

**UNCLASSIFIED**

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

| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i> |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |                      |                |                |                |                |                         |                   |
|---|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b>  | <b>FY 2022 Total</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025</b> | <b>FY 2026</b> | <b>Cost To Complete</b> | <b>Total Cost</b> |
| Total Program Element   | 121.222            | 50.184         | 69.025         | 37.543              | -   | 37.543               | -              | -              | -              | -              | Continuing              | Continuing        |
| IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i>   | 57.181             | 27.724         | 42.205         | 13.809              | -   | 13.809               | -              | -              | -              | -              | Continuing              | Continuing        |
| AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>   | 48.372             | 16.481         | 17.854         | 17.695              | -   | 17.695               | -              | -              | -              | -              | Continuing              | Continuing        |
| OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i>  | 15.669             | 5.979          | 8.966          | 6.039               | -   | 6.039                | -              | -              | -              | -              | 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 lower.

DLA ManTech is aligned into three Strategic Focus Areas (SFA): 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.

- MVSS 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.

**UNCLASSIFIED**

|   |                       |
|---|-----------------------|
| <b>Exhibit R-2, RDT&amp;E Budget Item Justification:</b> PB 2022 Defense Logistics Agency | <b>Date:</b> May 2021 |
|---|-----------------------|

|   |   |
|---|---|
| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 3: Advanced Technology Development (ATD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |
|---|---|

• 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, 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 operations costs and improve weapons systems support. This effort spans across both DLA R&D Program Elements and multiple Strategic Focus Areas, impacting across the DoD Joint Defense Manufacturing Technology Panel and DLA Enterprise logistics processes.

| <b>B. Program Change Summary (\$ in Millions)</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b> | <b>FY 2022 Total</b> |
|---|----------------|----------------|---------------------|--------------------|----------------------|
| Previous President's Budget                       | 50.184         | 40.025         | 40.029              | -                  | 40.029               |
| Current President's Budget                        | 50.184         | 69.025         | 37.543              | -                  | 37.543               |
| Total Adjustments                                 | 0.000          | 29.000         | -2.486              | -                  | -2.486               |
| • Congressional General Reductions                | -              | -              |                     |                    |                      |
| • Congressional Directed Reductions               | -              | -              |                     |                    |                      |
| • Congressional Rescissions                       | -              | -              |                     |                    |                      |
| • Congressional Adds                              | -              | 29.000         |                     |                    |                      |
| • Congressional Directed Transfers                | -              | -              |                     |                    |                      |
| • Reprogrammings                                  | -              | -              |                     |                    |                      |
| • SBIR/STTR Transfer                              | -              | -              |                     |                    |                      |
| • Inflation for Civilian Pay                      | -              | -              | 0.016               | -                  | 0.016                |
| • Inflation for Non-Pay/Non-Fuel Purchases        | -              | -              | -0.950              | -                  | -0.950               |
| • Decrease for Travel                             | -              | -              | -0.062              | -                  | -0.062               |
| • Internal Realignment to LOG PE 0603712S         | -              | -              | -1.500              | -                  | -1.500               |
| • Retired Pay Accrual                             | -              | -              | 0.010               | -                  | 0.010                |

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

**Project:** IBMP: *Improving Industrial Base Manufacturing Processes (formerly Material Availability)*

Congressional Add: *Improve Steel Performance Initiative in Castings*

Congressional Add: *Supply Chain adoption of additive manufacturing, automation, and robotics in Castings*

|  | <b>FY 2020</b> | <b>FY 2021</b> |
|--|----------------|----------------|
|  | 10.000         | 10.000         |
|  | -              | 10.000         |

**UNCLASSIFIED**

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

|   |   |
|---|---|
| <b>Appropriation/Budget Activity</b><br>0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide I BA 3: Advanced Technology Development (ATD)</i> | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |
|---|---|

**Congressional Add Details (\$ in Millions, and Includes General Reductions)**

Congressional Add: *Additive Manufacturing Castings Model*

Congressional Add Subtotals for Project: IBMP

| FY 2020 | FY 2021 |
|---------|---------|
| -       | 5.000   |
| 10.000  | 25.000  |

**Project:** OOO: *Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)*

Congressional Add: *Rare Earth Magnets*

Congressional Add Subtotals for Project: OOO

|   |       |
|---|-------|
| - | 4.000 |
| - | 4.000 |

Congressional Add Totals for all Projects

|        |        |
|--------|--------|
| 10.000 | 29.000 |
|--------|--------|

**Change Summary Explanation**

FY 2021:

-SBIR/STTR Transfer: Due to an error while coding FY 2021 Enactment, the SBIR/STTR transfer is not reflected in the exhibit totals. Programs were indeed taxed and the funding was transferred to the SBIR PE 0605502S. For ManTech, the SBIR/STTR transfer is \$2.393M.

FY 2022:

- Inflation for Non-Pay/Non-Fuel Purchases: \$0.725 million of the \$0.950 million reduction was incorrectly coded to Manufacturing Technology and was intended for the Defense Microelectronics Activity for non-pay/non-fuel inflation. The funding will be adjusted correctly upon enactment of FY 2022 funding.
- Decrease for Travel: Defense-Wide activities are directed to maximize their travel funding through the use of technology, such as video teleconference, and cost-efficient transportation options.
- Internal Realignment to LOG PE 0603712S: Funding moved to LOG for requirements.
- Retired Pay Accrual: Agency Contribution Assumption FY 22 rate was increased by 1.1%.

**UNCLASSIFIED**

|   |                    |                |                |                     |   |                      |                |                |  |                       |                         |                   |
|---|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-----------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency          |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> May 2021 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3  |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |                      |                |                | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |                       |                         |                   |
| <b>COST (\$ in Millions)</b>  | <b>Prior Years</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b>  | <b>FY 2022 Total</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025</b>   | <b>FY 2026</b>        | <b>Cost To Complete</b> | <b>Total Cost</b> |
| IBMP: <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> | 57.181             | 27.724         | 42.205         | 13.809              | -   | 13.809               | -              | -              | -  | -                     | 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 is the successor to the Combat Rations Network R&D program. SUBNET 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 ~2% of National Stock Numbered Class IX parts but represent ~5% of all backorders, and when only the oldest backorders are considered, up to 10% 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,

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |

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 ~2% of National Stock Number (NSN) Class IX parts but represent ~5% of all backorders, and when only the oldest backorders are considered, up to 10% 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 pursuing 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>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| <b>Title:</b> Improving Industrial Base Manufacturing Processes (formerly Material Availability)   | 17.724         | 17.205         | 13.809         |
| <b>FY 2021 Plans:</b><br>The Subsistence Network (SUBNET) program will continue to research and execute short-term innovative projects to improve the subsistence supply chain. SUBNET will work with community partners (military services, industry, and academia) to leverage the latest innovations. SUBNET plans to research and execute projects in FY 2021 regarding modernization and readiness analysis of a Joint Food Management System, Subsistence readiness and innovation assessment of the supply chain, Pre and Polyfluoroalkyl |                |                |                |

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |

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

|  | FY 2020 | FY 2021 | FY 2022 |
|--|---------|---------|---------|
| <p>(PFAS) in MRE Packing materials, Identification of critical performance properties for barrier materials in hot sauce packaging for MRE rations and Blockchain application for the Outside of Continental U.S. (OCONUS) Subsistence Prime Vendor supply chain. The program will also continue to work Small Business Innovation Research (SBIR) topics in Subsistence, for example, using cold plasma fog mist to disinfect personnel protective equipment, 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.</p> <p>The Casting program will continue to monitor awarded contracts for 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 technology that includes robotic and additive manufacturing methods and implementation, new test processes and procedures to evaluate cast materials, computer simulation and modeling to decrease lead-time and increase quality. 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.</p> <p>The Forging program will execute projects focused 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. These projects will be in alignment with the needs of the DoD and DLA aimed and supporting and fulfilling the needs of the warfighter.</p> <p>The Battery Network (BATNET) program will continue new projects for improving the production readiness, transition, and standardization of soldier and system batteries within the DLA supply chain. The BATNET program will also leverage new battery manufacturing technologies for the supply chain that have been developed by industry – advanced electrode production, low cost materials production or recycling, advanced performance cells, and deep-discharge lithium-ion capabilities</p> <p>The Additive Manufacturing (AM) program, using market research, requests for information/proposals, Broad Agency Announcements (BAA), DLA R&amp;D will fund 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. These augmented analytics efforts will help identify unseen patterns in the utilization of AM resources such as machines, materials, manufacturing expertise, and manufacturing data to shape an efficient AM distributive manufacturing ecosystem. Desired outcomes include: optimization of polymer and metal AM production to obtain land, air and sea and expeditionary platform spare parts. The Additive Manufacturing (AM) program plans to finance 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 will identify the best AM applications to achieve precise robustness-repeatability-reproducibility of</p> |         |         |         |

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| <p>part fabrication using an AM technical data package in a distributed manufacturing setting and prove the delivery of AM parts to warfighters deployed at the expeditionary sea, land or air bases.</p> <p><b>FY 2022 Plans:</b><br/>                     The Subsistence Network (SUBNET) program plans to continue to research and execute short-term innovative projects to improve the subsistence supply chain in FY 2022. SUBNET will continue to incorporate emerging technologies to address stakeholder's requirements as well as leverage supply chain innovations, best practices and trends. SUBNET will continue to research and conduct pilot test in the areas of modernization and readiness analysis of Joint Food Management System and improving subsistence visibility enhancing receipting and barcoding at an OCONUS location. SUBNET plans to conduct research in FY 2022 regarding data analytics, wire mesh sensor technology, and automation in Military Dining Facilities. The program will also continue to pursue Small Business Innovation Research topics in Subsistence. The SUBNET program will continue to work with community partners (military, academia and industry) to promote initiatives in the subsistence supply chain.</p> <p>The Casting program will continue to monitor awarded contracts for 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 technology that includes robotic and additive manufacturing methods and implementation, new test processes and procedures to evaluate cast materials, computer simulation and modeling to decrease lead-time and increase quality. 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.</p> <p>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.</p> <p>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. These projects will leverage new battery manufacturing technologies for the supply chain that have been developed by industry – advanced electrode production, low cost materials production or recycling, advanced performance cells, and deep-discharge lithium-ion capabilities.</p> <p>The DLA R&amp;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</p> |                |                |                |

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>   | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|---|----------------|----------------|----------------|
| <p>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&amp;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.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b><br/>Reduction of \$3.000 million for internal realignment: \$2.000 million is realigned within the ManTech Program Element from Additive Manufacturing (AM) to Defense Logistics Information Research (DLIR) and Military Unique Sustainment Technology (MUST) for increased investment priorities for Digital Data Modernization. These investments will continue to benefit the AM program through improvement to sharing technical data and requirements with the industrial base, a critical component to AM. \$0.500 million from Battery Network and \$0.500 million from Forgings is realigned from the ManTech Program Element to the Log R&amp;D Program Element for increased investments in Data Management and Predictive Analytics. The additional \$0.400 million decrease was previously taken.</p> |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>   | 17.724         | 17.205         | 13.809         |

|   | <b>FY 2020</b> | <b>FY 2021</b> |
|---|----------------|----------------|
| <p><b>Congressional Add:</b> Improve Steel Performance Initiative in Castings</p> <p><b>FY 2020 Accomplishments:</b> Began work to develop a government-industry network to develop automated design processes to allow small lot size, low rate production without requiring custom programming for each part. Steel alloy development and manufacturing technology processes improvements will extract higher performance from steel components through utilizing modeling, design and process optimization, and development of performance-based Non-Destructive Testing (NDT) standards for component qualification.</p> <p><b>FY 2021 Plans:</b> Conduct projects under the Steel Performance Initiative that includes: Steel Alloy Development and Manufacturing Technology; Integrated Process and Performance Modeling; Advanced Testing &amp; Qualification; Improved Steel Casting Tooling; and Optimized Processing of Steel Materials</p> | 10.000         | 10.000         |
| <p><b>Congressional Add:</b> Supply Chain adoption of additive manufacturing, automation, and robotics in Castings</p>  | -              | 10.000         |

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>IBMP / <i>Improving Industrial Base Manufacturing Processes (formerly Material Availability)</i> |

|   | FY 2020 | FY 2021 |
|---|---------|---------|
| <b>FY 2021 Plans:</b> Continue projects to improve the Casting supply chain through use of modeling and simulations for process analysis and improvements and design optimization; additive manufacturing technologies, and robotics in castings processes to improve quality and production lead times.                        |         |         |
| <b>Congressional Add:</b> Additive Manufacturing Castings Model   | -       | 5.000   |
| <b>FY 2021 Plans:</b> Explore additive manufacturing technology application to Digital Tooling, to include a benchmark study of the Casting industry for additive manufacturing technology, research binder jet printing method for investment casting molds, and improve surface finish of casting produced from printed sand. |         |         |
| <b>Congressional Adds Subtotals</b>   | 10.000  | 25.000  |

**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.

**UNCLASSIFIED**

|  |                    |                |                |                     |   |                      |                |                |  |                       |                         |                   |
|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|--|-----------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |                    |                |                |                     |   |                      |                |                |  | <b>Date:</b> May 2021 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |                      |                |                | <b>Project (Number/Name)</b><br>AAA / <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i> |                       |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b>  | <b>FY 2022 Total</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025</b>   | <b>FY 2026</b>        | <b>Cost To Complete</b> | <b>Total Cost</b> |
| AAA: <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i>          | 48.372             | 16.481         | 17.854         | 17.695              | -   | 17.695               | -              | -              | -  | -                     | 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 MAE 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)**

|  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| <b>Title:</b> Maintaining Viable Supply Sources (formerly High Quality Sources)  | 16.481         | 17.854         | 17.695         |
| <b>FY 2021 Plans:</b><br>AME will complete and transition its first Linear/Analog technology project, 20 Volt Operational Amplifier, into full scale production. It will also complete and transition additional digital technology projects into full scale production. The first will address TTL compatible CMOS microcircuits and the second will address Dual-Port Memory microcircuits. MAE will continue development of Additive Manufacturing techniques to address Microcircuit Cases. It will begin additional Linear/Analog emulation projects for types/groups of parts, prioritized based on customer requirements. |                |                |                |
| <b>FY 2022 Plans:</b><br>AME 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 begin additional Linear/Analog and Digital emulation projects for types/groups of parts, prioritized based on customer requirements.   |                |                |                |
| <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b><br>No significant changes.  |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 16.481         | 17.854         | 17.695         |

**UNCLASSIFIED**

|  |   |  |
|--|---|--|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021  |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>AAA / <i>Maintaining Viable Supply Sources (formerly High Quality Sources)</i> |

**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.

**UNCLASSIFIED**

|  |                    |                |                |                     |   |                      |                |                |   |                       |                         |                   |
|--|--------------------|----------------|----------------|---------------------|---|----------------------|----------------|----------------|---|-----------------------|-------------------------|-------------------|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency                   |                    |                |                |                     |   |                      |                |                |   | <b>Date:</b> May 2021 |                         |                   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3   |                    |                |                |                     | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> |                      |                |                | <b>Project (Number/Name)</b><br>OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i> |                       |                         |                   |
| <b>COST (\$ in Millions)</b>   | <b>Prior Years</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022 Base</b> | <b>FY 2022 OCO</b>  | <b>FY 2022 Total</b> | <b>FY 2023</b> | <b>FY 2024</b> | <b>FY 2025</b>  | <b>FY 2026</b>        | <b>Cost To Complete</b> | <b>Total Cost</b> |
| OOO: <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i> | 15.669             | 5.979          | 8.966          | 6.039               | -   | 6.039                | -              | -              | -   | -                     | 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’s focus addresses 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 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 shorten the time needed to transition Combat Uniforms and Individual Equipment from development to operational use from years to months. 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 automated environment. The resulting approach will be a neutral platform that will seamlessly communicate military unique technical requirements throughout the end-to-end supply chain.

The Defense Logistics Information Research (DLIR) program researches core technology 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>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
| <b>Title:</b> Improving Technical and Logistics Information (formerly Industry and Customer Collaboration) | 5.979          | 4.966          | 6.039          |

**UNCLASSIFIED**

|  |   |   |
|--|---|---|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i> |

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

***FY 2021 Plans:***

The Military Unique Sustainment Technology (MUST) program is developing a knowledge based approach for the Combat Uniform and Individual Equipment (CUIE) item development and sustainment by streamlining joint processes and developing integrated prototype tools. MUST I will transition three prototype capabilities and begin work on MUST II objectives which emphasize the interface with the Military Services and the integration with DLA Industrial Base. The MUST-II development advances DLA Troop Support C&T and their supporting Industrial Base toward a Model Based Enterprise / Industry 4.0 capability.

The Defense Logistics Information Research (DLIR) program will continue 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 will also develop 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. Additionally, DLIR will explore 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. Finally, DLIR will continue to support 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 Operational Technology systems after a cyber-attack.

The EMT program continues 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 funded with these 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 Plans:***

Military Unique Sustainment Technology (MUST) II will continue to combat problems that plague DLA C&T's industrial base by improving a) the modernization of specifications with correct, current, and complete requirements to eliminate errors, omissions, and outdated information; b) collaboration between the Services and DLA to increase "jointness" of uniform and individual equipment items; and c) the availability of credible, reliable, and timely data and analysis tools so DLA C&T managers can make effective supply chain decisions. MUST II will develop more powerful AI based tools for conversion of legacy text and image

| FY 2020 | FY 2021 | FY 2022 |
|---------|---------|---------|
|         |         |         |

**UNCLASSIFIED**

|  |   |   |
|--|---|---|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i> |

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

|  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| <p>technical data into digital models. All new item technical requirement information will be captured as data (vs. pdf images) using one of the MUST I developed and implemented tools – the Supply Request Package (SRP). The SRP is being used by all the Military Services and other DLA customers when items are introduced into DLA Troop Support for sustainment. MUST II will work with the Services to promote the use of data formats that are compatible with the digital document model paradigm. Digital document models will become the "single source of truth" for 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 manufacturing processes. Joint processes will be reengineered to take advantage of the digital model data. Prototype tools and interfaces will also be developed to improve digital model utility for the industrial base.</p> <p>DLIR 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. Additionally, 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 look for opportunities to collaborate with MxD focusing on digital manufacturing, digital twin, digital thread, cybersecurity, and supply chain resiliency to build a Model Based Enterprise (MBE) and training DLA employees and small and midsize contractors on MBE.</p> <p>The EMT program continues 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 funded with these 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.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b><br/>-Increase of \$2.000 million from internal realignment within the ManTech Program Element of \$2.000 million from Additive Manufacturing (AM), to Defense Logistics Information Research (DLIR) and Military Unique Sustainment Technology (MUST) for</p> |                |                |                |

**UNCLASSIFIED**

|  |   |   |
|--|---|---|
| <b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Defense Logistics Agency |   | <b>Date:</b> May 2021   |
| <b>Appropriation/Budget Activity</b><br>0400 / 3                                       | <b>R-1 Program Element (Number/Name)</b><br>PE 0603680S / <i>Manufacturing Technology Program (ManTech)</i> | <b>Project (Number/Name)</b><br>OOO / <i>Improving Technical and Logistics Information (formerly Industry and Customer Collaboration)</i> |

| <b>B. Accomplishments/Planned Programs (\$ in Millions)</b>  | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|--|----------------|----------------|----------------|
| increased investment priorities for Digital Data Modernization. These investments will continue to benefit the AM program through improvement to sharing technical data and requirements with the industrial base, a critical component to AM.   |                |                |                |
| -\$0.725 million reduction for Inflation for Non-Pay/Non-Fuel Purchases was incorrectly coded to Manufacturing Technology under the Improving Technical and Logistics Information (ITLI) Strategic Focus Area (SFA) and was intended for the Defense Microelectronics Activity for non-pay/non-fuel inflation. The funding will be adjusted correctly upon enactment of FY 2022 funding. |                |                |                |
| <b>Accomplishments/Planned Programs Subtotals</b>  | 5.979          | 4.966          | 6.039          |

|  | <b>FY 2020</b> | <b>FY 2021</b> |
|--|----------------|----------------|
| <b>Congressional Add:</b> Rare Earth Magnets   | -              | 4.000          |
| <b>FY 2021 Plans:</b> Explore domestic sources to build domestic capacity for recycled rare earth magnets critical to weapon system sustainment. Building domestic source capacity will reduce foreign dependence, and supply chain vulnerability to price increases and access. |                |                |
| <b>Congressional Adds Subtotals</b>  | -              | 4.000          |

**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.