| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Office of the Secretary Of Defense | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)* | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* |

| COST ($ in Millions) | Prior Years | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total | FY 2025 | FY 2026 | FY 2027 | FY 2028 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Program Element | 1,192.199 | 137.971 | 153.114 | 75.593 | - | 75.593 | 77.258 | 78.900 | 80.555 | 82.247 | - | - |
| 484: *Combating Terrorism Technology Support (CTTS)* | 1,192.199 | 137.971 | 153.114 | 75.593 | - | 75.593 | 77.258 | 78.900 | 80.555 | 82.247 | - | - |

**Note**

New Start (Y/N): No

Fiscal Year (FY) 2024 Overseas Operations Costs funding accounted for in the Base budget total $27.070 million.

**A. Mission Description and Budget Item Justification**

The Irregular Warfare Technical Support Directorate (IWTSD) supports the National Defense Strategy (NDS), the Irregular Warfare Annex, and will increase the priority of addressing capability gaps between U.S. military forces and peer and near-peer threats. This program recognizes that many of the existing requirements already support many of the high interest areas, to include increasing lethal capability of U.S. forces at the squad and small unit level; developing lethal drones; countering Small Unmanned Aerial Systems (drones); operating in deeply buried and hardened facilities; novel body and vehicle armor; detecting, protecting against, and mitigating novel and wartime CBRNE threats; telematics; covert communications; and of special interest, the use of machine learning and artificial intelligence to enhance the capability of systems used by the military and lessen the workload on the individual users.

IWTSD will continue to focus its R&D activities rapidly to fill the immediate, emerging and critical capability gaps of special operations forces, other military operators, intelligence analysts, and first responders that are at the leading edge of the fight or response.

The number of projects has been reduced due to the increased cost of incorporating artificial intelligence, machine learning, cyber hardening, and meeting safety testing requirements for an increasing number of systems. The focus on increased lethality has also driven up costs in to meet Defense safety and testing requirements.

Post COVID-19, IWTSD has resumed near normal, in-person collaboration and coordination with users, industry, and international partners. However, contracts with vendors are still being extended due to the impacts of the supply chain, lack of personnel, and the availability of laboratories for testing.

From a broader perspective, projects remain distributed among 10 mission categories:

- Advanced Analytics
- Chemical, Biological, Radiological, Nuclear, and Explosives
- Explosive Ordnance Disposal and Explosive Operations
- Expeditionary Force Protection
- Forensic Exploitation and Identity Operations
- Human Performance and Training
- Indirect Influence and Competition
- Protection, Survivability, and Recovery
- Surveillance, Collection, and Operations Support
- Tactical Offensive Support

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Office of the Secretary Of Defense | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)* | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* |

Each of these programs have long held strong R&D partnerships with the components of USSOCOM, the Services, and many Defense Agencies.
While supporting the NDS by filling capability gaps for great power competition, the IWTSD program will also continue to identify capabilities to combat terrorism and irregular adversaries and quickly deliver these capabilities to U.S. Defense and interagency users, as well as international partners through rapid research and development, advanced studies, and technical innovation. The IWTSD continues to expand its partnerships with other Defense and the Interagency components, as well as with our foreign partners' rapid development and acquisition organizations to leverage their expertise and reduce unnecessary duplication as it tries to expedite and transition new and innovative capabilities. IWTSD is unique in its approach, annually obtaining joint requirements directly from military operators, intelligence analyst, and first responders and discussing those requirements with industry even before the requirements are released in a Broad Agency Announcement (BAA).
The IWTSD program continues to be a diverse, advanced technology development effort that capitalizes on interagency and international participation to demonstrate the utility and effectiveness of technology when applied to combating peer or near-peer forces, emerging threats, and combating terrorism requirements. This includes rapid technology development, safety testing, proof-of-concept demonstrations, operational test and evaluations of prototypes in the field, and coordinating the transition from development to production and operational use.
Beginning with the FY 2021 plan, the time from requirements to contracts was shortened to ensure the IWTSD was addressing the most near-term, identified needs. As such, the FY 2024 Program Requirements Meetings with users will take place in January, 2023 and contract awards will begin in October or November 2023 (the start of FY 2024). The IWTSD normally manages approximately 220 individual projects and international task plans; while also reviewing proposals and negotiating contracts for another 70 requirements for the next fiscal year.
The IWTSD program justified in the R-2 exhibit identifies the projects fully or partially funded by Congressional appropriations for the IWTSD program. However, IWTSD also develops technology and provides support using external funds provided by other DoD and federal departments and international partnerships. The funds for these projects and support activities are not reflected in this justification R-2; but the number of activities does reflect positively on the trust and competence that IWTSD has earned throughout the Department of Defense and interagency to rapidly conduct critical RDT&E and provide innovative products to fill their capability gaps.

| B. Program Change Summary ($ in Millions) | FY 2022 | FY 2023 | FY 2024 Base | FY 2024 OCO | FY 2024 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 141.876 | 72.614 | 75.169 | - | 75.169 |
| Current President's Budget | 137.971 | 153.114 | 75.593 | - | 75.593 |
| Total Adjustments | -3.905 | 80.500 | 0.424 | - | 0.424 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | 80.500 | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | -3.905 | - | | | |
| • Program Adjustment | - | - | 0.424 | - | 0.424 |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2022 | FY 2023 |
|---|---|---|
| **Project:** 484: *Combating Terrorism Technology Support (CTTS)* | | |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Office of the Secretary Of Defense | Date: March 2023 |
|---|---|
| **Appropriation/Budget Activity**<br>0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)* | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z *I Combating Terrorism Technology Support* |

| Congressional Add Details ($ in Millions, and Includes General Reductions) | FY 2022 | FY 2023 |
|---|---|---|
| Congressional Add: *Combating Terrorism Technology Support (CTTS)* | - | 80.500 |
| Congressional Add Subtotals for Project: 484 | - | 80.500 |
| Congressional Add Totals for all Projects | - | 80.500 |

**Change Summary Explanation**

FY 2024 minimal program increase to address capability gaps between U.S. military forces and peer and near-peer threats.

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | | | | | | | | | | Date: March 2023 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Appropriation/Budget Activity<br>0400 / 3 | | | | | R-1 Program Element (Number/Name)<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | | | | Project (Number/Name)<br>484 / *Combating Terrorism Technology Support (CTTS)* | | | |
| **COST ($ in Millions)** | **Prior Years** | **FY 2022** | **FY 2023** | **FY 2024 Base** | **FY 2024 OCO** | **FY 2024 Total** | **FY 2025** | **FY 2026** | **FY 2027** | **FY 2028** | **Cost To Complete** | **Total Cost** |
| 484: *Combating Terrorism Technology Support (CTTS)* | 1,192.199 | 137.971 | 153.114 | 75.593 | - | 75.593 | 77.258 | 78.900 | 80.555 | 82.247 | - | - |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |

**Note**

New Start (Y/N): No

**A. Mission Description and Budget Item Justification**

The Irregular Warfare Technical Support Directorate (IWTSD) supports the National Defense Strategy (NDS), the Irregular Warfare Annex, and will increase the priority of addressing capability gaps between U.S. military forces and peer and near-peer threats. This program recognizes that many of the existing requirements already support many of the high interest areas, to include increasing lethal capability of U.S. forces at the squad and small unit level; developing lethal drones; countering Small Unmanned Aerial Systems (drones); operating in deeply buried and hardened facilities; novel body and vehicle armor; detecting, protecting against, and mitigating novel and wartime CBRNE threats; telematics; covert communications; and of special interest, the use of machine learning and artificial intelligence to enhance the capability of systems used by the military and lessen the workload on the individual users.

During FY 2023, IWTSD will continue to focus its R&D activities rapidly to fill the immediate, emerging and critical capability gaps of special operations forces, other military operators, intelligence analysts, and first responders that are at the leading edge of the fight or response.

In FY 2022 or until funds are expended, the IWTSD will continue to address countering small unmanned aerial vehicles and enhance detection of, and operations in tunnels through implementation of the FY 2022 Congressionally directed and funded cooperative 50-50 cost sharing RDT&E projects with Israel.

Post COVID-19, IWTSD has resumed near normal, in-person collaboration and coordination with users, industry, and international partners. However, contracts with vendors are still extended due to the impacts of the supply chain, lack of personnel, and the availability of laboratories for testing.

Additionally, the number of projects has been reduced due to the increased cost of incorporating artificial intelligence and machine learning and cyber hardening of many systems. The focus on increased lethality has also driven up costs in to meet Defense safety and testing requirements.

From a broader perspective, projects remain distributed among 10 mission categories:

- Advanced Analytics
- Chemical, Biological, Radiological, Nuclear, and Explosives
- Explosive Ordnance Disposal and Explosive Operations
- Expeditionary Force Protection
- Forensic Exploitation and Identity Operations
- Human Performance and Training
- Indirect Influence and Competition
- Protection, Survivability, and Recovery
- Surveillance, Collection, and Operations Support
- Tactical Offensive Support

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

Each of these programs have long held strong R&D partnerships with the components of USSOCOM, the Services; and many Defense Agencies. During FY 2022, IWTSD has been able to work with USSOCOM and the Services to transition or commit to transition over 30 products to a Program of Record. While IWTSD has seen a small rise in contributing funds from the commands, IWTSD no longer charges any fees against the contributary organizations.

While supporting the NDS by filling capability gaps for great power competition, the IWTSD program will also continue to identify capabilities to combat terrorism and irregular adversaries and quickly deliver these capabilities to U.S. Defense and interagency users, as well as international partners through rapid research and development, advanced studies, and technical innovation. The IWTSD continues to expand its partnerships with other Defense and the Interagency components, as well as with our foreign partners' rapid development and acquisition organizations to leverage their expertise and reduce unnecessary duplication as it tries to expedite and transition new and innovative capabilities. IWTSD is unique in its approach, annually obtaining joint requirements directly from military operators, intelligence analyst, and first responders and discussing those requirements with industry even before the requirements are released in a Broad Agency Announcement (BAA).

The IWTSD program continues to be a diverse, advanced technology development effort that capitalizes on interagency and international participation to demonstrate the utility and effectiveness of technology when applied to combating peer or near-peer forces, emerging threats, and combating terrorism requirements. This includes rapid technology development, safety testing, proof-of-concept demonstrations, operational test and evaluations of prototypes in the field, and coordinating the transition from development to production and operational use.

Beginning with the FY 2021 plan, the time from requirements to contracts was shortened to ensure the IWTSD was addressing the most near-term, identified needs. As such, the FY 2023 Program Requirements Meetings with users occurred in January, 2022 and contract awards will begin in October or November 2022 (the start of FY 2023). The IWTSD normally manages approximately 220 individual projects and international task plans; while also reviewing proposals and negotiating contracts for another 70 requirements for the next fiscal year.

The IWTSD program justified in the R-2 exhibit identifies the projects fully or partially funded by Congressional appropriations for the IWTSD program. However, IWTSD also develops technology and provides support using external funds provided by other DoD and federal departments and international partnerships. The funds for these projects and support activities are not reflected in this justification R-2; but the number of activities does reflect positively on the trust and competence that IWTSD has earned throughout the Department of Defense and interagency to rapidly conduct critical RDT&E and provide innovative products.

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| ***Title:*** Advanced Analytic Capabilities (AAC) | 4.907 | 6.308 | 7.886 |
| ***Description:*** The Advanced Analytics (AA) Subgroup's objective is to develop and deploy integrated analytic capabilities; enabling Commanders, Warfighters, and Mission Partners to share information and make better/faster decisions at the Strategic, Operational, and Tactical levels. AA projects improve sense-making, decision-making, and data management across a range of mission areas. | | | |
| ***FY 2023 Plans:***<br>In FY 2023, the AA Subgroup plans to initiate or continue funding 5 projects in areas focused on novel capabilities for Irregular Warfare, supporting integrated deterrence and building enduring advantages, survivability, prioritizing China as a pacing challenge, and supporting Gray Zone campaigning. Examples include: | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • An edge analytics application and Tactical Assault Kit (TAK) plugin to support generating objective 3D maps from actively or passively collected small unmanned aerial systems (sUAS)-based full motion video, infrared (IR), and associated metadata Phase 1.<br>• A cloud-based software that automates search, extraction, organization, visualization, and mapping functions that extracts key insights into real-world social networks from Publicly Available Information (PAI) and open-source data.<br>• The spiral development of the Enhanced Electronic Warfare Support System that enhances signal-processing performance and develops a supplemental signals reference library improving system machine learning capabilities.<br>• A scalable AI model that uses innovative Random Domain Intercept Technology (RDIT) to understand and analyze the information battlespace in real time and support forecasting and decision-making at the operational and strategic levels.<br>• An open source information prototype that uses current anticipatory analytic approaches to enable forecasting over three to five years to better forecast and project geopolitical turmoil that will drive future Title 10 requirements.<br>In FY 2023, the AA Subgroup also plans to complete one project in areas focused on novel capabilities for Irregular Warfare and survivability. Examples include:<br>• A Tactical Assault Kit (TAK)-plugin software that supports manual and automated data entry in the field for weather forecasting to guide the operator's workflow during pre-mission planning and preparation, mission execution, and post-mission assessments, and to identify all initial and recurring data requirements to generate reports on the operational environment of interest to combat leaders.<br>***FY 2024 Plans:***<br>In FY 2024, the AA Subgroup plans to continue or complete 5 projects in areas focused on novel capabilities for Irregular Warfare, supporting integrated deterrence and build enduring advantages, prioritizing China as the pacing challenge, supporting Gray Zone campaigning, and survivability. Examples include:<br>• An edge analytics application and Tactical Assault Kit (TAK) plugin to support generating objective 3D maps from actively or passively collected small unmanned aerial systems (sUAS)-based full motion video, infrared (IR), and associated metadata.<br>• A cloud-based software that automates search, extraction, organization, visualization, and mapping functions to extract key insights into real-world social networks from Publicly Available Information (PAI) and open-source data.<br>• The spiral development of the Enhanced Electronic Warfare Support System that enhances signal-processing performance and develops a supplemental signals reference library improving system machine learning capabilities.<br>• A scalable AI model that uses innovative Random Domain Intercept Technology (RDIT) to understand and analyze the information battlespace in real time and supports forecasting and decision-making at the operational and strategic levels.<br>• An open source information prototype that uses current anticipatory analytic approaches to enable forecasting over three to five years to better forecast and project geopolitical turmoil that will drive future Title 10 requirements.<br>In FY 2024, the AA Subgroup also plans to complete a unique project focused on novel capabilities for Irregular Warfare and survivability. Example includes: | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • A software tool package that can inform crisis response and assess the potential for social manipulation via bot networks during a crisis situation, develop intervention strategies for reducing the potential for social hysteria and violence, and improve coalition partnerships and social trust among Nations supporting Humanitarian Assistance and Disaster Relief (HA/DR) operations.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Increase is reflective of Departmental priorities in artificial intelligence, big data analytics, and decision-making at the strategic and tactical levels | | | |
| ***Title:*** CHEMICAL, BIOLOGICAL, RADIOLOGICAL, NUCLEAR, AND EXPLOSIVES (CBRNE)<br><br>***Description:*** The CBRNE Subgroup's objective is to improve defense capabilities to meet tomorrow's CBRNE threats. The subgroup focuses on threat characterization; materials attribution; personal protective equipment; detection of CBRNE materials at trace and bulk levels at point, proximity and stand-off distances; development of information resources and decision support tools to assist response elements with risk-based decision making; and consequence management for post-event activities.<br><br>***FY 2023 Plans:***<br>For FY 2023, the CBRNE Subgroup is currently evaluating requirements and proposals and plans to initiate funding 14 new requirements focused on novel capabilities for irregular warfare and survivability. Examples include, but are not limited to:<br><br>• Development of a standoff chemical agent detector capable of detecting and identifying trace amounts of solid and liquid chemical threats on varying surfaces.<br>• Development of a system that monitors changes in canine behavior, task engagement, and physical distress and provides easy-to-interpret feedback to the dog handler via a wearable signal reader.<br>• Development of a test bed for short-term, quick-reaction studies, large scale field experiments, and full mission profile rehearsals to support the assessment and characterization of evolving CBRN threats as well as relevant mitigation and response measures.<br>• Evaluation of decontamination mechanisms for their effectiveness in removing radiological contaminants on sensitive electronics.<br><br>In FY 2023, the CBRNE Subgroup plans to continue funding 19 projects in areas focused on novel capabilities for irregular warfare and survivability. Examples include, but are not limited to:<br><br>• Development of a ruggedized, handheld system for rapid detection and identification of biological agents without requiring sample preparation or buffer solutions from users.<br>• Identification of successful operational guidance for decontaminating fentanyl and its analogs.<br>• A multi-year test and evaluation program for the identification and rapid laboratory and field evaluation of emerging commercial and near-commercial explosive detection technologies to facilitate the acceleration, improvement, and fielding of promising capabilities. | 7.647 | 8.030 | 7.962 |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Alignment of methods for the collection, storage and transport of explosive vapor samples between international partners to support the development and assessment of explosive vapor detectors.<br><br>In FY 2023, the CBRNE Subgroup also plans to complete 26 projects in areas focused on novel capabilities for irregular warfare and survivability. Examples include, but are not limited to:<br><br>• Development of a low-cost detect-to-identify wearable sensing technology to inform chemical-specialist first responders and warfighters of the presence of a broad range of toxic industrial chemicals (TICs) and chemical warfare agents (CWAs) vapors.<br>• Development of machine learning based detection algorithms for fielded ion mobility spectrometry (IMS) systems to achieve improved sensitivity, higher selectivity, detection of new threats, and reduced false alarm rate for explosive detection.<br>• Development of an explosive trace detection training tool that provides feedback to users as they practice hands-on trace collection.<br>• Development of improved footwear solutions to provide the operator protection from physical and CBR hazards while enabling the freedom of movement necessary to perform missions unencumbered.<br>• Development of an unmanned aerial system payload to automatically detect, identify, and map chemical plumes for situational awareness.<br>***FY 2024 Plans:***<br>For FY 2024, the CBRNE Subgroup plans to continue 18 projects in areas focused on novel capabilities for irregular warfare. Examples include, but are not limited to:<br><br>• Identification of common research and development gaps and initiate projects that improve the capabilities of military and civilian first responders in handling chemical, biological and radiological events.<br>• Enhancing mitigation techniques to reduce the impact of threat releases in transportation platforms and confined spaces.<br>• Evaluation and further development of the Ring IR Chemical Detector for the detection and identification of chemical warfare agents and toxic industrial chemicals in the air.<br>• Testing and evaluation of next generation sensors for use in trace, bulk, proximity, and stand-off detection of explosives-based threats.<br>• Development of a risk-based decision support model for skin decontamination in the case of dermal exposures to CWAs.<br>• Development of Raman/FTIR libraries of biological threat agents.<br><br>For FY 2024, the CBRNE Subgroup plans to complete 15 projects in areas focused on novel capabilities for irregular warfare. Examples include, but are not limited to: | | | |

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| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Development of a portable, ruggedized Raman microscopy system capable of detecting trace explosives and other residues with minimal logistical burden for operators.<br>• Development of a low-cost universal chemical agent detection (UCAD) paper for rapidly indicating the presence of A, G, H, L and V-series chemical warfare agents.<br>• Development of a Combined Unit Respirator for Subterranean Operational Environments (CRUSOE) to provide a respiratory life support system specifically designed for prolonged underground use.<br>• Development of new computational and experimental tools and methods to improve and augment existing detection capabilities, provide early alerts to the presence of engineered organisms and help expedite appropriate responses<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Decrease is reflective of Departmental priorities. | | | |
| ***Title:*** Explosive Ordnance Disposal/Explosive Operations (EOD/EXO) | 5.711 | 6.123 | 6.537 |
| ***Description:*** The EOD/EXO Subgroup's objective is to deliver capabilities to defeat or neutralize the continuum of improvised weapons and explosive devices. EOD/EXO improves the operational capabilities of the bomb disposal and explosive operations community, consisting of military EOD, combat engineers, special operations force by developing and delivering advanced tools technologies, and decision support tools to defeat improvised devices. The EOD/EXO Subgroup identifies and prioritizes multi-agency end-user requirements in collaboration with military units. EOD/EXO actively works with vendors and end-users to deliver advanced prototype systems that provide greater efficiency and increased safety for Bomb Technicians who investigate, access, evaluate, and if needed, render safe or dispose of suspect devices.<br><br>***FY 2023 Plans:***<br>In FY 2023, the EOD/EXO Subgroup plans to initiate funding for 2 projects in the area focused on Enhance Survivability for Close Combat Formations, and 2) Integrate with the U.S. Interagency:<br><br>• Development of a collection of 2-D images and 3-D scans of inert or inerted military ordnance, improvised explosive devices (IED) and IED-related components. These scans will help train artificial intelligence (AI) and machine learning (ML) algorithms to identify ordnance items in different orientations, as well as providing trainers a collection of accurate, well documented graphics for training EOD and Unexploded Ordnance (UXO) personnel.<br><br>• Development of a comprehensive and shareable dataset that will include multi-angle photographs and x-ray images of microcontrollers and microsensors to augment future development of artificial intelligence-based IED threat recognition software.<br><br>In FY 2023, the EOD/EXO Subgroup plans to continue funding 3 projects in areas focused on 1) Enhance Survivability for Close Combat Formations, and 2) Strengthen Alliances: | | | |

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|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Bilateral information exchange between U.S.-based bomb technicians and members of the Israel National Police Bomb Disposal Division.<br><br>• Development of a training set of RFID chips that will mimic buried ordnance items, IEDs, and IED components to enhance handheld detector training, allow operators to reduce training time, and facilitate additional ad hoc mine detector training.<br><br>• Development of machine learning (ML) algorithms that identify IEDs and ordnance using cameras and mobile computing technologies to enhance the safety and reduce the cognitive burden of CIED operators in high threat environments.<br><br>In FY 2023, the EOD/EXO Subgroup plans to complete funding 9 projects in areas focused on 1) Enhance Survivability for Close Combat Formations, and 2) Integrate with the U.S. Interagency. Examples include, but are not limited to:<br><br>• Hardware and software development and EOD/combat environment-specific ruggedization of a humanoid robotic platform for IED Defeat operations in urban environments.<br><br>• Development of a full-color digital night-vision system to aid in IED component identification and diagnostics.<br><br>• Development of a luminous and infrared marking spray and dispenser for tactical marking during urban and subterranean combat operations.<br><br>• Development of a smart-device application that will allow bomb technicians to relay IED and IED incident information to fellow bomb technicians in real-time.<br><br>• Development of a large, labeled, robust, and realistic IED and IED component dataset for training future machine learning and artificial intelligence-based C-IED projects.<br>***FY 2024 Plans:***<br>In FY 2024, the EOD/EXO Subgroup plans to continue funding 1 project in the area focused on 1) Strengthen Alliances:<br><br>• Bilateral information exchange between U.S.-based bomb technicians and members of the Israel National Police Bomb Disposal Division. | | | |

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| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| In FY 2024, the EOD/EXO Subgroup plans to complete funding 4 projects in areas focused on 1) Enhance Survivability for Close Combat Formations, and 2) Integrate with the U.S. Interagency.<br><br>• Development of a training set of RFID chips that will mimic buried ordnance items, IEDs, and IED components to enhance handheld detector training, allow operators to reduce training time, and facilitate additional ad hoc mine detector training.<br><br>• Development of machine learning (ML) algorithms that identify IEDs and ordnance using cameras and mobile computing technologies to enhance the safety and reduce the cognitive burden of CIED operators in high threat environments.<br><br>• Development of a collection of 2-D images and 3-D scans of inert or inerted military ordnance, improvised explosive devices (IED) and IED-related components. These scans will help train artificial intelligence (AI) and machine learning (ML) algorithms to identify ordnance items in different orientations, as well as providing trainers a collection of accurate, well documented graphics for training EOD and Unexploded Ordnance (UXO) personnel.<br><br>• Development of a comprehensive and shareable dataset that will include multi-angle photographs and x-ray images of microcontrollers and microsensors to augment future development of artificial intelligence-based IED threat recognition software.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Increase is due to inflation. | | | |
| ***Title:*** FORENSIC Exploitation and Identity Operations (FEIO)<br><br>***Description:*** The FEIO subgroup's objective is to advance irregular warfare capabilities in investigative and forensic science. FEIO supports Defense Department organizations who apply investigative and forensic science methods, means, or practices to forensic intelligence or investigations. To meet this objective, the subgroup focuses on rapid research, development, test and evaluation of new and advanced technology, equipment, forensic techniques, and investigative tools, as well as development of information resources and support tools for risk-based decision-making and rapid exploitation of evidence. Projects emphasize rapid and field deoxyribonucleic acid (DNA) analysis, identification of insider threat within agencies, pre- blast and post-blast forensic examination, electronic evidence data acquisition and analysis, sensitive site exploitation, credibility assessment, forensic intelligence, and criminalistics.<br><br>***FY 2023 Plans:***<br>In FY 2023, the FEIO Subgroup plans to initiate funding 3 projects in areas focused on Novel Capabilities for Irregular Warfare, Support Integrated Deterrence and Build Enduring Advantages, and Enhance Survivability: | 6.053 | 6.373 | 5.581 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Development of a software tool for sensitive site exploitation and other information collection that can be used on commonly available Android mobile devices.<br>• Development of a facial recognition tool that fuses analytic algorithms with human examination to enhance skill and accuracy.<br>• Development of a reference DNA swab instrument that automates the preparation and cutting of buccal swabs during the DNA processing and analysis.<br><br>In FY 2023, the FEIO Subgroup plans to continue funding 2 projects in areas focused on Novel Capabilities for Irregular Warfare, Support Integrated Deterrence and Build Enduring Advantages, and Enhance Survivability:<br><br>• Development of comprehensive non-coercive, rapport-based interviewing procedures from existing models for intelligence and law enforcement to elicit greater amounts of credible information during interrogations.<br>• Development of an advanced multispectral surveillance and technical device that uses ultraviolet, infrared, and visible light for covert forensic detection and identification.<br><br>In FY 2023, the FEIO Subgroup plans to complete funding 9 projects in areas focused on Novel Capabilities for Irregular Warfare, Support Integrated Deterrence and Build Enduring Advantages, and Enhance Survivability. Examples include, but are not limited to:<br><br>• Development and fielding of a set of techniques for evidence disclosure during investigative interviews that optimize the acquisition of credible information from the interviewee.<br>• Development and fielding of a web-based search engine and archive service that monitors social media and the dark web, collects audio data on subjects using speaker recognition and speech-to-text transcription, and identifies speakers by matching voice samples to watchlists.<br>• Development and fielding of a software development kit that is compatible with all known federal government biometric file types and supports multiple programing languages for biometric records to ensure interoperability and data sharing across federal agencies.<br>• Development and fielding of a digital tool that provides accessibility via secured internet from any worldwide location to high-resolution images of US travel and identification documents for verification by the DoD and other federal agencies.<br>• Development and fielding of a gait recognition software capable of matching and identifying human gait/walking signatures in video files regardless of camera angles.<br>***FY 2024 Plans:***<br>In FY 2024, the FEIO Subgroup plans to initiate funding 2 projects in areas focused on Novel Capabilities for Irregular Warfare, Support Integrated Deterrence and Build Enduring Advantages, and Enhance Survivability: | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Initiate development of rapid DNA profiling of samples for sensitive sites and crimes to produce immediate results for field agents.<br>• Initiate development of automated methods to locate and collect user specified images from social media and the dark web.<br><br>In FY 2024, the FEIO Subgroup plans to complete funding 5 projects in areas focused on Novel Capabilities for Irregular Warfare, Support Integrated Deterrence and Build Enduring Advantages, and Enhance Survivability. Examples include, but are not limited to:<br><br>• Development of an advanced multispectral surveillance and technical device that uses ultraviolet, infrared, and visible light for covert forensic detection and identification.<br>• Development and fielding of a software tool for sensitive site exploitation and other information collection that can be used on commonly available Android mobile devices.<br>• Development and fielding of a facial recognition tool that fuses analytic algorithms with human examination to enhance skill and accuracy.<br>• Development and fielding of a reference DNA swab instrument that automates the preparation and cutting of buccal swabs during the DNA processing and analysis.<br>• Development and fielding of comprehensive non-coercive, rapport-based interviewing procedures from existing models for intelligence and law enforcement to elicit greater amounts of credible information during interrogations.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Decrease is reflective of departmental priorities. | | | |
| ***Title:*** Indirect Influence and Competition (I2C)<br>***Description:*** The Indirect Influence and Competition (I2C) Subgroup's objective is to develop new concepts and capabilities for warfighters and interagency partners. In accordance with the National Defense Strategy, projects emphasize preparation to defeat adversaries, including great powers' proxies and irregular surrogates, and succeed in a wide range of contingencies in both physical and informational domains. In order to establish and reinforce IW as a core competency, I2C will engage in operational assessment, concept development, and independent validation of unique prototype capabilities to identify, confront, and defeat evolving threats across the range of military operations as well as those below the threshold of conventional war.<br><br>***FY 2023 Plans:***<br>In FY 2023, the I2C Subgroup plans to continue or initiate funding three (3) projects in areas focused on novel capabilities for irregular warfare, and supporting integrated deterrence and building enduring advantages. Examples include, but are not limited to: | 5.915 | 6.121 | 7.294 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • An IA-accessible UI of Chinese foreign financial flows, economic coercion, and soft power influence operations that enables IA users to track, visualize, analyze, and act on Chinese strategic competition efforts. Diplomatic, development, defense, and intelligence organizations are able upload, share, and interact together in the UI to maximize whole-of–government analysis and operations to counter China.<br>• An Information Warfare Enabler Kit, Detachment (IWEK-D) to ensure interoperability of the proposed COTS solutions. The components enable PSYDETs the flexibility to operate across different operational environments while updating equipment to the modern industry standard.<br>• A unique technical solution that overcomes difficulties addressing mis- and dis-information at scale on TikTok and Telegram.<br>• A repeatable, standardized assessment and early warning (EW) process for operations in the information environment (OIE) that can be used manually or can be automated through machine learning and deep learning models.<br>• Develop a low-cost multi-role platform to enable influence, surveillance and kinetic strike in grey zone and denied area operations.<br><br>In FY 2023, the I2C Subgroup plans to complete funding five (5) projects in areas focused on supporting integrated deterrence and building enduring advantages, and developing novel capabilities for irregular warfare. Examples include:<br><br>• A toolkit to provide SOF an enterprise-level ability to provide "last mile" cyber-enabled activities in order to bridge the gap between tactical and higher echelons of cyber capability.<br>• Two (2) programs of instruction (POIs) and supporting materials for a Civil Affairs in Irregular Warfare and Governance Support course. Module topics include: Resiliency and Human Security; Irregular Warfare; Resistance Activities; Civil Network Development and Engagement; Civil Reconnaissance; Advising Governance Formation; Integrating Capabilities and Resources; and Advising Commanders on Governance Efforts.<br>• Small containers, or “Air Delivery Vehicles” (ADVs) that can be safely air dropped individually or in clusters from offset locations to deliver any electronic, medical, or other device that is able to fit within its payload parameters.<br>• Complete a final report with the United Kingdom which will be used to modernize and improve Full Motion Video processing, exploitation, and dissemination workflows.<br>• An application for the Android Tactical Assault Kit (ATAK) that allows users to share and visualize civil information across the Interagency (IA) necessary to drive whole-of-government influence operations.<br><br>***FY 2024 Plans:***<br>In FY 2024, the I2C subgroups plans to continue or complete funding six (6) projects in areas focusing on novel capabilities for irregular warfare, supporting integrated deterrence and building enduring challenges, and prioritizing China as the pacing challenge. Examples include, but are not limited to: | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • An Information Warfare Enabler Kit, Detachment (IWEK-D) to ensure interoperability of the proposed COTS solutions. The components enable PSYDETs the flexibility to operate across different operational environments while updating equipment to the modern industry standard.<br>• Continue development and initiate operational testing of a low-cost multi-role platform to enable tactical level influence, surveillance and kinetic strike in grey zone and denied area operations.<br>• An IA-accessible UI of Chinese foreign financial flows, economic coercion, and soft power influence operations that enables IA users to track, visualize, analyze, and act on Chinese strategic competition efforts. Diplomatic, development, defense, and intelligence organizations are able upload, share, and interact together in the UI to maximize whole-of–government analysis and operations to counter China.<br>• A unique technical solution that overcomes difficulties addressing mis- and dis-information at scale on TikTok and Telegram.<br>• A repeatable, standardized assessment and early warning (EW) process for operations in the information environment (OIE) that can be used manually or can be automated through machine learning and deep learning models.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Increase reflective of Departmental priorities in the focus areas on novel capabilities for irregular warfare, and supporting integrated deterrence and building enduring advantages. | | | |
| ***Title:*** Protection, Survivability, and Recovery (PSR) | 32.615 | 6.444 | 6.455 |
| ***Description:*** The Protection, Survivability, and Recovery Subgroup's objective is to develop new equipment, reference tools, and standards to improve the protection of personnel. Projects focus on putting innovative tools such as automated information management systems, communication devices, tagging, tracking and locating devices, mobile surveillance systems, as well as personal and vehicle protection equipment in the hands of personnel.<br><br>***FY 2023 Plans:***<br>For FY 2023, the PSR Subgroup is currently evaluating requirements and proposals in C-UAS detection, identification, tracking, and mitigation to increase capability in urban areas and against DoD Group 1 to Group 3 UAS and plans to initiate funding new requirements in collaboration with Israel. Also, in FY 2023, the PSR Subgroup plans to initiate funding 2 projects in areas focused on Survivability. These projects are:<br><br>• Development of a small arms overpressure measurement system and database to collect data relevant to mild traumatic brain injury (mTBI) research.<br>• Development of eyewear that protects users against high velocity fragmentation and 9mm.<br><br>In FY 2023, the PSR Subgroup plans to continue funding 13 projects in areas focused on Survivability. Examples include, but are not limited to: | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Development of a standardized transparent armor for non-tactical vehicles with a ~30% reduction in weight and thickness while achieving a threshold ballistic protection rating of VPAM VR9.<br>• Development of a ground-based drone interception system.<br>• Development of a system that will baseline and track multiple elements of patient information, and wirelessly provide continuous updates and trends for triage decisions.<br><br>In FY 2023, the PSR Subgroup plans to complete funding 8 projects in areas focused on Survivability. Examples include, but are not limited to:<br><br>• Development of an eye protection system in the form of a face shield or glasses that provides the operator protection from frequencies of laser light while allowing enough visible light for the operator to see.<br>• Development of a tracking device that will work in disadvantaged/denied GPS environments with no additional equipment.<br>• Test and evaluation of two C-UAS radar systems and of a capture/carry UAS.<br>***FY 2024 Plans:***<br>In FY 2024, the PSR Subgroup plans to continue funding 12 projects in areas focused on Survivability. Examples include, but are not limited to:<br><br>• Development of air-based optical detection of drones.<br>• Development of advanced ground-based detection systems to detect small UAS.<br><br>In FY 2024, the PSR Subgroup plans to complete funding 5 projects in areas focused on Survivability. Examples include, but are not limited to:<br><br>• Development of a system that will baseline and track multiple elements of patient information, and wirelessly provide continuous updates and trends for triage decisions.<br>• Development of a small arms overpressure measurement system and database to collect data relevant to mTBI research.<br>• Development of eyewear that protects users against high velocity fragmentation and 9mm.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>No significant change. | | | |
| ***Title:*** Expeditionary Force Protection (EFP) | 52.773 | 6.435 | 5.501 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| ***Description:*** Rapidly develop and transition expeditionary force protection capabilities and technologies to support forward deployed and domestic military, international partners, interagency and first responders for Blast Effects and Mitigation; Maritime Security; Screening, Observation, Detection, and Protection; and Subterranean Environments. Focus these technology development efforts for expeditionary advance based operations, forward operating bases, and maritime port and littoral environments.<br><br>***FY 2023 Plans:***<br>In FY 2023, the EFP Subgroup plans to initiate funding for 17 projects in areas focused on 1) Develop novel capabilities for irregular warfare 2) Support for grey zone campaigning 3) Support integrated deterrence and build enduring advantages 4) Support for grey zone campaigning 5) Enhance Survivability 6) Increase lethality 7) Enhance human performance and training 8) Work Jointly with Allies and Partners, and 9) Work with Domestic Partners for Mutual Benefits with added interest in the maritime environment. In addition, the EFP Subgroup is currently evaluating requirements and proposals in counter tunnel and plans to initiate funding new requirements in collaboration with Israel. Examples include, but are not limited to:<br><br>• A man-dive form-fit-function testing of industry prototype diver thermal systems in support of long endurance, cold water, and combat diving operations.<br>• Development of common and interoperable measurement techniques for the assessment of high frequency Target Echo Strength of a variety of underwater targets; produce a standardized method; based on the technical performance enabling direct comparisons with foreign partners.<br>• Test and evaluation of an Unmanned Underwater Vehicle and next generation sonar for waterside security (e.g., ports, harbors, and expeditionary advanced base operations).<br>• Development of a testing and training fixture that will closely replicate subterranean and hard and deeply buried targets in threat countries to allow for Units of Action to research and develop technological solutions.<br><br>In FY 2023, the EFP Subgroup plans to continue funding for 23 projects in areas focused on 1) Develop novel capabilities for irregular warfare 2) Support for grey zone campaigning 3) Support integrated deterrence and build enduring advantages 4) Support for grey zone campaigning 5) Enhance Survivability 6) Increase lethality 7) Enhance human performance and training 8) Work Jointly with Allies and Partners, and 9) Work with Domestic Partners for Mutual Benefits. Examples include, but are not limited to:<br><br>• Hosting bi-annual data exchange with foreign partners to exchange research/info on physical protection of facilities, to include but not limited to: entry control points, vehicle barriers, blast/forced entry mitigation, and sensitive material destruction.<br>• Leveraging assets and capabilities in Homemade Explosives (HME) materials characterization to support research efforts. | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Development and evaluation of a novel ship-to-shore fuel transport prototype to address mobility and compatibility requirements.<br>• Development of an advanced exothermic capability, providing a Liquid Oxygen conversion to pure oxygen for exothermic entry into specific subterranean/hard target defeat targets.<br>• Development of an existing rebreather solution (MK1) that provides a respiratory life support system designed specifically for underground operations, prolongs time on target (4 hours) beyond existing respirator capabilities, and integrates an air-purifying respirator component with the rebreather.<br>• A subterranean operations pilot course that provides the Department of Defense and Interagency a holistic overview of the operational level considerations for planning and executing missions.<br><br>For FY 2023, the EFP Subgroup plans to complete funding for 39 projects in areas focused on 1) Develop novel capabilities for irregular warfare 2) Support for grey zone campaigning 3) Support integrated deterrence and build enduring advantages 4) Support for grey zone campaigning 5) Enhance Survivability 6) Increase lethality 7) Enhance human performance and training 8) Work Jointly with Allies and Partners, and 9) Work with Domestic Partners for Mutual Benefits. Examples include, but are not limited to:<br><br>• Test and evaluation of Ethylene-vinyl Acetate (EVA) laminated glass that will determine its blast protection performance as compared to Polyvinyl Butyral (PVB) laminated glass.<br>• Development and testing of an algorithm that will automatically detect metallic and non-metallic weapons in baggage (e.g., guns and knives) and integrate the algorithm into an existing carry-on baggage x-ray system.<br>• Test and evaluation of an enhanced waterside security system for port and harbor defense by integrating a next generation sonar, with algorithm enhancements, into the U.S. Waterside Security ARGUS System.<br>• Biometric assessment methods to understand the stresses associated with conflict operations in dense urban & subterranean environments.<br>• Development of an analytic tool that will predict specific subterranean activities.<br><br>***FY 2024 Plans:***<br>In FY 2024, the EFP Subgroup plans to continue funding 16 projects in areas focused on 1) Develop novel capabilities for irregular warfare 2) Support for grey zone campaigning 3) Support integrated deterrence and build enduring advantages 4) Support for grey zone campaigning 5) Enhance Survivability 6) Increase lethality 7) Enhance human performance and training 8) Work Jointly with Allies and Partners, and 9) Work with Domestic Partners for Mutual Benefits. Examples include, but are not limited to:<br>• Hosting bi-annual data exchange with foreign partners to exchange research/info on physical protection of facilities, to include but not limited to: entry control points, vehicle barriers, blast/forced entry mitigation, and sensitive material destruction.<br>• Leveraging assets and capabilities in Homemade Explosives (HME) materials characterization to support research efforts. | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Development of a testing and training fixture that will closely replicate subterranean and hard and deeply buried targets in threat countries to allow for Units of Action to research and develop technological solutions.<br>• A subterranean operations pilot course that provides the Department of Defense and Interagency a holistic overview of the operational level considerations for planning and executing missions.<br><br>In FY 2024, the EFP Subgroup plans to complete funding 24 projects in areas focused on 1) Develop novel capabilities for irregular warfare 2) Support for grey zone campaigning 3) Support integrated deterrence and build enduring advantages 4) Support for grey zone campaigning 5) Enhance Survivability 6) Increase lethality 7) Enhance human performance and training 8) Work Jointly with Allies and Partners, and 9) Work with Domestic Partners for Mutual Benefits. Examples include, but are not limited to:<br><br>• A man-dive-form-fit-function testing of industry prototype diver thermal systems in support of long endurance, cold water, combat diving operations.<br>• Development of common and interoperable measurement techniques for the assessment of high frequency Target Echo Strength of a variety of underwater targets; produce a standardized method; based on the technical performance enabling direct comparisons with foreign partners.<br>• Development and evaluation of a novel ship-to-shore fuel transport prototype to address mobility and compatibility requirements.<br>• Development and testing of a relocatable tower system with additional mast height, updated surveillance and communications technologies capable of transmitting real time imagery and geolocations between Command and Control sites and field operators.<br>• Development of an advanced exothermic capability, providing a Liquid Oxygen conversion to pure oxygen for exothermic entry into specific subterranean/hard target defeat targets.<br>• Development of an existing rebreather solution (MK1) that provides a respiratory life support system designed specifically for underground operations, prolongs time on target (4 hours) beyond existing respirator capabilities, and integrates an air-purifying respirator component with the rebreather.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Decrease is reflective of Departmental priorities. | | | |
| ***Title:*** SURVEILLANCE, COLLECTION AND OPERATIONS SUPPORT | 8.388 | 9.758 | 10.464 |
| ***Description:*** The Surveillance, Collection, and Operations Support (SCOS) Subgroup's objective is to identify high-priority user requirements and special technology initiatives. SCOS projects enhance U.S. intelligence capabilities to conduct retaliatory or preemptive operations and reduce the capabilities and support available to Violent Extremist Organizations and other adversaries.<br><br>***FY 2023 Plans:*** | | | |

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|---|---|---|---|
| In FY 2023, the SCOS Subgroup plans to initiate or continue funding 14 projects in areas focused on novel capabilities for irregular warfare, supporting integrated deterrence and build enduring advantages, prioritize China as the pacing challenge, and survivability. Examples include, but are not limited to:<br><br>• Classified special communications projects that will develop a new satellite communications network, a next generation high data transfer network, and a High Frequency (HF) communication capability.<br>• Classified technical collection projects that will develop a small form factor data storage capability, advanced spectrum collection capability, and small form factor signals of interest collection capability.<br>• Classified technical collection project that continues development of a new Tagging, Tracking and Locating capability.<br>• Classified special communications project that continues development of an alternate cell technology communications path.<br>• Classified signature management projects that continue development of a new facial recognition risk reduction capability, a Closed-Circuit Television (CCTV) risk reduction capability, and new biological signature reduction capability.<br><br>In FY 2023, the SCOS Subgroup also plans to complete 10 projects in areas focused on novel capabilities for irregular warfare, supporting integrated deterrence and build enduring advantages, Prioritizing China as the pacing challenge, and survivability. Examples include:<br>• A classified Integrated Air Defense Geo-Location Technical Collection effort.<br>• A classified Signature Management project to develop a Persona Management capability.<br>• A classified Technical Collection project to develop new communication protocols that support counter surveillance and signals intelligence collection operations.<br>• A classified Special Communications project focused on developing new Thin Film Antenna technologies.<br>• A classified Cyber and Convergent technology project to develop a risk mitigation application.<br><br>***FY 2024 Plans:***<br>For FY 2024, the SCOS Subgroup plans to continue or complete funding 8 projects in areas focused on novel capabilities for irregular warfare, supporting integrated deterrence and build enduring advantages, Prioritizing China as the pacing challenge, and survivability. Examples include, but are not limited to:<br>• Classified special communications projects that will develop a new satellite communications network, a next generation high data transfer network, and a High Frequency (HF) communication capability.<br>• Classified technical collection projects that will develop a small form factor data storage capability, advanced spectrum collection capability, and small form factor signals of interest collection capability.<br>• Classified technical collection project that continues development of a new Tagging, Tracking and Locating capability.<br>• Classified special communications project that continues development of an alternate cell technology communications path. | | | |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Classified signature management projects that continue development of a new facial recognition risk reduction capability, a Closed-Circuit Television (CCTV) risk reduction capability, and new biological signature reduction capability.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Increase reflective of Departmental priorities in special communications, cyber technology, and signature management. | | | |
| ***Title:*** Tactical Offensive Support (TOS)<br><br>***Description:*** The Tactical Offensive Support (TOS) Subgroup's mission is to execute rapid research and development projects and deliver superior capabilities with training to DoD and Interagency special operations tactical teams. The development focus is enabling small tactical units by providing state of the art overmatch capabilities in: Offensive Systems; Tactical Communications; Tactical Reconnaissance, Surveillance, and Target Acquisition Systems; and Specialized Infiltration, Access and Exfiltration Systems.<br><br>***FY 2023 Plans:***<br>In FY 2023, the TOS Subgroup plans to initiate or continue funding 20 projects in areas focused on increasing lethality and survivability. Examples include, but are not limited to:<br>• Conduct basic research to improve super cavitating ammunition.<br>• An advanced intermediate-caliber cartridge, side-fed Lightweight Assault Machine Gun (LWAMG) that allows machine gunners to provide effective volumes of fire and on-target performance at increased ranges.<br>• A hybrid flash hider, suppressor, and muzzle brake contained in one easy-to-install device, for multiple calibers of weapons, that overall reduces the weapons' signature and lessens recoil impulse.<br>• A low cost, hand-launched and recovered, fast VTOL loitering munition that employs Electro-Optical and Infrared sensors for both day and night operations to improve SOF force protection and rapid attack capability.<br>• An advanced field-configurable, multi-role, sUAS platform designed to maneuver from outdoors to indoors that can selectively detect, identify, track, distract and/or destroy a variety of targets throughout complex urban terrain, utilizing organic ISR and 'plug-and-play' lethal payload capabilities as required.<br>• A tactical deployment and recovery capability for US and UK Navy SOF surface and subsurface assets that increases environmental protection and improved signature reduction while ensuring direct interoperability between US and UK forces.<br>• A caliber-specific, hybrid flash hider, suppressor, and muzzle brake contained in one easy to install device that will increase small tactical team lethality and allow operators to conduct target engagement with less potential for compromise.<br>• An improved, multi-purpose type cartridge with increased muzzle velocities that demonstrates consistent accuracy to defeat current barriers at extended ranges.<br><br>In FY 2023, the TOS Subgroup plans to complete 12 projects in areas focused on increasing lethality and survivability. Examples include, but are not limited to: | 8.698 | 10.258 | 10.510 |

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| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • A weapon system, including supermatch, subsonic, and armor piercing incendiary ammunition, to increase hit potential by 50%, and lethal effects at extreme distances.<br>• A high definition, mid-wave infrared thermal sight for use on lightweight medium machine guns and sniper rifles to enhance target identification at extreme ranges.<br>• An overmatch optic that can be mounted on currently fielded small arms weapons, providing instant range, tracking and firing solution, for both ground and small Unmanned Aerial System (sUAS), during day and night operations at extended ranges.<br>• A remotely operated lighting harness integrated with GPS for canines that handlers can operate based on mission activities.<br>• A next generation Lightweight Medium Machine Gun (LWMMG) and lightweight ammunition to reduce operational load, providing operators a distinct advantage in both close-in and extended range fight and be able to transition rapidly from mounted to dismounted operations.<br>***FY 2024 Plans:***<br>For FY 2024, the TOS Subgroup plans to continue or complete funding 20 projects in areas focused on increasing lethality and enhancing survivability. Examples include, but are not limited to:<br>• An unmanned ground system that integrates emerging quadrupedal robots with remote weapon platforms and advanced external optics to provide remote ground reconnaissance, surveillance, close to medium-range target acquisition, and small arms direct action capability.<br>• A higher magnification optic equivalent to new and advanced extreme long-range weapon systems, that allows positive identification at extreme long ranges, with a digital overlay capable of receiving and displaying external information, such as target distance, as well as ballistic and weapon data.<br>• An enhanced, target acquisition and small arms disabling fire capability for use in boat-to-boat or air-to-boat defensive operations.<br>• A voice-controlled operating system for Advanced small Unmanned Aerial Systems (sUAS), leveraging Artificial Intelligence and Machine Learning, that will deliver an end user device to replace the traditional Operational Control Unit (OCU) and joystick. This will improve the speed of decision making and problem solving, thereby decreasing operator reaction time and increasing lethality.<br>• A ballistically matched Multi-Purpose Round (MPR) that allows shooters to transition from match grade ammunition to MPR, improving accuracy and penetration.<br>• A caliber-specific, hybrid flash hider, suppressor, and muzzle brake contained in one easy to install device that will increase small tactical team lethality and allow operators to conduct target engagement with less potential for compromise.<br>• An improved, multi-purpose type cartridge with increased muzzle velocities that demonstrates consistent accuracy to defeat current barriers at extended ranges.<br>• Continue basic research to improve super cavitating ammunition.<br>***FY 2023 to FY 2024 Increase/Decrease Statement:*** | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| Increase is due to inflation. | | | |
| ***Title:*** Human Performance and Training (HPT) | 5.264 | 6.764 | 7.403 |
| ***Description:*** The Human Performance and Training (HPT) Subgroup's objective is to provide Special Operations Forces (SOF), the Department of Defense (DoD), and interagency partners with agile, rapid response, R&D capabilities for optimizing performance in the operational environment and increasing readiness for tomorrow's threats. To meet this objective, the subgroup develops human-centered technologies that are performance outcome focused in the areas of immersive learning technology, human performance optimization, and innovative training and educational concepts. HPT's capabilities are implemented globally to prepare for critical missions in any operational environment to identify, disrupt, and defeat threats.<br><br>***FY 2023 Plans:***<br>In FY 2023, the HPT Subgroup plans to initiate or continue 6 projects in areas focused on novel capabilities for irregular warfare, survivability, increasing lethality, and enhancing human performance and training. Examples include, but are not limited to:<br>• A SOF Peculiar Industrial Control Systems Defeat Range that integrates real-world sophisticated hardware and software rather than virtualized instantiations of peer and near-peer adversaries' sub-terrain operating environments.<br>• A Program of Instruction to teach SOF Operators advanced cyber and electronic warfare skills for cyber defense, resilience, and the increased integration of cyber capabilities into the full spectrum of military operations.<br>• A training course focused on teaching SOF operators how to think critically through their problem set and mission to, design, build, and employ customized small UAS systems utilizing locally procured Contractor off the shelf (COTS) components.<br><br>In FY 2023, the HPT Subgroup also plans to complete 7 projects in areas focused on survivability, increasing lethality, and enhancing human performance and training. Examples include, but are not limited to:<br>• Techniques for developing accurate and realistic 3D virtual cites for immersive, virtual reality-based pre-deployment operations training, mission planning, and mission rehearsal.<br>• An AC-130J Virtual Reality Combat Mission Trainer to enable operational crews to engage in mission tasks within a simulated environment that replicates sensory information of real-world mission performance found in joint mission essential task (JMET) environments.<br>• A multi-sensory (e.g., visual, auditory, tactile) and immersive military freefall jump master simulator to enhance classroom training and rehearsal of spotting techniques and aircraft procedures over virtual drop zones (DZ) modeled after real world DZs prior to going up in the air<br>• Advanced Cyber Physical Testbeds that integrate real-world sophisticated hardware and software rather than virtualized instantiations of peer and near-peer adversaries' operating environments in order to train SOF cyber operators to conduct full spectrum cyber effects operations on par with peer and near-peer adversaries. | | | |

| Exhibit R-2A, RDT&E Project Justification: PB 2024 Office of the Secretary Of Defense | | Date: March 2023 |
|---|---|---|
| **Appropriation/Budget Activity**<br>0400 / 3 | **R-1 Program Element (Number/Name)**<br>PE 0603122D8Z / *Combating Terrorism Technology Support* | **Project (Number/Name)**<br>484 / *Combating Terrorism Technology Support (CTTS)* |

| B. Accomplishments/Planned Programs ($ in Millions) | FY 2022 | FY 2023 | FY 2024 |
|---|---|---|---|
| • Simulation-based immersive training to expose inexperienced military working dog (MWD) handlers to a broad range of tactical decision-making scenarios and dog behaviors prior to and as an integral part of working with a real-world MWD.<br><br>***FY 2024 Plans:***<br>In FY 2024, the HPT Subgroup plans to continue or complete 6 projects in areas focused on survivability, increasing lethality, and enhancing human performance and training. Examples include, but are not limited to:<br>• An electro-optical see-through device (or heads-up-display) that can be added to the operator's helmet, integrating key information from multiple sources and present it in a single user defined display.<br>• Special Operations Forces biometric assessment methods to illuminate the stresses of operations involving dense urban & subterranean environment. This data will be used to develop training interventions to mitigate these stresses before, during, and after mission execution.<br>• An advanced brain-machine interface for communicating basic verbal commands to a K9. The system will allow for hands-free, partially silent communication at standoff distances to K9s using a brain-machine interface.<br><br>***FY 2023 to FY 2024 Increase/Decrease Statement:***<br>Increase reflective of Departmental priorities in human performance optimization, cyber training, and immersive learning technology. | | | |
| **Accomplishments/Planned Programs Subtotals** | 137.971 | 72.614 | 75.593 |

| | FY 2022 | FY 2023 |
|---|---|---|
| ***Congressional Add:*** Combating Terrorism Technology Support (CTTS) | - | 80.500 |
| ***FY 2023 Plans:*** FY 2023 congressional add supports the CTTS Tunneling program, Counter-UAS, Sub-Captivating Munitions, & AI in Explosive Ordinance Disposal. | | |
| **Congressional Adds Subtotals** | - | 80.500 |

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

N/A

**Remarks**

N/A

**D. Acquisition Strategy**

N/A