

2018 UNITED STATES OF AMERICA
DEPARTMENT OF DEFENSE

RESTORING MATERIAL READINESS
FOR A MORE LETHAL FORCE



CHALLENGE THE STATUS QUO . . .

The mission of DoD maintenance is to generate and maintain materiel readiness to support National Security objectives. DoD maintenance repairs, overhauls, and modifies military equipment, platforms, and weapon systems to meet operational, contingency, and training requirements.

This publication highlights our readiness challenges and approaches, identifies a strategy and vision, and issues a call for action. It offers a snapshot into DoD's vast maintenance enterprise including the cost and scope of maintenance, the people, organizations, and locations performing maintenance.

OPENING THE APERTURE
TO A SUSTAINMENT VIEW

ENSURING A VIABLE WORKFORCE

ADDRESSING INCREASING
WEAPON SYSTEM READINESS

EXPLOITING TECHNOLOGICAL
INNOVATIONS

The maintenance community is the predominant force capable of moving the Readiness needle for the Department. We are challenged by an increasing set of adversaries that demand a responsive, adaptive maintenance capability.

These advancements will be in lock step with the emerging National Defense and National Military Strategies. We are laser-focused on aligning maintenance innovation and modernization in order to deliver the materiel readiness required to prevail against any adversary with increased lethality and resilience. Materiel readiness is our sole focus—leveraging agility, innovation, and integration to improve the condition of our Force.

Your efforts will have a direct and positive impact as we ensure the Department remains the world's preeminent fighting force for decades to come—and we will do it together, as a Team.

Now is your opportunity to contribute directly to our progress!



Kenneth D. Watson

Deputy Assistant Secretary of Defense
Maintenance Policy and Programs

ADDRESSING KEY CHALLENGES

AND SETTING THE CONDITIONS FOR READINESS ACROSS THE DOD ENTERPRISE

Lack of Innovation and agility in maintenance response

- Requirement is scalable maintenance and sustainment capabilities ready—where and when needed
- Need improved integration into contingency planning and execution
- Need enterprise approach to sustainment

Challenges in maintaining industrial base repair sources

- Difficulty in ensuring existence and balance across all critical capabilities—public and private
- Must secure required surge capacity
- Understanding 2nd and 3rd Tier provider capabilities and last source provider impacts is challenging—limited access to intellectual property

Inadequate weapon system maintenance planning

- Must stress Life Cycle Sustainment Plans as “living” documents
- Must eliminate Single Points of Failure in maintenance planning approaches
- Move away from exclusive focus on near-term readiness at the expense of stable, executable sustainment approaches

Absence of common metrics to support decision-making

- Lack of transparency and access to timely and authoritative sustainment data
- Inability to identify and resolve availability and cost drivers
- Lack of “Big Data” approach to improve readiness sustainment effectiveness and efficiency

Inability to confront uncertainties of budgetary unrest

- Irregular timing and unclear funding levels stymying many programs
- Compounds carryover and materiel readiness issues
- Adjustments, while difficult, have been slow and often late to need

Need to ensure viability of our maintenance workforce

- Requires careful management of skills that range from our software scientists to “metal benders”
- Workforce responsiveness is critical to meeting material readiness requirements
- Hiring processes must catch up to 21st century requirements

READINESS IS EVERYBODY’S BUSINESS

Maintainers have stepped up to meet the materiel readiness challenge of over 15 years of continuous combat. The readiness we have generated, however, has been predominantly focused on “today’s” requirements—fiscal uncertainties and prolonged engagements have placed tremendous stress on our Force, our installations, our equipment, and our long-term readiness. We must recommit ourselves to instilling balance, innovation, and proficiency across our maintenance industrial base—both public and private. Careful maintenance planning and well aligned and common metrics must be in place to drive effectiveness and efficiency in weapon system sustainment as well as in our maintenance operations. Our maintenance workforce, and the tools and processes they must master, will be our greatest asset moving forward.



**WARFIGHTER FIRST –
UNWAVERING CUSTOMER
FOCUS TO DELIVER
READY EQUIPMENT, PLATFORMS
AND WEAPON SYSTEMS**

Maintenance generates and sustains materiel readiness—ensuring equipment, platforms and weapon systems are available to support training and exercises, and ultimately, to deploy in support of customer requirements to respond to any humanitarian or contingency requirement.

Maintenance is integral to sustaining the Joint Force customer, restoring combat capability to keep our deployed forces in the fight. Evolving threats to our national security demand our maintenance enterprise be ever-vigilant, agile, and equally ready to adapt and evolve to customer needs.

In order to be successful, DoD maintenance establishes, sustains and resources required capabilities, in the public and private sectors, in order to meet mobility and contingency requirements. Maintenance is organized and equipped to respond rapidly worldwide, based on efficient processes and fact-based customer focused outcomes.

**PEOPLE ALWAYS –
TRAINED AND READY
MAINTENANCE WORKFORCE**

People are key to performing maintenance. The DoD maintenance workforce must respond successfully to materiel readiness requirements, with the ability to meet changing demands.

Workforce development is a continuous and enduring process and is fundamental to maintenance execution. Each maintenance activity strives to develop a highly-skilled workforce that operates in a safe and healthy environment. A pipeline of skilled workers is a constant goal and organizations strive to attract and retain critical technical skills to meet customer demands.

TECHNICALLY ADVANCED – MODERN, SAFE AND PROPERLY-SIZED MAINTENANCE FACILITIES AND EQUIPMENT

DoD maintenance uses a robust structure of maintenance facilities and equipment to service and repair the Department's weapon systems. As these weapon systems become more complex, modern and technically advanced maintenance facilities are required to support these often software-intensive technologies. Innovative maintenance capabilities, including facilities and equipment, must keep pace with the broad range of rapidly evolving and emerging technology advances.

This infrastructure must be modern, technically advanced, safe, and properly sized across the enterprise. Efforts are underway to ensure DoD maintenance facilities remain relevant and are able to prevent process and product obsolescence. Active and effective programs for development of DoD maintenance facilities and equipment are essential to the nation's industrial health.

PROACTIVE LIFE CYCLE SUSTAINMENT– RELIABILITY, MAINTAINABILITY, AND SUPPORTABILITY IMPROVEMENT THROUGHOUT THE LIFE CYCLE

DoD maintenance sustains and restores the hardware and software of weapon systems and materiel to their inherent performance, safety and reliability levels. In order for this to be proactively planned and resourced, sustainment and maintenance considerations are addressed from the inception of the acquisition planning process. Required maintenance operations and management capabilities are carefully identified, designed, planned and resourced.

Maintenance requirements and resources are being advocated for in the design of new weapon systems. Reliability, maintainability, and supportability are key parameters in the design of new equipment and weapon systems.

Maintenance planning is occurring earlier in the weapon system life cycle planning processes. Metrics and tools for effective maintenance management and oversight, and standard communication practices that ensure reliability, maintainability, and supportability considerations are increasingly incorporated in the sustainment strategies for equipment, platforms, and weapon systems.

RESPONSIVE AND AGILE – FLEXIBLE MAINTENANCE OPERATIONS AND MANAGEMENT WITH INNOVATIVE MAINTENANCE PROCESSES AND BUSINESS PRACTICES

DoD maintenance operations and management are becoming increasingly responsive, agile, and outcome-focused to meet challenging materiel readiness requirements.

Maintenance management objectives are supporting more effective, efficient, and innovative maintenance operations. Best practices are being shared throughout DoD maintenance to continually incorporate excellence and innovation into every maintenance process and business operation. As weapon systems become more complex, DoD maintainers are becoming more innovative in order to increase responsiveness and improve cycle times.

LEGISLATION, POLICY, AND END-TO-END PROCESSES —

OUTCOMES THAT ARE SETTING THE GLOBE FOR MATERIEL READINESS



- 10 USC 2460: Depot-level Maintenance Definition
- 10 USC 2464: Core Logistics Capabilities
- 10 USC 2466: 50/50 Rule
- 10 USC 2474: CITEs and PPPs
- 10 USC 2469: Requirement to compete previous public sector workload
- 10 USC 2476: Minimum Capital Investment
- 10 USC 2366A/B: MDAP Milestone A/B Sustainment Requirements

- Core Capability Determination
- 50/50 Reporting
- Sustainment Industrial Base Assessments
- Depot Source of Repair Oversight
- ServicE interface to set conditions for enterprise readiness outcomes
- Strategic sustainment technology insertion and advocacy
- Weapon system cost and availability analyses

- Balanced and optimized industrial base
- Material contribution to lethality of the Force
- Early integration of sustainment equities in acquisition/systems evolution
- Moving the readiness “needle” for the Department’s key weapon systems
- Solving systemic sustainment issues through “Big Data” access and analysis



ENTERPRISE CONDITIONS THAT DRIVE MATERIEL READINESS

Title 10 of the United States Code outlines the role of the Armed Forces. It provides the legal basis for the roles, missions, and organization of each of the Military Services as well as United States Department of Defense.

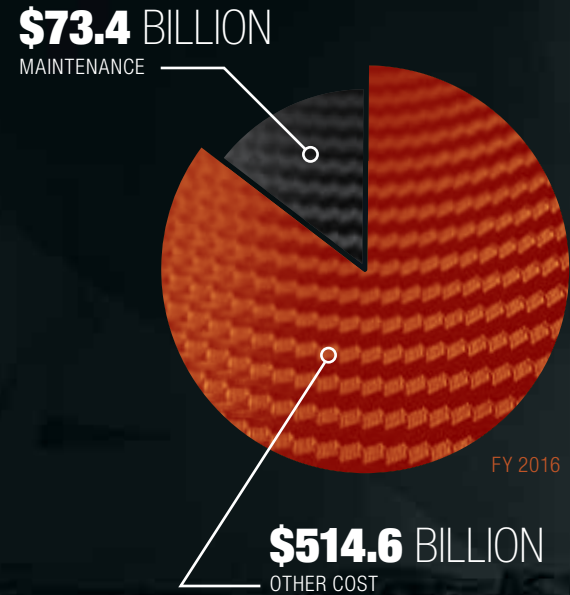
Grounded in Title 10, DoD uses policy and processes to set the enterprise conditions that are aligned, mission focused, and supportive of our national security and military priorities. These policies and processes serve to support enterprise conditions that instill a culture of continuous improvement and performance excellence. Chief among these enterprise conditions are:

- Constructive integration at key maintenance levels and process points – this fosters a culture of excellence in which each contributor gains awareness of their customer and their customer’s customer.
- Maintenance processes that yield accurate and transparent data – leveraged for improvements and improved decision making – Service organizations

leverage this to address special cause deviations and higher level organizations conduct analyses to identify and solve systemic issues.

- A culture of collaboration – one that shares best practices as well as common pitfalls to strengthen the capabilities of all maintenance providers.
- Processes and leaders that foster a culture of assessment and feedback – in which making mistakes is encouraged in the quest to improve operations and customer satisfaction.
- A work environment in which people are treated as the organization’s most important asset. Proper investments are made in order to meet the challenges of today and create the maintenance leadership of tomorrow.
- A balanced and strong industrial base that provides effective support in peacetime and a reliable source of surge capabilities if required by the nation.

MAINTENANCE SPENDING



SUPPORT COSTS

FY 16 dod total maintenance expenditures with the primary resource drivers being vehicles, common equipment, vessels, and aircraft. By far, the 13,935 aircraft represented the greatest expenditure at \$32 billion.



\$8.0 BILLION
439,940 VEHICLES
37,565 COMBAT — \$2.8 BILLION
401,369 TATICAL — \$4.3 BILLION
OTHER GROUND — \$0.9 BILLION



\$17.3 BILLION
225 SHIPS AND SUBMARINES
153 SURFACE — \$12.7 BILLION
72 SUBMARINE — \$4.6 BILLION



\$35.2 BILLION
13,935 AIRCRAFT
7,925 FIXED WING — \$26.8 BILLION
6,010 ROTARTY WING — \$8.4 BILLION



\$8.6 BILLION
783 COMMON EQUIPMENT
VEHICLES — \$1.9 BILLION
SHIPS AND SUBMARINES — \$0.3 BILLION
AIRCRAFT — \$6.4 BILLION

MAINTAINERS

DoD materiel maintenance is performed at different levels, ranging in complexity from daily system inspection to rapid removal and replacement of components to the complete overhaul or rebuild of weapon systems. Depot-level maintenance entails material maintenance requiring the major overhaul or complete rebuild of weapons systems. The bulk of this workload is associated with ships and aircraft. The remaining associated with missiles, vehicles, and ground support equipment. Field-level maintenance comprises shop-type work as well as on-equipment maintenance activities at maintenance levels other than depot. This work includes the limited repair of assemblies and end items, and the repair of sub-assemblies.



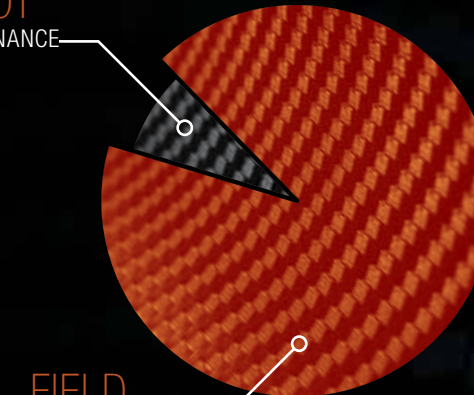
INCREASING VOLUME OF MAINTENANCE

MORE FREQUENT TASKS THAT REQUIRE LESS FACILITIZATION AND SKILLS

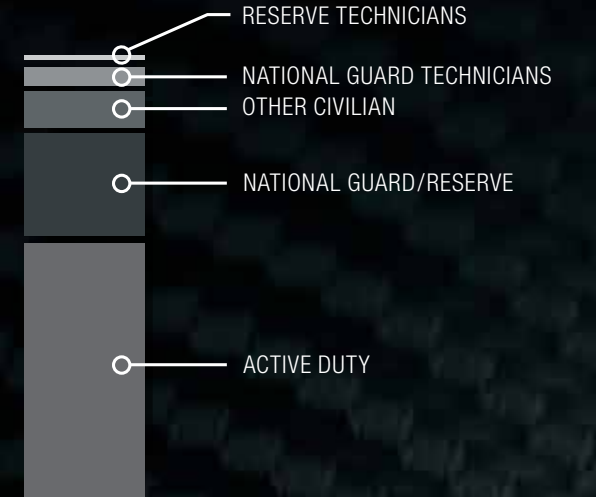
INCREASING COMPLEXITY OF MAINTENANCE

LESS FREQUENT TASKS THAT REQUIRE MORE FACILITIZATION AND SKILLS

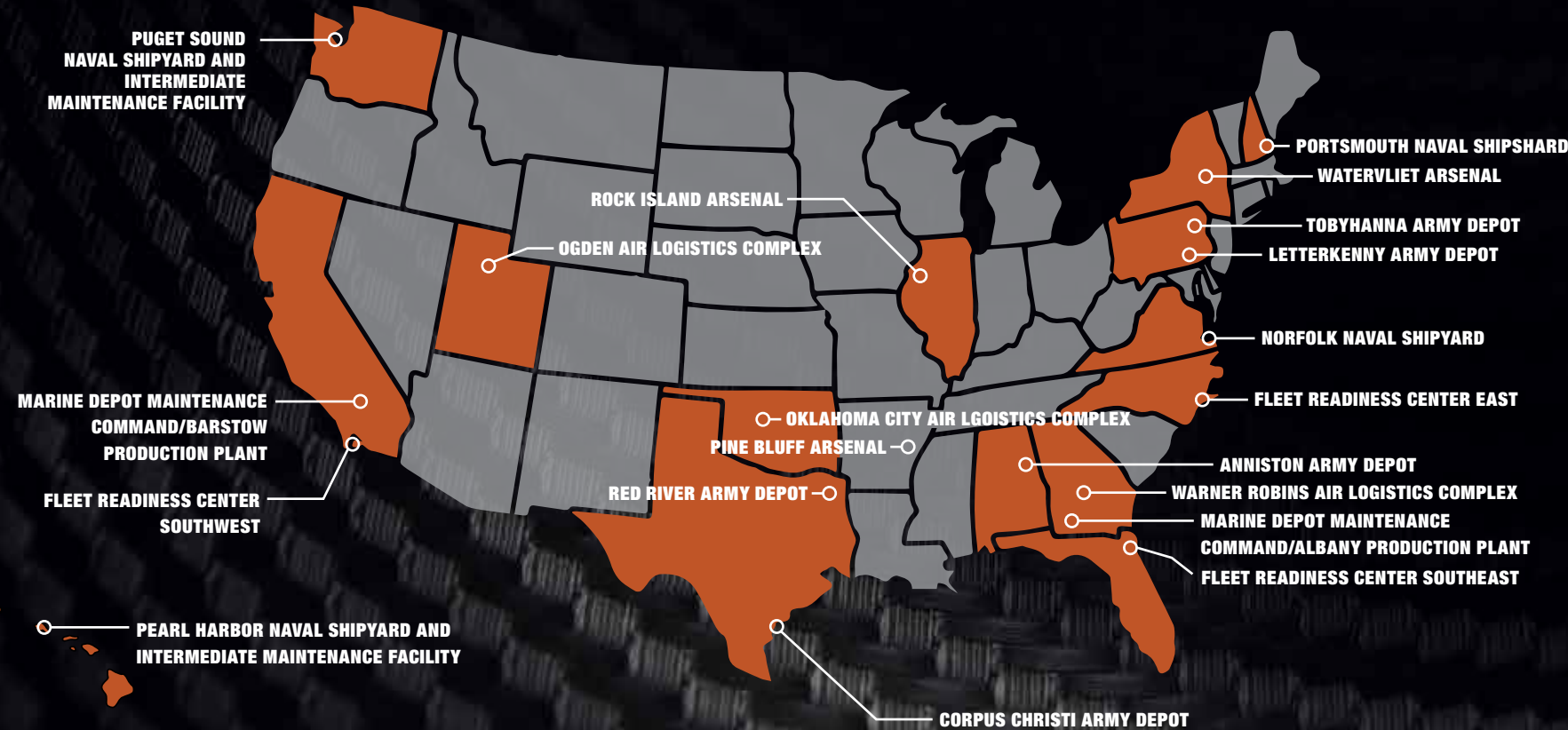
DEPOT MAINTENANCE 8%



FIELD MAINTENANCE 92%



ORGANIC INDUSTRIAL BASE ACTIVITIES



Corpus Christi Army Depot—
2,945 CIVILIANS
 – Helicopters
 – Aviation Engines
 – Transmissions
 – Hydraulic Systems

Anniston Army Depot—
2,643 CIVILIANS
 – Combat Vehicles
 – Artillery
 – Small Arms

Red River Army Depot—
2,395 CIVILIANS
 – Tactical Wheeled Vehicles
 – Multiple Launch Rocket System Chassis

Ogden Air Logistics Complex—
7,495 CIVILIANS
 – Fighter and Attack Aircraft
 – Landing Gear
 – Software

Air Warner Robins Logistics Complex—
6,483 CIVILIANS
 – Cargo Aircraft
 – Aviation Electronics
 – Software

Letterkenny Army Depot—
1,370 CIVILIANS
 – Missile Ground Support Equipment
 – Power Generation Equipment

Tobyhanna Army Depot—
2,499 CIVILIANS
 – C4ISR Electronics

Oklahoma City Air Logistics Complex—
9,102 CIVILIANS
 – Bombers
 – Tankers
 – Engines
 – Software

Marine Depot Maintenance Command—
1,376 CIVILIANS
 – Marine Corps Ground Vehicles
 – Small Arms

Fleet Readiness Center East—
3,650 CIVILIANS
 – Helicopters
 – Sea Based and Maritime Aircraft

Fleet Readiness Center Southeast—
3,180 CIVILIANS
 – Naval Aviation Fixed Wing Aircraft
 – Helicopters
 – Engines
 – Components

Fleet Readiness Center Southwest—
2,847 CIVILIANS
 – Naval Aviation Fixed Wing Aircraft
 – Helicopters
 – Engines
 – Components

Norfolk Naval Shipyard—
10,535 CIVILIANS
 – Nuclear Aircraft Carriers
 – Submarines
 – Surface Combatants

Pearl Harbor Naval Shipyard and Intermediate Maintenance Activity—
5,081 CIVILIANS
 – Nuclear Submarines
 – Surface Combatants

Portsmouth Naval Shipyard—
5,476 CIVILIANS
 – Nuclear Submarines

Puget Sound Naval Shipyard and Intermediate Maintenance Facility—
13,548 CIVILIANS
 – Nuclear Aircraft Carriers
 – Submarines
 – Surface Combatants

Pine Bluff Arsenal—
655 CIVILIANS
 – Special Ammunitions
 – Smoke
 – CBRN Defense Capabilities

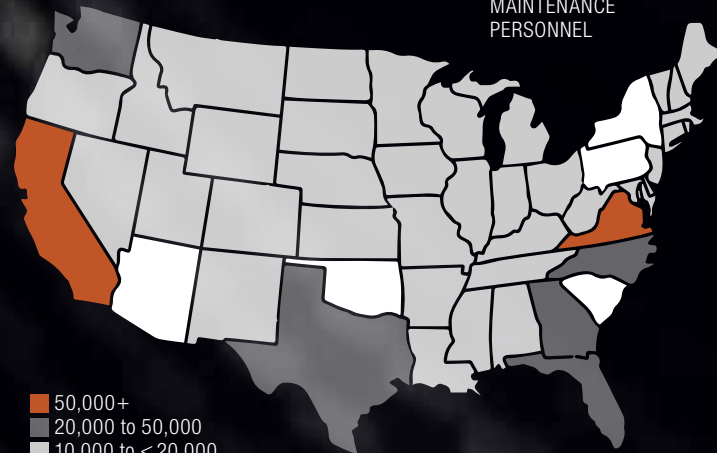
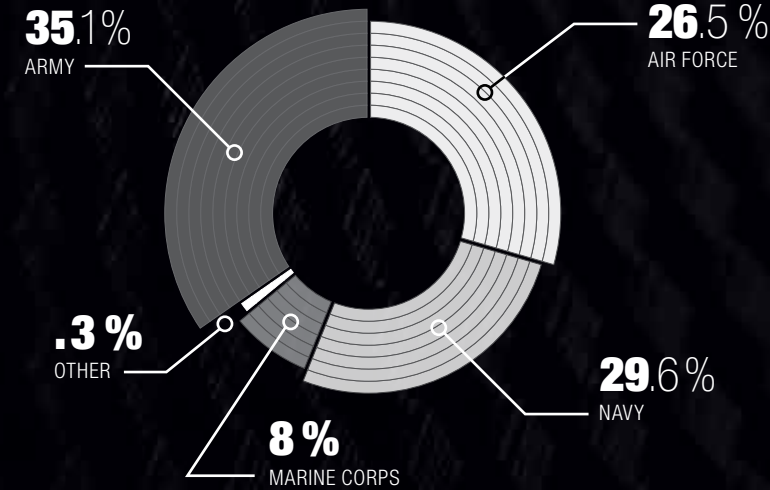
Rock Island Arsenal Joint Manufacturing and Technology Center—
1,089 CIVILIANS
 – Ordnance
 – Foundry
 – Army Equipment Components

Watervliet Arsenal
551 CIVILIANS
 – Artillery and Gun Tubes for Cannons
 – Mortars
 – Tanks

MAINTAINERS BY THE NUMBER AND LOCATIONS

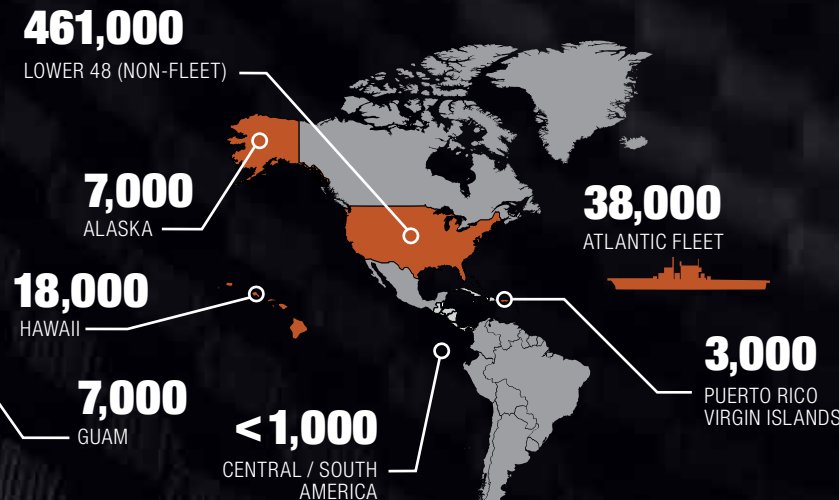
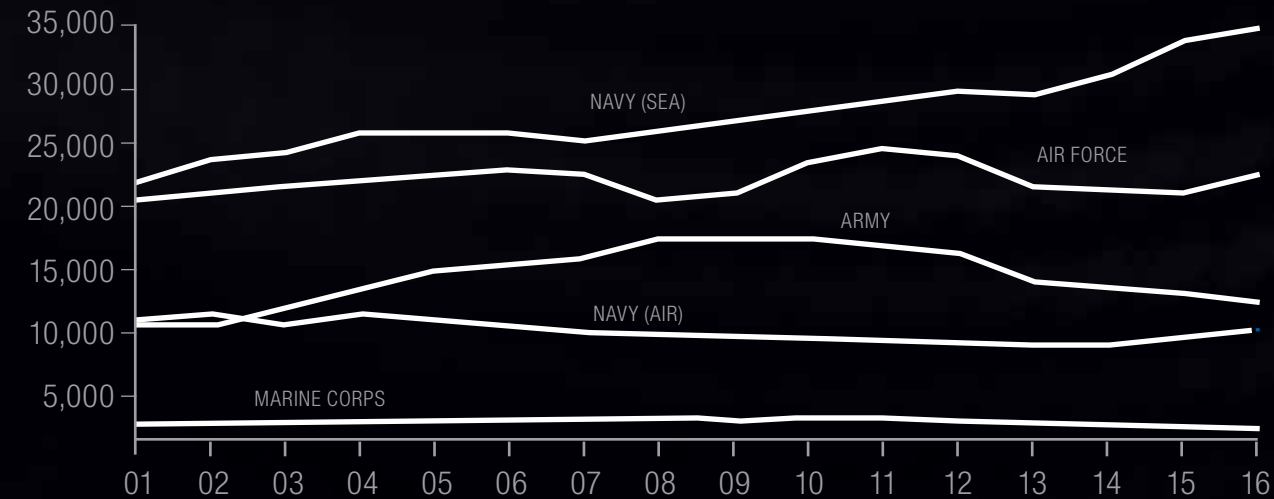
567,000

*U.S.-BASED MAINTENANCE PERSONNEL



* Includes 50 states, territories, and U.S.-based fleet assets.

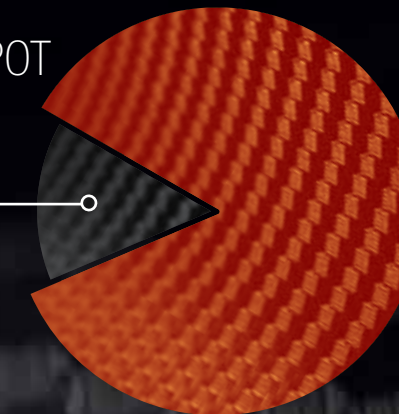
ORGANIC DEPOT PERSONNEL NUMBERS BY SERVICE



PROJECTED ORGANIC DEPOT OVERALL PERSONNEL TURNOVER RATE

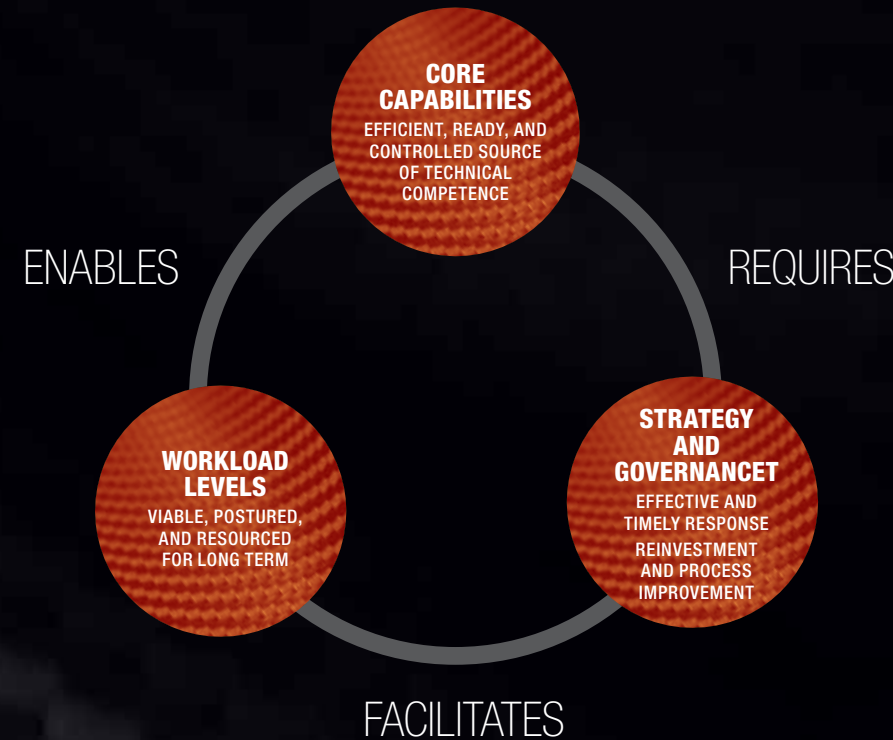
21%

ARMY **25%** (3,006)
 NAVY (SEA) **17%** (5,998)
 NAVY (AIR) **21%** (2,080)
 MARINE CORPS **25%** (343)
 AIR FORCE **23%** (5,400)

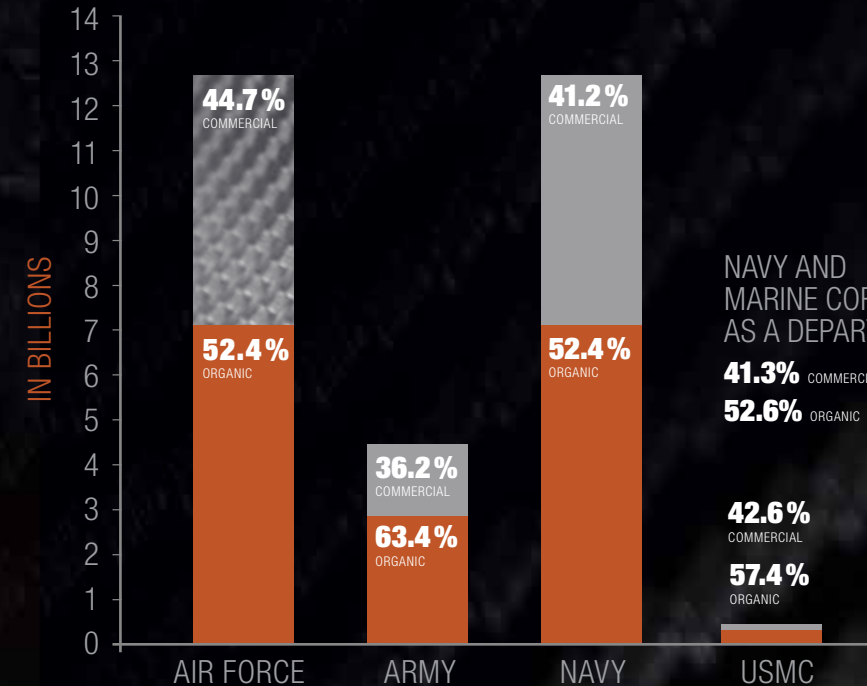


PROJECTED FY17-19 VACANCIES PROVIDING THE OPPORTUNITY TO SET THE CORRECT LEVEL AND SKILL SET COMPOSITION

CORE CAPABILITIES — A READY AND CONTROLLED SOURCE



FY2016 ORGANIC / COMMERCIAL WORKLOADS



DEPARTMENT-WIDE:
45.2% COMMERCIAL
54.8% ORGANIC

NAVY AND MARINE CORPS AS A DEPARTMENT:
41.3% COMMERCIAL
52.6% ORGANIC

IF NOT NOW...WHEN?

We are a Department and nation at war. After some 16 years of conflict, the Secretary of Defense has challenged us to prevail in current contingencies as well as succeed in an increasingly complex and unstable global security situation.

Increased lethality is imperative in this environment and, as DoD maintainers, improving materiel readiness is our essential contribution to the Fight. Simply put — our unwavering focus must be delivering improved materiel readiness to support a more lethal and flexible fighting force.

This will not be easy. To meet the Secretary's challenge, each and every one of us must be committed to becoming more innovative, adaptive, and agile in our contributions to maintenance and sustainment excellence.

I invite each of you to use this document as a baseline reference, a kind of clarion call, towards improved performance. From the foxhole, flight line, and deck plate to the depot floor — we all must see our actions increasingly in the context of the DoD maintenance enterprise. This means increased collaboration across organizations, focused on making improvements in how we posture our maintenance and sustainment capabilities for maximum effectiveness, implement productivity improvements, and reduced lifecycle sustainment costs.

I am confident that DoD maintenance will continue to contribute directly to the competitive advantage of our Joint Force. In front of us, we have tremendous opportunities, and the consequences of complacency are significant and unacceptable.

THE TIME IS NOW!

