Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army											Date: April 2022	
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602180A *I Artificial Intelligence and Machine Learning Technologies*							
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	-	-	15.034	16.454	-	16.454	17.906	17.236	15.703	15.698	0.000	98.031
CL2: *AI Enhanced Intel Operations Technologies*	-	-	3.725	2.132	-	2.132	2.025	2.196	1.119	1.118	0.000	12.315
CL7: *ATR Using Multiple Cooperative Sensors App Tech*	-	-	7.645	6.685	-	6.685	7.597	6.648	6.189	6.187	0.000	40.951
CN7: *Predictive Maintenance Applied Research*	-	-	3.664	4.727	-	4.727	5.683	5.794	5.796	5.795	0.000	31.459
DA5: *AI Enabled Talent Management Applied Research*	-	-	-	0.319	-	0.319	-	-	-	-	0.000	0.319
DA6: *AI-Enabled Command and Coordination Apl Research*	-	-	-	2.591	-	2.591	2.601	2.598	2.599	2.598	0.000	12.987

Note

In Fiscal Year 2023 (FY23), Project DA5 (AI Enabled Talent Management Applied Research) and Project DA6 (AI-Enabled Command and Coordination Apl Research) are New Starts.

A. Mission Description and Budget Item Justification

This Program Element (PE) investigates artificial intelligence (AI) and machine learning (ML) to support an AI-enabled Multi-Domain Operations (MDO) Force to mature target recognition/detection using multiple cooperative autonomous sensors (MCAS), leader decision-making, replication of tactical behaviors to enable autonomous capabilities for maneuver, predictive maintenance, and intelligence support for operations in support of long-range precision fires. The Army's Artificial Integration Center (AI2C) will provide strategic guidance and coordination of these applied 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 Basic Research) and PE 0603040A (Artificial Intelligence Advanced Technologies).

The cited research 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).

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

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Army	Date: April 2022
Appropriation/Budget Activity 2040: *Research, Development, Test & Evaluation, Army I* BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602180A *I Artificial Intelligence and Machine Learning Technologies*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	0.000	15.034	0.000	-	0.000
Current President's Budget	0.000	15.034	16.454	-	16.454
Total Adjustments	0.000	0.000	16.454	-	16.454
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	-	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Adjustments to Budget Years	-	-	16.454	-	16.454

Change Summary Explanation

FY23 funding increase reflects the fact that the FY22 President's Budget request did not include out-year funding.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	Project (Number/Name) CL2 / *AI Enhanced Intel Operations Technologies*	

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
CL2: *AI Enhanced Intel Operations Technologies*	-	-	3.725	2.132	-	2.132	2.025	2.196	1.119	1.118	0.000	12.315

A. Mission Description and Budget Item Justification

This Project will design and develop various technologies to augment human intelligence analysts using artificial intelligence (AI)-enabled decision support and recommendation tools to change the way the Army fights and modernize how the Intelligence Warfighting Function supports Multi-Domain Operations and Joint All Domain Command and Control (JADC2). This Project will also bridge the research and technology gap within intelligence support to operations and the sensor to shooter thread.

The Capstone Concept for Joint Operations: Joint Force 2020 and the Force 2025 and Beyond (F2025B) strategy calls for the integration of terrestrial sensing and exploitation capabilities to accelerate the data to decision cycle across the Range of Military Operations (ROMO). The Army Operating Concept and the Army Functional Concepts identifies the need for interoperable intelligence organizations capable of conducting synchronized proactive intelligence operations that optimize individual efficiencies and team performance. These concepts are driven by a threat that has studied United States (US) advancements during the Global War on Terror and taken notes.

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

This research is supported and coordinated with the Army Intel Community, Army Futures Command, and the Army Intelligence, Surveillance, Reconnaissance (ISR) Task Force.

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

Work in this Project is performed by the US Army Futures Command.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Synthetics and Low Level Detection	-	0.800	-
Description: This effort will design and develop AI and machine learning (ML) technology for low-level object detection and recognition. Low level object detection and recognition is a key ML challenge because objects presented in such problems have significant variation and limited amounts of available training data, making it difficult to build high performing AI models to address these challenges.			
FY 2022 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CL2 / *AI Enhanced Intel Operations Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
This effort will leverage feature invariance from multi-class classification using data that is readily available to develop an AI network to predict class representatives from the samples themselves. Using such a model, we can then predict representation for novel object classes from very few novel class samples, improving AI algorithm learning and reducing the need for manual data input. In a separate approach to low level detection, we propose to enable the few-shot detector to learn novel objects from both the visual information and using semantic relations. This will promote knowledge propagation from base classes to novel classes, speeding up the time it takes to train AI algorithms. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Planned effort will be completed in FY 2022.			
Title: AI Enhancements for Prometheus ***Description:*** Prometheus is an umbrella of capabilities to support sensor to shooter automation for the strategic, operational, and tactical levels. This effort will design and develop AI capabilities for support of Long Range Precision Fires, Mission Command, and Maneuver Commanders by leveraging Intelligence Community enterprise investments in sensing, data transport, and Machine Learning / AI frameworks. ***FY 2022 Plans:*** This effort will augment Military Intelligence and Operations (Intel/Ops) with computer vision and deep learning capabilities to automatically triage data collection and automate AI-driven indications and warning (I&W) to support targeting. This effort will also develop better AI collection management and tasking capability to allow Military Intelligence soldiers to automate AI workflows. Lastly, we will document repeatable process for deploying AI capabilities to meet Army needs. ***FY 2023 Plans:*** Prometheus is a system that utilizes AI technologies to identify targets of interest from overhead satellite images. This effort will mature algorithms developed under the umbrella of Prometheus to predict representation for novel object classes from a small number of novel class samples, improving the AI algorithm learning capability and reducing the need for manual data input. Will investigate the use of visual information and semantic relationships to learn new objects and validate knowledge transfer from base classes to novel classes in order to reduce the time it takes to train AI algorithms. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding decrease due to planned completion of effort in Fiscal Year (FY) 2023.	-	1.189	0.550
Title: AI-Enabled Intelligence Decision Support ***Description:*** This effort will investigate the augmentation of Military Intelligence and Operations (Intel/Ops) with artificial intelligence capabilities to leverage Mission, Enemy, Terrain and Weather, Troops, Time Available, and Civilian Considerations (METT-TC) information available to Commanders in support of Intelligence Preparation of the Battlefield (IPB) and the Military	-	1.100	1.082

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CL2 / *AI Enhanced Intel Operations Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Decision Making Process (MDMP). The effort will mature techniques to visualize and animate threat models to support automated AI-enabled enemy courses of action analysis. ***FY 2022 Plans:*** Develop AI agents to employ METT-TC information available to Commanders to generate courses of action for threat formations as well as conduct AI-war gaming in support of Intelligence Preparation of the Battlefield and the Military Decision Making Process. Smart ?agents? will enable automated, machine intelligence-enabled course of action analysis integrated with the broader mission command enterprise. Given these knowns about the operational environment, the effort will conduct automated real-time strategy war gaming between synthetic agents representing friendly and adversary forces at the Division echelon. ***FY 2023 Plans:*** Design and develop AI agents to employ METT-TC information available to Commanders to generate courses of action for threat formations as well as conduct AI-war gaming in support of Intelligence Preparation of the Battlefield and the Military Decision Making Process. This effort will conduct experiments of automated real-time strategy war gaming between synthetic agents representing friendly and adversary forces at the Division echelon. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding change reflects planned lifecycle of this effort.			
Title: Foundation for AI Intelligence Support to Operations (ARCANE SERIES) ***Description:*** Design and develop an AI infrastructure/pipeline for training, integrating, and sustaining computer vision algorithms to inform requirements for enterprise production systems and edge systems for the Army Military Intelligence and Operations (Intel/Ops) community. ***FY 2022 Plans:*** Will develop an algorithm development kit with standardized deep learning model architectures that simplify training and deploying computer vision-based AI models; will create a machine learning model library with registered models, training datasets, and near real-time diagnostics from deployed models, that can be used for monitoring, alerting, and accelerating transfer learning and recalibration; will develop containerized packaging for the algorithm development kit and machine learning model library, reducing the digital scope of these assets so they can more easily be deployed on edge applications and cloud-accessible servers; will deploy the development kit and library on various edge devices and cloud-accessible servers. ***FY 2023 Plans:*** Will investigate data frameworks for algorithmic fusion of information from multiple intelligence collection systems and multi-modal machine learning and scenery construction to compare and apply lessons learned.	-	0.500	0.500
Title: SBIR/STTR Transfer	-	0.136	-

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CL2 / *AI Enhanced Intel Operations Technologies*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2022 Plans: Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638			
Accomplishments/Planned Programs Subtotals	-	3.725	2.132

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	Project (Number/Name) CL7 / *ATR Using Multiple Cooperative Sensors App Tech*	

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
CL7: *ATR Using Multiple Cooperative Sensors App Tech*	-	-	7.645	6.685	-	6.685	7.597	6.648	6.189	6.187	0.000	40.951

A. Mission Description and Budget Item Justification

This Project will design and develop Artificial Intelligence (AI) and Machine Learning (ML) algorithms that leverage a team of air and ground sensors 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.

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

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Collaborative Target Detection and Tracking	-	5.466	4.865
Description: This effort will design and develop the capability to automatically detect and track targets using the electro-optical, thermal, and electromagnetic sensors and constrained computing hardware onboard the air and ground vehicles, which process the sensor data using AI/ML algorithms and share threat perception across the unmanned team. ***FY 2022 Plans:*** Develop the ability for unmanned vehicles to self-identify and geo-locate targets, share target data among the unmanned and manned team for verification, and then serve as autonomous forward observers to auto-correct indirect fire. ***FY 2023 Plans:*** Design and develop a cloud-native data pipeline that allows for AI model fine-tuning at the edge in a Denied-Degraded-Intermittent-Limited (DDIL) communications environment. Investigate radio frequency (RF) signature fingerprinting and classification, cross-queueing between platforms for different vantage point, and probability aggregation to improve classification confidence. Design and develop algorithms that enable platforms to collaborate on target searches and fuse target information to avoid erroneous tracks. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding for this effort was realigned to PE 0603040A (Artificial Intelligence and Machine Learning Advanced Technologies) / Project CL6 (ATR Using Multiple Cooperative Sensors Adv Tech).			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CL7 / *ATR Using Multiple Cooperative Sensors App Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding change reflects planned life cycle of effort.			
Title: Autonomous and Collaborative Mobility ***Description:*** This effort will design and develop mobility algorithms using AI and ML techniques to passively perceive the terrain so that air and ground vehicles can self-navigate without active and detectable sensing. Design and develop collaborative teaming techniques for autonomous air and ground vehicles to work together on reconnaissance missions. ***FY 2022 Plans:*** Develop AI algorithms that enable autonomous maneuver of air and ground platforms that collaboratively coordinate their movement within an assigned zone and passively sense the terrain and surroundings to avoid obstacles. ***FY 2023 Plans:*** Design and develop AI algorithms that enable autonomous and collaborative maneuver of air and ground platforms at night or Global Positioning System (GPS) -denied environments. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding change reflects planned life cycle of effort.	-	0.950	1.035
Title: Intuitive Mission Command Interfaces ***Description:*** Design and develop the capability for warfighters to quickly and intuitively convey reconnaissance guidance, confirm or deny detected targets, and take recommended action through common mission command tools, including Tactical Assault Kit (TAK) and Integrated Visual Augmentation System (IVAS). ***FY 2022 Plans:*** Develop the intuitive relay of reconnaissance intent to the autonomous team of air and ground vehicles. Develop the ability for rapid validation of targets and activation of recommended effects (e.g., indirect fire) using TAK and IVAS. ***FY 2023 Plans:*** Investigate AI algorithms that recommend courses of action for mission activities of the autonomous sensors. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding for this effort was realigned to PE 0603040A (Artificial Intelligence and Machine Learning Advanced Technologies) / Project CL6 (ATR Using Multiple Cooperative Sensors Adv Tech). Funding change reflects planned life cycle of effort.	-	0.950	0.470
Title: Coeus ***FY 2023 Plans:***	-	-	0.315

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CL7 / *ATR Using Multiple Cooperative Sensors App Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Will conduct data science and engineering in support of ATR-MCAS (Aided Target Recognition - Mobile Cooperative and Autonomous Sensors) through the use of Coeus, a modular software platform (cloud native). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** This is a new effort in FY 2023.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.279	-
Accomplishments/Planned Programs Subtotals	-	7.645	6.685

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	Project (Number/Name) CN7 / *Predictive Maintenance Applied Research*	

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
CN7: *Predictive Maintenance Applied Research*	-	-	3.664	4.727	-	4.727	5.683	5.794	5.796	5.795	0.000	31.459

A. Mission Description and Budget Item Justification

This Project designs and develops artificial intelligence (AI) and machine learning (ML) tools and capabilities to predict and analyze maintenance status for emerging and legacy aviation and ground platforms. Investigates techniques to extract data from maintenance databases and platform sensors and make inferences of missing data via virtual simulations. Will investigate maintenance concepts that employ AI data capture and integrate AI tools into enterprise resource planning for military aviation and ground vehicles. Will determine platforms of focus and prioritize by cost and value to Army missions. Each platform will be sequentially investigated at the appropriate component (i.e. engine health) and fleet level. Will determine appropriate technologies and capabilities needed to construct a robust Army-wide predicative maintenance platform that will accelerate the pace of innovation for this problem set. Will validate and inform requirements and technical architectures for modernization efforts of next generation aviation and ground systems both manned and unmanned.

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

Research in this Project supports the Army Science and Technology Ground Portfolio and the Joint Artificial Intelligence Center (JAIC).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Predictive Maintenance	-	3.531	4.727
Description: This effort investigates AI technologies, deep learning techniques, and predictive analytics to forecast major issues on current and future platforms which enables the Army to respond to upcoming failures. Focus will be to determine component failure relationships to principal end items for prediction of critical failure prior to corrective maintenance and reactive supply chain requisitions. Research will increase efficiency, decrease fleet operating and sustainment costs for equipment platforms, and reduce the time and costs associated with repair part requisition, management and transportation.			
FY 2022 Plans: Will investigate and develop new capabilities of a standardized end-to-end pipeline for gathering data from maintenance sensors in ground platforms (both manned and unmanned) and improve performance failure prediction models for critical components.			
FY 2023 Plans: Will investigate data collection/aggregation techniques and data architectures, and design and develop data pipelines to a cloud-based environment. Will design and develop a scalable, cloud-based data management environment that serves as a data lake			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** CN7 / *Predictive Maintenance Applied Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
repository for incoming data pipelines from the physical data management platforms established at the point of the maintenance activity. Design and develop techniques to aggregate data at the point of the maintenance activity and establish a single pipeline to transition the aggregated data to a scalable, cloud-based data management environment. Design and develop a scalable cloud-based data management architecture accessible via Coeus on an Army-based and owned system. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** FY 2023 funding increase to expand efforts to ground platforms and additional aviation platforms of interest. Funding change reflects planned life cycle of effort.			
Title: SBIR/STTR Transfer ***FY 2022 Plans:*** Funding transferred in accordance with Title 15 USC ?638 ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding transferred in accordance with Title 15 USC ?638	-	0.133	-
Accomplishments/Planned Programs Subtotals	-	3.664	4.727

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	Project (Number/Name) DA5 / *AI Enabled Talent Management Applied Research*	

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
DA5: *AI Enabled Talent Management Applied Research*	-	-	-	0.319	-	0.319	-	-	-	-	0.000	0.319

Note

This is a new start in FY 2023.

This is a New Start Project in Fiscal Year 2023 (FY23).

A. Mission Description and Budget Item Justification

This Project designs, develops, and validates applied behavioral and social science research to enhance the Soldier Lifecycle (e.g., selection, assignment, training, and leader development) and human relations (e.g., unit cohesion). This Project will design and develop new personnel measures and methods that more fully assess potential and predict performance, behavior, attitudes, and resilience. These technologies also provide innovative and effective Force Integration methods to optimize individual and team performance to ensure the Army can meet mission requirements in uncertain and complex environments. This Project designs and develops new performance measures and metrics for individuals and units, designs innovative training methods, and conducts scientific assessments to inform Human Capital policy and programs. This Project will also investigate non-materiel solutions to help the Army adjust to changes in force size and structure, a variety of mission demands and contexts, challenges in human relations, and budgetary constraints.

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

Research in this Project supports the Army Science and Technology Ground Portfolio and the Joint Artificial Intelligence Center (JAIC).

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Artificial Intelligence (AI)-Enabled Skill Identification for Job Matching and Team Building	-	-	0.319
Description: This effort will develop AI techniques to create an analytical suite that can measure skills required by job postings and skills possessed by soldiers and officers. This will permit the Army to ?put the right person in the right job? and determine how to combine individuals to optimize team performance.			
FY 2023 Plans: Will investigate the difference between the skill pairings of successful vs. unsuccessful teams using natural language processing. This effort will determine how teams can become ?more than the sum of their parts? and use neural networks to predict			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** DA5 / *AI Enabled Talent Management Applied Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
successful team outcomes from these individuals? skill sets. This project will design and develop algorithms to identify complementary team members and recommend individual substitutions to improve team performance. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** This effort is a new start in FY23.			
Accomplishments/Planned Programs Subtotals	-	-	0.319

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army			Date: April 2022
Appropriation/Budget Activity 2040 / 2	R-1 Program Element (Number/Name) PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	Project (Number/Name) DA6 / *AI-Enabled Command and Coordination Apl Research*	

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
DA6: *AI-Enabled Command and Coordination Apl Research*	-	-	-	2.591	-	2.591	2.601	2.598	2.599	2.598	0.000	12.987

Note

This is a new start in FY 2023.

This is a New Start Project in Fiscal Year 2023 (FY23).

A. Mission Description and Budget Item Justification

This Project designs and develops solutions that enable Artificial Intelligence (AI)-Enabled Command. This Project will also conduct experiments to investigate approaches to improve sensor-to-shooter and course of action development timelines. Will investigate and develop hardware, software and algorithm technologies and investigate various mission command related areas such game theory, decision-making, network usage, data collection, processing, and human interfaces to mature AI and machine learning technologies for Army applications.

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

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

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Course of Action (COA) Analysis for Optimal Operations	-	-	1.555
Description: Design and develop a game theory based algorithm to create optimal or near-optimal COA for red and blue forces based on available data or user inputs. ***FY 2023 Plans:*** Will design and develop a game theory algorithm and integrate with an available simulation framework to create COAs at various echelons. Will investigate and determine scenario criteria need for the algorithm to function, design and develop learning strategies and utility functions, and integrate the AI system into an available simulation suite to enable model training. Design and develop a cloud-native data pipeline that allows for distributed decision making at the tactical edge in a Denied-Degraded-Intermittent-Limited (DDIL) environment. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** This effort is a new start in FY23.			
Title: AI-Enhanced Battle Damage Assessment	-	-	1.036

Exhibit R-2A, RDT&E Project Justification: PB 2023 Army		Date: April 2022
Appropriation/Budget Activity 2040 / 2	**R-1 Program Element (Number/Name)** PE 0602180A / *Artificial Intelligence and Machine Learning Technologies*	**Project (Number/Name)** DA6 / *AI-Enabled Command and Coordination Apl Research*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Description: Design and develop algorithms to optimize the relationships between known blue sensors and shooters and assign them to available targets. ***FY 2023 Plans:*** Will design and develop a game theory-based algorithm for a platoon level engagement to provide optimizations between known blue sensors and shooters and the assignment to available targets. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** This effort is a new start in FY23.			
Accomplishments/Planned Programs Subtotals	-	-	2.591

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A