



The Innovator

DLA'S RESEARCH & DEVELOPMENT NEWSLETTER

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July-August Theme: DLA Innovation: Prepared for Immediate Action

I guarantee you will miss 100% of the shots you don't take!!

One of the missions of the DLA R&D is to support LOE #2, Global Posture: Prepared for Immediate Action. For instance, Strategic Positioning calls for the agency to “position DLA capabilities where the Warfighter needs them most.” R&D strives to work with our DLA and DOD partners to determine any gaps or issues in order to identify projects that will fix and improve logistics to the Warfighter.

One key activity to support advancement in DLA/DOD capabilities is R&D's annual strategic assessment process where program managers investigate established and disruptive technologies to determine future investments and projects. The goal of the process is to identify technologies and solutions that can be utilized by DLA immediately and in the future. Additionally, R&D continues to work with stakeholders to determine how best to improve upon or progress current capabilities, which also supports Objective 2.4: Expanded Solutions, which calls for DLA to “expand the availability and use of logistics solutions to enable immediate action.”

To be prepared for immediate action requires a strong partnership between R&D and its stakeholders. Through strategic assessments, site visits, and outreach, R&D works with stakeholders to identify current and future needs and develop opportunities to enhance and improve solutions. Our stakeholders communicate needs, advocate for resources to invest in R&D, and provide support to transition and sustain proven solutions.

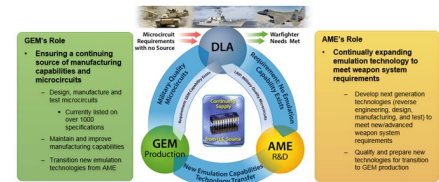
Chief's Corner – Global Posture—Supported by Innovation

by Kelly Morris

Around the globe, around the clock, DLA is poised for immediate logistics support to the Warfighter. However, it is not always an easy task. What is preventing the Agency from being prepared for immediate action? What capabilities are needed? It starts with identification of a problem or capability gap, then applying an appropriate solution.

Innovation may just be the solution. DLA R&D's objective is to improve the performance of the industrial base, move manufacturing to the next level, and develop new process and technologies that improve our efficiency and effectiveness. Our manufacturing technology programs work with industry to improve manufacturing readiness levels. R&D programs like Advanced Microcircuit Emulation (AME), Vacuum Tube technologies' and Battery innovations, for example, instill new manufacturing processes and develop new suppliers in the industrial base.

In our AME program, projects like the 128K Random Access Memory (RAM)/Read-Only



Memory (ROM) project developed and validated a manufacturing capability for RAM/ROM Microcircuits. The technology has already transitioned and is ready for use, keeping 42 weapon systems ready for action.

In our Battery program, we developed a new lithium ion-based power system for the TOW 2 anti-tank missile system, which transitioned to the Army for testing.

Our Logistics R&D programs are more internally focused and are aimed at developing new processes and technologies. The Defense Logistics Information Research Program is working to improve the quality, content and interoperability of logistics data. The Energy Readiness Program looks at developing new processes to improve quality and logistics support of fuel. One project we are working on is the conversion of woody biomass to liquid hydro-carbon fuels.

The overall impact of our successful projects supports DLA's global posture and Warfighter readiness.

DLA R&D Mission

To consistently develop and transition agile and innovative capabilities for the Defense Logistics consumer base

DLA R&D Vision

To enable DLA to be DoD's chief logistics and manufacturing problem solver

Program in the Spotlight – Robotic Process Automation (RPA): Getting Ready for Immediate Use

Intelligent Automation, Digital transformation, Robotic Process Automation...what does it all mean and how do these things apply to DLA? All the hype can be rather confusing, so let us take a look at one of these areas – robotic process automation.

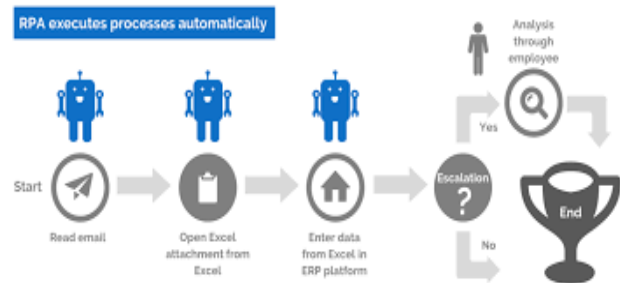
Robotic process automation (RPA) is an emerging software technology in which computer 'bots' mimic human actions to accomplish computer-based activities, enabling employees to spend more time on higher value tasks. RPA provides the capability to automate manual, structured, repetitive processes that follow a set of established rules. Even though the word 'robotic' is in the name, RPA Bots are software, not physical robots or mechanical appendages. They are essentially digital workers that reside in the electrons – sorry, no Terminators or R2-D2s!

If you are familiar with macros in Microsoft Excel, robotic process automation is similar. It is like a 'script on steroids' because RPA is not bounded in a single application. Bots can log into applications just as a human employee does and work within and between separate applications. End-to-end processes can be automated with RPA in total or limited to specific portions. When human judgement or approval is needed, the bot sends a notification to a human employee to make a decision and continue the process. Processes such as inventory reconciliation, employee onboarding, and invoice processing are some prime areas where RPA can be employed.

The benefits (financial and business) of RPA technology are numerous. With a relatively small investment, repetitive processes can be automated, saving time, money, and resources. Bots work 24 hours a day, 7 days a week, without taking breaks, vacation or sick days, increasing throughput and decreasing errors. Some direct financial benefits are in the area of cost reduction/

efficiency. Bots can be employed at a fraction of the cost of a human employee and can do work faster. Another cost benefit is lower infrastructure costs. Bots don't require physical infrastructure (desks, phones, PCs, etc.), which reduces the need for a physical footprint. A business benefit is employee satisfaction. Using bots frees up human employees from mundane, repetitive work to do more complex, analytical, work...leading to higher job satisfaction. Another business benefit is auditability. All activities of the bot are logged, providing an audit trail which could be used as evidentiary matter. Another business benefit is increased scalability. Bots are easily 're-trainable' so they are able to be redirected to surge where capabilities are needed with minimal reconfiguration.

DLA Information Operations (J6) will be implementing RPA capability in DLA in the near future, starting with some high volume, manual processes in a variety of business areas. As RPA capabilities are rolled out, we will be looking for candidate processes to automate. Start thinking about how robotic process automation may benefit the work you do! As it says in the lyrics of a once popular Styx song, "Domo Arigato, Mr. Roboto, (Thank you very much, oh Mr. Roboto)!"



Industry News – Ready to Deliver Vacuum Electron Tubes Capability

DLA Land & Maritime procures and supplies hundreds of Vacuum Electron Tube NSNs under Federal Supply Class 5960, yet the supplier base is relatively small and very specialized. Although most commercial or military electronic components or devices no longer use these tubes, they are still a key component of some high energy medical/laboratory test equipment, household microwaves, and large radar/communication devices. Vacuum Electron Tubes use special cathode metals and complex anode collectors to control a high density of electrons moving in vacuum that substantially amplify microwaves, radio spectrum waves, or other electron flows. Starting in 2016, the R&D team facilitated a working group to conduct site visits of DLA's key suppliers and to study the supply and manufacturing issues - a number of issues were uncovered.

Test performance problems was one issue. R&D provided additional funds for the supplier to conduct reengineering and design improvements in that area. The vendor changed the base design for better heat transfer and the internal cathode for stronger performance and reliability. The modified items were successfully tested at Tobyhanna Army Depot and the Air Force accepted the modifications to the tube design (and testing procedures). DLA Land & Maritime has initiated new procurement actions for these critical items.

R&D also recently contracted manufacturing and material improvements or revisions at Communications & Power Industries (CPI). Over the next several months, CPI will automate various production steps and qualify new materials for microwave quality glass and tungsten welding wire to improve production capabilities at reduced cost and improve the supply performance of a number of vacuum electron tubes.

The working group will continue to look for new opportunities to leverage R&D in support of this and other DLA supply chains.



Vacuum Electron Tube

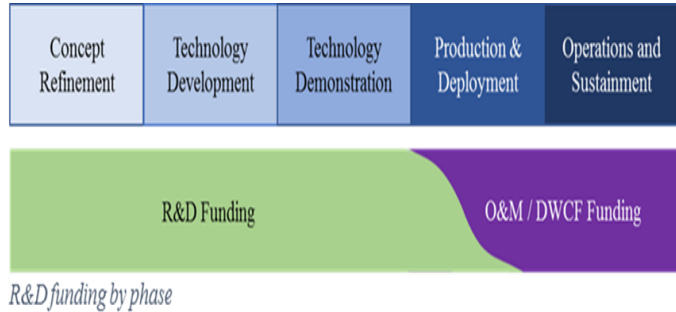
Finance Corner – R&D Project Transition - When Innovation Meets Capability



Ready... set... go! Wait, where are we going? Through innovation, DLA R&D strives to improve warfighter support, which is realized only when a capability is ready for transition and sustainment. R&D can be tricky because failure is a large part of innovation, but delivering a capability must always be the target. To keep DoD R&D efforts focused on implementing a capability, OSD, as required by the Government Performance and Results Act (GPRA), established strategic objectives to transition 40% of completing R&D projects.

This emphasis on transition means the GPRA 40% target is now included in the DLA R&D's program performance metrics. To meet this goal, Program Managers need to consider projects with strong sponsorship (invest time and resources) and that fill a known critical gap. Close coordination with the sponsor through the planning and budgeting process, as well as the weapons system development phases (see diagram) better assures that the necessary funding, processes, and other elements are in place to support the Production/Deployment and the Operations/

Sustainment phases. The DLA R&D team is now incorporating the 40% transition metric into respective program goals, and developing sound processes to manage project transition over the next year to be truly *Ready to Deliver!*



Processes for Innovation Project Start up

What constitutes an R&D project?

The RAND Corporation defines Research and Development (R&D) as the... “Systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.” DLA R&D (J68) subscribes to these fundamental principles via execution of “R&D Projects” designed to prove out these knowledge concepts and realize their feasibility.

J68 identifies thoroughly vetted projects aimed at satisfying a vacant capability, in partnership with disparate stakeholders across the federal government, industry and academia. The coordinated approval of a project results in the obligation of “seed funding” designated to test the merit of the chosen concept(s) in a controlled test environment, for the purpose of mitigating the commitment of constrained resources to concepts that may/may not produce a needed capability.

J68 employs a structured process designed to wade through the myriad landscape of concepts that come across its threshold, with the understanding that many of the ideas presented may fail however... every once in a while the fruits of this labor will materialize into something as significant as placing a person on the moon!

New R&D Charter Process

The R&D charter is important in that it provides the detailed objectives and outcomes of a project, as well as the cost and timeline, that the sponsoring executive and DLA leadership can agree on. It also provides the justification for funding, contracting and executing the project. The J6 Front Door process is now a key part of the review and approval process for those R&D charters.

The Front Door provides a single, disciplined approach for review, analysis and implementation of capability requests and requirements, which now includes all R&D projects. R&D will continue to document efforts in a formal charter, obtain executive

level sponsorship and enterprise coordination. But the new Front Door step allows J6 review, coordination, and project visibility currently available for other IT capability requests. And any user of the Enterprise Change Request Tool (ECRT) will also have status visibility to DLA's research & development efforts. Contact Matt Hutchens, Mather.Hutchens@dla.mil, for additional details, if needed.

What constitutes an Innovation Team project?

The Innovation Team is J6's accelerator for innovative projects and concepts. No one area owns innovation in DLA, but the Innovation team has the mission to connect and grow the community of innovators inside the workforce. We began by collaborating with a network of partners outside of DLA and then we beg, borrow and steal their most effective concepts. The successful programs incorporate these two areas: 1. A problem focus; 2. Minimum viable products (“MVPs”).

Problem focus: DLA demands “clear requirements” up front. This approach is incomplete because it assumes a solution from the beginning. However, the Innovation Team asks that you focus on what problem, specifically, you are trying to solve *before* you try to solve it. A good problem is desirable—the customer wants to fix it; viable—the organization wants to fix it; and feasible—it is technically possible. If you cannot hit all three, we prioritize a different problem.

MVPs: Once you have identified a problem, we work with as many stakeholders as possible to crowdsource a solution. We keep that solution small (and focused) though—enough to address the core problem, but not all related problems. This first draft should serve as a pilot. Then we get more stakeholder feedback to determine whether to kill, scale or pivot.

R&D – Program Managers (PM)

Here are the R&D program managers. Each one has their one area of expertise. Let's see what they do.

Emily Bagis is PM for the Defense Logistics Information Research (DLIR) Program. The DLIR program researches core technology to improve the quality, speed, and interoperability of logistics data acquisition and management to enable and streamline DLA operations.

Manny Casas is PM for Strategic Distribution and Disposition (SDD) and Supply Chain Management (SCM) Programs. The SDD Program collaborates with DLA Distribution and Disposition Services to improve capabilities, operational effectiveness, and efficiency in support of the Warfighter. The SCM Program addresses emergent and out of budget cycle requirements and opportunities within DLA's supply chains.

Tony Delgado is DLA's R&D Additive Manufacturing (AM) Program Manager. The DLA R&D is developing an enterprise approach for AM, with partnerships and service agreements (SA) between DLA, the Military Services (MILSVCs), industry, and academia to address qualification/certification of new AM production techniques and processes and the eventual acceptance of parts.

Gloria Edwards is PM for the Subsistence Network (SUBNET) Program. The SUBNET Program supports R&D projects that promote manufacturing improvements in the subsistence supply chain. The areas of research include: combat rations, food equipment, field feeding solutions, food footprint, food innovations, food safety and defense, garrison feeding, nutrition and health, storage and packaging solutions, surge and sustainment support, and water security.

Lindsey Hicks is lead for the Energy Readiness Program (ERP) which provides program management over projects and initiatives that seek to improve Class IIIB fuel supply chain's products, processes, and infrastructure.

Dean Hutchins is the PM for the Casting (PRO-ACT) and Forging (PRO-FAST) R&D programs. The objective of the PRO-ACT program is to reduce lead times, improve reliability, and strengthen the supply chain in the procurement of spare parts containing castings. The objective of the PROFAST multiyear, consortium-based, customer-driven, and designed program is to meet the needs of its stakeholders by concurrently investigating, developing, and deploying solutions to address forging based supply chain problems.

Matt Hutchens primarily conducts manufacturing technology R&D for DLA's battery supply chain, which includes innovative production

processes, transitioning particular batteries to advanced technology, or addressing forms of obsolescence. He also leads R&D efforts with the vacuum electron tube supplier base, and recently qualified lower cost, domestic carbon fibers for DoD/NSO satellite structures.

William Johnson is the PM for the Advanced Microcircuit Emulation (AME) Program. His specific focus is on addressing microcircuit obsolescence. He has several projects targeting development of manufacturing capability in order to put unprocurable microcircuits back into production. Our projects transition to Land and Maritime which uses the capability to build form, fit and function equivalents of unavailable microcircuits.

Denise Price is the PM for the federal Small Business Innovation Research (SBIR) program, The objectives of DLA's SBIR are to stimulate technological innovation and increase commercialization of R&D within the DLA managed supply chains. DLA's SBIP utilizes programs authorized by Congress that focus on innovation to create new or improved technologies having marketable potential including: development of new technologies, refinement of existing technologies, and development of new applications for existing technologies.

Julie Tsao is the Program Manager of the Military Unique Sustainment Technology (MUST) Program. The MUST is a DLA sponsored ManTech R&D program that focuses on the challenges related to DLA Troop Support- Clothing and Textiles (C&T) Supply Chain activities. MUST pursues an integrated effort to develop a knowledge based approach to collaborate and communicate technical requirements of new combat uniforms and individual equipment as recommended by the GAO.



Manuel Vengua is the PM for the Weapon System Sustainment (WSS) Program. The WSS Program utilizes technology and innovative business process changes to provide more responsive planning, procurement, and technical quality processes. Current efforts include improvements to supplier communications and market intelligence; reducing counterfeit parts, and improving retail support for Service maintenance activities. R&D projects to explore artificial intelligence and block chain technologies are also planned.

ABOUT US – J68 Logistics R&D

DLA R&D develops innovative capabilities and processes that improve logistics operations and strengthen the industrial base in support of the Warfighter, the Agency, and the Department of Defense.

Founded in 1984, DLA R&D has executed hundreds of projects and has partnered with more than 300 industry, 50 academic partners, and 150 government entities. Many professional reports have been published as a result of R&D efforts. Some of R&D's successes include military apparel RFID tagging, ultrasonic MRE sealing technology, and a forging tooling database. R&D researchers developed at least eight patents. R&D currently has over 90 active projects.

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Current and previous editions can be found on the R&D KM Portal:
https://eworkplace.dla.mil/sites/S14F/The_Innovator/Forms/AllItems.aspx

UPCOMING R&D EVENTS & ACTIVITIES

July 2018
10-12 Defense Standardization Program Workshop
11-12 Advanced Materials for Defense Summit
17-18 AME Summer Portfolio Review
18-19 R&D Visit to DLA Land & Maritime
22-25 Advancing Precision in AM

August 2018
1 AF ManTech Strategy Workshops

September 2018
26-28 AF AM Technical Interchange

October 2018
3 R&D Industry Day