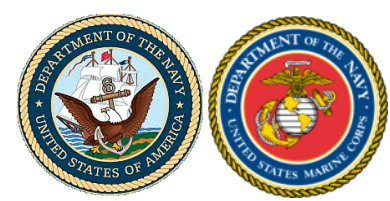# NDIA
Ground Robotics Symposium
17 Sep 2013

Mr. Tom Dee
DASN ELM
703-614-4794
Pentagon 4C746

Agenda

- **Context**

- **Current environment**

- **Robotics Way Ahead**

AAV

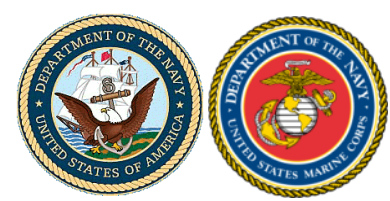**MRAP Family of Vehicles**

ELM Portfolio

- **U.S. Marine Corps ground programs:**
  - **Amphibious Assault Vehicles**
  - **Tanks**
  - **Tactical-wheeled combat and support vehicles**
  - **Personal Protective Equipment (PPE)**
  - **Ground-based radars and command and control**
  - **Artillery, weapons and ammunition**

- **Navy Expeditionary Programs**
  - **Explosive Ordnance Disposal**
  - **Counter-IED / CREW**
  - **Ground Robotics**
  - **Biometrics**
  - **Marine mammals**
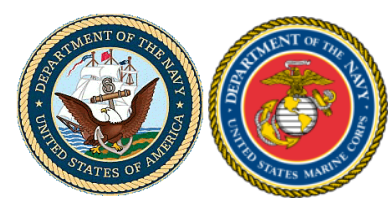 - **Tactical Vehicles**
  - **Non-lethal Weapons**

- **Acquisition Logistics Management**
  - **LCSP / ILA**
  - **PBL**

- **Rapid acquisition processes**
  - **JUONs**
  - **Rapid Deployment Capabilities**

AAV

CREW

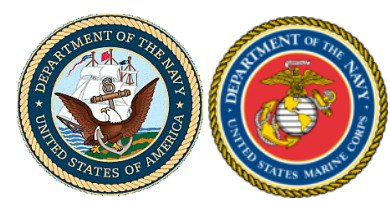**MK 18 UUV**

IUID

Unclassified

ELM Mission

- **Principal Advisor to ASN(RDA):**
  - **Navy and Marine Corps Expeditionary Warfare Programs**
  - **Rapid Acquisition (urgent needs)**
  - **Acquisition Logistics Management**

- **Support and advise Acquisition Community leadership:**
  - **SYSCOM Commanders**
  - **PEOs/PMs**
  - **Other DASNs and assistants**
  - **AT&L**

- **Support and advise Requirements and Resource communities:**
  - **OPNAV**
  - **HQMC**

Facilitate Successful Acquisition Outcomes
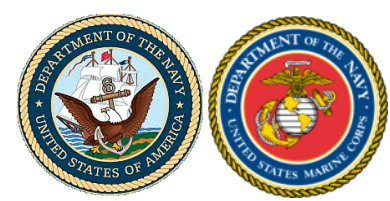
The View from the Building…

The past 12 years have elevated the visibility of the Expeditionary communities as core contributors to our national defense. As we transition from OIF/OEF, how do we address challenges and posture ourselves to support future capabilities?
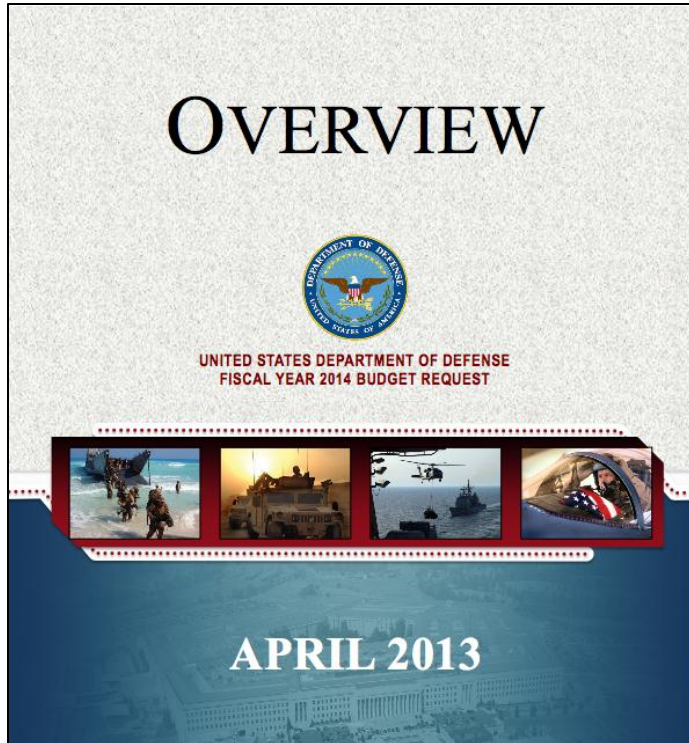

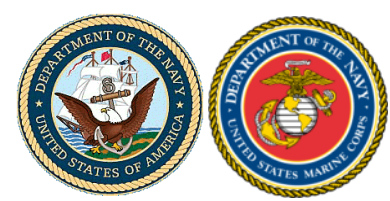**MRAP Family of Vehicles**
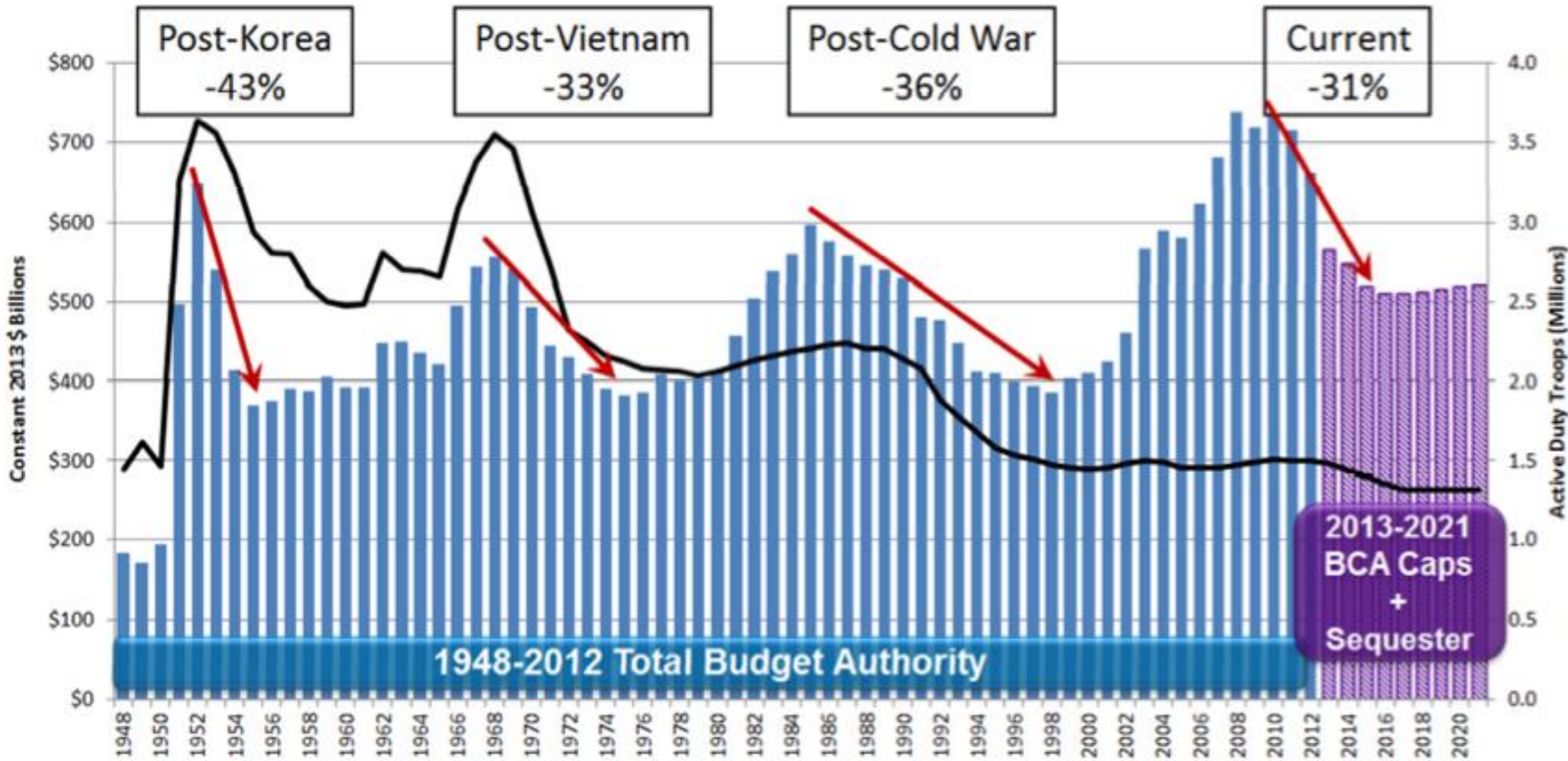
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FY14 DoD Budget Request

"For much of the past decade, DoD has focused on fighting terrorism and countering violent insurgencies, and we will continue to do so as long as these threats exist. But the world has changed. The Department's strategy developed in this budget creates a smaller, lighter, more agile, flexible joint force to conduct a full range of military activities that are necessary to defend U.S. national interests."

Going forward, we will also remember the lessons of history and avoid repeating the mistakes of the past when our military was left ill-prepared for the future. As we end today's wars and reshape our Armed Forces, we will ensure our military is agile, flexible, and and ready for the full range of contingencies...

President Barack Obama, 3 Jan 2012
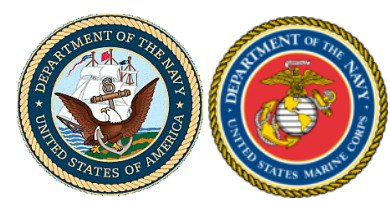
The Challenge (larger context)

Post-Korea -43%
Post-Vietnam -33%
Post-Cold War -36%
Current -31%

2013-2021 BCA Caps + Sequester

1948-2012 Total Budget Authority

Washington Post, 7 Jan 2013

Balancing capacity, capability and readiness

ASN RDA Imperatives

- **Get the Requirements Right**

- **Make Every Dollar Count**

- **Perform to Plan**

- **Mind a Healthy Industrial base**

- **Rebuild our Acquisition Workforce**

Honorable Sean Stackley
ASN RDA

We have equipped the Navy and Marine Corps with the most capable warfare systems in the world… The issue is affordability – acquisition costs are rising faster than our topline. Simply put, without deliberate, sustained action to reverse this trend, we put the future at risk.

Hon Sean Stackley, Nov 2009

Better Buying Power 2.0
A Guide to Help You Think

Achieve Affordable Programs
- Mandate affordability as a requirement
- Institute a system of investment planning to derive affordability caps
- Enforce affordability caps

Control Costs Throughout the Product Lifecycle
- Implement "should cost" based management
- Eliminate redundancy within warfighter portfolios
- Institute a system to measure the cost performance of programs and institutions and to assess the effectiveness of acquisition policies
- Build stronger partnerships with the requirements community to control costs
- Increase the incorporation of defense exportability features in initial designs

Incentivize Productivity & Innovation in Industry and Government
- Align profitability more tightly with Department goals
- Employ appropriate contract types
- Increase use of Fixed Price Incentive contracts in Low Rate Initial Production
- Better define value in "best value" competitions
- Only use LPTA when able to clearly define Technical Acceptability
- Institute a superior supplier incentive program
- Increase effective use of Performance-Based Logistics
- Reduce backlog of DCAA Audits without compromising effectiveness
- Expand programs to leverage industry's IR&D

Eliminate Unproductive Processes and Bureaucracy
- Reduce frequency of higher headquarters level reviews
- Re-emphasize AE, PEO and PM responsibility, authority, and accountability
- Reduce cycle times while ensuring sound investment decisions

Promote Effective Competition
- Emphasize competition strategies and creating and maintaining competitive environments
- Enforce open system architectures and effectively manage technical data rights
- Increase small business roles and opportunities
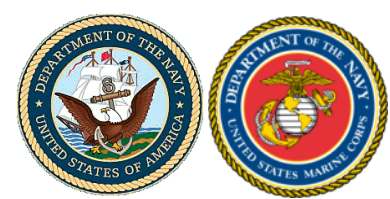- Use the Technology Development phase for true risk reduction

Improve Tradecraft in Acquisition of Services
- Assign senior managers for acquisition of services
- Adopt uniform services market segmentation
- Improve requirements definition/prevent requirements creep
- Increase small business participation, including through more effective use of market research
- Strengthen contract management outside the normal acquisition chain – installations, etc.
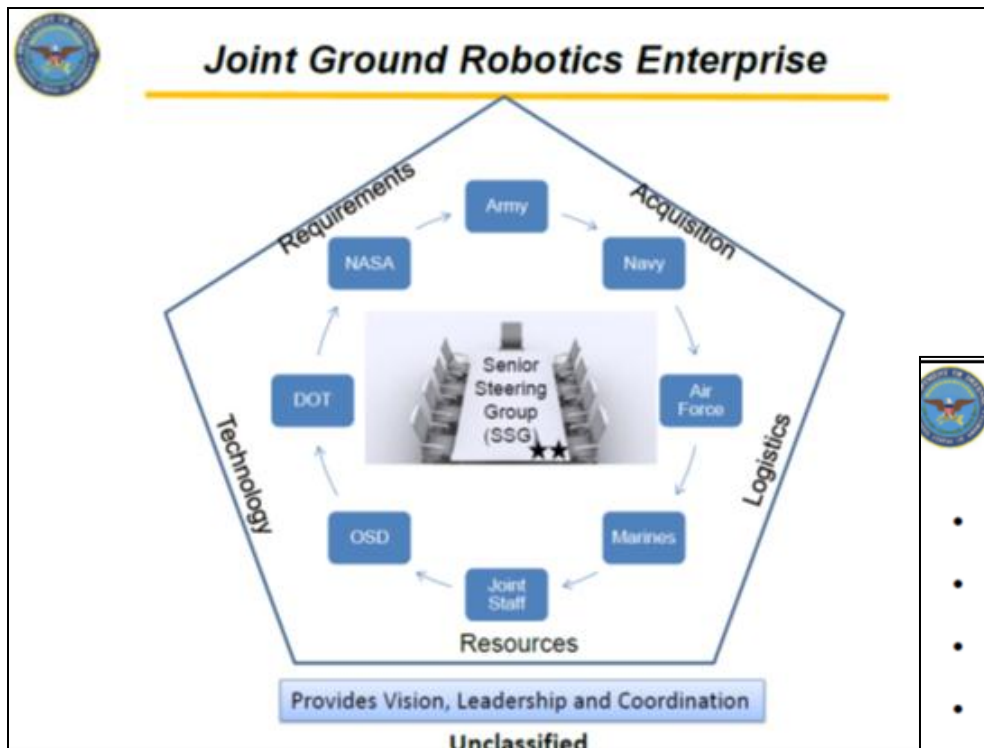- Expand use of requirements review boards and tripwires

Improve the Professionalism of the Total Acquisition Workforce
- Establish higher standards for key leadership positions
- Establish stronger professional qualification requirements for all acquisition specialties
- Increase the recognition of excellence in acquisition management
- Continue to increase the cost consciousness of the acquisition workforce – change the culture
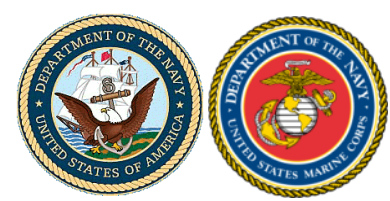
For additional information: http://bbp.dau.mil

Joint Ground Robotics Enterprise

Requirements

Acquisition

Logistics

Resources

Technology

Army

Navy

Air Force

Marines

Joint Staff

OSD

DOT

NASA

Senior Steering Group (SSG) ★★

Provides Vision, Leadership and Coordination

Unclassified

Emphasis

- Promote the development of future joint requirements
- Leverage diminishing resources
- Minimize overlap/redundancies across Services
- Recognize and exploit common capability areas

Unclassified

Evolution of EOD Robots

70's

- Emerging EOD interest
  - UK Experience
- Immature technology and limited commercial experience
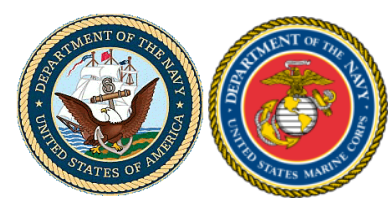
80's

- Initial DoD investments
- Joint Robotics Program established
- JS EOD
  - Remote EOD Tool (RCT)
  - 260 deployed
- Modified COTS Acq Strategy
  - Industry maturing, "Robot Rodeo"
- Configuration management

90's

- Growing acceptance of capability
- Requirements growth vs affordability and technology readiness
- Remote Ordnance Neutralization System (RONs)
  - Inventory grows to over 500
- Life cycle support concepts mature
- Technology maturity and demonstrations

00's

- Small robotics programs initiated
- OIF/OEF thousands fielded
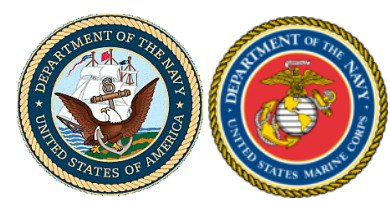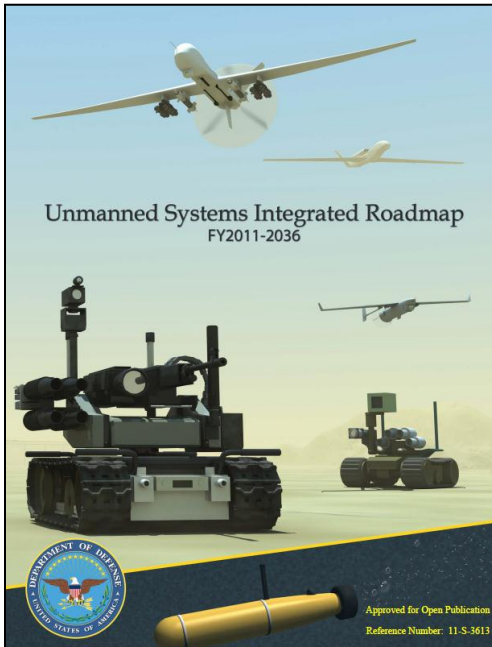- Full acceptance of capability
- OCO to base…

Current EOD UGVs…

- **Functional and Effective… However….**

- **High support / logistics costs**
  - Limited interoperability and interchangeability
  - Dissimilar platforms and payloads
  - Multiple operator interface approaches

- **Difficulty of updating / upgrading**
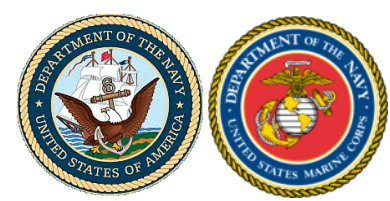 - New sensor / payload integration
  - Multiple development efforts

Unclassified

Unmanned Systems Roadmap

Unmanned Systems Integrated Roadmap
FY2011-2036

Approved for Open Publication
Reference Number: 11-S-3613

"Open architecture (OA) and open interfaces need to be leveraged to address problems with proprietary robotic system architectures. Standards and interface specifications need to be established to achieve modularity, commonality, and interchangeability across payloads, control systems, video/audio interfaces, data, and communication links. This openness will enhance competition, lower life-cycle costs, and provide warfighters with enhanced unmanned capabilities that enable commonality and joint interoperability on the battlefield."

Unmanned Systems integrated Roadmap 2011-2036, pg 5

With the current fiscal environment of constrained budgets, affordability is a factor across the entire acquisition cycle and must be actively engaged by the program managers, users, trainers, and testers to identify problems early, and address cost throughout the life cycle.
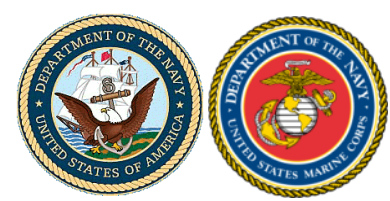
Advanced EOD Robotic System (AEODRS)

- **Provides Joint Forces with an EOD capability to respond to Unexploded Ordnance (UXO), Counter Improvised Explosive Device (C-IED), and Weapons of Mass Destruction (WMD) missions**
  - **Comprised of three system variants fielded in an incremental approach**
  - **All systems use a Government-owned common system architecture & interfaces**

- **Systems comprised of components capable of being developed by independent entities through a competitive procurement process**
  - **Modular/Plug and Play components**
  - **Effort to maximize business competition**
  - **Foster new and innovative ideas**

(CM = Capability Module)
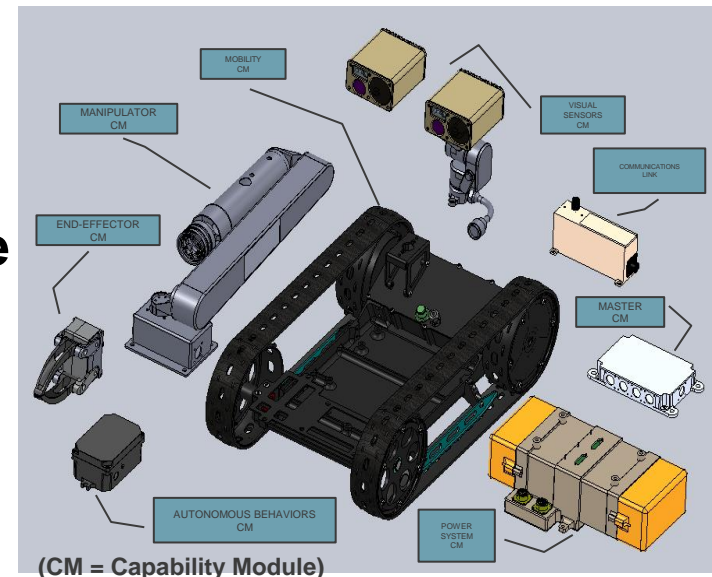
Summary

- **Lessons learned from recent conflicts reinforce the continued need for advanced robotic solutions to meet evolving threats**

- **Navy committed to developing and fielding unmanned ground systems for the JS EOD community**
  - **Users, doctrine and CONOPS fully supportive**

- **We must maintain our Expeditionary Agility**
  - **Retain Lessons Learned**
  - **"Rebalance" while adapting to budget pressures**

- **Solutions must be affordable**
  - **Joint service and multi-community collaboration on requirements, technology and programs**

- **Industry a full partner**

Facilitate Successful Acquisition Outcomes

Unclassified

Discussion…