Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Logistics Agency											Date: April 2022	
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide* / BA 3: *Advanced Technology Development (ATD)*					R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*							
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	81.268	14.507	11.987	13.663	-	13.663	13.994	14.287	14.553	14.822	Continuing	Continuing
EMM: *Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)*	15.123	2.215	3.581	-	-	-	-	-	-	0.000	Continuing	Continuing
GLTD: *Improving Logistics Processes (formerly Logistics Process)*	25.507	3.554	4.939	-	-	-	-	-	-	0.000	Continuing	Continuing
04: *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*	40.638	8.738	3.467	-	-	-	-	-	-	0.000	Continuing	Continuing
LOI: *Logistics Operations Innovation*	-	0.000	0.000	6.088	-	6.088	6.353	6.485	6.605	6.726	Continuing	Continuing
PAM: *Predictive Analytics / Modeling & Simulation*	-	0.000	0.000	3.872	-	3.872	3.881	3.973	4.051	4.129	Continuing	Continuing
SWM: *Smart-Warehouse Modernization*	-	0.000	0.000	3.703	-	3.703	3.760	3.829	3.897	3.967	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Logistics Agency (DLA) is responsible for providing to the Military Services, other Federal Agencies, as well as combined and allied forces, the full spectrum of logistics, acquisition and technical services. DLA sources and provides virtually 100 percent of the consumable items the military services need to operate – including food, uniforms, fuel and energy, medical supplies, construction and barrier materials, equipment, and more than 85 percent of the military's spare parts. DLA also provides logistics related services such as logistics information data management, the reutilization of military equipment, as well as documents automation and production services. DLA's Logistics Research and Development (Log R&D) program helps ensure that advanced logistics concepts and business processes are used to accomplish the agency's mission with the leanest possible infrastructure. Log R&D identifies the best commercial business practices and tailors them, as necessary, into the most effective business processes for the agency. Log R&D develops and demonstrates high risk, high payoff technology that provides a significantly higher level of support at the lowest possible costs.

Beginning in FY 2023, the DLA Log R&D Program Element shifts from three Strategic Focus Areas to three Lines of Effort (LOEs): Predictive Analytics, Modeling & Simulation (R&D LOE 3), Logistics Operations Innovation (R&D LOE 4), and Smart Warehouse Modernization (R&D LOE 5). These LOEs are closely aligned to

documented and tracked priorities specified in the most current DLA Strategic Plan, that calls for Digital Business Transformation as one of three critical capabilities to achieve DLA's business goals of enhancing performance, reducing costs, and becoming more predictive and data driven. This critical capability also seeks to transform systems and processes to improve data transparency, reliability, and security for our employees, customers, and suppliers. DLA's initiatives within this critical capability align with the interim National Security Strategy (NSS) by emphasizing the importance of harnessing rapid emerging technologies that will transform how we do business.

- Predictive Analytics, Modeling & Simulation (R&D LOE 3): R&D efforts develop predictive analytics solutions using data and Artificial Intelligence/Machine Learning (AI/ML) to solve high-impact problems, improve business operations, and provide actionable strategies to inform business decisions. Primarily focused on the DLA Strategic Plan Critical Capability C: Digital Business Transformation, these efforts cut across DLA Strategic Plan LOE 1: Warfighter Always, LOE 2: Trusted Mission Partner, and LOE 4: Modernized Acquisition and Supply Chain Management, supporting the warfighter through the Weapon System Sustainment (WSS) portfolio of projects.

- Logistics Operations Innovation (R&D LOE 4): R&D efforts to cultivate integration of innovative processes and technology into the DLA supply chains to enhance warfighter readiness and weapons system sustainment. This LOE focuses on supporting the DLA LOE 4: Modernized Acquisition and Supply Chain Management, while also investment in cross-cutting supply chain efforts, to include fuel quality and alternative fuel sources, or emergent needs that impact DLA's ability to effectively support the warfighter through the following portfolios: Energy Readiness Program (ERP), Acquisition Modernization Technology Research (AMTR), and Supply Chain Management (SCM).

- Smart Warehouse Modernization (R&D LOE 5): R&D efforts to modernize distribution and disposition operations through infusion of smart-warehousing, interconnected technologies, and automation. This LOE is dedicated to one of the primary focus areas of DLA's Critical Capability for Digital Business Transformation: warehousing modernization through efforts within the Strategic Distribution and Disposition (SDD) portfolio of projects.

Until the shift from SFAs to LOEs in FY 2023, DLA LOG R&D remains aligned into three Strategic Focus Areas (SFAs) for FY 2021 and FY 2022: 1) Enhancing Analysis, Modeling, and Decision Support (EAMD), 2) Improving Logistics Processes (ILP), 3) Emergent Logistics R&D Requirements (ELR).

- The EAMD SFA includes efforts to develop decision support tools, such as modeling, simulation, and other analytics to improve operational strategy decision-making, forecasting, and procurement, which support more effective and efficient responses to emerging market and customer requirements.
- The ILP SFA includes efforts to develop and implement advanced technology in logistics processes over and above current baseline systems.

- The ELR SFA includes efforts to support emergent Logistics R&D requirements that arise out of the budget cycle. These out of cycle requirements always occur. This SFA begins new projects in a timely manner without disrupting ongoing projects by funds reallocation. This SFA scope includes all DLA supply chains and logistics processes.

DLA's focus for this budget cycle highlights advanced capabilities in digital and technical data modernization, management and analytics to transform DLA Business Processes to lower the Agency's material acquisition and operation costs along with improving weapons systems support. This effort spans across both DLA R&D Program Elements and multiple R&D LOEs, impacting across the DOD Joint Defense Manufacturing Technology Panel and DLA Enterprise logistics processes.

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Logistics Agency	Date: April 2022
Appropriation/Budget Activity 0400: *Research, Development, Test & Evaluation, Defense-Wide I* BA 3: *Advanced Technology Development (ATD)*	**R-1 Program Element (Number/Name)** PE 0603712S *I Logistics Research and Development Technology (Log R&D)*

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	10.235	12.418	0.000	-	0.000
Current President's Budget	14.507	11.987	13.663	-	13.663
Total Adjustments	4.272	-0.431	13.663	-	13.663
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	5.000	-			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-0.200	-			
• SBIR/STTR Transfer	-0.528	-0.431			
• Adjustments to Budget Year	-	-	13.663	-	13.663

Change Summary Explanation

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

FY 2023:

-DLA Logistics R&D baseline was increased by $0.697 million for an internal funding reallocation decision to modernize DLA's warehousing and distribution processes by leveraging automation, Big Data, and predictive analytics to make data-driven decisions, improve productivity and cost effectiveness, and realize returns on investment as agency savings.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	Project (Number/Name) EMM / *Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)*	

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
EMM: *Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)*	15.123	2.215	3.581	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This Strategic Focus Area (SFA) funds developments in advanced analytical tools, modeling, and simulation of logistics and supply chain processes. These tools will improve DLA forecasting and procurement strategy decisions and lead to faster and more flexible responsiveness to emerging market and customer requirements. This SFA consists of two programs:

The Strategic Distribution & Disposition (SDD) Program collaborates with DLA Distribution and Disposition Services to identify legacy capabilities that are inadequate for emerging worldwide distribution and disposition requirements. A key objective of the SDD Program is to anticipate, assess, and meet the current and future Warfighter requirements by leveraging R&D to infuse innovation into solutions. Long-term objectives include mitigating the DOD Supply Chain Management high risk issues identified by the Government Accountability Office (GAO), 2018 (Inventory Management, Material Distribution and Asset Visibility).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Enhancing Analysis, Modeling, and Decision Support	2.215	3.581	-
Description: The Strategic Distribution and Disposition (SDD) program continued to lay the groundwork for DLA's Smart Warehouses. During FY 2021, SDD met with vendors and potential vendors, and continued research of the technologies required to implement smart warehousing solutions. The SDD program provided applied research, analytical and decision support to DLA Distribution and Disposition Services and provided support to the Distribution Modernization Program (DMP). Additionally, SDD will continue to engage with Industry, Department of Defense (DOD) sponsored Federally Funded Research and Development Centers (FFRDCs) and University-Affiliated Research Center Laboratories (UARCs) leveraging subject-matter expertise in key areas of research such as Blockchain, Artificial Intelligence, Machine Learning, Internet of Things (IoT), Augmented Reality, and Autonomous/Robotics systems. SDD will continue to incorporate Integrate Project Teams (IPT) for project collaboration and Integrated System Engineering concepts (test and evaluation) into Distribution projects. - During FY 2021, the SDD Program completed in research of an Electric Yard Truck for DLA Distribution. The purpose of this project is to perform a proof of concept in DLA Distribution San Joaquin, CA (DDJC) to test and evaluate to determine the feasibility of replacing conventional fossil-fueled trucks with the alternative electric truck technologies.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** EMM / *Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
- The SDD Program completed Phase I of the LocatorX Automated Warehouse Inventory Management case study which successfully proved a materiel solution that will enable and provide the logistics capabilities that deliver the supply chain and distribution support necessary to meet the demands of the Warfighter whenever and wherever required while incorporating into an enterprise architecture solution. Phase II of the LocatorX project will focus on Sensor IoT technology research which began in the 4th Quarter, FY 2021. - SDD progressed through the Phase II Small Business Innovative Research (SBIR) Augmented Reality (AR) case study to prove out DLA's acquisition approach for implementing AR technology in the Warehouse Picking process. This project continued to develop a prototype augmented reality system in a DLA warehouse environment and will provide a proof of concept to ascertain the utility, feasibility, maintainability, and cost-effectiveness of using AR to improve inventory efficiency. This project is planned for completion in the 2nd Quarter, FY 2022. - In April 2021, the SDD Program kicked-off an SBIR AGV Phase I project for an innovative indoor-outdoor mule-style AGV, developed/acquired in conjunction with other DOD partners. This project will serve as the pilot and proof of concept though test and evaluation at DLA Distribution Corpus Christi, TX (DDCT) and Hill Air Force Base, UT (DDHU) to ascertain the utility, feasibility, maintainability, and cost-effectiveness of AGVs. - During 4th Quarter, FY 2021, SDD began a Phase I case study to evaluate the application of a DLA Warehouse Inventory Drone. The study intends to identify a range of alternative warehouse drone solutions. The vendor will work with end-users to understand the use case requirements, evaluate the warehouse inventory drone pilot through research, provide DLA with the most feasible and beneficial solution to identify inventory capability gaps and optimize the study's outcome. - During 4th Quarter, FY 2021, a SBIR Phase I project began work to test the use of Artificial Intelligence (AI) at Distribution Center Warehouses, current DLA inventory management is manual with some machinery to help move inventory. This use case will study and analyze the use of AI and its potential applications to manage and guide end-use systems such as automated arms, robots, augmented reality for inventory management and other performance applications. - SDD Program also initiated planning for projects for technologies that address Automated Storage and Retrieval Systems (AS/RS), In-Transit Visibility (ITV), AI imbedded Robotic Arms, Warehouse Performance Management, 5G Networks, and a Systems of Systems Smart Warehouse. ***FY 2022 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** EMM / *Enhancing Analysis, Modeling, and Decision Support (formerly Analytic & Decision Support)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
The Strategic Distribution and Disposition (SDD) program will continue to provide applied research, analytical and decision support to DLA Distribution and Disposition Services and provide support to the Distribution Modernization Program (DMP). Additionally, SDD will continue to engage with Industry, DOD sponsored FFRDCs and UARCs leveraging subject-matter expertise in key areas of research such as 5G Networks, Sensor IoT, Blockchain, Quantum Computing, AI/ML, AR, AS/RS, Performance Management, Automated Inventory, 3D Warehouse Mapping, and Autonomous/Robotics systems. SDD will continue to incorporate IPTs for project collaboration and Integrated System Engineering concepts (test and evaluation) into Distribution projects. During FY 2022, the SDD Program plans to initiate technology projects that address ITV, AI imbedded Robotic Arms, Warehouse Performance Management, 5G Networks, and a Systems of Systems Smart Warehouse. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Strategic Distribution and Disposition (SDD) program move to the Smart Warehouse Modernization Line of Effort (R&D LOE 5) in FY 2023 focused on modernizing distribution and disposition operations through infusion of smart-warehousing, interconnected technologies, and automation. -FY 2022: Internal Realignment from DRAS2 to LOG R&D of approximately $0.930 million for the Strategic Distribution and Disposition (SDD) program in FY 2022 in order to support DLA Strategic Plan priorities in digital business transformation and data analytics. -Additionally, the overall DLA Logistics R&D baseline was increased by approximately $0.750 million across FY 2023 - FY 2027 based on internal funding reallocation decision to modernize DLA's warehousing and distribution processes by leveraging automation, Big Data, and predictive analytics to make data-driven decisions, improve productivity and cost effectiveness, and realize returns on investment as agency savings.			
Accomplishments/Planned Programs Subtotals	2.215	3.581	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	Project (Number/Name) GLTD / *Improving Logistics Processes (formerly Logistics Process)*	

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
GLTD: *Improving Logistics Processes (formerly Logistics Process)*	25.507	3.554	4.939	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Improving Logistics Processes (ILP) Strategic Focus Area (SFA) encompasses R&D efforts within the Weapon System Sustainment (WSS) and Acquisition Modernization Technology Research (AMTR) programs to support DLA business functional units through applied research and development of advanced technologies to improve business processes and operational methods, leverage the application of leading edge logistics “out-of-the box” concepts using disruptive technology business tools, and support DLA’s technological transformation effort. To qualify for R&D funding, the R&D effort must develop and apply technology and processes over and above current baseline IT systems and continuous improvements efforts.

Although all DLA processes are in scope, the strategic focus for this budget cycle is in Procurement, Planning, Technical Quality and the Major Subordinate Commands.

Innovative process changes and new technologies will be researched in these areas to drive improvements to internal costs, reduce award delays, and improve material availability, supply chain security, demand forecasting and logistical planning. This will be accomplished through the use of Artificial Intelligence/Machine Learning (AI/ML), blockchain technology, and research of emerging commercial best practices and technologies.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Improving Logistics Processes (ILP)	3.554	4.939	-
Description: The Weapon System Sustainment (WSS) program: - Continued research of Artificial Intelligence/Machine Learning (AI/ML) to enhance predictive analytics capabilities through improved metadata management and data quality with the Collibra tool that provides faster data insight. - Completed AI/ML research included application of commercial open-source AI/ML capabilities to predict and mitigate backorders and to improve lead time estimates. - Began a multi-pronged effort to enhance supply chain risk management using emergent technologies to improve risk assessment, market intelligence, and illumination of supply chain threats.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** GLTD / *Improving Logistics Processes (formerly Logistics Process)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
- Began a year-long project to assess the practicality of implementing quantum computing technologies within DLA in the FY 2024 timeframe. Quantum computers leverage quantum mechanical phenomena to manipulate information in a manner that will enable larger and more complex calculations that cannot be accomplished on classical computers. Quantum computing is a key enabling technology for AI/ML, predictive analytics, highly complex simulations, and other emerging disruptive technologies. The Acquisition Modernization Technology Research (AMTR) program will establish in FY 2022. During FY 2021, transition began for acquisition modernization efforts that are currently managed and executed under the WSS program which included: - A comprehensive DLA J-7 Acquisition Modernization Program (AMP) groundwork study is in for acquisition modernization. This project will lead the evolutionary future of acquisition through emerging technologies (AI/ML, Robotic Process Automation (RPA), and blockchain) and innovation, integrate data science and processes that strengthen our knowledge-rich workforce, gather actionable market intelligence, maximize enterprise IT modernization, and leverage a secure and connected supply chain. Final results of the study will entail a 10 year enterprise acquisition modernization outlook which will enhance the AMTR program including future projects. - Two additional WSS projects are in the process of transitioning to the AMTR portfolio including Contract Quality Control and Applied Market Intelligence for Defense Acquisition (AMIDA). The Contract Quality Control project will recommend a state-of-the-art system for DLA contracts that incorporates modern technologies (such as AI) to provide a critical capability for DLA to measure the quality of contracts awarded. Efforts are currently underway for Phase I which is the initial study. AMIDA tackles a market intelligence framework for each DLA supply chain, specifically through research, analysis and an acquisition strategy formulation. Aviation is currently in the process of evaluation; however, this study will continue to expand across all of DLA's supply chains through FY 2025. - AMTR also collaborated with J7 on a rapid manufacturing operational enterprise solution for government owned intellectual property low demand items to improve DLA's readiness capabilities, delivering parts cheaper and faster. A pilot (proof of concept) is currently underway that will inform future objectives and milestones. ***FY 2022 Plans:*** The Weapon System Sustainment (WSS) program will: - Continue assessment of AI/ML, quantum computing capabilities, and enterprise-wide data quality and curation capabilities. This will include additional research into demand projection, and expansion of supply chain risk management enhancements to additional items.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** GLTD / *Improving Logistics Processes (formerly Logistics Process)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
- Partner with the Joint Artificial Intelligence Community to improve demand projections and evaluate commercial data sources for supply chain risk management analysis. - Continue exploration of blockchain technology by identifying a pilot study for a DLA business process such as a capability that permits Clothing & Textile (C&T) material suppliers (e.g., fabric, fiber and dye vendors) to securely share production data on a limited partner platform. The Acquisition Modernization Technology Research (AMTR) program will be fully operational beginning FY 2022. The program will continue efforts to expand market intelligence capabilities, Applied Market Intelligence for Defense Acquisition (AMIDA), to the remaining DLA supply chains. Phase II of Contract Quality Control will also begin which entails performing rapid prototyping of a modern technology solution (Artificial Intelligence or Robotic Process Automation) and defining a transition/sustainment plan. AMTR will continue collaboration efforts on the rapid manufacturing pilot including demonstration of prototype capabilities (algorithmic pricing and 3D modeling). ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Weapons System Sustainment (WSS) program will move to the Predictive Analytics, Modeling & Simulation Line of Effort (R&D LOE 3) in FY 2023 focused on predictive analytics solutions using data and Artificial Intelligence/ Machine Learning (AI/ML) to solve high-impact problems, improve business operations, and provide actionable strategies to inform business decisions. -Funding and efforts for the Acquisition Modernization Technology Research (AMTR) program will move to the Logistics Operations Innovation Line of Effort (R&D LOE 4) in FY 2023 focused on the integration of innovative processes and technology into the DLA supply chains to enhance warfighter readiness and weapons system sustainment.			
Accomplishments/Planned Programs Subtotals	3.554	4.939	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** 04 / *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*	

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
04: *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*	40.638	8.738	3.467	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Emergent Logistics R&D Strategic Focus Area (SFA) includes R&D efforts to develop new products and services for DLA customers in two programs:

The Energy Readiness Program (ERP) roadmap helps to achieve the operational energy strategy goals of increasing sources of supply, developing and implementing alternative fuels under the ERP.

The Supply Chain Management (SCM) program addresses emergent and out of budget cycle requirements and opportunities within DLA's supply chains. A key objective of the SCM Program is to collaborate with customers (DLA J-Codes and Major Subordinate Commands (MSCs)) to identify capability shortfalls that can be addressed through major research efforts. These R&D efforts strive to develop technology mitigation strategies that address current and anticipated problems within DLA's supply chains.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Emergent Logistics R&D Requirements	3.738	3.467	-
Description: The Energy Readiness Program (ERP) continued working with Military Service customers and technical offices to improve specifications and standards for fuel and additive quality, engage in modeling and simulation of the energy supply chain and identifying alternative energy sources for military customers. - Initiated a project with the University of Hawaii, "Investigation of Waste-Based Feedstocks for Sustainable Aviation Fuel Production" to investigate the use and behavior of urban solid waste (e.g., wood residue from construction and demolition operations) for potential conversion of the materials into renewable fuels. This study will develop modeling to validate the use of the materials for use in gasification/Fischer-Tropsch process conversion into commercial and military grade fuels. - Completed "Dual Fuel Fatty Acid Methyl Ester (FAME) Quantification Instrument" project which built on an Army Phase II SBIR effort to develop a field portable, durable, accurate, an dependable instrument to measure fuel quality. This enhanced instrument			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** 04 / *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023

allows for faster detection of poor fuel quality and faster mitigation efforts when necessary. The Army is currently coordinating deployment of the units for initial use in service and DLA Energy operations.

- Completed “Hydrazine Propellant Evaluation Study”. The purpose of this project, under contract to Aerojet Rocketdyne Inc., was to independently evaluate the performance of two high purity hydrazine aerospace propellants that were produced through two different production processes. The study confirmed that the there was no difference in the performance of propellants, given the conditions of the study. Further work is recommended to further to increase confidence in the use of ketazine process-derived hydrazine as equivalent to Raschig process derived hydrazine.

- Completed “Determination and Mitigation of the Role of Hydrogen Sulfide (H2S) Scavengers in Jet Fuel Thermal Stability (1st Phase)” to examine the role and risk of hydrogen sulfide (H2S) scavenger by-products causing jet fuel thermal stability failures in the US fuel supply system. Until now, little was known of the effect on fuel thermal stability. The study will continue to further understand the capacity of the by-products to degrade jet fuel thermal stability.

The Supply Chain Management (SCM) program partnered with the Navy’s Battlespace Exploitation of Mixed Reality (BEMR) Lab to acquire and install a prototype demonstration of an Augmented Reality (AR) remote expert capability at DLA. SCM continued its work on a supply chain simulator that simulates the flow of supply through DLA’s supply chain network in support of theoretical or planned contingency operations, such as the support of OPLANs. SCM studied available solutions that provide multi-tiered vendor supply chain management and determine their viability for items, components, and raw materials of DLA’s known NSNs with castings, forgings, and specialty metals.

FY 2022 Plans:

The Energy Readiness Program (ERP) will continue working with the Service customers to improve specifications and standards for fuel quality, engage in modeling and simulation of the energy supply chain and identifying alternative energy sources for Military Customers. ERP will focus on determining R&D solutions for ongoing issues affecting fuel and fuel additive quality and operational requirements (e.g., thermal stability, storage stability, ignition capability) and providing additional alternatives for military unique fuels. With the current administration’s increased focus and climate change initiatives and alternatives to petroleum products, the program’s efforts to assist the military services in the qualification and certification of alternative fuels to meet military specification requirements are anticipated to increase significantly and that may drive future adjustments to current program priorities in order to address these areas.

The Supply Chain Management (SCM) program will complete the Navy’s Battlespace Exploitation of Mixed Reality (BEMR) Lab prototype demonstration of an Augmented Reality (AR) remote expert capability and continue work on the supply chain simulator

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** 04 / *Emergent Logistics R&D Requirements (formerly Innovative Products & Services for DLA Customers)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
in support of contingency operations. Additionally, SCM will complete a study of available solutions that provide multi-tiered vendor supply chain management options for DLA's known NSNs with castings, forgings, and specialty metals. Finally, SCM will initiate efforts to support the "greening" of selected DLA supply chain elements and continue to address emergent, out of budget cycle requirements and opportunities as they arise. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Energy Readiness Program (ERP) and the Supply Chain Management (SCM) program will move to the Logistics Operations Innovation Line of Effort (R&D LOE 4) in FY 2023 focused on the integration of innovative processes and technology into the DLA supply chains to enhance warfighter readiness and weapons system sustainment.			
Title: Domestic Supply of Strategic Metals ***Description:*** DLA received a $5 million reprogramming from the Missile Defense Agency Congressional Add for domestic supply of strategic metals. This funding supports a continuation of a Small Business Innovation Program Ph-3 effort in establishing a domestic source of strategic metals, specifically titanium, by converting scrap metals into aerospace grade powders through proprietary technology of Unimelt Plasma Process. The funding is critical in expanding domestic industrial base to reach DOD goal of self-sufficiency in producing higher grade metals.	5.000	-	-
Accomplishments/Planned Programs Subtotals	8.738	3.467	-

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

The DLA R&D program is executed through Delivery Orders placed on Indefinite Delivery/Indefinite Quantity Contracts that resulted from competitive Broad Agency Announcements and through interagency agreements with the Military Services when it is cost effective and/or provides some technical advantage, e.g. improves the probability of successful transition. DLA also has a continuously open Broad Agency Announcement for Emerging Technologies.

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	Project (Number/Name) LOI / *Logistics Operations Innovation*	

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
LOI: *Logistics Operations Innovation*	-	0.000	0.000	6.088	-	6.088	6.353	6.485	6.605	6.726	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Logistics Operations Innovation Line of Effort (R&D LOE 4) seeks to improve DLA supply chain performance and security through the integration of advanced technology and innovative processes within the DLA day-to-day business operations. Research in these areas drive improvements to internal costs, reduce award delays, and improve material availability, supply chain security, and logistical planning. This will be accomplished through the use of artificial intelligence/machine learning, blockchain technology, and research of emerging commercial best practices and technologies. In addition, out of cycle emergent technologies across all DLA supply chains and logistics processes are resourced in a timely manner without disrupting ongoing projects by funds reallocation. The objectives for this LOE include:

1. Secure supply chains: Improvements to the DOD Class III Bulk Fuel Petroleum, Oil and Lubricants supply system
2. Technical Solutions for anti-counterfeiting detection: innovative solutions to prevent counterfeit parts in the logistical supply chain.
3. Integrated logistics information that yields cost savings and shortens lead times:

The Logistics Operations Innovation LOE includes R&D efforts to develop new products and services for DLA customers in three programs:

-The Energy Readiness Program (ERP) roadmap helps to achieve the operational energy strategy goals of increasing sources of supply, developing and implementing alternative fuels under the ERP.

-The Acquisition Modernization Technology Research (AMTR) program focuses on DLA Acquisition related requirements to enhance market intelligence research capabilities, contract quality, and best value acquisitions.

-The Supply Chain Management (SCM) program addresses emergent, out of budget cycle requirements and opportunities within DLA's supply chains. A key objective of the SCM Program is to collaborate with customers (DLA business process owners and supply chain owners) to identify capability shortfalls that can be addressed through major research efforts. These R&D efforts strive to develop technology mitigation strategies that address current and anticipated problems within DLA's supply chains.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Logistics Operations Innovation Line of Effort (R&D LOE 4)	0.000	-	6.088
Description: Funding and efforts for the Logistics Operations Innovation Line of Effort (R&D LOE 4) begins in FY 2023.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** LOI / *Logistics Operations Innovation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
FY 2023 Plans: The Energy Readiness Program (ERP) will continue working with the Service customers to improve specifications and standards for fuel quality, engage in modeling and simulation of the energy supply chain and identifying alternative energy sources for Military Customers. ERP will focus on determining R&D solutions for ongoing issues affecting fuel and fuel additive quality and operational requirements (e.g., thermal stability, storage stability, ignition capability) and providing additional alternatives for military unique fuels. With the current administration's increased focus and climate change initiatives and alternatives to petroleum products, the program's efforts to assist the military services in the qualification and certification of alternative fuels to meet military specification requirements are anticipated to increase significantly and that may drive future adjustments to current program priorities in order to address these areas. The Acquisition Modernization Technology Research (AMTR) program will continue efforts to expand market intelligence capabilities (AMIDA) to the remaining DLA supply chains. Additionally, AMTR will investigate new projects that were addressed during the AMP groundwork study including accelerating e-commerce procurement methods and automating contract management for one-off or short-term buys. The Supply Chain Management (SCM) program will transition the supply chain simulator in support of contingency operations, continue efforts that support the "greening" of selected DLA supply chain elements and continue to address emergent, out of budget cycle requirements and opportunities as they arise. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding and efforts for the Logistics Operations Innovation Line of Effort (R&D LOE 4) begins in FY 2023 focused on the integration of innovative processes and technology into the DLA supply chains to enhance warfighter readiness and weapons system sustainment. -Internal Realignment from EFD PE 0605070S: Moved baseline funding from EFD to LOG R&D since the program was transitioned to Defense Finance Accounting Service (DFAS) in November 2021.			
Accomplishments/Planned Programs Subtotals	0.000	-	6.088

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** LOI / *Logistics Operations Innovation*

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	Project (Number/Name) PAM / *Predictive Analytics / Modeling & Simulation*	

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
PAM: *Predictive Analytics / Modeling & Simulation*	-	0.000	0.000	3.872	-	3.872	3.881	3.973	4.051	4.129	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The focus of the Predictive Analytics, Modeling & Simulation Line of Effort (R&D LOE 3) is to develop predictive analytic solutions by applying AI/ML algorithms to data obtained from DLA and external sources which can help solve high-impact problems, improve business operations, and provide actionable strategies for optimized business decisions. Through the development of decision support tools, such as modeling, simulation, and other analytics to improve operational strategy decision-making, forecasting, and procurement, DLA will achieve more effective and efficient responses to emerging market and customer requirements. The objectives for this LOE include:

1. Leverage technological solutions for data analytics and integration for demand projections and supply chain risk management.
2. Data analytics integration for DLA, the military services and industry: allows businesses and vendors to aggregate data, analyze it, and transform it into useful information.
3. Explore emergent technologies in quantum computing and edge computing to enable advanced analytics.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Predictive Analytics, Modeling & Simulation Line of Effort (R&D LOE 3)	0.000	-	3.872
Description: Funding and efforts for the Predictive Analytics, Modeling & Simulation Line of Effort (R&D LOE 3) begins in FY 2023. ***FY 2023 Plans:*** Efforts to improve demand projections and supply chain risk management identified in FY 2022 will continue. WSS will explore cross domain capabilities to bring classified and unclassified data into DLA using secure application program interfaces (APIs) software intermediaries to support data availability. WSS will conduct additional use cases for data analytics improvements, and AI/ML application such as adaptive training and improvements to key processes supporting warfighter readiness. Follow on efforts to conduct a pilot study utilizing quantum computing technology will be pursued based on the commercial availability of the technology. WSS will conduct an internal pilot study of blockchain technology for identified high value business process.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** PAM / *Predictive Analytics / Modeling & Simulation*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
WSS will research an enterprise-wide digital vendor on-boarding process to register, analyze, and validate suppliers to reduce duplication, improve timeliness, and the ability to tailor supply chain risk analytics to each program. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding and efforts for the Predictive Analytics, Modeling & Simulation Line of Effort (R&D LOE 3) begins in FY 2023 focused on predictive analytics solutions using data and Artificial Intelligence/Machine Learning (AI/ML) to solve high-impact problems, improve business operations, and provide actionable strategies to inform business decisions.			
Accomplishments/Planned Programs Subtotals	0.000	-	3.872

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency			Date: April 2022
Appropriation/Budget Activity 0400 / 3	R-1 Program Element (Number/Name) PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	Project (Number/Name) SWM / *Smart-Warehouse Modernization*	

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
SWM: *Smart-Warehouse Modernization*	-	0.000	0.000	3.703	-	3.703	3.760	3.829	3.897	3.967	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Smart Warehouse Modernization Line of Effort (R&D LOE 5) will assess and test cyber-secure smart-warehouse technologies to transform and modernize distribution and disposition operations. The objectives for this LOE include:

1. Increase productivity and efficiency through interconnected technologies and automation such as enhanced inventory management, materiel distribution, and asset visibility
2. Provide enhanced and cyber-secure operations

The Strategic Distribution & Disposition (SDD) Program collaborates with DLA Distribution and Disposition Services to identify legacy capabilities that are inadequate for emerging worldwide distribution and disposition requirements. A key objective of the SDD Program is to anticipate, assess, and meet the current and future Warfighter requirements by leveraging R&D to infuse innovation into solutions. Long-term objectives include mitigating the DOD Supply Chain Management high risk issues identified by the Government Accountability Office (GAO), 2018 (Inventory Management, Material Distribution and Asset Visibility).

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Smart Warehouse Modernization Line of Effort (R&D LOE 5)	0.000	-	3.703
Description: Funding and efforts for the Smart Warehouse Modernization Line of Effort (R&D LOE 5) begins in FY 2023. ***FY 2023 Plans:*** The Strategic Distribution and Disposition (SDD) program will continue to provide applied research, analytical and decision support to DLA Distribution and Disposition Services and provide support to the Distribution Modernization Program (DMP). SDD will continue to engage with Industry, DOD sponsored FFRDCs and UARCs leveraging subject-matter expertise in key areas of research such as 5G Networks, Sensor Internet of Things (IoT), Blockchain, Quantum Computing, Artificial Intelligence/ Machine Learning (AI/ML), and leverage the benefits realized from proven research studies and pilot projects in the areas of AR, AS/RS, Performance Management, Automated Inventory, 3D Warehouse Mapping, and Autonomous/Robotics systems (e.g., Autonomous Guided Vehicles (AGVs), Autonomous Mobile Robots (AMRs), etc.). SDD will continue to incorporate IPTs for project collaboration and Integrated System Engineering concepts (test and evaluation) into Distribution projects.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** SWM / *Smart-Warehouse Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
During FY 2023 SDD plans to focus on the upgrading of current data architectures to manage and handle the evolution of "Big Data" in the digital revolution through the exploration of the fundamental shifts in network and wireless performance as classified with the 5Vs Concept: Volume – The need for high volume of data; Velocity – The need to generate and process data at high speed; Variety – The types of data (i.e., Policies, photographs, graphs, PDF/MS/Excel files, etc.); Veracity – The need for accuracy and trustworthiness of the data (cybersecurity); and Value – The need to enable smarter and better decision making. Efforts will include: -5G Network technology needed to enhance the connectivity and speed of mobile devices to communicate data for DLA's inventory management activities, material distribution activities, and asset visibility activities. -Sensor IoT technology applications to enhance DLA's data collection and implement the nine principal technologies are used to create a smart warehouse where machines, systems, and humans communicate to coordinate and monitor progress on the warehouse floor. IoT supports the opportunity to obtain "Big Results" and to improve services, productivity, lower downtime, and contributes to deep learning. -Blockchain to reduce the complexity of ordinary transactions and ensure data integrity, ensure all parties provide consensus before new transactions are added to the network, eliminate or reduce paper processes, speed up transaction times and increase efficiencies, enhance the ability to more securely track/trace transactions, and use cryptographic algorithms to provide better cybersecurity. -Investigate Quantum Computing to make the evolution of "Big Data" an effective reality by providing the capability to process the ever-increasing amounts of data being collected, stored, and disseminated, and more quickly ingest, compile, and analyze the large sums of data, perform data mining functions, computing operations, and to process "Big Data". -Artificial Intelligence/Machine Learning (AI/ML) to automate repetitive tasks, reduce or eliminate inefficiencies in supply chain activities, eliminate the high labor costs for repetitive tasks, reduce the long lead time to process repetitive tasks, implement AI/ML to automate tasks based on the integrity of data, and enhance DLA's business operations by simply reducing the time needed to perform repetitive tasks – i.e., data entry and transactions. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Smart Warehouse Modernization Line of Effort (R&D LOE 5) begins in FY 2023 focused on modernize distribution and disposition operations through infusion of smart-warehousing, interconnected technologies, and automation.			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
Appropriation/Budget Activity 0400 / 3	**R-1 Program Element (Number/Name)** PE 0603712S / *Logistics Research and Development Technology (Log R&D)*	**Project (Number/Name)** SWM / *Smart-Warehouse Modernization*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
-Additionally, the Smart Warehouse Modernization Line of Effort (R&D LOE 5) baseline was increased by approximately $0.750 million across FY 2023 - FY 2027 based on internal funding reallocation decision to modernize DLA's warehousing and distribution processes by leveraging automation, Big Data, and predictive analytics to make data-driven decisions, improve productivity and cost effectiveness, and realize returns on investment as agency savings.			
Accomplishments/Planned Programs Subtotals	0.000	-	3.703

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A