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Exhibit R-2, RDT&E Budget Item Justification: PB 2025 Office of the Secretary Of Defense **Date:** March 2024

Appropriation/Budget Activity 0400: <i>Research, Development, Test & Evaluation, Defense-Wide</i> / BA 1: <i>Basic Research</i>	R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>
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COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
Total Program Element	0.000	90.518	71.783	77.132	-	77.132	81.172	85.502	87.422	89.170	Continuing	Continuing
010: <i>Basic Research Initiatives</i>	0.000	42.931	6.665	20.398	-	20.398	22.264	23.340	24.873	25.370	Continuing	Continuing
016: <i>Minerva Research Initiative</i>	0.000	17.143	17.013	17.053	-	17.053	17.250	17.537	17.923	18.281	Continuing	Continuing
060: <i>Vannevar Bush Faculty Fellowship</i>	0.000	30.444	48.105	39.681	-	39.681	41.658	44.625	44.626	45.519	Continuing	Continuing

Note
New Start (Y/N): No

A. Mission Description and Budget Item Justification

Basic research is a process of exploration and discovery, yielding disruptive, non-incremental advances that can improve or radically change military capabilities, strategy, and operations, towards realizing overwhelming technology advantage against competitors. It is a mission-oriented activity that provides the Department of Defense (DoD) with a deep and broad awareness of research areas to explore and invest in. These areas span a wide range of fundamental physical sciences (e.g., chemistry, biology, materials, mathematics, computer science, social science, etc.) as well as fundamental research in engineering sciences that can catalyze the emergence of new technologies at scale (e.g., new materials or information systems). Basic research generates the critical technical knowledge that enables the ideation, design and realization of future DoD capabilities, including the exploration of new concepts of warfare. Basic research also sustains the scientific and engineering communities and creates new generations of a talented workforce that can support the DoD for the next decades. The Basic Research Initiatives Program includes programs and pilots designed to accomplish these objectives. It includes three broad projects: Basic Research Initiatives; The Minerva Research Initiative; and the Vannevar Bush Faculty Fellowship program.

B. Program Change Summary (\$ in Millions)

	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total
Previous President's Budget	93.673	71.783	77.753	-	77.753
Current President's Budget	90.518	71.783	77.132	-	77.132
Total Adjustments	-3.155	0.000	-0.621	-	-0.621
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-3.146	-			
• Program Adjustments	-0.009	-	-0.778	-	-0.778

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Appropriation/Budget Activity	R-1 Program Element (Number/Name)
0400: <i>Research, Development, Test & Evaluation, Defense-Wide / BA 1: Basic Research</i>	PE 0601110D8Z / <i>Basic Research Initiatives</i>

• Economic Assupmtions	-	-	0.157	-	0.157
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Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: 010: *Basic Research Initiatives*

- Congressional Add: *Defense Experimental Program to Stimulate Competitive Research (DEPSCoR)*
- Congressional Add: *Central American Open Source Research Initiative and Coalition*
- Congressional Add: *Global Competition Analysis Net Assessment*

Congressional Add Subtotals for Project: 010

Congressional Add Totals for all Projects

	FY 2023	FY 2024
	18.558	-
	1.300	-
	10.000	-
Congressional Add Subtotals for Project: 010	29.858	-
Congressional Add Totals for all Projects	29.858	-

Change Summary Explanation

A reduction of \$0.778 million in FY 2025 was applied to meet DoD overall funding reductions, which were spread to mitigate impact. Funding increase of \$0.157 million in FY 2025 for Economic Assupmtions.

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Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>				Project (Number/Name) 010 / <i>Basic Research Initiatives</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
010: <i>Basic Research Initiatives</i>	0.000	42.931	6.665	20.398	-	20.398	22.264	23.340	24.873	25.370	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Basic Research Initiatives Project supports oversight of basic research throughout the Department, as well as initiatives and pilot programs, in order to create conditions for defense basic research investments to produce high-payoff, transformative scientific breakthroughs for the Department. The project supports the five Basic Research Office (BRO) strategic goals: (1) support the modernization priorities set by the Office of the Secretary of Defense (OSD); (2) coordinate and conduct oversight of DoD-wide basic research programs; (3) improve the science and engineering workforce and public outreach; (4) enhance university-industry and university-government collaboration; and (5) engage with the academic research community and international partners. This Project includes Strategic Support for Basic Research (SSBR), which sustains the operations of the BRO and creates conditions for research policies and initiatives to be formulated and instantiated. It also includes several pilot programs and initiatives, including international research collaboration, and cross-agency joint programs.

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

	FY 2023	FY 2024	FY 2025
<p>Title: Strategic Support for Basic Research (SSBR)</p> <p>Description: SSBR is the core of the Basic Research Initiatives Project. It supports the operations of the Basic Research Office in the oversight of basic research, implementation of policies, and other activities to create and optimize the necessary conditions for defense basic research investments to produce high-payoff, transformative scientific breakthroughs for the Department. It provides essential support to accomplish the priorities of the BRO.</p> <p>FY 2024 Plans: Continue studies of the effectiveness of past DoD investments and high priority basic research in advancing new technologies and new capabilities for the Nation. Continue to analyze university-related business practices for improvement and efficiency and support for scientific expertise to oversee science and engineering initiatives. Continue to support Future Directions Workshops (FDW) for evaluating the visionary opportunities and challenges in scientific fields of importance to the Department, and other workshops aimed at generating cross-agency strategies to enhance university-government-industry collaborations, as well as with our international partners. Support the new multi-University AI research center, co-funded and jointly supervised with NSF.</p> <p>FY 2025 Plans: The FY 2025 budget continues the scope of activities performed during FY 2024 in support of basic research (SSBR), and extends them to include: 1) the Bilateral Academic Research Initiative (BARI) program to leverage intellectual and laboratory capabilities in allied and partner nations and enhance the breadth and depth of selected basic research directions in areas of high importance for future DoD missions; 2) a Socio-Mathematics (SOMA) program, designed to discover and develop revolutionary and fundamental approaches to the understanding and prediction of human social behavior at multiple scales; 3) Other pilot programs aimed at enhancing discovery of scientific breakthroughs, workforce development and university-government or university-industry engagements, or fundamental research towards the creation of revolutionary manufacturing capabilities and</p>	6.073	6.665	20.398

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Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>	Project (Number/Name) 010 / <i>Basic Research Initiatives</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
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infrastructure. These pilot programs lay down the foundations for knowledge creation and exploration of new S&T strategic directions and capabilities. The BARI program will start four new strategic projects in FY 2025: one with Finland on future wireless communication technology and architecture; one with South Korea (ROK) on autonomous soft robotics with new, enabling materials and sensors; two on quantum algorithms, respectively with the UK and Australia, the first joint academic research projects for AUKUS-Pillar 2. Other BARI projects will be investigated and negotiated in FY 2025. Starting in FY 2025, the SOMA program will broaden research in mathematical, computer and physical and social sciences to enable the development of future analytical and predictive tools to support asymmetric and irregular warfare.

FY 2024 to FY 2025 Increase/Decrease Statement:
The increase of \$13.733 million between FY 2024 and FY 2025 includes a realignment of \$11.178 million from the Vannevar Bush Faculty Fellowship project to continue the international Bilateral Academic Research Initiative (BARI) program and an increase of \$2.555 million to extend the Socio-Math (SOMA) program and create new pilot programs targeting DoD Science & Technology (S&T) priorities.

Title: Vannevar Bush Faculty Fellowship (VBFF) Program Increase Description: The VBFF Program ensures the DoD has a research portfolio that supports highly creative, innovative, and productive university researchers. The objectives of the program are to: (1) support scientific research that may lead to extraordinary outcomes of relevance to the DoD; (2) educate and train students and post-doctoral researchers for the defense and national security workforce; (3) foster long-term relationships between university researchers and the Department; (4) familiarize select university researchers and their students with DoD's current and future challenges through research and engagement with DoD-employed scientists; and (5) increase the number of exceptionally talented technical experts contributing to the DoD's mission. This \$2.961 million in FY 2023 restores the program to the desired size for a sustainable contribution to the DoD mission, reflected in the 060 budget starting in FY 2025.	7.000	-	-
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Accomplishments/Planned Programs Subtotals	13.073	6.665	20.398
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	FY 2023	FY 2024
Congressional Add: Defense Experimental Program to Stimulate Competitive Research (DEPSCoR)	18.558	-
FY 2023 Accomplishments: The increased funding will allow the Department to continue to support research collaboration and capacity building awards to academic researchers addressing DoD research problems. It will also allow the Department to increase outreach efforts to university researchers in underrepresented states.		
Congressional Add: Central American Open Source Research Initiative and Coalition	1.300	-

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	FY 2023	FY 2024
FY 2023 Accomplishments: The OUSD(R&E) Basic Research Office is finalizing a research plan for FY 2023 to set the direction of this funding increase reflecting the intent by Congress.		
Congressional Add: Global Competition Analysis Net Assessment	10.000	-
FY 2023 Accomplishments: The OUSD(R&E) Basic Research Office is finalizing a research plan for FY 2023 to set the direction of this funding increase reflecting the intent by Congress. A solicitation is being developed that will competitively select a consortium to conduct the required analysis activities. The consortium will also produce reports to be used by policymakers to assess global tech competition in two basic research topic areas (TBD).		
Congressional Adds Subtotals	29.858	-

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

N/A

Remarks

D. Acquisition Strategy

N/A

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Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>				Project (Number/Name) 016 / <i>Minerva Research Initiative</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
016: <i>Minerva Research Initiative</i>	0.000	17.143	17.013	17.053	-	17.053	17.250	17.537	17.923	18.281	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Minerva Research Initiative supports social science research aimed at improving our basic understanding of security, broadly defined. All supported projects are university-based and unclassified, with the intention that all work be shared widely to support thriving stable and safe communities. The goal is to improve DoD's basic understanding of the social, cultural, behavioral, and political forces that shape regions of the world of strategic importance to the U.S.

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

	FY 2023	FY 2024	FY 2025
Title: Minerva Research Initiative (MRI)	17.143	17.013	17.053
<p>Description: The Minerva Research Initiative includes three primary components: (1) a university-based social science basic research grant program, funded in partnership with Air Force and Navy University Research Initiatives; (2) the Defense Education and Civilian University Research (DECUR) Partnership program for professional military education (PME) institutions; and (3) a collaboration with the Congressionally-established USIP to award research support to advanced graduate students and early career scholars working on security and peace. All components contribute to Minerva's goals of revitalizing connections between the DoD and academic social science communities and building cultural and foreign area knowledge on topics ranging from China-Russia great power competition, National Defense Strategy (NDS) strategic priorities, to geopolitical power projection strategies in a multi-polar world. This deeper scientific understanding will provide a more informed basis to shape doctrine, analysis, and other strategic and operational decisions made by war planners and warfighters.</p> <p>FY 2024 Plans: Plans for FY 2024 are similar in scope to those in FY 2023 and will ensure the sustainment of the university-based social science basic research program, Defense Education and Civilian University Research (DECUR) partnership program, and the congressionally established United States Institute of Peace (USIP) research awards for early career peace and security scholars. In addition, funding will support outreach activities that build trusted networks between the DoD and academic social science communities, and ensure new scientific knowledge is discoverable. Starting in FY 2024, the Army will join the existing partnership with the Air Force and Navy University Research Initiatives in the funding of university-based basic research in social science (no impact on this PE funding).</p> <p>FY 2025 Plans: Minerva will support research on understanding the social, cultural, behavioral, economic, and political context in which DoD operates. This includes: 1) university grants for social science basic research; 2) grants for University-Professional Military Education (PME) collaborative research under the Defense Education and Civilian University Research (DECUR) partnership program; 3) continue collaboration with the operational community on all issues for which it has developed expertise among the social science community; 4) help implement the DoD plan for social, management, and information sciences as guided in the</p>			

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Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>	Project (Number/Name) 016 / <i>Minerva Research Initiative</i>
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B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
FY 2021 NDAA Sec. 220; 5) continue collaboration with the congressionally established United States Institute of Peace (USIP) in supporting advanced doctoral students pursuing research on DoD topics of interest. In addition, funding will support outreach activities that build trusted networks between the DoD and academic social science communities, and study the development of standardized databases to ensure new scientific knowledge is discoverable and transferrable. <i>FY 2024 to FY 2025 Increase/Decrease Statement:</i> The increase of \$0.040 million from FY 2024 and FY 2025 is the result of minor budget fluctuations.			
Accomplishments/Planned Programs Subtotals	17.143	17.013	17.053

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

Remarks

D. Acquisition Strategy
N/A

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Exhibit R-2A, RDT&E Project Justification: PB 2025 Office of the Secretary Of Defense										Date: March 2024		
Appropriation/Budget Activity 0400 / 1					R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>				Project (Number/Name) 060 / <i>Vannevar Bush Faculty Fellowship</i>			
COST (\$ in Millions)	Prior Years	FY 2023	FY 2024	FY 2025 Base	FY 2025 OCO	FY 2025 Total	FY 2026	FY 2027	FY 2028	FY 2029	Cost To Complete	Total Cost
060: <i>Vannevar Bush Faculty Fellowship</i>	0.000	30.444	48.105	39.681	-	39.681	41.658	44.625	44.626	45.519	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Vannevar Bush Faculty Fellowship (VBFF) program supports world-class researchers in scientific areas of critical importance to the DoD and ensures the cultivation of exceptional talent. Fellows' research spans a broad set of emerging scientific areas with transformative potential, including Quantum Information Science, Novel Engineered Materials, Cognitive Neuroscience and human-machine interfaces, Engineering Biology, Applied and Computational Mathematics, Networks, Machine Learning and Artificial Intelligence, Manufacturing Science, and others. The program delivers the most innovative and transformational scientific ideas of relevance to the DoD, from the top scientists in the Nation. The program fosters close connections between academia and the defense science and engineering (S&E) enterprise, a primary goal of Strategic Support for Basic Research (SSBR) efforts. Fellows provide the Department the deep scientific expertise from today's leading research universities and collaborate with defense scientists and engineers. This program actively engages and coordinates basic research across the Department.

The project includes support for the Laboratory-University Collaboration Initiative (LUCI) program, which is designed to team scientists in the DoD laboratories with top academic researchers from the programs sponsored or overseen by the Office of the Secretary of Defense (in particular, the VBFF fellows), in order to collaboratively perform basic research on a topic of their choice. Three-year grants allow a deep exchange of ideas between academic and DoD research communities, bring the most recent scientific breakthroughs closer to DoD relevance, and greatly expand the skills and knowledge of the S&E workforce within the laboratories.

The project also supports the Bush Fellows Research Study Team (BRFST) program, designed to allow selected leaders in the academic research community to engage with the DoD at high levels, including briefings from MAJCOMs and site visits to military installations. This program brings deeper understanding of military operations and strategic vision to selected US academic researchers, in order to enhance the creation of out-of-the-box, innovative solutions and the growth of intellectual talent attuned to DoD mission needs.

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

	FY 2023	FY 2024	FY 2025
Title: Vannevar Bush Faculty Fellowship (VBFF) Program	30.444	41.105	39.681
Description: The Vannevar Bush Faculty Fellowship (VBFF) Program ensures the DoD has a research portfolio that supports highly creative, innovative, and productive university researchers. The objectives of the program are to: (1) support scientific research that may lead to extraordinary outcomes of relevance to the DoD; (2) educate and train students and post-doctoral researchers for the defense and national security workforce; (3) foster long-term relationships between university researchers and the Department; (4) familiarize select university researchers and their students with DoD's current and future challenges through research and engagement with DoD-employed scientists; and (5) increase the number of exceptionally talented technical experts contributing to the DoD's mission.			

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Appropriation/Budget Activity 0400 / 1	R-1 Program Element (Number/Name) PE 0601110D8Z / <i>Basic Research Initiatives</i>	Project (Number/Name) 060 / <i>Vannevar Bush Faculty Fellowship</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2023	FY 2024	FY 2025
<p>Supported 46 Vannevar Bush Fellows and collaborative research efforts with 27 Laboratory-University Collaboration Initiative (LUCI) Fellows from DoD Service Laboratories. Reviewed and updated research topic areas with input from DoD S&T community. Organized and executed a competition to select a new class of Vannevar Bush Fellows. Organized and executed the Vannevar Bush annual meeting, along with science communication training. Organized and conducted site visits to establish communication with new Vannevar Bush Fellows and explain the program objectives and opportunities. Organized and executed a competition for the LUCI program. Conducted review of LUCI projects in DoD laboratories and reported the scientific progress and impacts.</p> <p>FY 2024 Plans: The FY 2024 budget continues the programs initiated in FY 2023, which will allow for the expansion and acceleration of transition and leverage of scientific expertise towards the DoD mission capability. It continues execution of the Bush Fellows Research Study Team (BRFST) program, to completion in FY 2024.</p> <p>FY 2025 Plans: FY 2025 will continue selection and funding of classes for the Vannevar Bush Faculty Fellowship (VBFF) program and the Laboratory University Collaboration Initiative (LUCI) program.</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease of \$1.424 million from FY 2024 to FY 2025 was applied to meet DoD overall funding reductions, which were spread to mitigate impact.</p>			
<p>Title: Research Grant Programs</p> <p>Description: Enhance VBFF program and expand International Multidisciplinary University Research Initiative/Bilateral Academic Research Initiative (MURI/BARI).</p> <p>FY 2024 Plans: This FY 2024 funding will: 1) expand the number of LUCI and VBFF fellows to recover a regular program size that provides the most effective contribution to DOD-relevant basic research and its transition to the DOD laboratories; 2) initiate an enhanced international BARI engagement to leverage unique talent and laboratory capabilities with partner nations; 3) instantiate a continuation of the multi-disciplinary academic research program for the predictive modeling of complex social behavior (SOMA), a seed program funded under a FY 2020 Congressional Add (Cyber Research).</p> <p>FY 2024 to FY 2025 Increase/Decrease Statement: The decrease of \$7.000 million between FY 2024 and FY 2025 is due to a realignment of funds to the Basic Research Initiatives project to support the BARI and SOMA programs.</p>	-	7.000	-
Accomplishments/Planned Programs Subtotals	30.444	48.105	39.681

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0400 / 1	PE 0601110D8Z / <i>Basic Research Initiatives</i>	060 / <i>Vannevar Bush Faculty Fellowship</i>

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

N/A

Remarks

D. Acquisition Strategy

N/A