the capabilities of the innovation base to develop, test, manufacture, and sustain them. This project provides support to technology priority leaders in identifying innovation base needs; characterizing and assessing priority technology investments, identifying and mitigating issues and risks impacting the innovation base, and exploiting opportunities to advance technology development, testing, and manufacturing. One of TIB's main objectives is to create balance between promotion of the innovation base while protecting the technology from interference or exploitation by competitors. This balance will aid the Department's advancing critical and emergent technologies ahead of competitor nations and actors while sustaining a healthy, resilient, and globally competitive innovation base. This portfolio of activity extends efforts initiated in response to FY 2019 National Defense Authorization Act (NDAA) Section 1793.

This project uses a three-step approach: (1) Assess, (2) Protect/Promote; and (3) Monitor. In the first step, TIB uses emerging technology assessments to translate technology needs to manufacturing and innovation base requirements in order to identify innovation base issues, risks, and opportunities. TIB created an assessment methodology that incorporates four types of studies to provide a full overview of the technology from a manufacturing and innovation base point of view. The results of the assessments are used to generate innovation-base inputs to technology roadmaps, develop an investment plan addressing the needs of the innovation base, and create technology and innovation base protection and promotion strategies (second step of the approach). TIB leverages DoD and Federal Government tools and initiatives to implement the strategies. In the third step, TIB uses data analytics to measure the success of mitigation and exploitation strategies, establish trends in the markets, and identify the need for additional assessments or changes in investments and strategies. For technology protection, TIB manages the Office of the Under Secretary of Defense (Research and Engineering) (OUSD(R&E)) responsibilities for the Committee on Foreign Investment in the United States (CFIUS) reviews. TIB does the initial screening of all CFIUS cases to determine OUSD(R&E) equities and request subject matter experts review in foreign acquisition transactions with a potential negative impact to national security. TIB is the focal point for OUSD(R&E) export control activities. TIB manages the activities necessary to provide technical advice to the Defense Technology Security Administration regarding export control regulations and license review policy. This includes prioritization of critical technologies for inclusion in the Commerce Control List and the U.S. Munitions List and the processing of export license applications involving emergent technologies.

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

| | | | |
|--|----------------|----------------|----------------|
| Title: Technology Innovation Base | FY 2020 | FY 2021 | FY 2022 |
| | - | 5.710 | 6.955 |
| FY 2021 Plans: | | | |
| <ul style="list-style-type: none"> • Create and implement short-term and long-term strategies to protect and maintain U.S. technology advantage by growing and retaining critical technologies and the innovation base supporting their development, test, manufacturing, and sustainment. • Assess, promote, protect, and monitor critical technologies and their supply chain. | | | |

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|--|---|---|

| B. Accomplishments/Planned Programs (\$ in Millions) | FY 2020 | FY 2021 | FY 2022 |
|--|----------------|----------------|----------------|
| <ul style="list-style-type: none"> • Manage technology innovation base assessments performed by other DoD and USG Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Center (UARCs), or industry. • Conduct deep dive assessments to identify and address innovation base risks, issues, and opportunities for 5G, Autonomy, Hypersonics, and Workforce to include but not limited to: <ul style="list-style-type: none"> - Tools, technologies or techniques associated with development, testing, or manufacturing - Financial health of key industrial partners and suppliers - Workforce need for scientists, engineers, technicians - Single source materials, critical pockets of expertise, impacts to environmental events, exploitation by foreign actors to secure or deter critical elements of the innovation base • Manage research and engineering (R&E) Committee on Foreign Investment in U.S. transaction and export control licenses reviews. • Monitor the defense innovation base and the performance of the protect/promote activities. <p>FY 2022 Plans:</p> <ul style="list-style-type: none"> • Create and implement short-term and long-term strategies to protect and maintain U.S. technology advantage by growing and retaining critical technologies and the innovation base supporting their development, test, manufacturing, and sustainment. • Industry outreach – including industry days and workshops to define requirements to advance emergent technologies through open-market models and industry-government collaboration. • Manufacturing challenges to find solutions to facilitate tech transfer from the labs to the production lines, improve manufacturing process, take advantage of new capabilities related to additive manufacturing and/or the integration of new materials. • Assess market trends and execute financial analysis to determine opportunities for US industry – competition, collaboration with allies, reduction of foreign dependencies. • Assess, promote, protect, and monitor critical technologies and their supply chain. • Manage technology innovation base assessments performed by other DoD and USG Agencies, Federally Funded Research and Development Centers (FFRDCs), University Affiliated Research Center (UARCs), or industry. • Conduct deep dive assessments to identify and address national security innovation base risks, issues, and opportunities related to DoD to include but not limited to: <ul style="list-style-type: none"> - Tools, technologies or techniques associated with development, testing, or manufacturing - Financial health of key industrial partners and suppliers - Workforce need for scientists, engineers, technicians - Single source materials, critical pockets of expertise, impacts to environmental events, exploitation by foreign actors to secure or deter critical elements of the innovation base • Create Technology/Innovation Base Protection strategies for each technology priority area; including management of R&E Committee on Foreign Investment in U.S. transaction, export control assessments, and intellectual property. | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2022 Office of the Secretary Of Defense | | Date: May 2021 | | |
| Appropriation/Budget Activity 0400 / 6 | R-1 Program Element (Number/Name) PE 0605797D8Z / <i>Maintaining Technology Advantage</i> | Project (Number/Name) 043 / <i>Technology Innovation Base</i> | | |
| B. Accomplishments/Planned Programs (\$ in Millions) | | FY 2020 | FY 2021 | FY 2022 |
| <ul style="list-style-type: none"> • Monitor the defense innovation base and the performance of the protect/promote activities. <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> FY 2022 increase reflects DoD sustainment assessment funding level to identify and address new, emerging manufacturing capabilities and technology base gaps that are critical to fielding modernization priorities and other US technological advantage areas, including workforce, engineering and prototyping infrastructure and facilities. It also reflects the commitment to balance protection and promotion to advance the emergent technologies and develop a healthy innovation base; including the implementation of a protection strategy that considers critical elements like CFIUS, export controls, and intellectual property.</p> | | | | |
| Accomplishments/Planned Programs Subtotals | | - | 5.710 | 6.955 |
| C. Other Program Funding Summary (\$ in Millions) | | | | |
| N/A | | | | |
| Remarks | | | | |
| D. Acquisition Strategy | | | | |
| N/A | | | | |