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**Exhibit R-2, RDT&E Budget Item Justification: PB 2024 Army** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 2040: <i>Research, Development, Test &amp; Evaluation, Army / BA 2: Applied Research</i>	<b>R-1 Program Element (Number/Name)</b> PE 0602002A / <i>Army Agile Innovation and Development-Applied Research</i>
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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	-	-	1.000	5.613	-	5.613	18.845	19.218	18.128	18.357	0.000	81.161
DC4: <i>Army Applied Innovation</i>	-	-	0.500	3.135	-	3.135	3.657	4.306	4.752	4.814	0.000	21.164
DC5: <i>Team Ignite</i>	-	-	0.500	0.345	-	0.345	8.919	8.947	8.979	9.097	0.000	36.787
DC6: <i>Sci &amp; Analysis for Autonomous Sys &amp; Counter-Auton</i>	-	-	-	2.133	-	2.133	6.269	5.965	4.397	4.446	0.000	23.210

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

This Program Element (PE) funds the Army's goal of assessing and researching innovative solutions to achieve future force modernization. The Army is developing new ways of doing business to include strategic and "non-traditional" partnerships and working with traditional vendors in novel ways to allow for agile integration of leading-edge technology. Critical technologies that allow for technological superiority are increasingly dual-use or developed in academia-led partnerships that leverage cutting edge innovation. In an era of global competition, technological superiority requires agile and rapid innovation. Cross-cutting modernization initiatives leverage strategic partnerships foster an environment to bring knowledge and expertise to demonstrate breakthrough and innovative technologies that will benefit the warfighter. These collaborations bring new ways of doing business to assess and evaluate emerging technologies with high payoff potential to address current technology shortfalls. Leveraging other innovative mechanisms, to include accelerators, incubators, and other technology accelerants, to enhance innovation is part of the overall innovation strategy. Innovation includes not only hardware and physical products but also software, software development, artificial intelligence (AI) and machine learning, all as stand-alone initiatives and as part of broader innovation to programs and technology development. Oversight includes a joint Innovation governance which requires joint evaluation of programs that will meet the basis of Army Priorities and Army Modernization needs to inform an optimal technology investment strategy.

Work in this program element is closely coordinated with program element 0603025A (Army Agile Innovation and Demonstration).

The cited work is consistent with the Under Secretary of Defense for Research and Engineering Priority focus areas and the Army Modernization Strategy.

Work is performed by the United States Army Futures Command.

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<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2022</u></b>	<b><u>FY 2023</u></b>	<b><u>FY 2024 Base</u></b>	<b><u>FY 2024 OCO</u></b>	<b><u>FY 2024 Total</u></b>
Previous President's Budget	0.000	9.534	14.088	-	14.088
Current President's Budget	0.000	1.000	5.613	-	5.613
Total Adjustments	0.000	-8.534	-8.475	-	-8.475
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-8.534			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	-8.475	-	-8.475

**Change Summary Explanation**

Funding realigned to PE 0603464A Project AF2 Long Range Maneuverable Fires (LRMF) Advanced Tech for acceleration of PrSM Inc IV extended range capability to reach TRL 6 in FY26.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Army										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 2040 / 2					<b>R-1 Program Element (Number/Name)</b> PE 0602002A / Army Agile Innovation and Development-Applied Research				<b>Project (Number/Name)</b> DC4 / Army Applied Innovation			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
DC4: Army Applied Innovation	-	-	0.500	3.135	-	3.135	3.657	4.306	4.752	4.814	0.000	21.164

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

This project funds the Applied Research portion of the Army Innovation Plan, the Army's investment strategy to rapidly accelerate innovative solutions to challenging Warfighter problems. This project will provide the Army with the most advanced and cutting-edge solutions, and the ability to adapt and integrate multi-disciplinary innovative technologies. This project accelerates ideation & system-level integration at the initial phase of scientific concepts and technology development, to generate a holistic entry into the acquisition pipeline at the most appropriate milestone. This effort seeks to research, evaluate, and validate these technologies in support of cross-domain operations and accelerating solutions that will meet Army Priorities and provide a pathway for entry into the acquisition process.

This project is coordinated with Program Element 0603025A (Army Agile Innovation and Demonstration), Project DA3 (Army Advanced Innovation).

Army Senior Leadership approves Army innovation projects during the budget year and year of execution based on priority, opportunity, and return on investment for the American taxpayer - ensuring that innovations have a high potential for filling capability gaps and transitioning.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this effort is performed by the United States (US) Army Futures Command.

Work in this Project supports any need for acceleration of a solution to address Army Priorities.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Army Applied Innovation	-	0.482	3.135
<b>Description:</b> The Army seeks to research, evaluate, and validate cross-domain technology that display unique and innovative potential to rapidly produce disruptive and groundbreaking capabilities that fall outside of the normal acquisition pipeline.			
<b>FY 2023 Plans:</b> Initiate a competitive process that selects technologies with a high promise of advancing and accelerating capabilities to be investigated in open systems and digital engineering architectures, prior to be transitioned to further Science and Technology efforts. The Army Innovation Program will accept multiple new efforts that support Army Modernization, to include cyber, Electronic Warfare, Sensors, Power and Energy, Artificial Intelligence and Autonomy, Communications, Position, Navigation and Timing, advancing Synthetic Training Environments; and Air and Ground Platform integration.			
<b>FY 2024 Plans:</b>			

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<b>Appropriation/Budget Activity</b> 2040 / 2	<b>R-1 Program Element (Number/Name)</b> PE 0602002A / Army Agile Innovation and Development-Applied Research	<b>Project (Number/Name)</b> DC4 / Army Applied Innovation		
<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p>Identify breakthrough and disruptive technologies, engage novel ideation &amp; system-level integration at the initial phase of the scientific concepts and technology development. Merge synergistic cross-cutting innovations that will lead to advance disruptive technological solutions to Army priorities that require an accelerated solution. Also Identify and initiate development of emergent technologies, for integration in the science and technology program, to address challenges in future operating concepts, operational needs and Army identified priorities.</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> The applied innovation portfolio is part of a multi-tiered, holistic strategy to accelerate integration of technologies. The increase will allow for continuation of projects in year 1, along with newly identify needs that will accelerate transition development to a programmed advanced technology budget activity 3 approved program.</p>				
<p><b>Title:</b> SBIR/STTR</p> <p><b>Description:</b> Funding transferred in accordance with Title 15 USC §638</p> <p><b>FY 2023 Plans:</b> Funding transferred in accordance with Title 15 USC §638</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC §638</p>		-	0.018	-
<b>Accomplishments/Planned Programs Subtotals</b>		-	0.500	3.135
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Army **Date:** March 2023

<b>Appropriation/Budget Activity</b> 2040 / 2	<b>R-1 Program Element (Number/Name)</b> PE 0602002A / Army Agile Innovation and Development-Applied Research	<b>Project (Number/Name)</b> DC5 / Team Ignite
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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
DC5: <i>Team Ignite</i>	-	-	0.500	0.345	-	0.345	8.919	8.947	8.979	9.097	0.000	36.787

**Note**

In FY 2024 realigned to PE 0603464A Project AF2 Long Range Maneuverable Fires (LRMF) Advanced Tech

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

IGNITE is part of the multi-tiered Army Innovation Plan to investigate non-traditional and innovative technologies to rapidly develop the technology, delivering quick solutions for Army identified problems. IGNITE empowers individuals to create new approaches to ensure competitive advantage, identifies future warfighting concepts from recent scientific discoveries, ensures capability requirements are grounded in feasible technological advancements and uses data and analytics to build a common language across communities. The primary end state of IGNITE is an Army Modernization Enterprise that has institutionalized a new way of business where modernization processes are inherently collaborative across our diverse expertise, including S&T, conceptual, analytical, operational, experimental, requirements, and threat communities. This will allow decisive capabilities to be developed at a faster pace than our adversaries.

Work in this Project is performed by the United States Army Futures Command (AFC).

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

	FY 2022	FY 2023	FY 2024
<b>Title:</b> Team IGNITE	-	0.482	0.345
<b>Description:</b> The IGNITE philosophy emphasizes integration through numerous pathways and mechanisms. These include, but are not limited to, cross-organizational events, organizational offices, enduring cohorts, enabling processes, and Ignite innovators.			
<b>FY 2023 Plans:</b> Investigates Innovation, Collaboration, and Integration among multiple communities (S&T, conceptual, analytical, operational, experimental, requirements, and threat communities) with diverse expertise to support the Ignite Strategy. Design and develops plans to accelerate the development of an integrated technology capability with explicit plans for the operational metrics to guide and refine technical development. Develops (and educates workforce) on systematic processes to track risk against metrics and integrate these processes into DEVCOM led reviews. Develops and leads collaborative workshops to identify future concepts about "what could be" for how the future Army fights, organizes, and equips. Conducts experiments to assess operational impact and identify innovative solutions for dynamic near peer threats. Validates modeling tools, simulation capabilities, and analytic models to determine the operational value at early levels of idea maturity and directly link operational metrics and capabilities to technical metrics.			
<b>FY 2024 Plans:</b>			

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
Will support limited engagements between multiple communities to wrap up FY23 efforts and document collaborative learning outcomes/best practices.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Decreased funding reflects planned lifecycle of the effort.				
<b>Title:</b> SBIR/STTR Transfer  <b>FY 2023 Plans:</b> Funding transferred in accordance with Title 15 USC §638  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding transferred in accordance with Title 15 USC §638		-	0.018	-
<b>Accomplishments/Planned Programs Subtotals</b>		-	0.500	0.345
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> N/A				

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<b>Appropriation/Budget Activity</b> 2040 / 2	<b>R-1 Program Element (Number/Name)</b> PE 0602002A / Army Agile Innovation and Development-Applied Research	<b>Project (Number/Name)</b> DC6 / Sci & Analysis for Autonomous Sys & Counter-Auton
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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
DC6: <i>Sci &amp; Analysis for Autonomous Sys &amp; Counter-Auton</i>	-	-	-	2.133	-	2.133	6.269	5.965	4.397	4.446	0.000	23.210

**Note**

Sci & Analysis for Autonomous Sys & Counter-Auton is a new start within the Army Agile Innovation and Development-Applied Research program in FY 2024.

In Fiscal Year (FY) 2024 this Project is a New Start.

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

This Project investigates and develops capabilities to understand and characterize emerging Science and Technology (S&T) technical pursuits and impacts through collaborative analytics that enable the assessment of autonomous systems-of-systems, their implications to the future threat environment, and analyzes their contributions to the Multi-Domain Operation (MDO) concept in relevant operational scenarios. This is a cross-cutting effort that supports S&T, analysis and modeling and simulation (M&S) efforts associated with the development of autonomous systems and their application in military operations.

Work in this Project also funds research to investigate, develop, and validate tools, methodologies, and analytical techniques to extend experimental results, assure early consideration of technology and system vulnerabilities, reduce developmental risk, provide mission context, and improve the robustness of technology readiness assessments.

The cited work is consistent with the Under Secretary of Defense for Research and Engineering priority focus areas and the Army Modernization Strategy.

Work in this Project is performed by the United States Army Futures Command (AFC).

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>Title:</b> Threat and Operations Based Intelligent Autonomy Science (TOBIAS)</p> <p><b>Description:</b> This effort develops and implements models that will be used to assess the vulnerability and lethality (kinetic and non-kinetic) of U.S. and threat autonomous systems. This work will also incorporate the software-based behavioral capabilities of these systems including interfacing with humans. Technology forecasting will be used to enable the development of optimal investment strategies for autonomy science on the basis of operational merit.</p> <p><b>FY 2024 Plans:</b> Will characterize the elements of vulnerability of autonomy science for unmanned ground and air platforms; define taxonomy and metrics and the representation of these effects in tools that will be developed by the DEVCOM Data and Analysis Center (DAC);</p>	-	-	1.257

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<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>		<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
investigate the fragility of Artificial Intelligence/Machine Learning (AI/ML) for autonomous mobility of unmanned ground and air vehicles operating in a contested environment; perform baseline studies on vulnerability of software-based behaviors to non-kinetic effects; investigate approaches for modeling the vulnerabilities; explore forecasting science for autonomous warfare and its effective operational use during the period of 2030-2050, scope includes U.S. and allies versus near-peer threats.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> This project is a new start in Fiscal Year (FY) 2024				
<b>Title:</b> Vulnerability and Lethality Analysis Tools for Early Science and Technology  <b>Description:</b> Investigates, develops, and validates analytical tools, techniques, and methodologies to extend experimental and research results, ensuring early investigation of technology, system vulnerabilities, human systems integration, system performance, and mission effectiveness. Task objectives reduce developmental risk, provide validation of methodologies and tools in realistic mission contexts, and improve the robustness of technology readiness assessments.  <b>FY 2024 Plans:</b> Will develop analytical capabilities for high priority autonomous technologies to enhance discovery and motivate early and comprehensive consideration of vulnerabilities; determine tactically critical technology metrics through scientific research and promote transition of science into systems at reduced risk with greater maturity and enhanced trust in functional autonomy; optimize analytical capabilities and assess system performance and effectiveness in an operational mission context.  <b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> This project is a new start in Fiscal Year (FY) 2024		-	-	0.876
<b>Accomplishments/Planned Programs Subtotals</b>		-	-	2.133
<b>C. Other Program Funding Summary (\$ in Millions)</b> N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b> N/A				