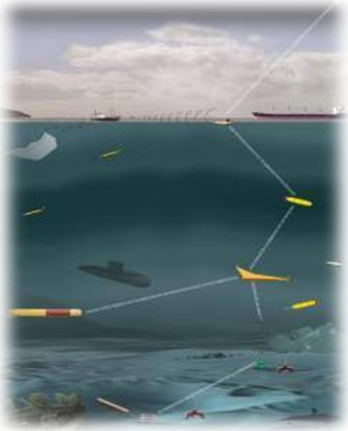
DASN ELM
Expeditionary Programs • Logistics Management



NDIA
Ground Robotics
Capabilities

19 Mar 2015

Mr. Tom Dee
DASN ELM
Thomas.dee@navy.mil
Pentagon 4C746

Unclassified

Agenda

- **Strategic Context**
- **Innovation and Open Architectures**
- **Unmanned Systems**

ASN RDA

Sean J. Stackley
Assistant Secretary of the Navy (RD&A)
VADM Paul Grosklags
Principal Military Deputy
Mr. James Thomsen
Principal Civilian Deputy

Systems Commands (SYSCOM)	Program Executive Officers (PEOs)		Deputy Assistant Secretaries (DASNs)	
NAVAIR	JSF	IWS	AIR	AGC
NAVSEA	SHIPS	SSP (DRPM)	SHIPS	AP
SPAWAR	EIS	SUBMARINES	M & B	
NAVSUP	C4I	AIRCRAFT CARRIERS	RDT & E	
NAVFAC	SPACE SYSTEMS	A	C4I & SPACE	
MARCORSYSCOM	LCS	T	ELM	
ONR	LAND SYSTEMS	UMW	IP	

DASN ELM

- **USMC Ground Programs**
- **Navy Expeditionary Programs**
- **Acquisition Logistics**
- **Rapid Acquisition**

Updated: 9 Jan 2015

AAV

CREW

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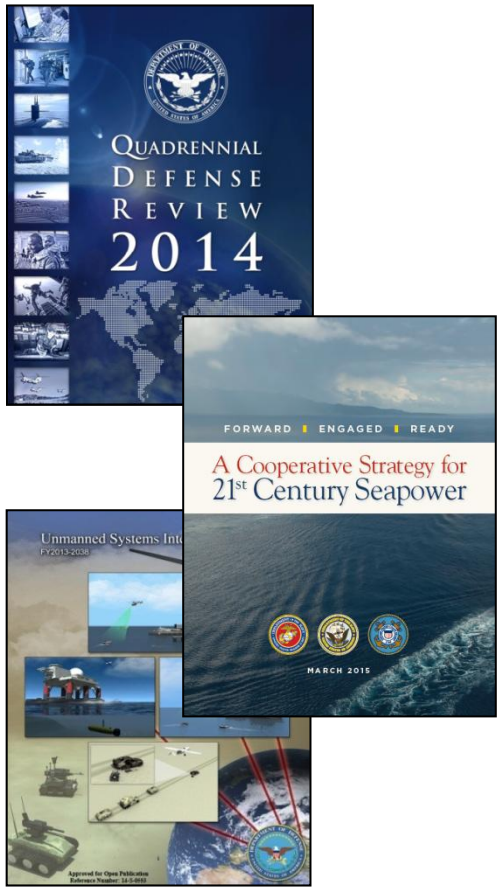
MK 18 UUV

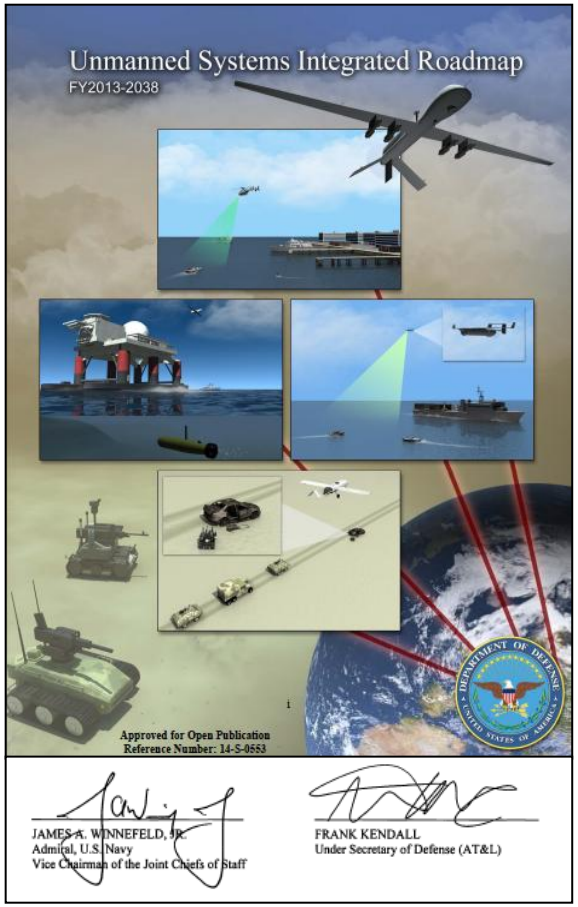
Strategic Trends and Operational Environment



- ***Pressure for reductions in federal budgets***
  - will continue to increase; therefore, DoD cannot afford to acquire capabilities exceeding military needs.
- ***Operational issues will be more complex***
  - Need to support multiple mission needs
  - A2/AD
  - Violent Extremism
  - Territorial Disputes
- ***U.S. military forces will be rebalanced.***
  - Rising importance of Asia/Pacific
- ***Unmanned technologies***
  - will continue to improve in many different capability areas.
- ***Enemy unmanned systems***
  - will complicate air, ground, and maritime operations
- ***Cyber domain***
  - will be a conflict environment as readily as land, sea, or air and space.

Adaptable, Expeditionary Forces To Meet An Unknown Future

Unmanned Systems Roadmap



A number of factors will influence unmanned program development in the future.

1. ***Combat operations in Southwest Asia have demonstrated the military utility of unmanned systems… However, the systems and technologies must be further expanded and appropriately integrated into programs of record (POR) to achieve the levels of effectiveness, efficiency, affordability, commonality, interoperability, integration, to meet future operational requirements.***

2. ***Downward economic forces will continue to constrain Military Department budgets for the foreseeable future. Achieving affordable and cost-effective technical solutions is imperative in this fiscally constrained environment.***

3. ***The changing national security environment poses unique challenges. A strategic shift in national security to the Asia-Pacific Theater presents different operational considerations based on environment and potential adversary capabilities that may require unmanned systems to operate in anti-access/area denial (A2/AD) areas where freedom to operate is contested.***

FY16 DoD Budget Request

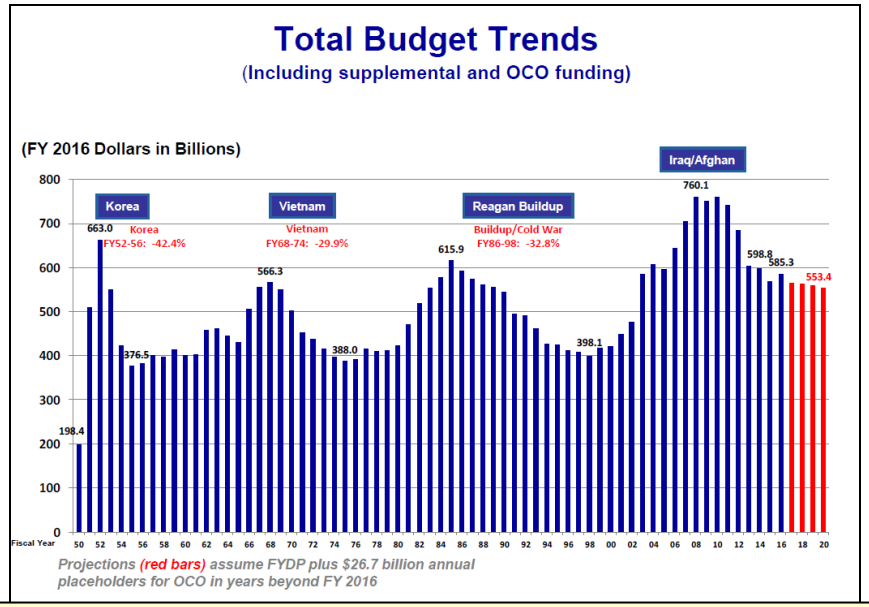
Key Themes

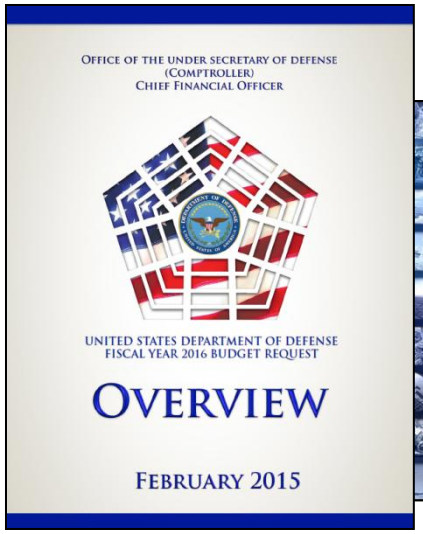
- Seek a Balanced Force
- Manage Enduring Readiness Challenges
- Continue to Focus on Institutional Reform
- Pursue Investments in Military Capabilities
- Provide for the People
- Support Overseas Contingency Operations

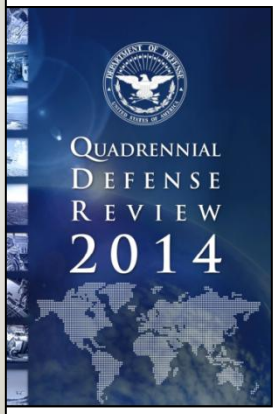
Rebalancing for a broad spectrum of conflict.

Future conflicts could range from hybrid contingencies against non-state actors to high-end conflicts against states armed with weapons of mass destruction and/or advanced anti-access and area-denial capabilities. To address this diverse range of challenges, the U.S. military will broaden its capabilities to the full spectrum of possible operations. While preserving hard-won expertise in counterinsurgency and stability operations, the Joint Force must also be prepared to battle sophisticated adversaries employing advanced warfighting capabilities, to include space and cyber capabilities. The Department will sustain robust investments in science, technology, research, and development in areas most critical to meeting future challenges or where there is greatest potential for game-changing advances.

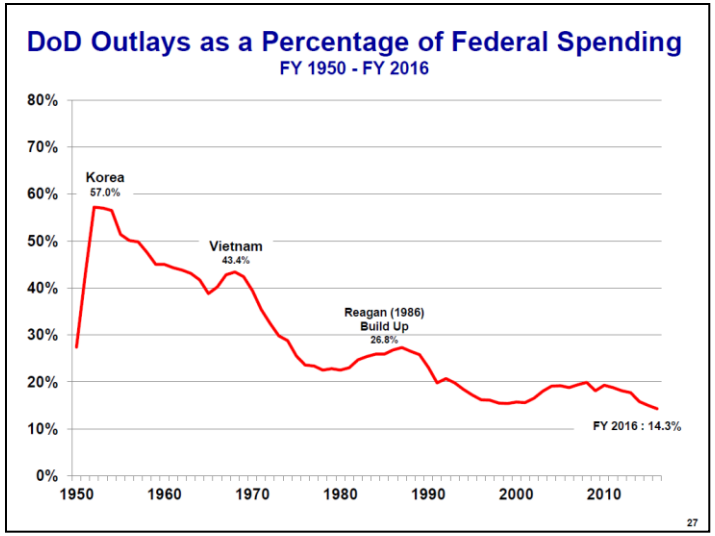
Continued Uncertainty…







"The geopolitical developments of the last year have only reinforced the need to resource the Department of Defense (DoD) at the President's budget level rather than the current law…
With continuing fiscal and strategic uncertainty, this FY 2016 budget request reflects the Department's attempt to fashion a coherent defense program with the proper balance between capacity, capabilities, and current and future readiness…
This can only be achieved by the package of balanced reforms and initiatives that the Department is presenting to Congress and will require Congress partnering with DoD to make politically difficult choices. Most importantly, the specter of sequestration needs to be eliminated. The QDR strategy cannot be executed at sequester-levels of funding."



Unclassified

Dept of the Navy PB 16

DEPARTMENT OF THE NAVY
FY 2016 PRESIDENT'S BUDGET

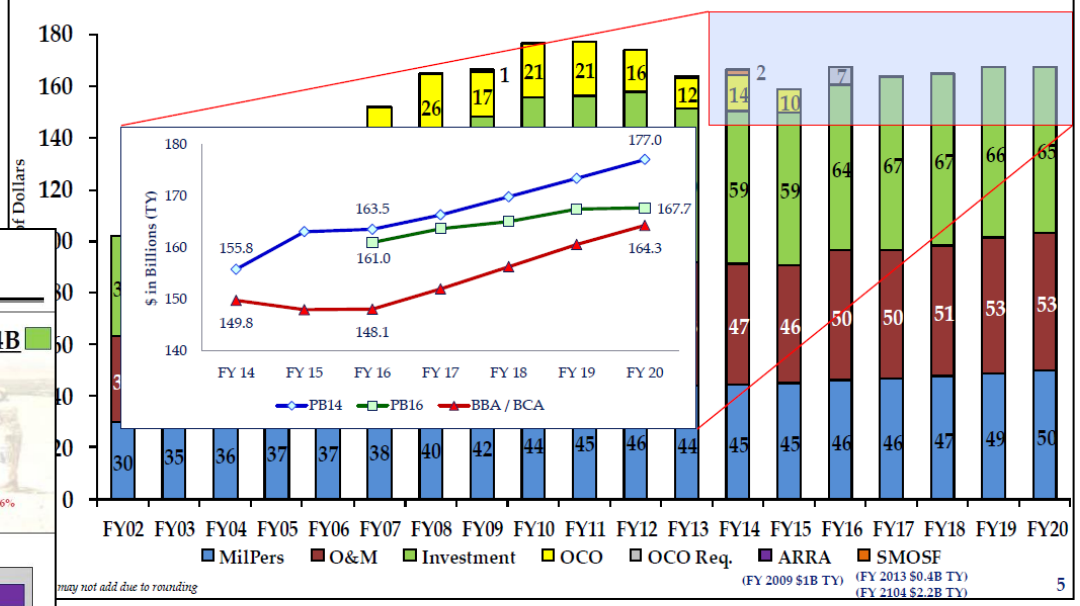
Rear Admiral William K. Lescher, USN
Deputy Assistant Secretary of the Navy for Budget

February 2, 2015

Executing the Strategy – Resources

Department of the Navy Topline FY 2002-2020 (TY)

	FY02	FY03	FY04	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
Total Funding (TY)	$101.7	$126.3	$123.5	$133.6	$144.3	$151.6	$164.9	$166.8	$177.1	$176.8	$174.6	$163.1	$164.4	$159.3	168.0				
Baseline Funding (TY)	$101.7	$116.8	$118.4	$120.9	$127.9	$127.2	$139.2	$148.1	$156.1	$156.1	$158.3	$151.6	$150.2	$149.7	$161.0	$163.7	$165.0	$167.4	$167.7



may not add due to rounding

5

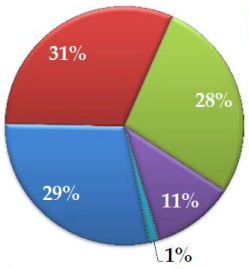
Summary by Appropriation Group
FY 2016 DoN Base Budget

O&M: $50.4B

Ship Ops & Maint	$12.6
Aviation Ops & Maint	$8.8
Base Ops & Support	$7.6
Marine Corps O&M	$6.2
Combat/Weapons Support	$5.6
Service Wide Support	$4.9
Training and Education	$1.8
Reserve O&M	$1.3
Environmental Restoration	$0.3
Mobilization	$1.3

Navy: 32% Marine Corps: 27%

FY16: $161.0B



Procurement: $44.4B

Ships	$16.6
Aircraft	$16.1
Weapons	$3.2
Marine Corps	$1.1
Ammunition	$0.8
Other Navy Procurement	$6.6

Navy: 31% Marine Corps: 6%

MilPers: $46.0B

Basic Pays	$19.2
Housing Allowance	$7.7
Retired Pay Accrual	$6.0
Health Accrual	$2.0
Reserve Personnel	$2.6
Subsistence	$2.3
Allowances	$1.2
Special Pays	$1.6
Other	$3.4

Navy: 23% Marine Corps: 61%

Infrastructure: $2.2B

MILCON	$1.7
BRAC	$0.2
Family Housing	$0.3

Navy: 1% Marine Corps: 3%

R&D: $17.9B

Basic Research	$0.6
Applied Research	$0.9
Advance Tech Dev	$0.7
Adv Component Dev	$5.0
System Dev & Demo	$6.3
Management Support	$1.0
Ops Systems Dev	$3.4

Navy: 13% Marine Corps: 3%

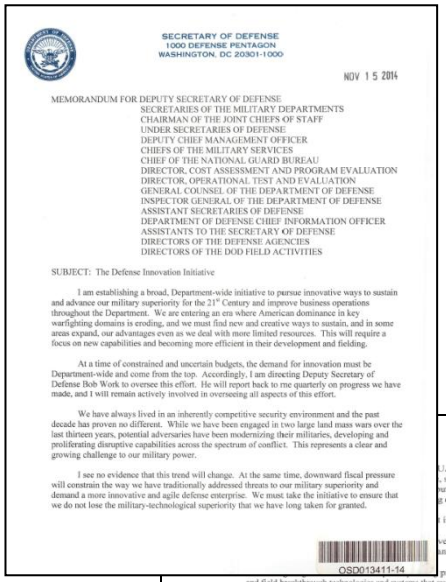
= The percentage of each Service's total budget applied to each appropriation group

Numbers may not add due to rounding

6

Extreme pressure on investment accounts for ground forces

Innovation



SECRETARY OF DEFENSE
1000 DEFENSE PENTAGON
WASHINGTON, DC 20301-1000

NOV 15 2014

MEMORANDUM FOR DEPUTY SECRETARY OF DEFENSE
SECRETARIES OF THE MILITARY DEPARTMENTS
CHAIRMAN OF THE JOINT CHIEFS OF STAFF
UNDER SECRETARIES OF DEFENSE
DEPUTY CHIEF MANAGEMENT OFFICER
CHIEFS OF THE MILITARY SERVICES
CHIEF OF THE NATIONAL GUARD BUREAU
DIRECTOR, COST ASSESSMENT AND PROGRAM EVALUATION
DIRECTOR, OPERATIONAL TEST AND EVALUATION
GENERAL COUNSEL OF THE DEPARTMENT OF DEFENSE
INSPECTOR GENERAL OF THE DEPARTMENT OF DEFENSE
ASSISTANT SECRETARIES OF DEFENSE
DEPARTMENT OF DEFENSE CHIEF INFORMATION OFFICER
ASSISTANTS TO THE SECRETARY OF DEFENSE
DIRECTORS OF THE DEFENSE AGENCIES
DIRECTORS OF THE DOD FIELD ACTIVITIES

SUBJECT: The Defense Innovation Initiative

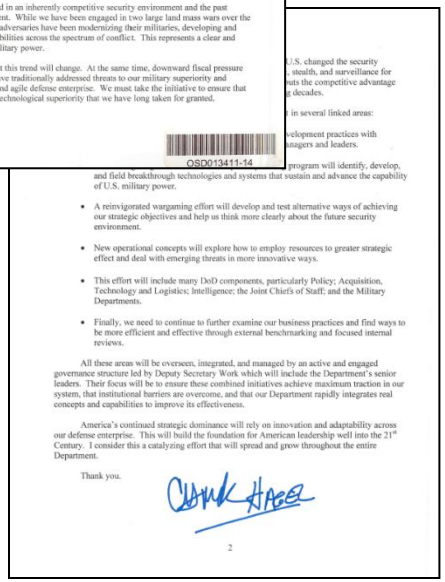
I am establishing a broad, Department-wide initiative to pursue innovative ways to sustain and advance our military superiority for the 21st Century and improve business operations throughout the Department. We are entering an era where American dominance in key warfighting domains is eroding, and we must find new and creative ways to sustain, and in some areas expand, our advantages even as we deal with more limited resources. This will require a focus on new capabilities and becoming more efficient in their development and fielding.

At a time of constrained and uncertain budgets, the demand for innovation must be Department-wide and come from the top. Accordingly, I am directing Deputy Secretary of Defense Bob Work to oversee this effort. He will report back to me quarterly on progress we have made, and I will remain actively involved in overseeing all aspects of this effort.

We have always lived in an inherently competitive security environment and the past decade has proven no different. While we have been engaged in two large land mass wars over the last thirteen years, potential adversaries have been modernizing their militaries, developing and proliferating disruptive capabilities across the spectrum of conflict. This represents a clear and growing challenge to our military power.

I see no evidence that this trend will change. At the same time, downward fiscal pressure will constrain the way we have traditionally addressed threats to our military superiority and demand a more innovative and agile defense enterprise. We must take the initiative to ensure that we do not lose the military-technological superiority that we have long taken for granted.

OSD013411-14



U.S. changed the security
, stealth, and surveillance for
uts the competitive advantage
g decades.

t in several linked areas:

velopment practices with
nagers and leaders.

and field breakthrough technologies and systems that sustain and advance the capability of U.S. military power.

- A reinvigorated wargaming effort will develop and test alternative ways of achieving our strategic objectives and help us think more clearly about the future security environment.
- New operational concepts will explore how to employ resources to greater strategic effect and deal with emerging threats in more innovative ways.
- This effort will include many DoD components, particularly Policy; Acquisition, Technology and Logistics; Intelligence; the Joint Chiefs of Staff; and the Military Departments.
- Finally, we need to continue to further examine our business practices and find ways to be more efficient and effective through external benchmarking and focused internal reviews.

All these areas will be overseen, integrated, and managed by an active and engaged governance structure led by Deputy Secretary Work which will include the Department's senior leaders. Their focus will be to ensure these combined initiatives achieve maximum traction in our system, that institutional barriers are overcome, and that our Department rapidly integrates real concepts and capabilities to improve its effectiveness.

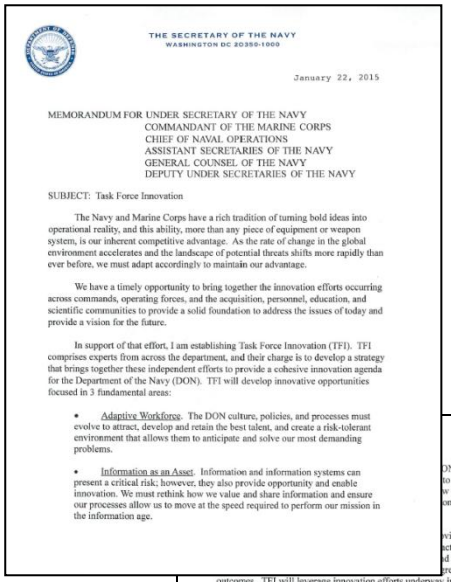
America's continued strategic dominance will rely on innovation and adaptability across our defense enterprise. This will build the foundation for American leadership well into the 21st Century. I consider this a catalyzing effort that will spread and grow throughout the entire Department.

Thank you.

2

Defense Innovation Initiative

We will identify a third offset strategy that puts the competitive advantage firmly in the hands of American power projection over the coming decades. We must accelerate innovation throughout the Department…



THE SECRETARY OF THE NAVY
WASHINGTON DC 20350-1000

January 22, 2015

MEMORANDUM FOR UNDER SECRETARY OF THE NAVY
COMMANDANT OF THE MARINE CORPS
CHIEF OF NAVAL OPERATIONS
ASSISTANT SECRETARIES OF THE NAVY
GENERAL COUNSEL OF THE NAVY
DEPUTY UNDER SECRETARIES OF THE NAVY

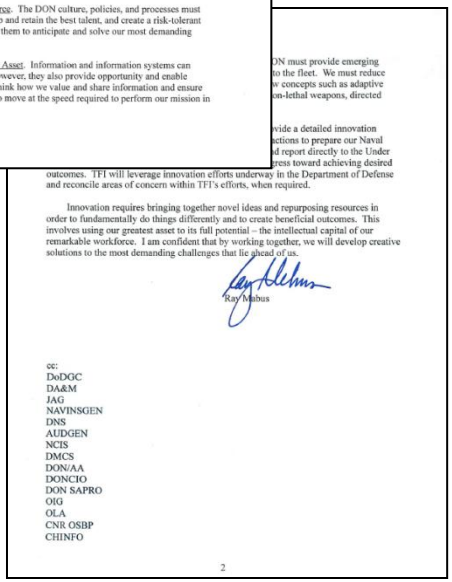
SUBJECT: Task Force Innovation

The Navy and Marine Corps have a rich tradition of turning bold ideas into operational reality, and this ability, more than any piece of equipment or weapon system, is our inherent competitive advantage. As the rate of change in the global environment accelerates and the landscape of potential threats shifts more rapidly than ever before, we must adapt accordingly to maintain our advantage.

We have a timely opportunity to bring together the innovation efforts occurring across commands, operating forces, and the acquisition, personnel, education, and scientific communities to provide a solid foundation to address the issues of today and provide a vision for the future.

In support of that effort, I am establishing Task Force Innovation (TFI). TFI comprises experts from across the department, and their charge is to develop a strategy that brings together these independent efforts to provide a cohesive innovation agenda for the Department of the Navy (DON). TFI will develop innovative opportunities focused in 3 fundamental areas:

- Adaptive Workforce. The DON culture, policies, and processes must evolve to attract, develop and retain the best talent, and create a risk-tolerant environment that allows them to anticipate and solve our most demanding problems.
- Information as an Asset. Information and information systems can present a critical risk; however, they also provide opportunity and enable innovation. We must rethink how we value and share information and ensure our processes allow us to move at the speed required to perform our mission in the information age.



ON must provide emerging
to the fleet. We must reduce
w concepts such as adaptive
on-lethal weapons, directed

vide a detailed innovation
ctions to prepare our Naval
d report directly to the Under
gress toward achieving desired

outcomes. TFI will leverage innovation efforts underway in the Department of Defense and reconcile areas of concern within TFI's efforts, when required.

Innovation requires bringing together novel ideas and repurposing resources in order to fundamentally do things differently and to create beneficial outcomes. This involves using our greatest asset to its full potential – the intellectual capital of our remarkable workforce. I am confident that by working together, we will develop creative solutions to the most demanding challenges that lie ahead of us.

Ray Mabus

cc:
DoDGC
DA&M
JAG
NAVINSGEN
DNS
AUDGEN
NCIS
DMCS
DON/AA
DONCIO
DON SAPRO
OIG
OLA
CNR OSBP
CHINFO

2

Task Force Innovation

The DON must provide emerging operational capabilities a clear and expedient path to the fleet. We must reduce barriers and promote a culture willing to accept new concepts such as adaptive force packages, unmanned/autonomous systems, non-lethal weapons, directed energy, and additive manufacturing.

Better Buying Power

Given today's highly constrained fiscal environment, DoD (must) look at areas where efficiencies can be gained to create unmanned systems that are both effective and affordable. DoD will look at capitalizing on commonality, standardization, and joint acquisition strategies, among other strategies. Unmanned systems must become more efficient in addressing capability gaps, including increases in interoperability, autonomy, modularity, effectiveness, and teaming with manned systems.

"As more and more unmanned systems are fielded, open architectures, nonproprietary interfaces, government owned data rights, and standard IOPs will be required to further enable a broader net-centric environment that is truly interoperable, open, and scalable."

Better Buying Power 3.0 DRAFT

Achieving Dominant Capabilities through Technical Excellence and Innovation

Achieve Affordable Programs
- Continue to set and enforce affordability caps

Achieve Dominant Capabilities While Controlling Lifecycle Costs
- Strengthen and expand "should cost" based cost management
- Build stronger partnerships between the acquisition, requirements, and intelligence communities
- Anticipate and plan for responsive and emerging threats
- Institutionalize stronger DoD level Long Range R&D Planning

Incentivize Productivity in Industry and Government
- Align profitability more tightly with Department goals
- Employ appropriate contract types, but increase the use of incentive type contracts
- Expand the superior supplier incentive program across DoD
- Increase effective use of Performance-Based Logistics
- Remove barriers to commercial technology utilization
- Improve the return on investment in DoD laboratories
- Increase the productivity of IRAD and CR&D

Incentivize Innovation in Industry and Government
- Increase the use of prototyping and experimentation
- Emphasize technology insertion and refresh in program planning
- Use Modular Open Systems Architecture to stimulate innovation
- Increase the return on Small Business Innovation Research (SBIR)
- Provide draft technical requirements to industry early and involve industry in funded concept definition to support requirements definition
- Provide clear "best value" definitions so industry can propose and DoD can choose wisely

Eliminate Unproductive Processes and Bureaucracy
- Emphasize Acquisition Executive, Program Executive Officer and Program Manager responsibility, authority, and accountability
- Reduce cycle times while ensuring sound investments
- Streamline documentation requirements and staff reviews

Promote Effective Competition
- Create and maintain competitive environments
- Improve technology search and outreach in global markets

Improve Tradecraft in Acquisition of Services
- Increase small business participation, including more effective use of market research
- Strengthen contract management outside the normal acquisition chain
- Improve requirements definition
- Improve the effectiveness and productivity of contracted engineering and technical services

Improve the Professionalism of the Total Acquisition Workforce
- Establish higher standards for key leadership positions
- Establish stronger professional qualification requirements for all acquisition specialties
- Strengthen organic engineering capabilities
- Ensure the DOD leadership for development programs is technically qualified to manage R&D activities
- Improve our leaders' ability to understand and mitigate technical risk
- Increase DoD support for Science, Technology, Engineering and Mathematics (STEM) education

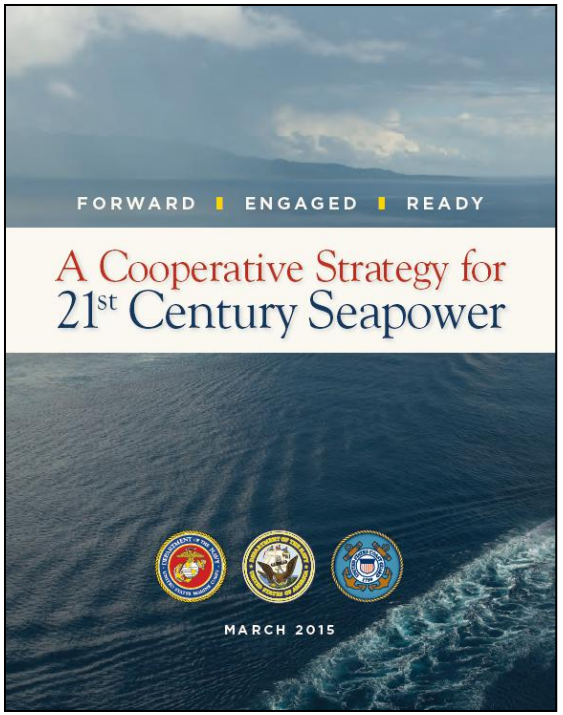
Continue Strengthening Our Culture of:
Cost Consciousness, Professionalism, and Technical Excellence

BBP 3.0: **Use Modular Open Systems Architecture to stimulate innovation**

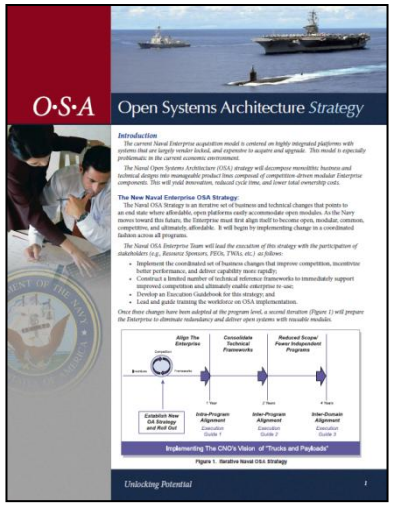
Naval Cooperative Strategy

In Designing our future force, we will:

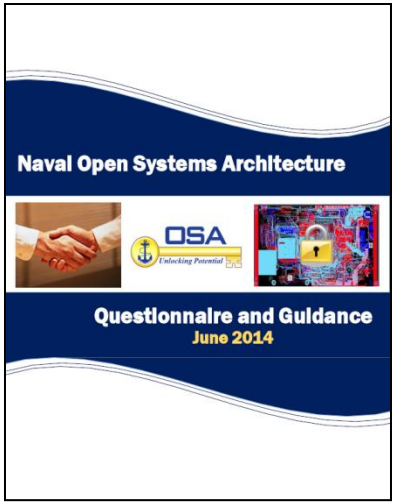
- ***Prioritize affordability in every aspect of our acquisition process by controlling costs throughout the system lifecycle. For example, we will expand Open Systems Architecture initiatives to improve the use of intellectual property and increase competition. This will drive down total ownership costs, improve warfighting capability, and lead to sustainable future programs.***
- ***Collaborate with our industry partners to design interoperable and adaptable platforms that can rapidly plug in new sensor, information, logistic, and weapon payloads. Modularity will define our future force.***
- ***Plan and balance acquisitions and maintenance strategies to ensure the viability of the industrial base.***



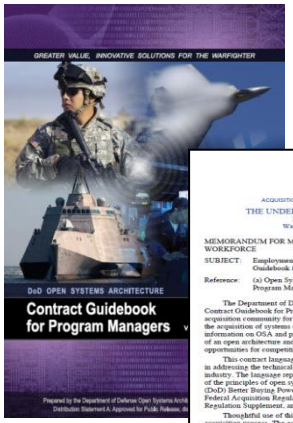
Naval Open Systems Architecture

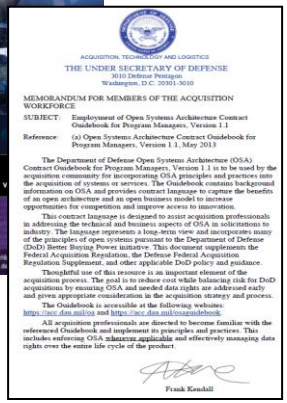


End State: *"Affordable, open platforms easily accommodate open modules"*



ASN RDA requires all programs that purport to use OA/OSA to record actions taken





"The essence of Open Systems Architecture (OSA) is organized decomposition, using carefully defined execution boundaries, layered onto a framework of software and hardware shared services and a vibrant business model that facilitates competition."

IP Strategy is the enabler of open architectures

Why Unmanned ?

Unmanned systems provide persistence, versatility, survivability, and reduced risk to human life, and in many cases are the preferred alternatives especially for missions that are characterized as dull, dirty, or dangerous.

- ***Dull missions are ideal for unmanned systems because they involve long-duration undertakings with mundane tasks that are ill suited for manned systems.***

- ***Dirty missions have the potential to unnecessarily expose personnel to hazardous conditions. A primary example is chemical, biological, and nuclear detection missions. Unmanned systems can perform these dirty missions with less risk exposure to the operators.***

- ***Dangerous missions involve high risk. With advances in capabilities in performance and automation, unmanned systems will reduce the risk exposure to personnel by increasingly fulfilling capabilities that are inherently dangerous.***

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

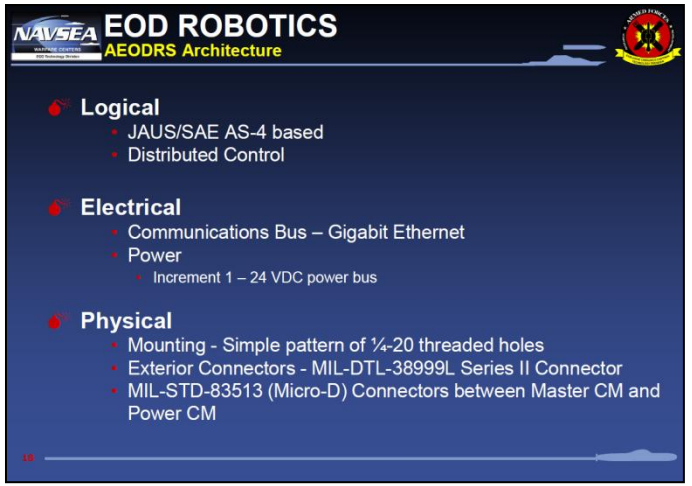
- Growing acceptance
- Requirements growth / affordability and technology readiness
- Remote Ordnance Neutralization System (RONs)
  - Inventory grows to over 500
- Life cycle support concepts mature
- Demonstrations and experimentation

00's

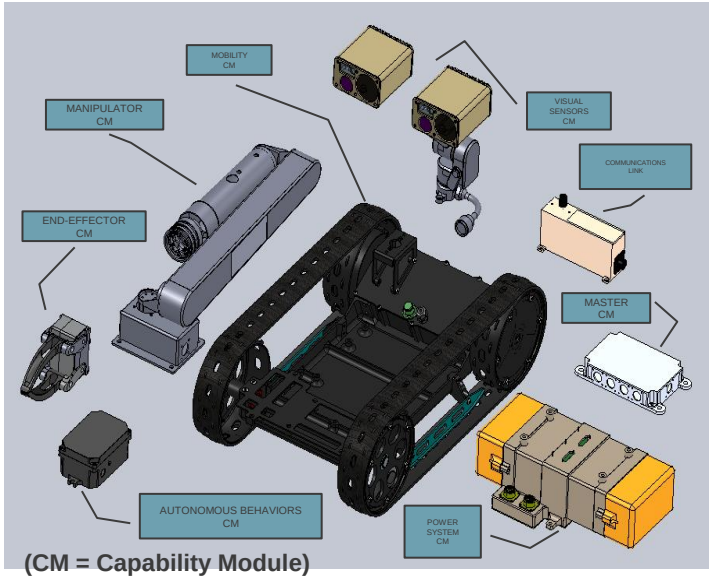
- Full acceptance of capability
- OIF/OEF thousands fielded
- Small robotics programs initiated
- OCO to base…

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**

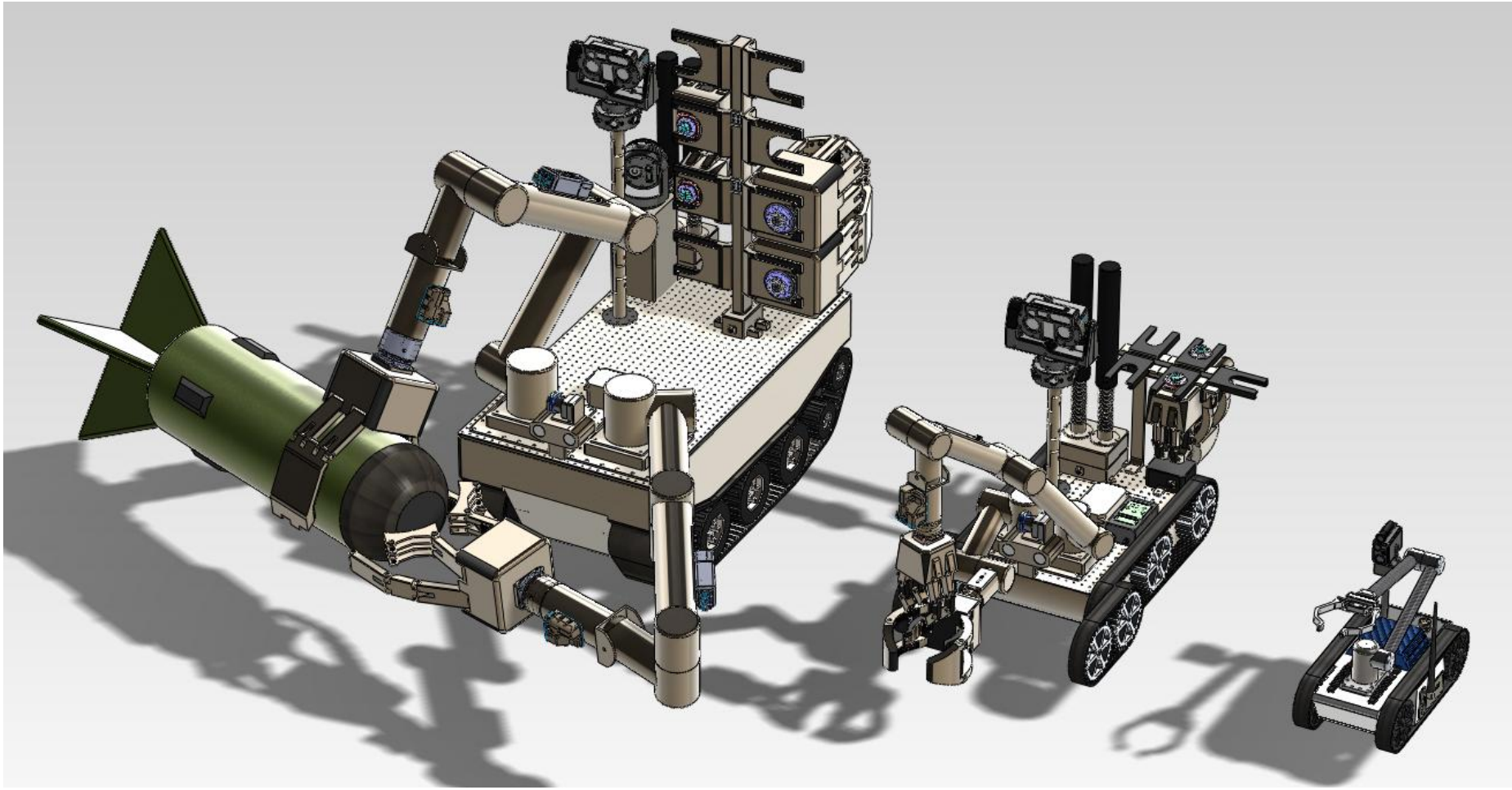


- **Systems comprised of components capable of being developed by independent entities through a competitive procurement process**
  - **Modular/Plug and Play components**
  - **Effort to maximize business competition**
  - **Foster new and innovative ideas**



(CM = Capability Module)

AEODRS Increment 1, 2, & 3 Conceptual Views



Cross Domain UMS Portfolio

- **UMS extend warfighter reach, provide access to sensitive and hazardous environments.**
- **Across all domains….**

DoN Unmanned Portfolio

- **The DoN has investments in unmanned capability throughout the acquisition lifecycle**
  - **From basic research through operations and support.**
- **This investment covers multiple operating domains, i.e.**
  - **Unmanned Underwater Vehicles (UUVs)**
  - **Unmanned Surface Vehicles (USVs)**
  - **Unmanned Air Vehicles (UAVs)**
  - **Unmanned Ground Vehicles (UGVs)**
  - **Supporting C4I, PED, HSI, etc…**
- **350+ initiatives are being executed in the DoN**

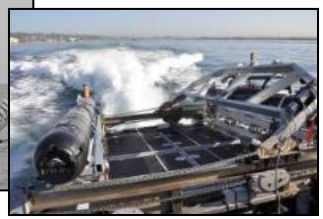
Program Name	Description	Type	Acq Desig	Organization
PEO LCS				
Remote Minehunting System		UUV	ACAT ID	PMS 403
Large Diplacement UUV		UUV	ACAT II	PMS 406
Knifefish		UUV	ACAT III	PMS406
Unmanned Influence Sweep System (UISS)		USV	ACAT III	PMS406
Mine Huntin				
Persistent U Surveillance				

Program Name	Description	Type	Acq Desig	Organization
BQM-177 Subsonic Aerial Target		UAV	ACAT IVM	PMA-208
BQM-34 Subscale Subsonic Target		UAV	NA	PMA-208
BQM-74E Subsonic Target		UAV	NA	PMA-208
GQM-163A Supersonic Sea Skimming Target		UAV	ACAT IVM	PMA-208
GQM-173 Multi-Stage Supersonic Target		UAV	ACAT IVM	PMA-208
Improved Ta Decoy				
Moving Land				

Program Name	Description	Type	Acq Desig	Organization
ONR				
Large Diameter UUV (LDUUV) INP Targets	The Large Diameter UUV INP program is developing advanced power, reliability, and autonomy for two types of prototype vehicles: a ship/pier-to-pier vehicle A[illegible] with an endurance of up to 60 day, and a submarine compatible system able to be deployed from a dry deck shelter. Vehicles will transition to PMS 406.	UUV SUP	NA	ONR 32
Large Displacement UUV Vehicle (LDUUV) INP Energy Technology	This INP Energy Technology Program will demonstrate TRL 6 scalable air independent technologies for a 48" x 48" cross section UUV via integrated full-scale land-based testing in a 120 inch long UUV energy section demonstrating upwards of 1,800 kWh (up to 70 days objective mission profile), several start/stop cycles and refuelability without disassembly from the vehicle. To date a 46 day continuous TRL-4 test with 827 kWh of energy has been demonstrated.	UUV SUP	NA	ONR 33
Autonomous Aerial Cargo/Utility System (AACUS) Innovative Naval Prototype	AACUS is a sensor suite and software package that is designed to enable any full-size, unmanned, rotary-wing aircraft to autonomously perform takeoff, en route navigation, approach and landing to an unprepared landing zone. AACUS is supervised by any Marine, with minimal training, using a tablet based device.	UAV SUP	NA	ONR 35
Forward Deployed Energy and Communications Outpost - Innovative Naval Prototype (FDECO - INP)	FDECO is a forward deployed (expeditionary) outpost providing energy replenishment and distributed network communication options to disadvantaged undersea platforms and sensor systems.	UUV SUP	NA	ONR 32

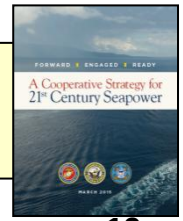
Unclassified

Expeditionary UUV Systems for MCM and Homeland Defense



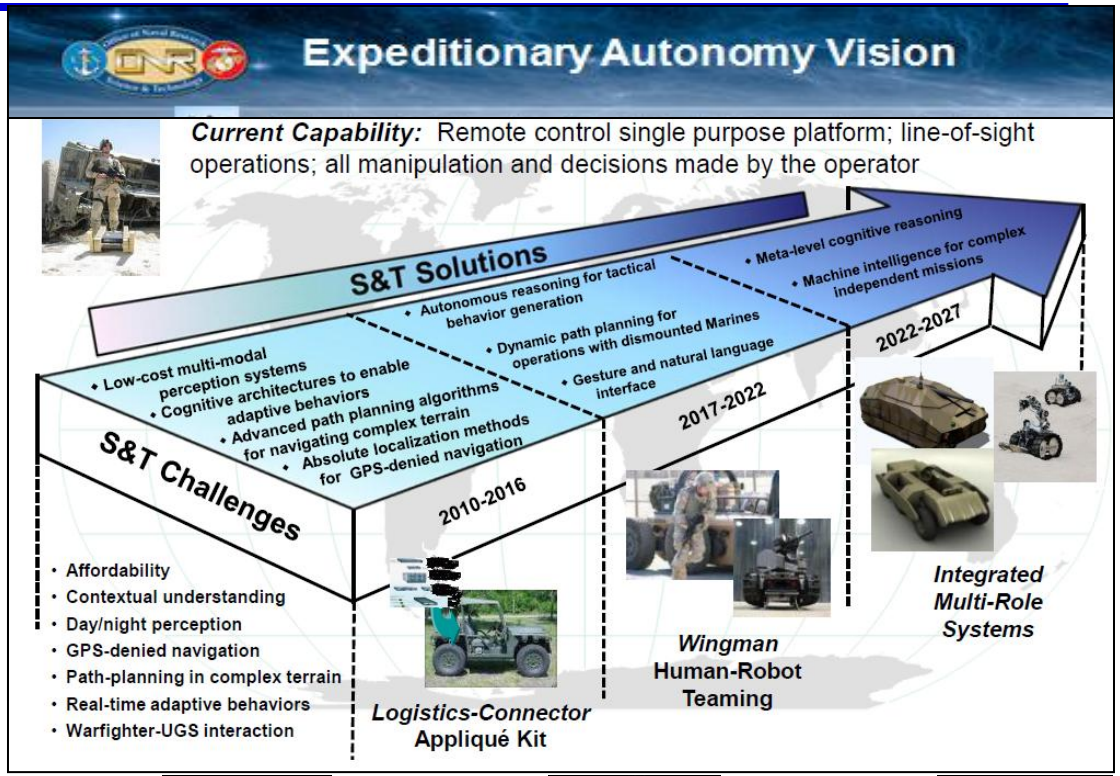
- **Affordable**
  - **Inadvertent loss is not mission catastrophic**
  - **"Good enough early " with future improvement design strategy**
    - **Open architecture**
- **Rapidly deployable worldwide**
  - **Platform "agnostic" launch/recovery**
    - **Combat rubber raiding craft (CRRC)**
    - **Rigid Hull Inflatable Boat (RHIB)**
    - **Pier side/craft of opportunity employment tactics**
  - **Remote site supportable**
    - **Onboard repair parts kits;**
    - **Reach-back repair/replacement logistics (e.g. spares, FEDEX)**
    - **Multi-UUV system configuration**
- **Minefield Suitable**
  - **Characterize influence signatures for minefield use**
  - **Tactics/techniques and procedures (TTP)**

Interoperable and adaptable platforms that can rapidly plug in new sensor, information, logistic, and weapon payloads.



DoN S&T Initiatives

- **Automated systems** can function with little human operator involvement; however, the system performance is limited to the specific actions it has been designed to do.
- **Autonomous systems** have a set of intelligence-based capabilities that allow them to respond to situations that were not pre-programmed or anticipated prior to system deployment.



Human/Unmanned Systems Collaboration

Novel Platforms and Integration

Perception and Intelligent Decision Making

Scalable and Robust Distributed Collaboration

Intelligence Enablers and Architectures

The Department will sustain robust investments in science, technology, research, and development in areas most critical to meeting future challenges or where there is greatest potential for game-changing advances.

Summary

- **Budget pressures, challenging strategic and operational environment, and lessons learned from recent conflicts driving the 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**
- **Solutions must be affordable and interoperable**
  - **Joint service and multi-community collaboration on requirements, technology and programs**
- **Industry a full partner**

Facilitating Successful Acquisition and Operational Outcomes

Discussion…