Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Office of the Secretary Of Defense	Date: April 2022
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 6: *RDT&E Management Support*	**R-1 Program Element (Number/Name)** PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	156.944	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
502: *SBIR*	-	90.501	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
500: *STTR*	-	20.976	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
503: *SBIR CRP*	-	40.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
505: *SBIR Administration*	-	5.467	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-

Note

New Start (Y/N): No

A. Mission Description and Budget Item Justification

DoD Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs are designed to provide small, high-tech businesses opportunities to propose innovative ideas and solutions in response to technological challenges posed by the DoD Components that will address existing and emerging national security threats and to develop new military capabilities. The SBIR and STTR programs are critical pathways for the Department to tap the innovation of America's small business community and research institutions to support development of cutting-edge technologies that will increase the readiness, modernization and lethality of the Joint Force.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	156.944	0.000	0.000	-	0.000
Total Adjustments	156.944	0.000	0.000	-	0.000
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	156.944	-			

Change Summary Explanation

Funds are allocated from other Office of the Secretary of Defense (OSD) Research, Development, Test, and Evaluation (RDT&E) programs and select Defense Agencies to support the SBIR and STTR programs as defined in 15 U.S.C. 638 (f) and (n).

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense			Date: April 2022
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 502 / *SBIR*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
502: *SBIR*	-	90.501	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goals of the Office of the Secretary of Defense (OSD) Small Business Innovation Research (SBIR) program is to stimulate technological innovation, increase private sector commercialization of federal research and development (R&D), increase small business participation in federally funded R&D, and foster participation by minority and disadvantaged firms in technological innovation. Leveraging the innovation of small business concerns is an important contributor to the development of the cutting-edge technologies that will generate decisive and sustained U.S. military advantages by increasing the readiness, modernization and lethality of the Joint Force. This program supports high priority projects within the DoD Components, their missions, and the Warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: SBIR	90.501	-	-
Description: The set-aside program for small business supports mission-oriented R&D with the goal of providing advanced capabilities to the Warfighter and commercializing those technologies, resulting in a vibrant small business innovation base supporting economic growth and technology innovation. The SBIR program contributed to the readiness and modernization of the Joint Force and improved operational capabilities through the innovative research topics initiated in FY 2022 in the following areas: OSD-NGA: - Scene Geometry Aided Automatic Target Recognition (ATR) for Radar, develop and demonstrate synthetic aperture radar (SAR) ATR that reduces false alarm rates by incorporating modern artificial intelligence and geometry of the imaged area. TECHNOLOGY AREA(S): Artificial Intelligence/Machine Learning (AI/ML); Autonomy; Information Systems; Sensors; Electronics - Automatic Labeling of Multiple Target Synthetic Aperture Radar (SAR) Imagery for Automatic Target Recognition (ATR), develop novel algorithms for labeling multiple target classes in Synthetic Aperture Radar (SAR) imagery to expedite training of SAR Automatic Target Recognition (ATR) algorithms. TECHNOLOGY AREA(S): Artificial Intelligence/Machine Learning (AI/ML); Autonomy; Information Systems; Sensors; Electronics - Rapid Object Detector Development from Limited Labelled Data, develop methods and science to rapidly produce object detectors for overhead imagery starting from a limited pool of hand-labeled data. TECHNOLOGY AREA(S): Artificial Intelligence / Machine Learning; Information Systems Technology .- Modeling and Simulation Technology; Computing and Software Technology			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	**Project (Number/Name)** 502 / *SBIR*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
- High Resolution Near Real Time Land Use and Land Use Change, develop a high-resolution fully automated land use and land use change (LULUC) map of the globe, updated daily, using commercial or publicly available satellite imagery. Identify mission-specific types of change in near real-time across broad areas. TECHNOLOGY AREA(S): Artificial Intelligence/Machine Learning Information Systems; Modeling and Simulation Technology OSD-C5ISREW: - Stand-alone multi-axis compact portable quantum accelerometer, build a compact portable 3-axis quantum-based accelerometer and demonstrate on a moving platform. TECHNOLOGY AREA(S): Quantum Science; Sensors; Electronics and Electronic Warfare - High yield atomic vapor cell manufacturing and packaging for atomic clocks and magnetometers, develop a manufacturing process which allows greater yield (>80%) per wafer batch on vapor cell wafer runs to support quantum clocks and magnetometers. TECHNOLOGY AREA(S): Quantum Science; Sensors; Electronics and Electronic Warfare; Materials / Processes - Networked quantum sensor for geolocation of anomalous underground ferrous sources, detect and geo-locate subterranean tunneling activities by using a quantum networked magnetometer. TECHNOLOGY AREA(S): Quantum Science; Sensors; Electronics and Electronic Warfare - Open environment nuclear quadrupole magnetic resonance detection, develop a quantum magnetometer that is widely tunable between 100 Hz and 10 MHz to detect and distinguish RF signals with sensitivity near 1 fT/Hz1/2. TECHNOLOGY AREA(S): Quantum Science; Sensors; Electronics and Electronic Warfare Emerging results from these SBIR topics will be reported in FY 2023.			
Accomplishments/Planned Programs Subtotals	90.501	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense			Date: April 2022
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 500 / *STTR*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
500: *STTR*	-	20.976	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goals of the OSD Small Business Technology Transfer (STTR) program is to stimulate a partnership of ideas between small business concerns (SBCs) and research institutions through DoD funded research or research and development (R/R&D). By providing awards to SBCs or cooperative R/R&D efforts with research institutions, DoD supports innovation and economic growth to generate decisive and sustained U.S. military advantages. This program supports high priority projects within the DoD Components, their missions, and the Warfighter.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: STTR	20.976	-	-
Description: The set-aside program that funds cooperative R/R&D projects for small businesses in partnership with research institutions. The STTR program contributed to the readiness and modernization of the Joint Force and improved operational capabilities through the innovative research topics initiated in FY 2022 in the following areas: OSD-NGA: - Multi-Scale Representation Learning, develop a single neural network that learns representations at multiple spatial and semantic scales and that may be applied to different geospatial tasks, such as land cover segmentation, object detection, key-point matching, and few-shot/fine-grained/long-tailed classification. TECHNOLOGY AREA(S): Artificial Intelligence/Machine Learning; Information Systems; Modeling and Simulation Technology - Environmental Security Risk Forecasting, develop computer models to forecast risk to U.S. critical infrastructure from a range of potential climate futures. During Phase I, research will be restricted to modeling past and forecasting future wildfire potential in a chosen area containing critical infrastructure. TECHNOLOGY AREA(S): Artificial Intelligence/Machine Learning; Statistical Forecasting; Information Systems; Modeling and Simulation Technology Emerging results from these STTR topics will be reported in FY 2023.			
Accomplishments/Planned Programs Subtotals	20.976	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	**Project (Number/Name)** 500 / *STTR*

C. Other Program Funding Summary ($ in Millions)

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense			Date: April 2022
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 503 / *SBIR CRP*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
503: *SBIR CRP*	-	40.000	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Under the authority defined in 15 U.S.C. 638 (y), Commercialization Readiness (CR) Program (CRP), OSD established the “OSD Transitions SBIR/STTR Technology (OTST) Program”. The CR Program is a dynamic, results-oriented response to the Congressional challenge to the DoD in 2006 to deliver more advanced SBIR/STTR technologies faster to our warfighters. The OTST program is an interim technology maturity phase (Phase II) inserted into the SBIR/STTR development process and is structured to be a technology pull to meet requirements that address potential and emerging requirements.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Commercialization Readiness Program (CRP)	40.000	-	-
Description: The SBIR CR Program contributed to the readiness and modernization of the Joint Force and improved operational capabilities through innovative research projects in the following areas: • Artificial Intelligence • Biotechnology • COVID-19 • Cybersecurity • General Warfighting Capability • Hypersonics • Sustainment Emerging Results from CRP Investments in FY 2021 include: • Air Force- Precision Automated Instrumented Landing Survey; "Active Collaborative Automatic ATR (ACA); Automatic Target Recognition (ATR)", Joint Collaborative Augmentation for Sensemaking Environment (JCAUSE); Advanced Energy Deposition Systems for High Speed Flight; Turbojet-Ramjet Integration for a Turbine-based Combined Cycle Engine; Active Control of a Scramjet Engine; Free Flight Hypersonic Erosion and Ablation Measurement System / 3D Hypersonic Surface Profilometry Measurement System ; Portable Kinetic Metallization Process and Device for Minor Structural and Protective Coating Repair of Aluminum and High-Strength Steels; NDI Tool for Corrosion Detection in Sub-Structure • ARMY- "Human Activity Recognition (HAR) and Threat Assessment Via Passive Sensor Systems for Small Arms” • DEVCOM- "An Accurate Unsteady Hybrid Flowfield Approach for High Altitude Maneuverability"			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation/Budget Activity 0400 / 6	**R-1 Program Element (Number/Name)** PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	**Project (Number/Name)** 503 / *SBIR CRP*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
• DIU- Sustainment and Fleet Readiness at Scale; Hypoxia - Pilot Health and Physiological Monitoring in Next-Generation Helmet Architectures; Wearable Warfighter Health Monitoring System; Passenger Mixed Reality Deep Immersion Headset; • DLA- Decoder Wheel Phase 2 Development; Reverse Engineering of CCA's for DSM-157 Maverick Missile Test Set (AGM-65); Auxiliary Power Supply for Aerospace Hydraulic Systems; MMP APA Replacement and Refurbishment and Supply Chain Development • DMEA- "Prognostics and Decision Making – AI Anti-Tamper Technology for Missile Defense - Micro" • JSSAP- Propellant Material Additives for Electrical Ignition Application • MDA- Special Tooling and Processes for Repeatable Adhesive Application • NAVY- Enhanced Summarizations of Streaming Text - (Microservices for Semantics, Text Analytics and Reporting (MSTAR)) In FY 2023, CRP intends on funding 35-40 additional projects.			
Accomplishments/Planned Programs Subtotals	40.000	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense			Date: April 2022
Appropriation/Budget Activity 0400 / 6	R-1 Program Element (Number/Name) PE 0605502D8Z / *Small Business Innovation Research/Small Business Technology Transfer (SBIR/STTR)*	Project (Number/Name) 505 / *SBIR Administration*	

COST ($ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
505: *SBIR Administration*	-	5.467	0.000	0.000	-	0.000	0.000	0.000	0.000	0.000	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The goals of the Office of the Secretary of Defense (OSD) Small Business Innovation Research (SBIR) program is to stimulate technological innovation, increase private sector commercialization of federal research and development (R&D), increase small business participation in federally funded R&D, and foster participation by minority and disadvantaged firms in technological innovation. Leveraging the innovation of small business concerns is an important contributor to the development of the cutting-edge technologies that will generate decisive and sustained U.S. military advantages by increasing the readiness, modernization and lethality of the Joint Force. This program supports high priority projects within the DoD Components, their missions, and the Warfighter. The SBIR Administration project was created to fund, coordinate, and execute the administrative portions of the DoD SBIR Programs.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: SBIR Administration	5.467	-	-
Description: The Small Business Innovation Research (SBIR) set-aside program supports mission-oriented R&D with the goal of providing advanced capabilities to the Warfighter and commercializing those technologies, resulting in a vibrant small business innovation base supporting economic growth and technology innovation. The SBIR Administration project was created to fund, coordinate, and execute the administrative portions of the DoD SBIR Program.			
Accomplishments/Planned Programs Subtotals	5.467	-	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A