



# DLA Supply Chain Alliance Conference & Exhibition



## RESEARCH & DEVELOPEMNT (R&D)

### **Martina Johnson**

*Research & Development  
Strategic Integrator, DLA  
Information Operations*

### **Dr. Barry Humphrey**

*Research & Development  
Program Manager, DLA  
Information Operations*

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*Program Manager, Castings &  
Forging, DLA Information  
Operation*



# Agenda

## About DLA

**DLA the Nation's Combat Logistics Leader**



## R&D Alignment to Theme

R&D alignment to theme  
“Exploring and Experimenting Logistics Research for the Global Supply Chain” focusing on Industry including:

- Rapid Acquisition – ICD and OTAs, BAA
- Cloud – TAAS, ARTET, DevSecOps environments
- Digital Transformation – JFMS, MUST, DLIR (digital thread/digital twin), LTR
- Warfighter and Beyond

## DLA R&D

- Organization Overview
- Our R&D efforts focus on the supply chain
- R&D on the map
- Partnerships
- Future Challenges





# TRANSFORMING GLOBAL LOGISTICS

As the Nation’s Combat Logistics Support Agency, we must lean forward to address new challenges that threaten our global environment. We will meet those threats and the evolving needs of the warfighter and nation with this Strategic Plan, which identifies our most critical priorities and will **transform our business processes over the next five years**. Though this transformation will not encompass all of DLA’s day-to-day activities, these core objectives will have the greatest impact on our ability to achieve mission success.

## MISSION:

Deliver readiness and lethality to the Warfighter Always and support our nation through quality, proactive global logistics.

## VISION:

As the Nation’s Combat Logistics Support Agency and valued partner, we are innovative, adaptable, agile, and accountable – focused on the Warfighter Always.

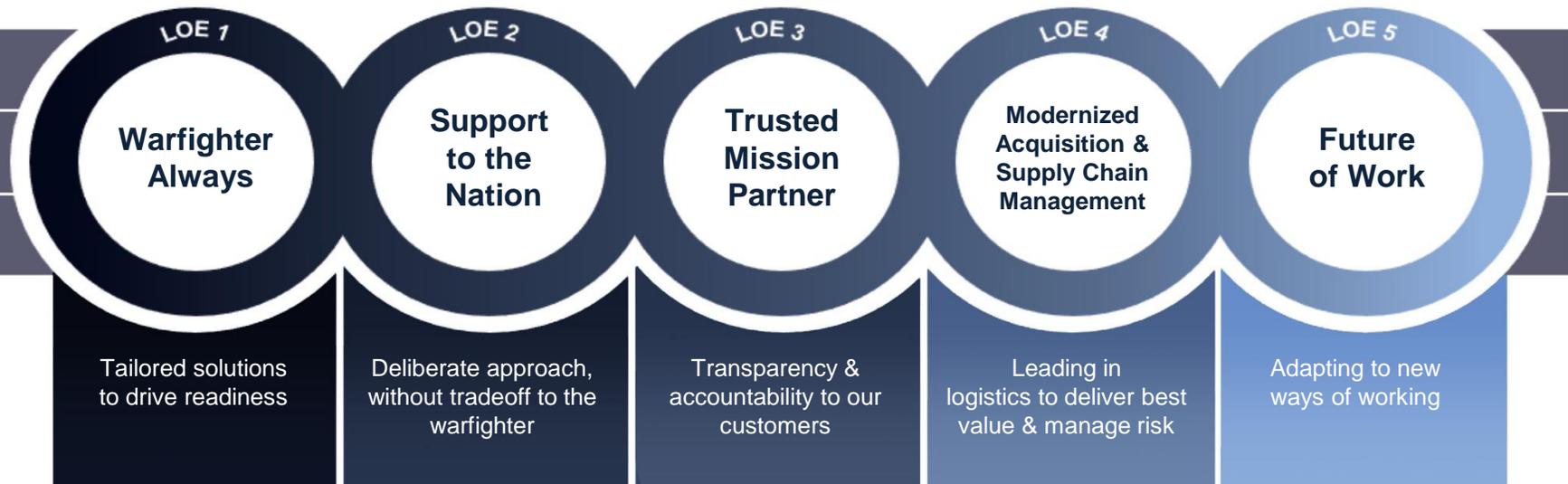
### Critical Capabilities

**People & Culture:**  
Supporting our people

**Fiscal Stewardship:**  
Investing in outcomes

**Digital-Business Transformation:**  
Embracing the future

### Lines of Effort



**Enterprise Key Performance Indicators (KPI) measure the success of this strategy:**

- Service Readiness
- Supply Availability

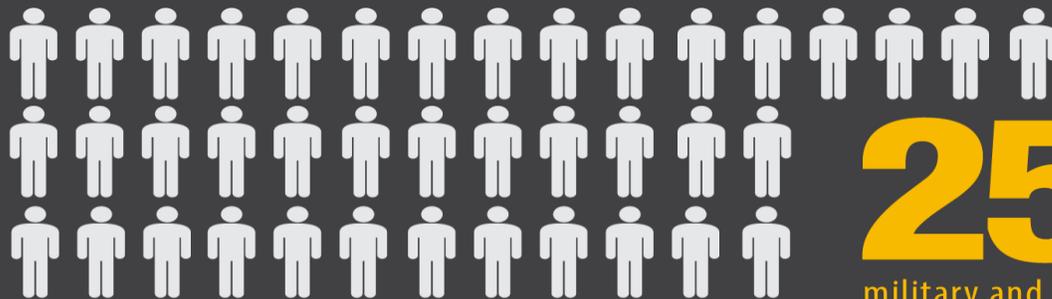
- Acquisition Timeliness
- Business Health

- Liquidity
- Price Competitiveness

- Customer Satisfaction
- Employee Engagement

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# QUICK FACTS



**DLA**  
employs about

# 25,000

military and civilian personnel = ~625 personnel

## 6 MAJOR SUBORDINATE COMMANDS

### DLA AVIATION

Manages the supply chain for aviation weapons systems repair parts, flight safety equipment, maps, consumable hardware, environmental products and industrial plant equipment

### DLA TROOP SUPPORT

Manages the supply chains for food, textiles, construction material and medical supplies and equipment, including pharmaceuticals

### DLA DISPOSITION SERVICES

Disposes of excess property by reutilization, transfer and demilitarization; conducts environmental disposal and reuse

### DLA LAND AND MARITIME

Manages the supply chain for ground-based and maritime weapons systems repair parts, consumable hardware, small arms parts and fluid-handling systems

### DLA ENERGY

Manages the supply chain for petroleum and lubrication products, alternative fuel and renewable energy, aerospace energy; provides fuel quality and technical support, fuel card programs and installation energy services

### DLA DISTRIBUTION

Provides storage and distribution solutions and management, transportation planning and management, logistics planning and contingency operations; operates a global network of distribution centers

## MANAGES MULTIPLE SUPPLY CHAINS



and about  
**5M**  
Line items

AND PROVIDED MORE THAN

# \$46B

IN GOODS AND SERVICES FOR FY2021

## DLA REGIONAL COMMANDS

### DLA EUROPE & AFRICA

HQ: Kaiserslautern, Germany

The agency's primary liaison to U.S. European Command, NATO and U.S. Africa Command, providing a unified DLA interface for warfighters throughout the areas of responsibility.

### DLA CENTCOM & SOCOM

HQ: MacDill Air Force Base, FL

The agency's primary liaison to U.S. Central Command and U.S. Special Operations Command, providing a unified DLA interface for warfighters throughout the area of responsibility.

### DLA INDO-PACIFIC

HQ: Joint Base Pearl Harbor / Hickam, HI

The agency's primary liaison to U.S. Indo-Pacific Command, U.S. Forces Korea, U.S. Forces Japan and U.S. Alaskan Command, providing a unified DLA interface for warfighters throughout the area of responsibility.



# R&D Alignment to Supply Chain Alliance Theme

“Exploring and Experimenting Logistics Research for the Global Supply Chain” focusing on Industry including:



## Rapid Acquisition

Industry Collider Day (ICD), Other Transaction Agreements (OTAs), Broad Agency Announcement (BAA)



## Cloud

Testing as a Service (TAAS), Applied Research Testing & Emerging Technologies (ARTET), DevSecOps environments



## Digital Transformation

Joint Food Manufacturing Services (JFMS), Military Unique Sustainment Technology (MUST), Defense Logistic Information Research (DLIR): (digital thread/digital twin)



## Warfighter and Beyond

Warfighter Sustainment  
Warfighter Readiness, Resiliency, and Resolve



# Our Organization

## MISSION

## VISION

*Develop and deliver new capabilities through applied technologies and innovative solutions to enhance warfighter sustainment*

*Premier Innovators for Global Warfighter Mission Readiness*



### Logistics Research and Development

Pioneers advanced logistics concepts and business processes that use commercial best practices; develops and demonstrates high payoff technologies that can provide improved performance at lower costs

#### PROGRAMS:

- Logistics Technology Research (LTR) formerly known as Weapon System Sustainment (WSS)
- Strategic Distribution & Disposition (SDD)
- Supply Chain Management (SCM)
- Energy Readiness Program (ERP)
- Acquisition Modernization Technology Research (AMTR)

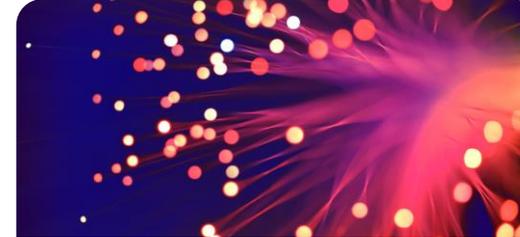


### Manufacturing Technology

Supports technical innovation in the DLA industrial base to improve the operational performance of key supply chains

#### PROGRAMS:

- Advanced Microcircuit Emulation (AME)
- Battery Network (BATTNET)
- Casting PRO-ACT (CASTING)
- Forging PRO-FAST (FORGING)
- Military Unique Sustainment Technology (MUST)
- Subsistence Network (SUBNET)
- Defense Logistics Information Research (DLIR)
- Additive Manufacturing (AM)



### Small Business Innovation Program \$0M

Small Business Innovation Research (SBIR), Small Business Technology Transfer (STTR)

Through competitive awards-based programs, SBIP funds small business to develop state-of-the-art, innovative solutions to mission-critical

- Nuclear Modernization
- Supply Chain Innovation
- Force Readiness & Lethality
- Supply Chain Risk Reduction



### Technology Accelerator Team

Rapidly delivers prototype capabilities with design and discovery techniques rather than requirements-based concepts

### Strategic Technology Team

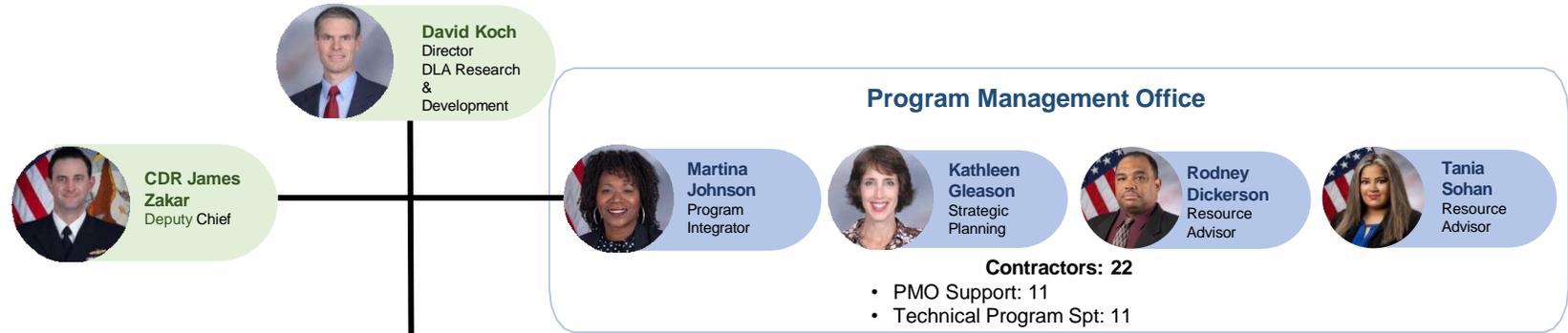
Explores and leverages technologies to provide new capabilities to enhance the user computing experience across the agency

### Applied Research & Testing Emerging Technologies

Provide the technological infrastructure to propel early-stage adoption for emerging and disruptive technologies

# J68 R&D

## Our People Transforming and Diversifying the Organization



### Strategic Tech Team

- Chad Craner, Strategic Vendor Relations
- Jeffrey Williams, Strategic Analyst for Enterprise Mobility

### Tech Accelerator

- Miesha Spann, Program Manager
- Adam Price, Program Analyst

### Applied Research & Testing Emerging Technologies

- Martina Johnson, Program Integrator
- Barry Humphrey, Logistics Technology Research

### Manufacturing Technology

- Tony Delgado, Additive Manufacturing
- William Johnson, Advanced Microcircuit Emulation
- Matt Hutchens, Battery Network
- Dean Hutchins, Casting and Forgings

- Gloria Edwards, Subsistence Network
- Senthil Arul, Defense Logistics Information Research
- Julie Tsao, Military Unique Sustainment Tech

### Logistics R&D Technology

- Manny Casas, Strategic Distribution & Disposition<sup>1</sup>
- Barry Humphrey, Logistics Technology Research
- Laura Schreiber, Acquisition Modernization Technology Research
- Imes Chiu, Supply Chain Management and Sustainability
- Lindsey Hicks, Energy Readiness Program

### Small Business Innovation Program

- Denise Price, Small Business Innovative Research Technology
- Vaibhav Jan, Small Business Innovative Research Technology

<sup>1</sup> Formerly Weapons Syst Sustainment



# SBIP DIRECTLY SUPPORTS THE DLA INDUSTRY ENGAGEMENT PLAN



*DLA's strong relationship with its supplier community is critical to the agency's ability to successfully carry out its mission... DLA must work together with our suppliers, "to modernize and streamline our acquisition and end-to-end supply chains to deliver increased readiness and maintain our competitive advantage."  
 – SES Matthew Beebe, Industry Engagement Plan, 2022*

## DLA SBIP STRATEGIC FOCUS AREAS

### NUCLEAR ENTERPRISE (NE) SUPPORT

**Support** nuclear systems readiness

**Improve** quality of consumable parts

**Reduce** backorders

**Establishing** new NE manufacturing capability

### FORCE READINESS & LETHALITY

**Improve** product performance

**Modernize** manufacturing capability

**Reduce** warfighter costs

**Broaden** manufacturing industrial base

### SUPPLY CHAIN INNOVATION & ASSURANCE

**Reduce** logistics costs

**Maintain** a secure and resilient supply chain

**Adopt** best practices to optimize supply chain

**Develop** domestic sources of strategic materials



# R&D Lines of Effort

## Manufacturing Technology



### Industrial Base and Aging Weapon System Support

- Improve the defense industrial base capabilities, reduce cost, and enhance product performance
- Mitigate hard-to-source and obsolete critical parts



### 3D Technical Data Modernization / Model Based Enterprise

- Transform technical data accuracy and sharing military services needs with DLA's industrial base
- Improve response times and reliability through model-based enterprise solutions



### Predictive Analytics, Modeling & Simulation

- Provide actionable data-based knowledge for business decisions
- Use innovative technologies (AI/ML) to enhance DLA business systems and operations



### Logistics Operations Innovation

- Reduce supply chain vulnerabilities
- Transform supply chain and business processes that yield cost savings and shortened response times



### Smart Warehouse Modernization

- Optimize warehouse operations to efficiently and effectively sustain warfighter readiness
- Improve inventory management, distribution, visibility and processes



# Our Partnerships

**Our goal is to create a thriving and sustainable partnership environment that supports experimentation and innovation to develop solutions for DLA, DoD, and Whole of Government.**

## Development

Identify and cultivate new and non-traditional partners

## Communities and Forums

Create opportunities for our partners and clients to build and exchange knowledge

## Sustainment

Foster environment that supports and sustains partnership engagement

**Whole of Government**

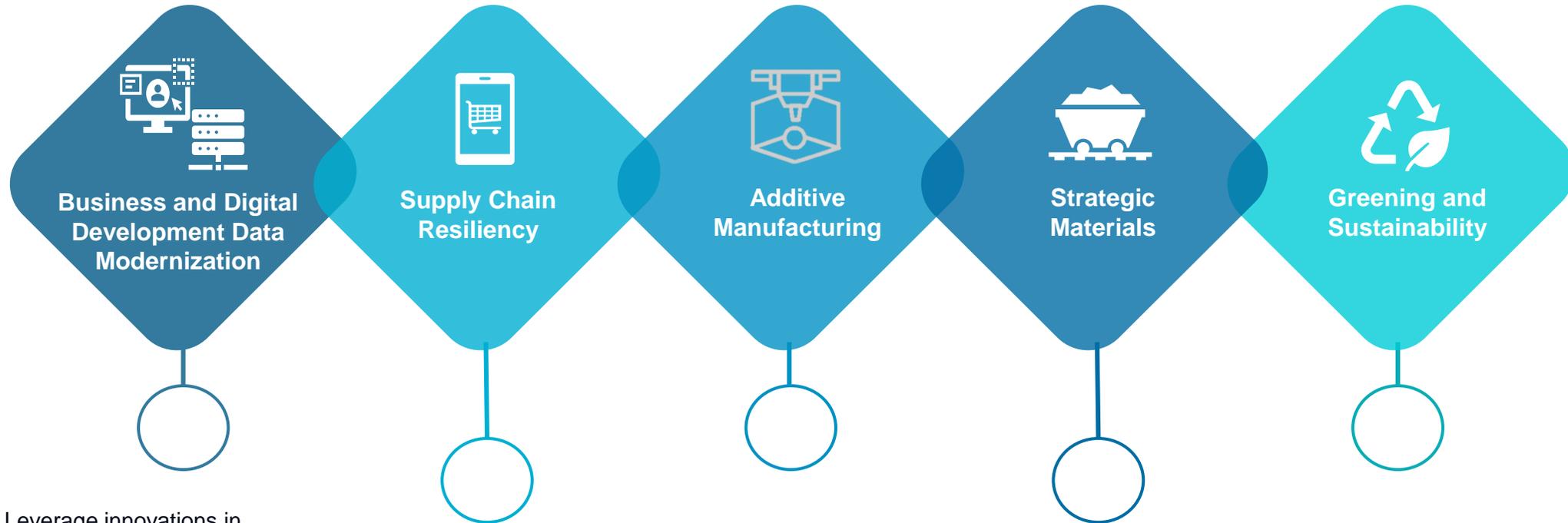
**Industry and Small Business**

**Academia**

**Over 100 Partnerships with Small Business, Industry, Whole of Government and Academia**



# Supply Chain Enterprise Focus



**Business and Digital Development Data Modernization**

Leverage innovations in information technology, data analytics, robotics, and process improvements to support modernization across the DLA supply chain enterprise

**Supply Chain Resiliency**

Leverage advanced data analytics, database security technologies to improve Warfighter and improve supply chain risk management

**Additive Manufacturing**

Develop agile readiness at speed of war  
Integrate AM Technology across DoD Enterprise

**Strategic Materials**

Reduce foreign dependence and create an environmentally sustainable recycled supply chain

**Greening and Sustainability**

Support the DoD Sustainable Technology Evaluation & Demonstration (STED)  
Develop eco-friendly materials, technologies, and disposition methods for a sustainable supply chain

# R&D FY22 SUMMARY

## INVESTMENT



**\$53M**

Total presidential budget for FY22



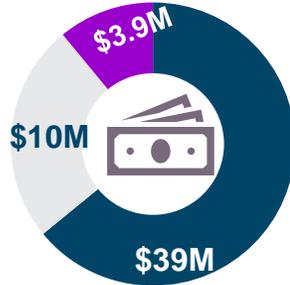
**\$82.6M**

Total external investments from partners for FY22



**\$ 1 3 5 . 6 M**

**TRENDING UPWARDS**



- SBIP
- LOG R&D
- MANTECH

**16** Programs & Teams

**263** Projects

**7** Congressional Adds

**2** OSD / Services Resources



## BUDGET EXECUTION

### OBLIGATIONS

**96%**

**68%**

**99.9%**

**99.9%**

**104** FDRs

**34** MIPRs

Of FY22 LOG R&D funds Obligated

Of FY22 ManTech funds Obligated

Of FY21 LOG R&D funds Obligated

Of FY21 ManTech funds Obligated

### EXPENDITURES

**2 3 4 3**

### INVOICES RECONCILED BY YEAR



## PARTNERSHIPS

### CONTRACT ACTIONS

**435**

Total CATS items



**\$312M**

Total Acquisition value

### CHARTERS

**28**

Active Charters

**4**

Ended Completed

**9**

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### SERVICE & SUPPORT AGREEMENTS

**47**

Active SA

**11**

Ended Completed

**15**

New

## STRATEGIC COMMUNICATIONS & OUTREACH

### INTERNAL MEETINGS

Includes: leadership sync, R&D Director sync, 1 on 1, PMR/ Deep dive, staff meetings, and various subjects

**1107** INTERNAL

**175** TMT

**175** EXTERNAL

### EXTERNAL MEETINGS

Includes: Vendor meetings and various subjects



**99** Social media posts

**3** R&D press release

**10** DLA news articles

**23** Outreach & engagement

### KM PORTAL (OLD)

**19,054**

Site Visits in last 90 days

### KM PORTAL (NEW)

**7,129**

Site Visits in last 90 days

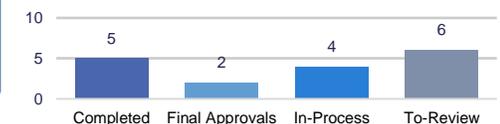
**68** Lists

**90** Library

**1,496** Research and Development (public) DLA.mil Website Visit



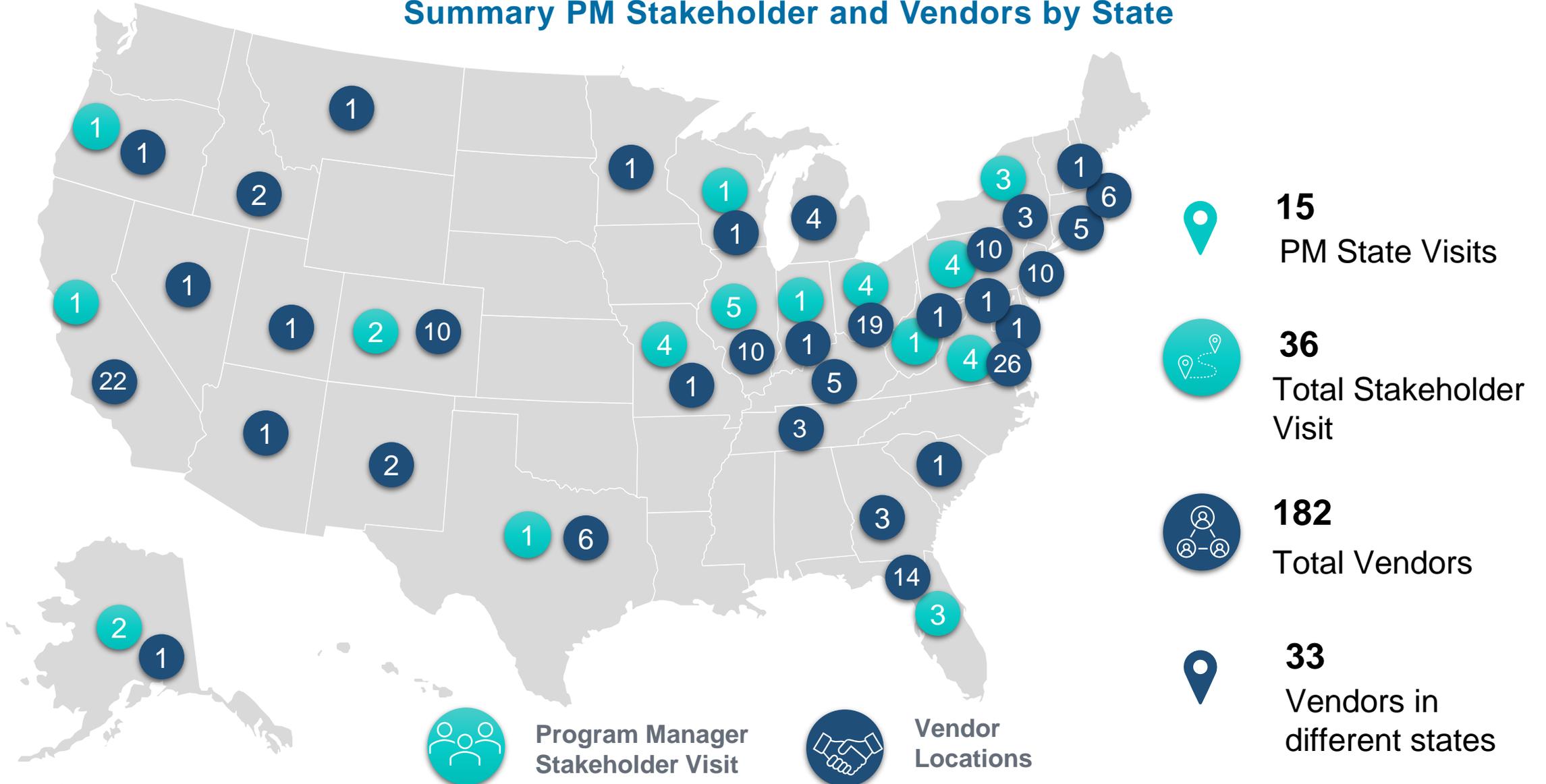
### Standard Operating Procedures



**17** Total SOPs

# FY22 Where in the World is R&D?

## Summary PM Stakeholder and Vendors by State





# What's important to us in 2023? Challenges and Opportunities...Over the Horizon



**Recycling and Upcycling  
Greening  
Sustainability Technologies**

**Strategic Materials  
Rare Earth Elements**



**Supply Chain Resiliency**

**Digital Twin/Thread**



**Partnership Growth**

- Whole of Government R&D Organizations
- Federally Funded R&D Centers
- Manufacturing Innovation Institutes

**Strengthening R&D's ties to A&S**

- Increased communication on R&D efforts
- Notification of available resources
- Participation and inclusion in A&S forums and working groups

**Nuclear Enterprise  
Sustainment Support**



Information Distribution Service (DVIDS)





**DLA**  
DEFENSE LOGISTICS AGENCY  
*Established 1961*



The Nation's Combat Logistics Support Agency

## DLA R&D: Exploring and Experimenting Logistics Research for the Global Supply Chain

Dr. Barry Humphrey, Program Manager, Logistics Technology Research  
May 4, 2023





# Agenda

- Introduction
  - Securing Defense Critical Supply Chain
  - Emerging Technology's Role in Optimizing Supply Chain Resilience
- Logistics Technology Research Program
  - DLA Case Study: Emerging Technology for Supply Chain Risk Management
- Future Opportunities and Trends
  - Partnership
  - Integration into DLA Business processes
- Conclusion

## Introduction

# Securing Defense Critical Supply Chain

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*“Building on the work of prior efforts, the conversation of industrial base security and resiliency has expanded beyond the Department of Defense to a whole-of-government effort.”*

Jesse Salazar, Deputy Assistant Secretary of Defense  
for Industrial Policy





# Emerging Technology's Role in Optimizing Supply Chain Resilience

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# DLA LOGISTICS TECHNOLOGY RESEARCH (LTR) PROGRAM

## Emerging Technology Focus Areas



**Supply Chain  
Risk  
Management**



**Artificial  
Intelligence /  
Machine Learning**



**Blockchain**



**Vendor On-  
Boarding**



**Supply Chain  
Resiliency**



# Future Opportunities and Trends

Partnerships

Integration into DLA Business Processes





## Conclusion

- Recap
- Importance of emerging tech in achieving supply chain resilience
- Encouragement for continued exploration and adoption of emerging technologies with ethical considerations

