

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Office of the Secretary Of Defense **Date:** April 2022

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603288D8Z I <i>Science and Technology (S&T) Analytic Assessments</i>
---	--

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	87.280	19.107	23.936	24.052	-	24.052	24.756	25.289	25.818	26.336	-	-
328: <i>Science and Technology Analytic Assessments</i>	87.280	12.944	17.259	16.825	-	16.825	17.237	17.533	17.900	18.259	-	-
177: <i>Technology Watch/Horizon Scanning</i>	0.000	6.163	6.677	7.227	-	7.227	7.519	7.756	7.918	8.077	-	-

Note

New Start (Y/N): No

A. Mission Description and Budget Item Justification

This program supports the Department's initiatives to Defend the Homeland, Deter Aggression and Prevail in Conflict, Build Sustainable and Long-Term Advantage, and Build a Resilient Joint Force and Defense Ecosystem.

This Program Element (PE) directly supports the Strategic Intelligence and Analysis Cell (SIAC) for the Office of the Under Secretary of Defense, Research and Engineering (OUSD(R&E)) that focuses on understanding the capabilities and vulnerabilities of potential adversaries, assessing U.S. capabilities, tracking global technology trends, assessing emerging threats, and identifying potential opportunities that warrant action and investment. Throughout this process the analysis will be tightly coupled with both the Intelligence community (IC) and the operational community. Global science and technology (S&T) awareness and context is gained and incorporated through the Technology Watch/Horizon Scanning (TW/HS) project, and when combined with threat-based operational and technical analyses, integrates DoD technology, engineering, and acquisition planning to inform the strategic technology development decisions of the OUSD(R&E).

Analysis and assessments are focused on challenges related to National Defense Strategy (NDS) objectives and competitors' research and development trends. Two main lines of effort accomplish this mission:

- 1) All-source intelligence integration into the analytic and conceptual baseline, framework, and development efforts across the R&E enterprise provides a bridge between the IC and OUSD(R&E). The most relevant intelligence analysis and coordinated integration of intelligence with technology development trends informs strategic investment direction.
 - An annual S&T Intelligence Needs Plan (INP) is delivered to the IC, providing production centers with the intelligence requirements of the S&T community. The INP improves short-term intelligence integration through the direct return of products relevant to enterprise needs; as well as long-term collection and planning processes in the IC as a customer demand signal.
 - Open-source analysis, technology watch, and horizon scanning identify emerging and disruptive technology trends in areas of future military utility to inform strategic investment decisions;
- 2) Net technical assessments (NTA) are conducted using integrated information from the acquisition, intelligence, operational, and technical communities to quantify key attributes of emerging critical challenges and assess counter technology options. Independent analysis is performed by industry, academic, and Federally Funded Research and Development Center/ University Affiliated Research Center (FFRDC/UARC) partners.

UNCLASSIFIED

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Office of the Secretary Of Defense	Date: April 2022
---	-------------------------

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>
---	--

- Technology wargames inform NTAs and identify opportunities stemming from emerging technologies; evaluate the demands of the future operational environment; and integrate the operational, technology, and intelligence communities across the DoD and IC.

Due to the emergent nature of these challenges and threats, specific analytic foci are unlikely to be identified beyond the current budget year. The process for developing and executing assessments can span fiscal years and may have multiple phases as trends progress and new information arises.

B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	19.775	24.012	0.000	-	0.000
Current President's Budget	19.107	23.936	24.052	-	24.052
Total Adjustments	-0.668	-0.076	24.052	-	24.052
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-0.664	-			
• Adjustments to Budget Year	-	-	23.222	-	23.222
• Other Program Adjustments	-0.004	-	-	-	-
• Program Adjustments	-	-	0.830	-	0.830
• FFRDC Reduction	-	-0.076	-	-	-

Change Summary Explanation

FY 2023 funding increase reflects the fact that the FY 2022 President's Budget request did not include out-year funding.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense										Date: April 2022		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>				Project (Number/Name) 328 / <i>Science and Technology Analytic Assessments</i>			
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
328: <i>Science and Technology Analytic Assessments</i>	87.280	12.944	17.259	16.825	-	16.825	17.237	17.533	17.900	18.259	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Science and Technology (S&T) Analytic Assessments Project Code conducts net technical assessment through the integration of intelligence, comparative assessment, and independent analysis to shape the development of innovative capabilities to address emerging threats from a diverse range of state and non-state actors as outlined in the NDS and as reported through the IC. The emerging nature of the problem sets makes specific identification of project topics beyond the budget year unlikely.

Project funding supports independent technical analysis performed by DoD-sponsored industry, academic, and FFRDC/UARC performers and DoD laboratories. Main lines of effort include:

- Technical threat assessments, informed by IC production, that identify areas of future technology overmatch.
- Quantitative, engineering-level analyses of potential novel technology and concepts that address capability gaps and potential counters to intelligence-derived emerging threat technologies in future environments.
- Net technical assessment of existing and planned U.S. capabilities and weapons systems using emerging threat systems and capabilities in future operating environments.
- Technology maturation forecasting characterizes the future maturation of defense-related technologies in related aggregate groups of capability enablers identified by TW/HS efforts and independent FFRDC/UARC experts.

Comparative assessments identify prioritized operational issues and associated technology focus areas through comprehensive Kill Chain Analysis (KCA) across all domains through the year 2040. These assessments inform technology investment decisions. Characterizations of future operating environments and challenges inform the scoping and design efforts of mission engineering and mission integration analyses for DoD. Main lines of effort include:

- KCA across Defense Planning Scenarios and other relevant DoD vignettes identifies and characterizes capability disadvantages and opportunities across the battlespace, providing detailed characterizations of U.S. and adversary capabilities and technology development efforts that enable mission-oriented analysis of emerging threats.
- Technology superiority assessments of potential technology developments and their impacts on future military capabilities.
- Standardized technology-focused timelines to summarize and track DoD progress toward technical dominance in priority technology areas.
- Operational Environment Packages (OEPs) that characterize the future operational environment through integration of strategy, doctrine, policy, concepts, technology, and intelligence. OEPs provide a common analytic baseline for examining technologies, capabilities, gaps, and opportunities.
- Technology wargames identify opportunities stemming from emerging technologies, evaluate the demands of the future operational environment, and integrate the operational, technology, and intelligence communities. Wargame outputs inform future concept and capability development, prototyping and experimentation activities, threat forecasting, and DoD S&T investments.

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense		Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>	Project (Number/Name) 328 / <i>Science and Technology Analytic Assessments</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<p>Title: Science and Technology Analytic Assessments</p> <p>Description: The Science and Technology (S&T) Analytic Assessments Project code directly supports the development of innovative capabilities to meet the emerging threats from the diverse range of state and non-state actors confronting the United States. These capabilities support the objectives of the National Defense Strategy and the National Military Strategy. Throughout this process the analysis will be tightly coupled with both the IC and the operational community.</p> <p>Accordingly, the following activities are planned for FY 2022 and FY 2023:</p> <p>FY 2022 Plans:</p> <p>Comparative Assessment:</p> <ul style="list-style-type: none"> - Produce and update foundational data of U.S. and adversary capabilities to enable mission-oriented analysis of emerging threats. - Assess emerging operational scenarios against future Red and Blue capability timelines. - Produce Operational Environment Packages to characterize the future Joint Force operational environment to provide a common analytic baseline for assessing future Red and Blue capabilities and asymmetries across the near-, mid-, and far terms. - Identify and characterize key trends likely to impact the future operating environment. - Produce comparative displays of U.S. and threat capability development plans across all operating domains over the next 20 years. - Design and execute Emerging Disruptive Technology (EDT) wargames to inform and better align DoD critical technology area activities, joint concept and capability development, and threat forecasting. Specific topics will be selected based on SIAC and OUSD(R&E) analytic priorities. - Conduct table top exercises to support the support OUSD(R&E) investment prioritization across all critical technology efforts. <p>Independent Technical Analysis:</p> <ul style="list-style-type: none"> - Conduct technical threat assessments informed by IC reporting to identify gaps in U.S. capability for critical threats. - Conduct analysis of potential novel technology and concepts to address capability gaps and potential counters to intelligence-derived emerging threat technologies in future environments. - Conduct independent assessment of U.S. and potential adversary critical capability and technology development. - Produce net technical assessments within DoD critical technology areas of existing and planned U.S. capabilities and weapons systems using emerging threat systems and capabilities in future operating environments. - Conduct technology maturation analysis to improve Horizon Scanning methodologies and processes while informing technology superiority comparison efforts that identify critical emerging technology opportunities for capability overmatch. <p>FY 2023 Plans:</p>	12.944	17.259	16.825

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense		Date: April 2022		
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>	Project (Number/Name) 328 / <i>Science and Technology Analytic Assessments</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2021	FY 2022	FY 2023
Continued execution of FY 2022 plans.				
FY 2022 to FY 2023 Increase/Decrease Statement: There is no significant change between FY 2022 and FY 2023.				
Accomplishments/Planned Programs Subtotals		12.944	17.259	16.825
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense										Date: April 2022		
Appropriation/Budget Activity 0400 / 3					R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>				Project (Number/Name) 177 / <i>Technology Watch/Horizon Scanning</i>			
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
177: <i>Technology Watch/Horizon Scanning</i>	0.000	6.163	6.677	7.227	-	7.227	7.519	7.756	7.918	8.077	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

Note

In FY 2021, the Technology Watch/Horizon Scanning efforts were previously aligned under Program Element 0602234D8Z Project code 535 (Office of Technical Intelligence). This project has been administratively realigned after the reorganization of the Under Secretary of Defense for Acquisition, Technology, and Logistics, but the scope of work and relative funding remains unchanged.

A. Mission Description and Budget Item Justification

The Technology Watch/Horizon Scanning (TW/HS) Program supports emerging and disruptive technology characterization through the integration of all-source intelligence to SIAC analytic efforts, the identification of technology research trends, and the forecasting of future concepts and technology maturation with the potential for military application through 2040. TW/HS activities inform the Department’s investment decisions in technology areas to maintain or regain global competitive advantage. The program provides tailored technical assessments that identify the military relevance, research opportunities, and investment targets for emerging and disruptive technologies.

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

	FY 2021	FY 2022	FY 2023
Title: Technology Watch/Horizon Scanning	6.163	6.677	7.227
<p>Description: The program utilizes novel TW/HS capabilities to identify nascent and disruptive technologies that will shape tomorrow’s future by integrating intelligence-based and open-source information to characterize today’s global S&T environment. This characterization, in combination with other technical analysis performed by SIAC, will inform strategic technology development decisions.</p> <p>FY 2022 Plans: Continue to leverage all-source intelligence to identify emerging technology areas and trends to inform potential investment areas for rapid capability development. Main lines of effort include:</p> <ul style="list-style-type: none"> - Continued integration of data analytics capabilities and methodologies to conduct technology forecasting analyses. - Analysis of financial data from public, private, and venture capital sources to identify where both U.S. and foreign industries are investing resources in promising areas of technology development. - Conduct horizon scans that identify and track global technology trends. - Technology scouting of government, academia, and industry Critical and Emerging Technology (C&ET) events, to track development and maintain awareness of technology trends. 			

UNCLASSIFIED

Exhibit R-2A, RDT&E Project Justification: PB 2023 Office of the Secretary Of Defense	Date: April 2022
--	-------------------------

Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603288D8Z / <i>Science and Technology (S&T) Analytic Assessments</i>	Project (Number/Name) 177 / <i>Technology Watch/Horizon Scanning</i>
--	--	--

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2021	FY 2022	FY 2023
<p>- Enhanced technology maturation forecast analyses to identify critical technology enablers and development pathways to future military utility.</p> <p>- Produce an S&T Intelligence Needs Plan, providing the IC with the intelligence requirements in the S&T community as a demand signal in IC planning efforts.</p> <p>- Compile and deliver relevant IC reporting and threat information to analysis, capability, and portfolio development efforts across SIAC and the R&E Enterprise.</p> <p><i>FY 2023 Plans:</i> Continued execution of FY 2022 plans.</p> <p>In FY 2023, SIAC’s mission will also focus on expanding Global Research Watch mission objectives through the integration of methodologies and findings within SIAC’s portfolios. SIAC will collaborate with international allies and partners to identify emerging technology trends and research activities in the furtherance of common research and analysis opportunities that support a more connected and resilient research ecosystem.</p> <p><i>FY 2022 to FY 2023 Increase/Decrease Statement:</i> In FY 2023, SIAC’s contributions to the Global Research Watch mission of monitoring and analyzing basic and applied research activities and capabilities on an international scale represents an increase in scope to currently planned and executed technology watch and forecasting efforts.</p>			
Accomplishments/Planned Programs Subtotals	6.163	6.677	7.227

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

Remarks
N/A

D. Acquisition Strategy
N/A