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Exhibit R-2, RDT&E Budget Item Justification: PB 2022 Army **Date:** May 2021

Appropriation/Budget Activity 2040: <i>Research, Development, Test & Evaluation, Army / BA 3: Advanced Technology Development (ATD)</i>	R-1 Program Element (Number/Name) PE 0603040A / <i>Artificial Intelligence and Machine Learning Advanced Technologies</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	-	-	-	0.909	-	0.909	-	-	-	-	-	-
CL1: <i>AI Enhanced Intel Operations Advanced Technologies</i>	-	-	-	0.371	-	0.371	-	-	-	-	-	-
CL6: <i>ATR Using Multiple Cooperative Sensors Adv Tech</i>	-	-	-	0.538	-	0.538	-	-	-	-	-	-

Note

In Fiscal Year (FY) 2022, this Program Element (PE) is created to focus on advanced research efforts in the Army portfolio pertaining to Artificial Intelligence (AI) and Machine Learning (ML) coordinated by the Army's Artificial Intelligence Task Force (AITF); with funding realigned from:

Program Element (PE) 0602785A (Manpower/Personnel/Training Technology)
790 (Manpower/Personnel/Training Technology).

Program Element 0603007A (Manpower, Personnel and Training Advanced Technology)
Project 792 (Personnel Performance & Training).

A. Mission Description and Budget Item Justification

This PE will further develop and mature advanced technologies in the use of artificial intelligence (AI) and machine learning (ML) to improve target recognition/detection using Multiple Cooperative Autonomous Sensors, leader decision making, replication of tactical behaviors to enable autonomous capabilities for maneuver, predictive maintenance, talent management, Intel support for Operations, network and cybersecurity and medical support. The Army's Artificial Intelligence Task Force (AITF) will provide strategic guidance and coordination of these advanced research efforts in AI/ML across the Army Modernization enterprise.

Work in this PE contributes to the Army Science and Technology (S&T) portfolio and is fully coordinated with efforts in PE 0601601A Artificial Intelligence and Machine Learning Basic Research and PE 0602180A Artificial Intelligence and Machine Learning Technologies

The cited work is consistent with the Under Secretary of Defense for Research and Engineering S&T focus areas, the Army Modernization Strategy and the Joint Artificial Intelligence Center (JAIC).

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

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B. Program Change Summary (\$ in Millions)	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total
Previous President's Budget	0.000	0.000	0.000	-	0.000
Current President's Budget	0.000	0.000	0.909	-	0.909
Total Adjustments	0.000	0.000	0.909	-	0.909
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	0.909	-	0.909

Change Summary Explanation

In FY2022, this is a new PE with two new FY22 Project funded by realignments from Program Elements (PE) 0602785A (Manpower/Personnel/Training Technology) and 0603007A (Manpower, Personnel and Training Advanced Technology) as a part of the Program Evaluation Group (PEG) efficiency drill.

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Exhibit R-2A, RDT&E Project Justification: PB 2022 Army										Date: May 2021		
Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603040A / <i>Artificial Intelligence and Machine Learning Advanced Technologies</i>				Project (Number/Name) CL1 / <i>AI Enhanced Intel Operations Advanced Technologies</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CL1: <i>AI Enhanced Intel Operations Advanced Technologies</i>	-	-	-	0.371	-	0.371	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

In Fiscal Year (FY) 2022, this new project was realigned from the following:

Program Element (PE) 0602785A (Manpower/Personnel/Training Technology), Project 790 (Manpower/Personnel/Training Technology).

A. Mission Description and Budget Item Justification

This project will mature and demonstrate various technologies to augment human analysts through Artificial Intelligence (AI)-enabled decision support and recommendation tools supporting Long Range Precision Fires, Mission Command, and Maneuver Commanders. Ultimately, this project will help bridge the research and technology gap within intelligence support to operations and the sensor to shooter thread. This effort complements and fully coordinates with the applied research in Program Element (PE) 0602180A (Artificial Intelligence and Machine Learning Technologies), Project CL2 (AI Enhanced Intel Operations Technologies).

The cited work is consistent with the Army Modernization Strategy and is supported and coordinated with the Army Intel Community, Army Futures Command, and the Army ISR Task Force.

Work in this Project supports the Army Science and Technology Lethality Portfolio and the Joint Artificial Intelligence Center (JAIC)

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

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

	FY 2020	FY 2021	FY 2022
Title: AI Enhancements for Prometheus	-	-	0.371
Description: Prometheus is an umbrella of capabilities to support sensor to shooter automation for the strategic, operational, and tactical levels. This effort will utilize computer vision and deep learning capabilities to automatically triage data collection and hard-to-spot indications and warnings (I&W) to support targeting, allowing human analysts to do the higher-value work of determining if a given lead represents a valid threat.			
FY 2022 Plans:			

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Appropriation/Budget Activity 2040 / 3	R-1 Program Element (Number/Name) PE 0603040A / <i>Artificial Intelligence and Machine Learning Advanced Technologies</i>	Project (Number/Name) CL1 / <i>AI Enhanced Intel Operations Advanced Technologies</i>		
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
<p>Maturation of Artificial Intelligence (AI) algorithms for automated detection of adversarial objects of interest and automated intelligence collection management; will improve AI collection management and tasking capability, automate AI workflows, and document repeatable processes for deploying AI capabilities to meet Army needs.</p> <p><i>FY 2021 to FY 2022 Increase/Decrease Statement:</i> This is a Fiscal Year (FY) 22 new start. Funding was realigned from Program Element (PE) 0602785A (Manpower/Personnel/Training Technology), Project 790 (Manpower/Personnel/Training Technology).</p>				
Accomplishments/Planned Programs Subtotals		-	-	0.371
C. Other Program Funding Summary (\$ in Millions)				
N/A				
Remarks				
D. Acquisition Strategy				
N/A				

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Appropriation/Budget Activity 2040 / 3					R-1 Program Element (Number/Name) PE 0603040A / <i>Artificial Intelligence and Machine Learning Advanced Technologies</i>				Project (Number/Name) CL6 / <i>ATR Using Multiple Cooperative Sensors Adv Tech</i>			
COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
CL6: <i>ATR Using Multiple Cooperative Sensors Adv Tech</i>	-	-	-	0.538	-	0.538	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This is a new start in FY 2022.

In Fiscal Year (FY) 2022, this new project was realigned from the following:

Program Element 0603007A (Manpower, Personnel and Training Advanced Technology), Project 792 (Personnel Performance & Training).

A. Mission Description and Budget Item Justification

This work will demonstrate and mature a team of air and ground sensors that use Artificial Intelligence (AI) and Machine Learning (ML) to autonomously navigate and collaborate through shared perception of the optical, thermal, and electromagnetic spectrums to find, identify, geo-locate, and track targets during reconnaissance missions. This effort complements and fully coordinates with the applied research in Program Element (PE) 0602180A (Artificial Intelligence and Machine Learning Technologies), Project CL7 (ATR Using Multiple Cooperative Sensors App Tech).

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

Work in this Project supports the Army Science and Technology Lethality Portfolio and the Joint Artificial Intelligence Center (JAIC)

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

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

	FY 2020	FY 2021	FY 2022
Title: Collaborative Target Detection and Tracking	-	-	0.538
Description: Demonstrate and mature an Artificial Intelligence (AI)-enabled scalable team of autonomous air and ground vehicles that will cooperatively conduct a zone recon to identify, geolocate, and track threats using on-board electronic intelligence (ELINT) and electro optical-infrared (EO-IR) sensors.			
FY 2022 Plans: Will refine and mature the AI-enabled target recognition architecture to classify threats at the tactical edge; will integrate novel technologies that uses ELINT sensing to enhance sensing and tracking during zone reconnaissance.			
FY 2021 to FY 2022 Increase/Decrease Statement:			

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B. Accomplishments/Planned Programs (\$ in Millions)		FY 2020	FY 2021	FY 2022
This is a Fiscal Year (FY) 22 new start. Funding was realigned from Program Element 0603007A (Manpower, Personnel and Training Advanced Technology), Project 792 (Personnel Performance & Training).				
Accomplishments/Planned Programs Subtotals		-	-	0.538
C. Other Program Funding Summary (\$ in Millions) N/A				
Remarks				
D. Acquisition Strategy N/A				