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 0603680S *I Manufacturing Technology Program (ManTech)*							
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	171.406	66.632	81.262	46.166	-	46.166	45.157	46.173	47.066	47.917	Continuing	Continuing
IBMP: *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*	84.905	40.864	25.763	-	-	-	-	-	-	0.000	Continuing	Continuing
AAA: *Maintaining Viable Supply Sources (formerly High Quality Sources)*	64.853	15.864	16.950	-	-	-	-	-	-	0.000	Continuing	Continuing
OOO: *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*	21.648	9.904	38.549	-	-	-	-	-	-	0.000	Continuing	Continuing
IBA: *Industrial Base & Aging Weapon System Support*	-	0.000	0.000	35.222	-	35.222	35.509	36.352	37.064	37.809	Continuing	Continuing
TDM: *3D Tech Data Modernization / Model Based Enterprise*	-	0.000	0.000	10.944	-	10.944	9.648	9.821	10.002	10.108	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Defense Logistics Agency (DLA) Manufacturing Technology (ManTech) Program funds the advanced technology development needed to achieve a responsive, efficient domestic industrial base that meets the warfighters' needs in an affordable and timely manner. The ManTech program works with DLA's diverse supply chains to improve manufacturing capability throughout a product's life cycle. It provides the crucial link between invention and application by maturing, scaling up, and validating advanced manufacturing technology in "real world" environments. ManTech developments provide a path to low-risk technology implementation for many small businesses and defense unique suppliers as well as depots and shipyards that are critical to DLA. By anticipating and addressing production and sustainment problems before they occur, readiness levels increase and sustainment costs are decreased.

Beginning in FY 2023, DLA ManTech shifts from three Strategic Focus Areas (SFAs) to two Lines of Effort (LOEs): 1) Industrial Base and Aging Weapon System Support (R&D LOE 1) and 2) 3D Technical Data Modernization / Model-Based Enterprise (R&D LOE 2). 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.

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-In addition to alignment to DLA's top strategic priorities, under Section 2521 of Title 10, US Code, DLA ManTech efforts are collaborated across DOD Military Services and Agencies. As a Principal member of the Joint Defense Manufacturing Technology Panel, DLA's efforts are integrated within the Joint Defense Priorities.

-The Industrial Base and Aging Weapon System Support LOE (R&D LOE 1) seeks to implement innovative and proactive technology solutions to ensure a robust, reliable industrial base that provides affordable and previously hard-to-procure critical parts for DOD weapon systems. This LOE aligns to DLA Strategic Plan LOE 1: Warfighter Always, DLA LOE 2: Trusted Mission Partner, DLA LOE 4: Modernized Acquisition and Supply Chain Management, as well as the cross-cutting Critical Capability C: Digital Business Transformation through the following portfolios: DOD Subsistence Supply Chain (Subsistence Network), Castings (Procurement Readiness Optimization—Advanced Casting Technology), Forgings (Procurement Readiness Optimization—Forging Advanced System Technology), Batteries (Battery Network), Additive Manufacturing (AM), and Advanced Microcircuit Emulation (AME).

-The 3D Technical Data Modernization / Model Based Enterprise LOE (R&D LOE 2) integrates three-dimensional technical data and knowledge-based tools to transform and streamline supply system responsiveness for DLA-managed commodities. Efforts seek to improve and facilitate the exchange of engineering and logistics information among DLA, the Military Services, DLA industry partners and DLA customers. The benefits include shorter product introduction cycles, lower set up-costs for parts production and more economical small batch production. Primarily focused on the DLA Strategic Plan Critical Capability C: Digital Business Transformation, this R&D LOE cuts across DLA Strategic Plan LOE 1: Warfighter Always, DLA LOE2: Trusted Mission Partner, and DLA LOE 4: Modernized Acquisition and Supply Chain Management through portfolios for DOD soldier and individual equipment (Military Unique Sustainment Technology ((MUST)) and Defense Logistics Information Research (DLIR), as well as out of budget cycle or Emerging Manufacturing Technology (EMT) requirements.

-Until the shift from SFAs to LOEs in FY 2023, DLA ManTech remains aligned into three Strategic Focus Areas (SFAs) for FY 2021 and FY 2022: 1) Improving Industrial Base Manufacturing Processes (IIBM); 2) Maintaining Viable Sources of Supply (MVSS); and 3) Improving Technical and Logistics Information (ITLI).

-The IIBM SFA includes efforts to reduce industrial base material costs and production lead-times, while improving the quality of DLA managed products. This SFA has supply chain focused execution portfolios for food (Subsistence Network), Castings (Procurement Readiness Optimization—Advanced Casting Technology), Forgings (Procurement Readiness Optimization—Forging Advance System Technology), Batteries (Battery Network) and Additive Manufacturing.

-The MVSS SFA includes efforts to assure the commercial industrial base can satisfy DLA materiel requirements without relying on foreign sources for microcircuits. This strategic focus area mitigates supply issues caused by the lack of a reliable domestic manufacturing capability to produce products or raw materials needed to build and maintain weapon systems. The major focus of the program is maintaining a reliable, trusted, domestic source for "non-procurable" linear and digital microcircuits. Microcircuit emulation allows the Services to save significant costs by using form, fit and functionally equivalent spare parts rather than redesigning the next-higher-assembly.

-The ITLI SFA includes efforts to improve and facilitate the exchange of engineering and logistics information among DLA, the Military Services, DLA industry partners and DLA customers. It includes the Military Unique Sustainment Technology (MUST) and the Defense Logistics Information Research (DLIR) programs. A primary focus of this SFA is to capitalize on the emerging "Model Based Enterprise" paradigm and the semantic web as an enabler to a logistics system that is smart and connected up and down the supply chain and across all DLA Customers and suppliers. A major focus is to transform DOD engineering data from two-dimensional paper-based

products to three-dimensional computer based models, and to develop processes to move from “electronic paper” (i.e. PDF files) to technical data files that can interface directly with industries’ engineering systems. The benefits include shorter product introduction cycles, lower set up-costs for parts production and more economical small batch production.

DLA’s focus for this budget cycle highlights advanced capabilities in digital and technical data modernization, data management and analytics to fulfill the DLA role in the DOD Digital Engineering Strategy and improve sharing of data with the industrial base and supported organizations. Investment explores technologies to lower the Agency’s material acquisition and operation costs and improve weapons systems support. This effort spans across both DLA R&D Program Elements and R&D LOEs, impacting across the DOD Joint Defense Manufacturing Technology Panel and DLA Enterprise logistics processes.

B. Program Change Summary ($ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	40.025	37.543	0.000	-	0.000
Current President's Budget	66.632	81.262	46.166	-	46.166
Total Adjustments	26.607	43.719	46.166	-	46.166
• Congressional General Reductions	-	-			
• Congressional Directed Reductions	-	-			
• Congressional Rescissions	-	-			
• Congressional Adds	29.000	46.000			
• Congressional Directed Transfers	-	-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-2.393	-3.006			
• Correction for Non-Pay/Non-Fuel Purchases	-	0.725	-	-	-
• Adjustments to Budget Year	-	-	46.166	-	46.166

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Project: IBMP: *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*		
Congressional Add: *Improve Steel Performance Initiative in Castings*	10.000	10.000
Congressional Add: *Supply Chain adoption of additive manufacturing, automation, and robotics in Castings*	10.000	-
Congressional Add: *Additive Manufacturing Castings Model*	5.000	-
Congressional Add: *PFAS Compounds In Food Packaging Materials Research*	-	3.000
Congressional Add Subtotals for Project: IBMP	25.000	13.000
Project: OOO: *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*		
Congressional Add: *Rare Earth Magnets*	4.000	-

Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Defense Logistics Agency	Date: April 2022
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Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2021	FY 2022
Congressional Add: *Supply Chain For Readiness & Sustainment*	-	8.000
Congressional Add: *Rare Earth Recovery Technology*	-	2.000
Congressional Add: *Conversion Of Titanium Scrap*	-	5.000
Congressional Add: *Graphite Materials*	-	9.000
Congressional Add: *Nanostructured Iron Nitride Permanent Magnets*	-	7.000
Congressional Add: *Modeling & Simulation Competition*	-	2.000
Congressional Add Subtotals for Project: OOO	4.000	33.000
Congressional Add Totals for all Projects	29.000	46.000

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:
-Critical Chemicals: Strategic Material Related Efforts
-DLA ManTech baseline was increased $2.343 million based on internal funding reallocation decision to modernize DLA's technical data management and predictive analytics capability and lay the foundation for next generation Smart Manufacturing.

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 0603680S / *Manufacturing Technology Program (ManTech)*	Project (Number/Name) IBMP / *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*	

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
IBMP: *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*	84.905	40.864	25.763	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Improving Industrial Base Manufacturing Processes Strategic Focus Area (SFA) is an R&D effort undertaken with DLA's suppliers to reduce material costs, reduce the length and variability of production lead-times, assure DLA managed products meet performance requirements, and continuously improve quality and reliability. Benefits of this SFA include lower material costs, lower inventory levels and more predictable customer wait times, fewer quality deficiencies, and lower customer support costs. This SFA includes within its scope the Subsistence Network, the Battery Network, the Castings/Forging programs and Additive Manufacturing programs.

The Subsistence Network (SUBNET) program focuses on solutions to develop and promote manufacturing improvements in the subsistence supply chain. The program's expanded areas of interest include: combat rations, food equipment, field feeding solutions, food footprint, food innovations, food safety and defense developments, garrison feeding, nutrition and health, storage and packing solutions, surge and sustainment support, and water security. SUBNET forms a community of practice with Military Services, U.S. Department of Agriculture, Natick Soldier Research Development, and Engineering Center; Academia, and Industry to research and promote manufacturing improvements in the Subsistence Supply Chain with the goals of maximizing capability and capacity to produce, and to encourage innovation and modernization needed to leverage the latest technologies. Desired outcomes include: reduced cost, increased efficiencies, improved processes, enhanced quality, and improved surge demand capabilities.

The Casting program works to ensure a stable, reliable, and competitive domestic casting industrial base supporting the weapon system needs of the Department of Defense (DOD) and the Defense Logistics Agency (DLA). The casting program works with industry, universities, and the Casting Industry Associations to identify projects that improve the materials, processes and business practices of the nation's foundry industry. The program aligns projects with strategic issues and identified focus areas within the DLA and DOD. Guidance for these projects comes from the DLA Strategic Plan and input from the casting industry. Weapon system spare parts managed by DLA that contain castings are responsible for a disproportionate share of DLA's backorders or unfilled orders (UFOs). Cast parts are about two percent of National Stock Numbered Class IX parts but represent about five percent of all backorders, and when only the oldest backorders are considered, up to 10 percent are castings. This program includes tasks that focus on developing new capabilities in the areas of inspection, materials, processes, modeling, and design. Once developed, these capabilities will support the foundry industry, where the technologies will be tested and implemented, most often in conjunction with the casting industry associations. These advancements improve the metal casting supply chains for the DOD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-times, reducing costs, and improving quality of castings critical to DOD weapon systems.

The Forging program works to ensure a stable, reliable, and competitive domestic forging industrial base for the weapon system needs of the Department of Defense (DOD) and the Defense Logistics Agency (DLA). Working with industry, universities, and the Forging Industry Associations to identify projects that improve the

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materials, processes and business practices of the nation's forging industry. The program aligns its projects with strategic issues and focus areas identified within the DLA and DOD. Guidance for these projects comes from the DLA Strategic Plan and input from the forging industry. Weapon system spare parts managed by DLA that contain Forgings are responsible for a disproportionate share of DLA's backorders or unfilled orders (UFOs). Forged parts are about two percent of National Stock Number (NSN) Class IX parts but represent about 5 percent of all backorders, and when only the oldest backorders are considered, up to 10 percent are forgings. This program includes tasks to develop new capabilities in the areas of inspection, materials, processes, modeling, and design. Once developed these capabilities will support the forging industry, where these technologies will be tested and implemented in conjunction with the forging industry associations. These advancements improve the forging supply chains for the DOD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-time, reducing cost, and improving quality of forgings critical to DOD weapon systems.

The Battery Network (BATTNET) program objective is to develop the next generation of battery manufacturing technologies for cost and price efficiency, longer shelf life, and lighter batteries with higher energy. BATTNET conducts R&D initiatives to address sustainment gaps and bridge technical solutions into higher a Manufacturing Readiness Level (MRL) for specific groups of batteries. BATTNET also focuses on projects to develop the production capability for advanced lithium-based non-rechargeable and rechargeable batteries to ensure the prompt and sustained availability, quality, and affordability of Service approved batteries. Desired outcomes include: streamlined inventory and associated cost reductions through standardization and improved distribution practices; resolved obsolescence issues; addressed surge and sustainment issues; enhanced security of supply chain; increased competition and manufacturing base; reduced per unit battery cost; and leveraged Service-level (Army, Navy, Air Force) and other governmental (DOE, DOT, NASA) R&D efforts to insert new technology and practices into the existing DLA battery inventory.

The Additive Manufacturing (AM) program objective is to establish AM as an effective alternative to conventional manufacturing and document the process for AM benefits. DLA is pursing all AM technology as a lead-time and inventory reduction enabler. The AM effort pursues alternate means of supply for products that are otherwise non-procurable or susceptible to procurement issues due to an unresponsive manufacturing vendor base. The AM effort includes the identification of AM candidates among the population of products that are needed but hard to obtain, costly or have long manufacturing lead times. The AM effort requires management of 3D digital technical and manufacturing data. In addition, the AM effort includes the development of the processes that will tie the designers, engineers, maintainers, logisticians, procurement managers and the vendor base into a seamless AM procurement stream. Potential benefits include products that can address an unfulfilled Warfighter readiness need by reducing production lead times, production costs, storage costs, transportation costs and in some cases fuel consumption due to lighter design and material options. DLA R&D will leverage these efforts with Industry, Academia and ongoing Military Service-level agreements (Army, Navy, Marine Corps, Air Force), Oak Ridge National Laboratory (ORNL) and the Department of Energy.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Improving Industrial Base Manufacturing Processes (formerly Material Availability)	15.864	12.763	-
Description: The Subsistence Network (SUBNET) program conducted research, development, test and evaluation on short-term projects to improve the subsistence supply chain. The SUBNET program worked with community partners (military services, industry, and academia) to leverage the latest technologies and innovations for the R&D projects. SUBNET researched and executed projects in FY 2021 regarding modernization and readiness analysis of a joint food management system; subsistence readiness analysis and innovation assessment of the supply chain; pre and polyfluoroalkyl (PFAS) in meals, ready-to-eat			

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** IBMP / *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
packing materials; develop and test laminate structures in hot sauce pouches for MREs; and blockchain application for outside of continental U.S. subsistence prime vendor supply chain. The program also continued to work with small business innovation research (SBIR) subsistence topics such as the use of cold plasma fog mist to disinfect personnel protective equipment and cold plasma technology to extend the shelf life of fresh fruits and vegetables and collaborate with the Defense Advanced Research Projects Agency on future projects for synergy and as a potential transition partner. The Casting program continued to monitor awarded projects that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. The program works to maintain its alignment with the DLA Strategic plan and U.S. Casting Industry Roadmap. Our projects focus on improving manufacturing processes such as die coatings and integrated sensors and technologies that include simulation modeling and 3D printing of casting molds and cores, and workforce development to secure a sustainable supply chain for DLA and the DOD. These efforts included webinars for both DLA employees and the casting industry, on-site and virtual seminars or DLA/DOD employees, resources that assisted suppliers and DLA with questions regarding castings, and directed active DLA solicitations containing castings to capable suppliers that increased visibility and reduced no-bid situations. The Forging program monitored projects awarded under the Broad Agency Announcement (BAA) offered in FY 2020 and awarded in September 2020. There was a total of three new contracts awarded which include seven new projects, The projects included a focus on exploring alternative forging manufacturing methods, materials to reduce production lead-time and costs, modeling and simulation software improvements and enhancements and improvements to post processing methods. We continued to see positive results from these projects, Ceramic Coatings for Forging Furnaces reported a 42 percent reduction in Natural Gas usage and a 64 percent reduction in recovery time for a forging furnace which was coated as part of this project. In FY 2020 the DLA Forging R&D funding baseline and out years were reduced by approximately 25 percent, which reduced the number of projects awarded in FY 2020. These projects will be in alignment with the needs of the DOD and DLA aimed and supporting and fulfilling the needs of the warfighter, while working to maintain its alignment with the DLA Strategic plan and U.S. Casting Industry Roadmap A few projects successfully finished and continue working on implementing the new technologies, such as the mobile Intensive Quench project. As well as the Innovations in Repair of Forging dies project that finished and will continue working with their industry partners to transition this technology to the forging industry. The Battery Network (BATTNET) program continued projects for improving the production readiness and technology transition for soldier and system batteries within the DLA supply chain. The program prototyped and tested several versions of Bipolar lead-acid technology in major system formats to reduce battery cost and weight, improve battery energy and power, and extend battery shelf life and operational life – a new effort was launched for aviation batteries. The program continued a major project for improving the capacity and capabilities of lithium anode production for current non-rechargeable batteries and future rechargeable			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
batteries. The program continued managing projects for transitioning high value solid-state electrolyte, as well as UV-curable polymer, technology into key soldier and system lithium-ion batteries. The program continued to initiate and manage several SBIR projects in advanced lithium-ion battery manufacturing, recycling, and rapid materials synthesis. The Additive Manufacturing (AM) program, using market research, requests for information/proposals, Broad Agency Announcements (BAA), DLA R&D funded analysis of alternatives for the best cognitive computing solutions to integrate information from several logistics, engineering, legal, and supplier data sources into an efficient AM decisional framework. The AM Initial General Acceptance (AMIGA) tool was developed to assist DLA procurement and engineering personnel in making a AM procurement decisions by automating the initial assessment of DLA-managed items, particularly hard-to-procure items, based on item characteristics, business, logistics, and additive manufacturing technology criteria. While AMIGA demonstrated a useful initial search capability for potential AM procurement candidates, the DLA Technical & Quality Assurance Division, after thorough consideration, was not able to approve full transition into operations at this time due to certain existing constraints and emerging risks, such as funding availability and integration with major DLA IT systems as modernization initiatives are being developed. Nevertheless, these analytics efforts helped to identify unseen patterns in the manufacturing data that will help shape an efficient AM distributive manufacturing ecosystem. The Additive Manufacturing (AM) program also financed collaborative technical efforts from the military departments, industry, and academic institutions that enhance the customer engagement with the AM product management workflows. Overall DLA Enterprise AM efforts to identify the best AM applications to achieve precise robustness-repeatability-reproducibility of part fabrication using an AM technical data package in a distributed manufacturing setting were impacted by the reduction of approximately $0.943 million resulting from overall ManTech $3.020 million in directed reductions. ***FY 2022 Plans:*** The Subsistence Network (SUBNET) program will continue to research and execute short-term innovative projects to improve the subsistence supply chain in FY 2022. The SUBNET program will incorporate emerging technologies to address stakeholders' requirements as well as leverage supply chain innovations, best practices, and industry trends. The SUBNET program will conduct pilot test in the areas of modernization and readiness analysis of joint food management system and improving subsistence visibility through enhancing receipting and barcoding at an OCONUS location. The SUBNET plans to conduct research in FY 2022 regarding data analytics, wireless sensor mesh technology, and robotic automation in military dining facilities. The program will also pursue small business innovation research topics in subsistence and work with community partners (military services, academia, and industry) to conduct research and test and evaluate initiatives in the subsistence supply chain. The Casting program will continue to monitor awarded projects that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. The program also plans to solicit for new projects to start in FY 2022 as existing projects wind down, are completed and transitioned. The Casting program will continue working with			

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Academia, industry, and industry associations to continually identify future development and technical needs in alignment with the DOD and DLA to include appropriate strategic plans and roadmaps. The Forging program will continue to monitor projects that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. These projects focus on improving manufacturing processes and alternative forging manufacturing methods, materials to reduce production lead-time and costs modeling and simulation software improvements and enhancements and improvements to post processing methods. These projects align with the needs of the DOD and DLA aimed and supporting and fulfilling the needs of the warfighter. The Battery Network (BATTNET) program will continue to execute projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. Projects will leverage new battery manufacturing technologies for the supply chain that have been developed by industry – advanced electrodes production, low-cost materials production or recycling, and advanced performance cells. The program intends to leverage deep-discharge, long cycle life, safe lithium-ion capabilities with the US Military Services to replace obsolete nickel-cadmium batteries in naval and aviation systems. And the program will continue the manufacturing technology projects in bipolar lead-acid batteries and lithium-ion batteries for the benefit of the Defense supply chain. The DLA R&D Additive Manufacturing (AM) program will continue to collaborate with the Military Services, DLA's Process Owners and Major Subordinate Commands (MSC) to identify technologies that assist with AM enterprise-wide processes that align DLA's identification of hard-to-source parts requirements with MILSVC cognizant engineer authorities and AM manufacturing capabilities in order to obtain qualified AM parts that support a DLA customer. The convergence of authoritative data in the DLA Joint AM Model Exchange (JAMMEX) platform will improve DLA's position to exercise quality assurance of AM parts flowing into the DOD supply chains. The DLA R&D AM projects will explore innovative remote inspection capabilities that enable interoperable quality control inspections among DLA, the Military Service cognizant engineers and the manufacturing base. The convergence of automated requirements' tools based on DOD consensus of AM risk categorization criteria, JAMMEX authoritative data, and remote inspection technologies can render repeatable and accelerated qualifications processes. Reduction of the AM baseline will commensurately impact the AM Program's ability to produce solutions for enterprise processes and procedures needed to integrate AM into the supply chain and transition benefits and findings of AM R&D projects into the DLA supply chain processes. With limited budget, the AM R&D program can only perform sub-optimized part to part projects under the authority of established support agreements with our Warfighting customers and partners. ***FY 2022 to FY 2023 Increase/Decrease Statement:***			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding and efforts move to the Industrial Base and Aging Weapon System Support Line of Effort (R&D LOE 1) focused on innovative and proactive technology solutions to ensure a robust, reliable industrial base that provides affordable and previously hard-to-procure critical parts for DOD weapon systems.			
Accomplishments/Planned Programs Subtotals	15.864	12.763	-

	FY 2021	FY 2022
Congressional Add: Improve Steel Performance Initiative in Castings ***FY 2021 Accomplishments:*** Continued efforts that began under the FY 2020 Steel Performance Initiative that includes numerous projects within the following areas of focus: Steel Alloy Development and Manufacturing Technology; Integrated Process and Performance Modeling; Advanced Testing & Qualification; Improved Steel Casting Tooling; and Optimized Processing of Steel Materials. ***FY 2022 Plans:*** Steel Technology Advanced Research (STAR): Develop hybrid and Industry 4.0 manufacturing technologies along with modeling and quantitative nondestructive testing (QNDT) to advance predictive performance design.	10.000	10.000
Congressional Add: Supply Chain adoption of additive manufacturing, automation, and robotics in Castings ***FY 2021 Accomplishments:*** In February 2022, the contract was awarded to begin work on documenting the benefits and applications of automation, robotics, and additive manufacturing, particularly to publicize to small-to-medium enterprises to ensure the technology is better understood and utilized in the optimal capacity.	10.000	-
Congressional Add: Additive Manufacturing Castings Model ***FY 2021 Accomplishments:*** In February 2022, the contract was awarded to begin work on documenting the benefits and methodology of Additive Manufacturing (AM) applications to the initial casting designs which will be used to publicize to the casting industry.	5.000	-
Congressional Add: PFAS Compounds In Food Packaging Materials Research ***FY 2022 Plans:*** Determine where PFAS is originating in the assembly process through the analysis of the raw material (e.g., film) used for Meals Ready to Eat pouches and throughout the assembly line.	-	3.000
Congressional Adds Subtotals	25.000	13.000

C. Other Program Funding Summary ($ in Millions)

N/A

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C. Other Program Funding Summary ($ in Millions)

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
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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
AAA: *Maintaining Viable Supply Sources (formerly High Quality Sources)*	64.853	15.864	16.950	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Maintaining Viable Supply Sources (MVSS) Strategic Focus Area (SFA) consists of projects undertaken to assure that the industrial base can respond to DLA requirements and DLA can fill military customers' material requirements reliably and consistently. Benefits include eliminating cancelled requisitions returned to customers as "non-procurable." This strategic focus area includes within its scope the Advanced Microcircuit Emulation (AME) program.

The Program Roadmap has two major thrusts areas: Digital Microcircuits and Linear/Analog Microcircuits. The program has several projects addressing specific classes of obsolescent microcircuit technologies. Over the past several years, obsolescence in this class of microcircuits has greatly increased and has become a significant concern. These are classes of microcircuits that are expected to become non-procurable in FY 2020 and beyond. Without the technologies planned on the AME Roadmap, DLA will not be able to support DOD's requirements for high quality spare parts for critical electronic systems and subsystems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Maintaining Viable Supply Sources (formerly High Quality Sources)	15.864	16.950	-
Description: The Advanced Microcircuit Emulation (AME) program completed and transitioned its first Linear/Analog technology project, 20 Volt Operational Amplifier, into full scale production. It also completed and transitioned additional digital technology projects into full scale production. The first addresses TTL compatible CMOS microcircuits and the second addresses Dual-Port Memory microcircuits. AME continued development of Additive Manufacturing techniques to address Microcircuit Cases. It began additional Linear/Analog emulation projects for types/groups of parts, prioritized based on customer requirements.			
FY 2022 Plans: The Advanced Microcircuit Emulation (AME) program will continue planning for the specific emulation technology implementations to support specific device family groups in consonance with Customer and Agency requirements. It will begin developing dual-voltage digital microcircuit technology to support re-hosting Field-Programmable Gate Array (FPGA) microcircuits. It will continue additional Linear/Analog and Digital emulation projects for types/groups of parts, prioritized based on customer requirements. It will continue development of Additive Manufacturing techniques to address obsolescence in Microcircuit Cases.			
FY 2022 to FY 2023 Increase/Decrease Statement:			

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** AAA / *Maintaining Viable Supply Sources (formerly High Quality Sources)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Funding and efforts move to the Industrial Base and Aging Weapon System Support Line of Effort (R&D LOE 1) focused on innovative and proactive technology solutions to ensure a robust, reliable industrial base that provides affordable and previously hard-to-procure critical parts for DOD weapon systems.			
Accomplishments/Planned Programs Subtotals	15.864	16.950	-

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 0603680S / *Manufacturing Technology Program (ManTech)*	Project (Number/Name) OOO / *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*	

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
OOO: *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*	21.648	9.904	38.549	-	-	-	-	-	-	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Improving Technical and Logistics Information (ITLI) SFA projects improve and facilitate the communication of technical and logistics information among industry, DLA's military customers and DLA. This SFA includes the Military Unique Sustainment Technology (MUST), the Defense Logistics Information Research (DLIR), and the Emergent Manufacturing Technology (EMT) portfolios within its scope.

The Military Unique Sustainment Technology (MUST) program addresses Government Accountability Office (GAO) Report 12-707 recommendations for DOD to establish a "knowledge-based approach" to define, communicate, and collaborate on military unique combat uniforms and individual equipment (CUIE) requirements. DLA has the responsibility to manage and maintain the technical requirements among the Services and the Defense Industrial Base. Currently there is no common environment for collaborating on new requirements among the stakeholders. The strategic objective of the DLA MUST program is to identify, develop, and adopt technologies that can significantly improve the joint process from transitioning new item development to DLA sustainment and operations. The Program focuses on technologies that will transform the military CUIE supply chain from an "electronic paper" (i.e. PDF/MS Word) based manual environment, into a knowledge-based model driven environment. This approach will result in seamlessly communicating military unique technical requirements throughout the end-to-end supply chain, leading toward a Model Based Enterprise.

The Defense Logistics Information Research (DLIR) program researches core technologies to improve the quality, security, and interoperability of logistics data acquisition and management to enable and streamline DLA operations. DLA enables transformation of business practices and methodologies as the data for weapons systems evolve from traditional formats and delivery methods (such as two-dimensional images and PDF formats) to newer, more innovative methods (such as three-dimensional solid models, object-oriented databases, service-oriented architecture (SOA) and Web 3C standards). This transformational shift for DLA is driven by the Model-Based Enterprise (MBE) approach, the way industry is delivering design and development data for weapon systems to the Military Services and the way the Military Services in turn manage and provide the data to DLA. DLA Logistics Operations, DLA Acquisition, DLA Tech/Quality, and DLA's Major Subordinate Commands (MSCs) are key stakeholders in the DLIR initiatives to modernize the representation and delivery of weapons systems data.

The EMT program addresses emerging and out of cycle requirements that always occur as DLA strives to maintain readiness of the aging weapon systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Improving Technical and Logistics Information (formerly Industry and Customer Collaboration	5.904	5.549	-

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** OOO / *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*

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

Description: Military Unique Sustainment Technology (MUST) I contract ended in June 2021. It delivered two working prototypes and accompanying documentation ready to transition from R&D: Supply Request Package Tool and Source Sampling Test Reporting Tool. The Supply Request Package (SRP) Tool captures all new item requirements information. The SRP Tool has been adopted by all the Military Services and other DLA customers for new item introduction to DLA sustainment. The Source Sampling Tool captures the test results from the independent commercial laboratories used by Troop Support Clothing and Textile prime contractors. In addition, an initial prototype of the Digital Model library (DML) was developed. The DML is the repository for CUIE digital technical data models and related industry standard models. Competitive contract awards for MUST II, the MUST I follow-on, were made in Q2, FY 2021.

The Defense Logistics Information Research (DLIR) program continued the Connecting the Model-Based Enterprise (MBE) project to modernize the process to obtain current Technical Data Packages (TDPs) directly from the Product Lifecycle Management (PLM) systems of the Military Services' ESAs and PMOs. DLIR also developed standard guidance for Military Service organizations, including the ESAs and PMOs, to guide and influence generation of 3D, model based TDPs that will support DLA and its supplier needs. DLIR explored the ability of commercial Digital Rights Management (DRM) tools and techniques to improve the security of TDPs and support the eventual development of functional requirements for the "Catalog of the Future" (COTF) by identifying and prototyping new cleansing tools and methods while simultaneously cleansing data. DLIR continued support to DLA's Technical Data Management Transformation (TDMT) efforts to determine the future state IT architecture design and continue to collaborate with USACE to develop a cyber-physical model that will evaluate the resiliency of OT systems after a cyber-attack. Additionally, DLIR began efforts in building the digital thread partnering with the Air Force KC135 and the Army's Paladin Artillery Systems.

The Emerging Manufacturing Technology (EMT) program invested in Advanced Manufacturing solutions for DLA's support to DOD and Federal Government contingency operations, such as PPE and decontamination products and materials for COVID-19 response. In addition, EMT provided funding Critical to the transition and commercialization of successful Small Business Innovation Research (SBIR) projects such as emerging magnetic braking technologies, addressing strategic materials shortage/ risk, and advancements in Digital Manufacturing.

FY 2022 Plans:
The Military Unique Sustainment Technology (MUST) II focus is to integrate the MUST I developed tools into the DML using an Application Program Interface (API). The SpecFlow tool will be a new development for capturing and managing Interim Changes (IC) to the technical requirements. MUST II plans to develop more powerful AI based tools to incorporate ICs into the base models, and to extract technical requirements from the digital models. MUST II will work with the Services to promote the use

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** OOO / *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
of data formats compatible with the digital document model paradigm. The final development of the DML will be completed and DML document models will become the authoritative source for CUIE technical requirements and provide common visibility to all stakeholders. These models can be efficiently managed (queried, analyzed, updated) and will be capable of supplying data directly to CUIE test plans and manufacturing processes. Joint processes will be reengineered to take advantage of the digital model data. For example, use in the Product Quality Deficiency Report. Prototype tools and interfaces will also be developed to improve digital model utility for the industrial base. The Defense Logistics Information Research (DLIR) program will continue to support DLA's Technical Data Management Transformation (TDMT) efforts to determine IT architecture needs and to ensure DLA's MBE architecture meets/exceeds DOD compliance objectives and integrates with Military Services irrespective of platforms. DLIR will also explore Digital Manufacturing Enterprise models that shift procurement strategy orientation from items to on-demand manufacturing capacity. This contracted capacity can be tapped repeatedly on demand using an existing procurement process, rather than triggering multiple individual processes. DLIR will continue exploring Digital Rights Management (DRM) tools and techniques to improve the security of TDPs and support the eventual development of functional requirements for the "Catalog of the Future" (COTF) by identifying and prototyping new cleansing tools and methods while simultaneously cleansing data. Finally, DLIR will collaborate with MxD focusing on cybersecurity and building the digital thread continuing efforts leveraging the Air Force KC135 and the Army's Paladin Artillery Systems to include converting selected NSNs to 3D, model-based formats and providing access to a low-cost, cloud-based, Product Lifecycle Management (PLM)/Product Data Management (PDM) system(s). The EMT program will continue to enable DLA's investigation of new disruptive technology advances that may be implemented in the nearer term, without degrading well established program efforts. This program enables the Agency to advance those technologies sooner in order to provide to the warfighter earlier. Small Business Innovation Research (SBIR) Phase III efforts (which cannot be funded with SBIR funds) are a prime example of activities that will be financed with SBIR funds, examples include emerging magnetic braking technologies, and addressing strategic materials shortage/risk. Efforts will continue to advance Digital Manufacturing by developing a comprehensive approach to take advantage of integrated, computer-based systems of simulation, three-dimensional (3D) visualization, analytics and various collaboration tools to create and manufacture products to support the warfighter. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** Funding and efforts move to the the 3D Technical Data Modernization / Model Based Enterprise LOE (R&D LOE 2) focused on three-dimensional technical data and knowledge-based tools to transform and streamline supply system responsiveness for DLA-managed commodities.			
Accomplishments/Planned Programs Subtotals	5.904	5.549	-

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** OOO / *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*

	FY 2021	FY 2022
Congressional Add: Rare Earth Magnets ***FY 2021 Accomplishments:*** Explored domestic sources to build domestic capacity for recycled rare earth magnets critical to weapon system sustainment which will reduce foreign dependence, and supply chain vulnerability to price increases and access.	4.000	-
Congressional Add: Supply Chain For Readiness & Sustainment ***FY 2022 Plans:*** Significantly increase the number of small-to-midsize manufacturers (SMMs) and their adoption of digital manufacturing, automation, and robotics metal-casting (Industry 4.0) technologies improving the security and resiliency of the defense industrial base.	-	8.000
Congressional Add: Rare Earth Recovery Technology ***FY 2022 Plans:*** Demonstrate a process of recovering Rare Earth Elements (REEs) from electronic waste(e-waste) materials from various commercially available sources, including DOD e-waste. Successful completion of this project would assist DOD in achieving its long-term goal of reducing foreign reliance on REEs.	-	2.000
Congressional Add: Conversion Of Titanium Scrap ***FY 2022 Plans:*** Demonstrate the concept of converting titanium scrap to premium powder products for 3D printing and powder metallurgy. Titanium is a strategic material and critical for DOD applications.	-	5.000
Congressional Add: Graphite Materials ***FY 2022 Plans:*** Support domestic production of synthetic graphite precursor material for batteries and other military applications. This would help in supporting US graphite industry and securing DOD supply chain for various weapon systems.	-	9.000
Congressional Add: Nanostructured Iron Nitride Permanent Magnets ***FY 2022 Plans:*** Advance the technology and manufacturing readiness of non-rare-earth containing iron nitride permanent magnets for use in military electric components and systems.	-	7.000
Congressional Add: Modeling & Simulation Competition ***FY 2022 Plans:*** DLA Legislative Affairs submitted clarification (intent & recipient) request to the Office of the Under Secretary of Defense for Acquisition and Sustainment (OUSD (A&S)) on 3/23/2022 for incorporation into	-	2.000

Exhibit R-2A, RDT&E Project Justification: PB 2023 Defense Logistics Agency		Date: April 2022
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	FY 2021	FY 2022
the Comptroller's request to the HAC and SAC. As clarification is received, DLA will provide statement detailing execution plans.		
Congressional Adds Subtotals	4.000	33.000

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 0603680S / *Manufacturing Technology Program (ManTech)*				Project (Number/Name) IBA / *Industrial Base & Aging Weapon System 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**
IBA: *Industrial Base & Aging Weapon System Support*	-	0.000	0.000	35.222	-	35.222	35.509	36.352	37.064	37.809	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Industrial Base (IB) and Aging Weapon System Support Line of Effort (LOE 1) seeks to implement innovative and proactive technology solutions to ensure a robust, reliable industrial base that provides affordable and previously hard-to-procure critical parts for DOD weapon systems through the following objectives:

1. Viable and Responsive Industrial Base: maximize Defense Industrial Base capability and capacity and improve availability, quality, and affordability to support the Warfighter.
2. Obsolescence Solutions: establish a trusted manufacturing capability for qualified microcircuits to support DOD weapon system lifecycles.
3. Advanced Manufacturing: leverage advanced manufacturing capabilities to introduce and integrate additive and advanced manufacturing concepts into the DOD supply chain.

The portfolios within the IB and Aging Weapons System Support LOE include food-service supply chain solutions (Subsistence Network), Castings (Procurement Readiness Optimization—Advanced Casting Technology), Forgings (Procurement Readiness Optimization—Forging Advanced System Technology), Batteries (Battery Network), Additive Manufacturing (AM), and Advanced Microcircuit Emulation (AME).

The Subsistence Network (SUBNET) program focuses on solutions to develop and promote manufacturing improvements in the subsistence supply chain. The program's expanded areas of interest include: combat rations, food equipment, field feeding solutions, food footprint, food innovations, food safety and defense developments, garrison feeding, nutrition and health, storage and packing solutions, surge and sustainment support, and water security. SUBNET forms a community of practice with Military Services, U.S. Department of Agriculture, Natick Soldier Research Development, and Engineering Center; Academia, and Industry to research and promote manufacturing improvements in the Subsistence Supply Chain with the goals of maximizing capability and capacity to produce, and to encourage innovation and modernization needed to leverage the latest technologies. Desired outcomes include: reduced cost, increased efficiencies, improved processes, enhanced quality, and improved surge demand capabilities.

The Casting program works to ensure a stable, reliable, and competitive domestic casting industrial base supporting the weapon system needs of the Department of Defense (DOD) and the Defense Logistics Agency (DLA). The casting program works with industry, universities, and the Casting Industry Associations to identify projects that improve the materials, processes and business practices of the nation’s foundry industry. The program aligns projects with strategic issues and identified focus areas within the DLA and DOD. Guidance for these projects comes from the DLA Strategic Plan and input from the casting industry. Weapon system spare parts managed by DLA that contain castings are responsible for a disproportionate share of DLA’s backorders or unfilled orders (UFOs). Cast parts are about two percent of National Stock Numbered Class IX parts but represent about five percent of all backorders, and when only the oldest backorders are considered, up to 10 percent are castings. This program includes tasks that focus on developing new capabilities in the areas of inspection, materials, processes, modeling, and design. Once

developed, these capabilities will support the foundry industry, where the technologies will be tested and implemented, most often in conjunction with the casting industry associations. These advancements improve the metal casting supply chains for the DOD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-time, reducing cost, and improving quality of castings critical to DOD weapon systems.

The Forging program works to ensure a stable, reliable, and competitive domestic forging industrial base for the weapon system needs of the Department of Defense (DOD) and the Defense Logistics Agency (DLA). Working with industry, universities, and the Forging Industry Associations to identify projects that improve the materials, processes and business practices of the nation's forging industry. The program aligns its projects with strategic issues and focus areas identified within the DLA and DOD. Guidance for these projects comes from the DLA Strategic Plan and input from the forging industry. Weapon system spare parts managed by DLA that contain Forgings are responsible for a disproportionate share of DLA's backorders or unfilled orders (UFOs). Forged parts are about two percent of National Stock Number (NSN) Class IX parts but represent about five percent of all backorders, and when only the oldest backorders are considered, up to 10 percent are forgings. This program includes tasks to develop new capabilities in the areas of inspection, materials, processes, modeling, and design. Once developed these capabilities will support the forging industry, where these technologies will be tested and implemented in conjunction with the forging industry associations. These advancements improve the forging supply chains for the DOD and the DLA to better support the warfighter. We will invest in projects aimed at reducing lead-time, reducing cost, and improving quality of forgings critical to DOD weapon systems.

The Battery Network (BATTNET) program objective is to develop the next generation of battery manufacturing technologies for cost and price efficiency, longer shelf life, and lighter batteries with higher energy. BATTNET conducts R&D initiatives to address sustainment gaps and bridge technical solutions into higher a Manufacturing Readiness Level (MRL) for specific groups of batteries. BATTNET also focuses on projects to develop the production capability for advanced lithium-based non-rechargeable and rechargeable batteries to ensure the prompt and sustained availability, quality, and affordability of Service approved batteries. Desired outcomes include: streamlined inventory and associated cost reductions through standardization and improved distribution practices; resolved obsolescence issues; addressed surge and sustainment issues; enhanced security of supply chain; increased competition and manufacturing base; reduced per unit battery cost; and leveraged Service-level (Army, Navy, Air Force) and other governmental (DOE, DOT, NASA) R&D efforts to insert new technology and practices into the existing DLA battery inventory.

The Additive Manufacturing (AM) program objective is to establish AM as an effective alternative to conventional manufacturing and document the process for AM benefits. DLA is pursing all AM technology as a lead-time and inventory reduction enabler. The AM effort pursues alternate means of supply for products that are otherwise non-procurable or susceptible to procurement issues due to an unresponsive manufacturing vendor base. The AM effort includes the identification of AM candidates among the population of products that are needed but hard to obtain, costly or have long manufacturing lead times. The AM effort requires management of 3D digital technical and manufacturing data. In addition, the AM effort includes the development of the processes that will tie the designers, engineers, maintainers, logisticians, procurement managers and the vendor base into a seamless AM procurement stream. Potential benefits include products that can address an unfulfilled Warfighter readiness need by reducing production lead times, production costs, storage costs, transportation costs and in some cases fuel consumption due to lighter design and material options. DLA R&D will leverage these efforts with Industry, Academia and ongoing Military Service-level agreements (Army, Navy, Marine Corps, Air Force), Oak Ridge National Laboratory (ORNL) and the Department of Energy.

Advanced Microcircuit Emulation (AME) program Roadmap has two major thrusts areas: Digital Microcircuits and Linear/Analog Microcircuits. The program has several projects addressing specific classes of obsolescent microcircuit technologies. Over the past several years, obsolescence in this class of microcircuits has greatly

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** IBA / *Industrial Base & Aging Weapon System Support*

increased and has become a significant concern. These are classes of microcircuits that are expected to become non-procurable in FY 2020 and beyond. Without the technologies planned on the AME Roadmap, DLA will not be able to support DOD's requirements for high quality spare parts for critical electronic systems and subsystems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Industrial Base (IB) and Aging Weapon System Support Line of Effort (R&D LOE 1)	0.000	-	35.222
Description: Funding and efforts for the Industrial Base and Aging Weapon System Support Line of Effort (R&D LOE 1) begins in FY 2023.			
FY 2023 Plans: The Subsistence Network (SUBNET) program will continue to develop and promote manufacturing improvements with R&D projects that leverage emerging technologies and innovations. The SUBNET program will work to improve as well as incorporate best practices and industry trends discovered through research that are crucial to the subsistence supply chain. SUBNET plans to research and execute projects in FY 2023 in the areas of modernization and readiness analysis for joint food management phase V, data analytics in the subsistence supply chain, research innovative commercial off the shelf food items, deployable group ration assembly/kitting system for unitized group rations and continued piloting the improving subsistence visibility project. The program will also continue to pursue Small Business Innovation Research (SBIR) topics in Subsistence. The Casting program will work to maintain its alignment with the DLA Strategic plan and U.S. Casting Industry Roadmap. These provide guidance as to where the focus of development should be. The casting program will continue to focus on key areas of need which include workforce development to help sustain a stable supply chain for DLA, modeling and simulation tools, die lubricants and coatings to increase quality and decrease environmental impacts and automation and robotics to reduce lead time and increase safety. The Casting program will continue to monitor projects that are awarded in FY 2022 that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. The Casting program works with Academia, industry, and industry associations to continually identify future development and technical needs in alignment with the DOD and DLA. The Forging program will continue to monitor projects that research, develop and deploy innovative and technical solutions to ensure a viable and competitive domestic industrial base. These projects focus on improving manufacturing processes and alternative forging manufacturing methods, materials to reduce production lead-time and costs, modeling and simulation software improvements and enhancements and improvements to post processing methods. These projects align with the needs of the DOD and DLA aimed and supporting and fulfilling the needs of the warfighter. The Battery Network (BATTNET) program will continue to execute projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. Projects will leverage new battery manufacturing			

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** IBA / *Industrial Base & Aging Weapon System Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
technologies for the supply chain that have been developed by industry – advanced electrodes production, low-cost materials production or recycling, and advanced performance cells. The Additive Manufacturing (AM) program will use the lessons learned during the Joint Additive Manufacturing Acceptability (JAMA) efforts in the areas of AM parts prioritization, data formats, acceptability criteria and leverage emerging digital business practices, stemming from the information technology modernization efforts in DLA to engage in the testing and prototyping of customer engagement technology peripheral digital services offerings to address the requirements generated at the convergences of the MILSVC digital experiences and DLA digital operations in order to adjust DLA's business models. DLA R&D AM will also launch the needed test beds to propel the expansion of the JAMMEX capability to include vendor 3D models (industry developed) to establish a repeatable process for AM vendor bids. The Advanced Microcircuit Emulation (AME) program will continue to develop its long-term technology roadmap. It will also continue planning for the specific emulation technology implementations to support specific device family groups in consonance with Customer and Agency requirements. It will continue to develop capabilities in digital and analog/linear technologies. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Industrial Base and Aging Weapon System Support Line of Effort (R&D LOE 1) begins in FY 2023 focused on innovative and proactive technology solutions to ensure a robust, reliable industrial base that provides affordable and previously hard-to-procure critical parts for DOD weapon systems. -Additionally, the overall R&D LOE 1 baseline was increased by approximately $1.500 million across FY 2023 - FY 2027 based on internal funding reallocation decision to modernize DLA's technical data management and predictive analytics capability and lay the foundation for next generation Smart Manufacturing.			
Accomplishments/Planned Programs Subtotals	0.000	-	35.222

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 0603680S / *Manufacturing Technology Program (ManTech)*	Project (Number/Name) TDM / *3D Tech Data Modernization / Model Based Enterprise*	

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
TDM: *3D Tech Data Modernization / Model Based Enterprise*	-	0.000	0.000	10.944	-	10.944	9.648	9.821	10.002	10.108	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

The Three-dimensional (3D) Technical Data Modernization (TDM) / Model-Based Enterprise (MBE) (R&D LOE 2) includes efforts to improve and facilitate the exchange of engineering and logistics information among DLA, the Military Services, DLA industry partners and DLA customers. This LOE includes the Military Unique Sustainment Technology (MUST), the Defense Logistics Information Research (DLIR), and the Emergent Manufacturing Technology (EMT) portfolios. A primary focus of this SFA is to capitalize on the emerging "Model Based Enterprise" paradigm and the semantic web as an enabler to a logistics system that is smart and connected up and down the supply chain and across all DLA Customers and suppliers. A major focus is to transform DOD engineering data from two-dimensional paper-based products to three-dimensional computer-based models, and to develop processes to move from "electronic paper" (i.e. PDF files) to technical data files that can interface directly with industries' engineering systems. The benefits include shorter product introduction cycles, lower set up-costs for parts production and more economical small batch production. Objectives for this LOE include:

1. Transform technical data into modern, machine-usable, neutral formats: support DOD's digital modernization efforts and provide significant readiness improvements.
2. Create a model-enabled knowledge base shared among DLA, the Military Services and industry: streamline the delivery of accurate requirements and high-quality material and end-items throughout the supply chain.

The Military Unique Sustainment Technology (MUST) program addresses Government Accountability Office (GAO) Report 12-707 recommendations for DOD to establish a "knowledge-based approach" to define, communicate, and collaborate on military unique combat uniforms and individual equipment (CUIE) requirements. DLA has the responsibility to manage and maintain the technical requirements among the Services and the Defense Industrial Base. Currently there is no common environment for collaborating on new requirements among the stakeholders. The strategic objective of the DLA MUST program is to identify, develop, and adopt technologies that can significantly improve the joint process from transitioning new item development to DLA sustainment and operations. The Program focuses on technologies that will transform the military CUIE supply chain from an "electronic paper" (i.e. PDF/MS Word) based manual environment, into a knowledge-based model driven environment. This approach will result in seamlessly communicating military unique technical requirements throughout the end-to-end supply chain, leading toward a Model Based Enterprise.

The Defense Logistics Information Research (DLIR) program researches core technologies to improve the quality, security, and interoperability of logistics data acquisition and management to enable and streamline DLA operations. DLA enables transformation of business practices and methodologies as the data for weapons systems evolve from traditional formats and delivery methods (such as two-dimensional images and PDF formats) to newer, more innovative methods (such as three-dimensional solid models, object-oriented databases, service-oriented architecture (SOA) and Web 3C standards). This transformational shift for DLA is driven by the Model-Based Enterprise (MBE) approach, the way industry is delivering design and development data for weapon systems to the Military Services and the way the

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 0603680S / *Manufacturing Technology Program (ManTech)*	**Project (Number/Name)** TDM / *3D Tech Data Modernization / Model Based Enterprise*

Military Services in turn manage and provide the data to DLA. DLA Logistics Operations, DLA Acquisition, DLA Tech/Quality, and DLA's Major Subordinate Commands (MSCs) are key stakeholders in the DLIR initiatives to modernize the representation and delivery of weapons systems data.

The EMT program addresses emerging and out of cycle requirements that always occur as DLA strives to maintain the readiness of the aging weapon systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
Title: Three-dimensional (3D) Technical Data Modernization (TDM) / Model-Based Enterprise (MBE) (R&D LOE 2)	0.000	-	10.944
Description: Funding and efforts for the Three-dimensional (3D) Technical Data Modernization (TDM) / Model-Based Enterprise (MBE) (R&D LOE 2) begins in FY 2023. ***FY 2023 Plans:*** The Military Unique Sustainment Technology II (MUST II) program will deliver the SpecFlow tool working prototype and the DML working prototype for transition into an operational capability. Technical data content in the DML will continue to be expanded and the AI needed to make the DML information available throughout the supply chain will be enhanced. The major effort of integration into Military Services development organizations and the industrial base will be undertaken. The Defense Logistics Information Research (DLIR) program will continue to support DLA's Technical Data Management Transformation (TDMT) efforts to determine IT architecture needs and to ensure DLA's MBE architecture meets/exceeds DOD compliance objectives and integrates with Military Services irrespective of platforms. DLIR will continue to explore Digital Manufacturing Enterprise models that shift procurement strategy to on-demand manufacturing capacity data and continue collaboration with MxD focusing on cybersecurity and building the digital thread completing the conversions of selected NSNs to 3D, model-based formats, producing first articles, and demonstrating to the cognizant Engineering Support Activity (ESA) that the model-based TDP can be the authoritative TDP. The Emerging Manufacturing Technology (EMT) program will continue to enable DLA's investigation of new disruptive technology advances that may be implemented in the nearer term, without degrading well established program efforts. An additional $2.5 million was added for Critical Chemical, Strategic Material Related Efforts. ***FY 2022 to FY 2023 Increase/Decrease Statement:*** -Funding and efforts for the Three-dimensional (3D) Technical Data Modernization (TDM) / Model-Based Enterprise (MBE) (R&D LOE 2) begins in FY 2023 focused on three-dimensional technical data and knowledge-based tools to transform and streamline supply system responsiveness for DLA-managed commodities. -The overall R&D LOE 2 baseline was increased by approximately $1.000 million across FY 2023 - FY 2027 based on internal funding reallocation decision to modernize DLA's technical data management and predictive analytics capability and lay the foundation for next generation Smart Manufacturing.			

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2021	FY 2022	FY 2023
-An additional $2.5 million was added for Critical Chemical, Strategic Material Related Efforts.			
Accomplishments/Planned Programs Subtotals	0.000	-	10.944

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A