

Army Science & Technology



NDIA Science Engineering & Technology Conference

Ground Maneuver Portfolio Overview



Mr. Keith Jadus
Acting Director Ground Portfolio
Office of the Deputy Assistant Secretary
of the Army for Research and Technology

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DESIGN • DEVELOP • DELIVER • DOMINATE
SOLDIERS AS THE DECISIVE EDGE

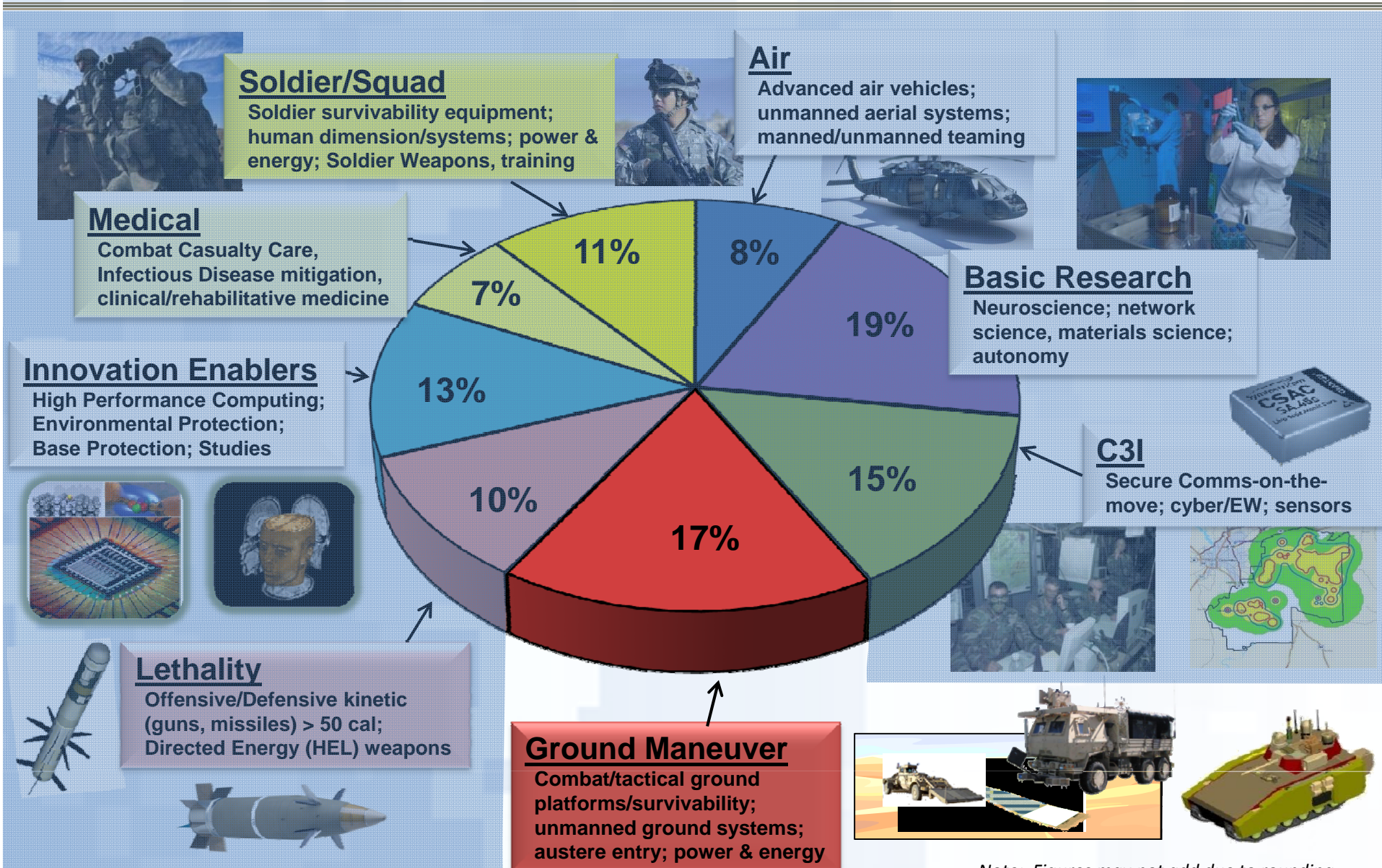


Army Enduring Challenges

- Greater **force protection (Soldier, vehicle, base)** to ensure survivability across all operations
 - Ease **overburdened** Soldiers in Small Units
 - Timely **mission command & tactical intelligence** to provide situation awareness and communications in all environments
- Reduce logistic burden of **storing, transporting, distributing** and **retrograde** of materials
 - Create **operational overmatch** (enhanced lethality and accuracy)
- Achieve operational **maneuverability** in all environments and at **high operational tempo**
 - Enable ability to **operate in CBRNE environment**
 - Enable **early detection and improved outcomes for Traumatic Brain Injury (TBI) and Post Traumatic Stress Disorder (PTSD)**
- Improve **operational energy**
 - Improve **individual & team training**
- **Reduce lifecycle cost** of future Army capabilities

Army S&T Investments by Portfolio

PB15 FY15 6.1-6.3



Note: Figures may not add due to rounding

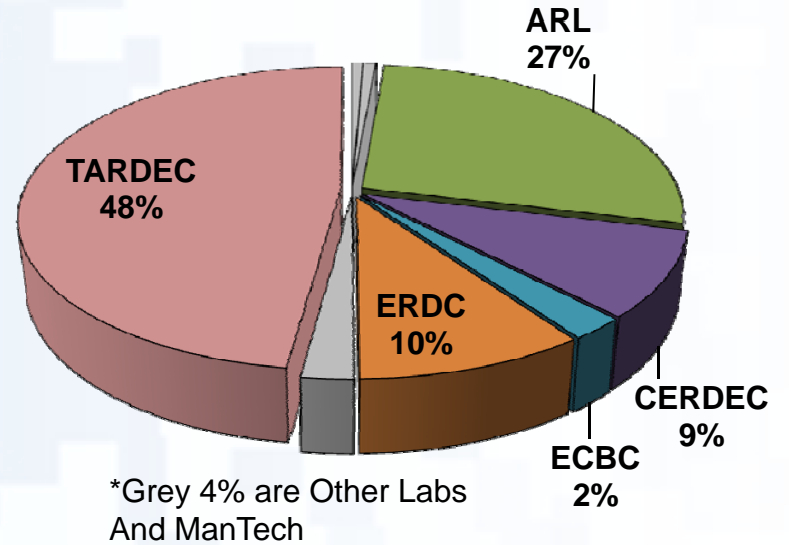
MAINTAINING A LEADING EDGE IN TECHNOLOGY



Ground Maneuver Portfolio

Ground Maneuver Portfolio
6.2 and 6.3 Funding

\$383M



Survivability

\$203M

- Investment Areas
- Vehicle Protection
 - Armor
 - Active Protection
 - Underbody Blast
 - Base Protection

Ground Platforms

\$119M

- Investment Areas
- Power & Mobility
 - Ground Vehicle
 - Robotics
 - Logistics

Mobility / Countermobility

\$61M

- Investment Areas
- Counter Mine & IED
 - Austere Entry & Maneuver
 - Obscurants

Ground Maneuver Portfolio Vision/Mission Statement

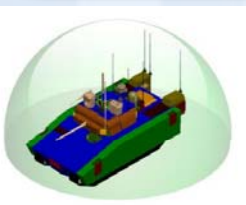


Vision

U.S. Overmatch in military vehicles for offensive and defensive capabilities

Mission Goals

- Increase Survivability
- Reduce Weight
- Improve Fuel Economy
- Increase Power Available
- Detect and Neutralize Explosive Hazards
- Austere Entry & Maneuver
- Provide Concealment



Active Protection



Advanced Armor



Ground Vehicle Robotics



Logistics Technology



Counter Explosive Hazards

Invest in Technologies which Increase Performance & Affordability of Army Ground Systems against a Capable Enemy

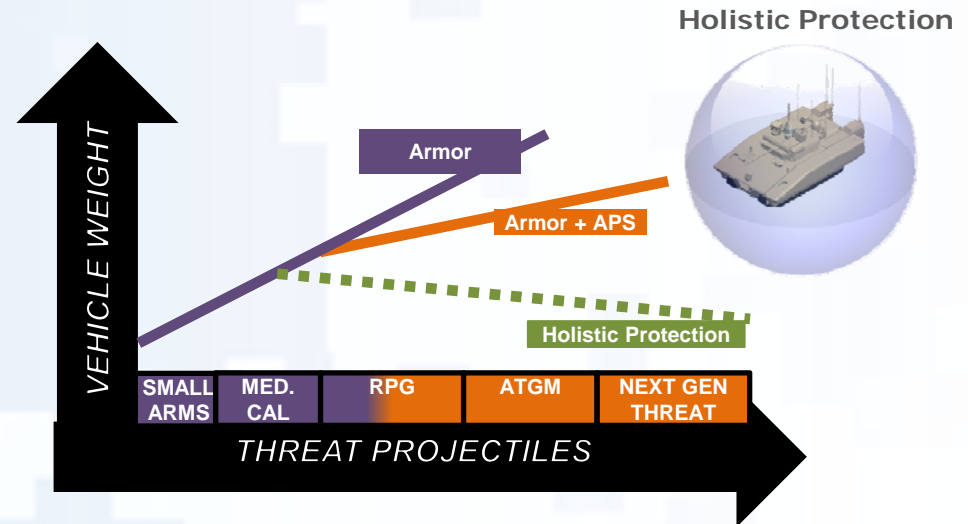


Ground Maneuver S&T Strategy

Goal: Increase combat effectiveness over time while reducing acquisition, sustainment, and logistic costs

Key Research Areas

- Holistic and synergistic protection vs. unique protection via armor, underbody blast, and active protection
- Increased energy dense engines to enhance mobility and improve fuel efficiency
- Open and common, power & digital data management and distribution
- Autonomy enabled systems
- Technology to enable austere entry & maneuver
- Technology to Detect and Neutralize Explosive Hazards



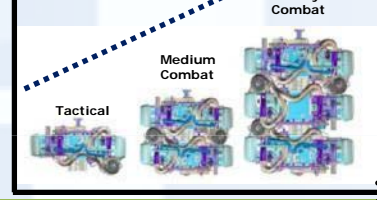
Drivers

- CSA Strategic Priorities
- Army Strategic Planning Guidance
- Army Enduring Challenges
- Army Capabilities Needs Analysis (CNA 16-20)

Power & Digital Data Management & Distro



Power Dense, Common, Modular Engine

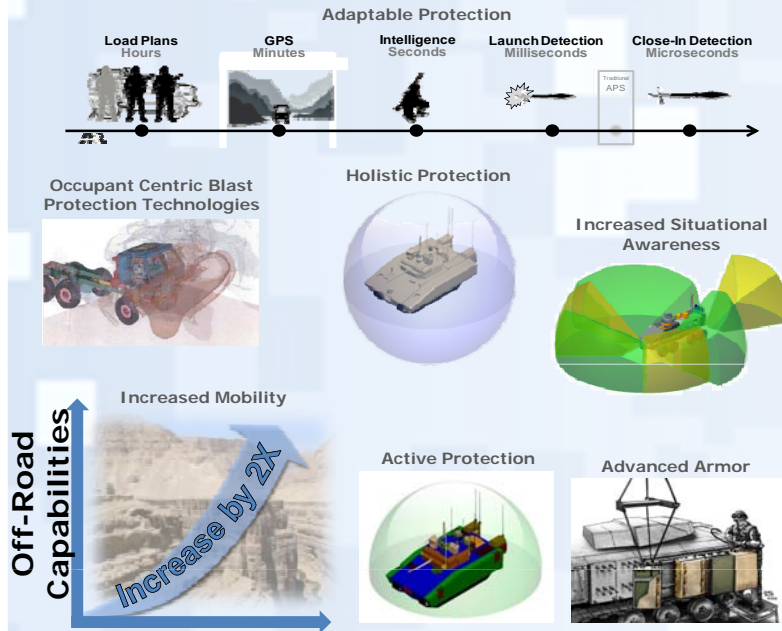


Improve performance while reducing system weight and cost



Ground Maneuver Major Efforts

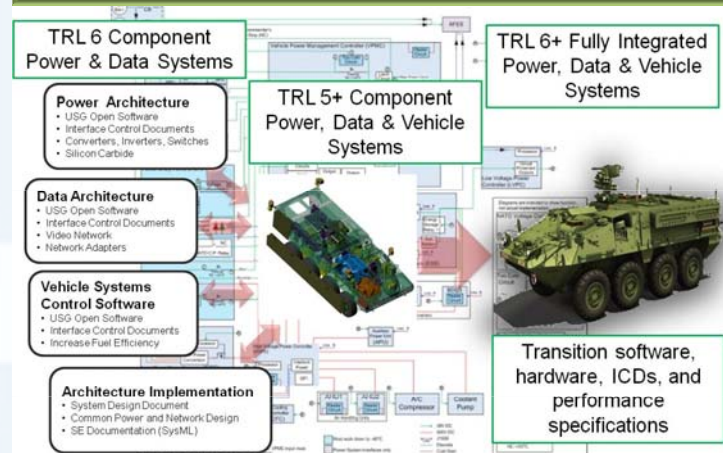
Protected Mobility



Goal: Develop, integrate and demonstrate force protection and mobility technologies to maintain the optimal balance of mobility and protection to facilitate sustained operations anywhere in the world

Vehicle Electronics Architecture

Goal: Mature and demonstrate next generation electrical power and data management and distribution architectures for military vehicles improving VICTORY standards



Increased Energy Density and Energy Efficiency



Goal: Design, develop & demonstrate next generation leap ahead energy density and energy efficiency technologies for combat & tactical vehicles

Develop technology to increase performance & reduce identified sustainment cost drivers.



Modular Active Protection System

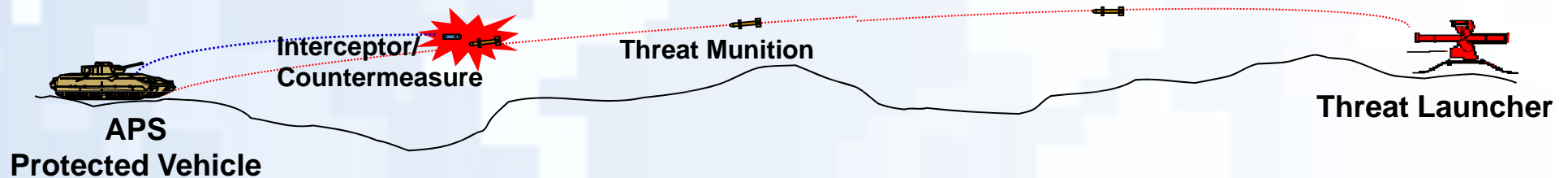
Modular APS will allow commonality across the vehicle fleet, tailoring of systems to meet PM needs and platform constraints, and provide growth capability to address emerging threats and facilitate transition

Products:

- Modular APS Framework (MAF) and interface standards
- Modular APS Controller (MAC) implementing the framework and designed with safety requirements
- Modular software to integrate subsystems for a specific platform capability
- MAF compliant sensor / countermeasure subsystem specifications
- End-to-End simulations of specific configurations for risk reduction analysis

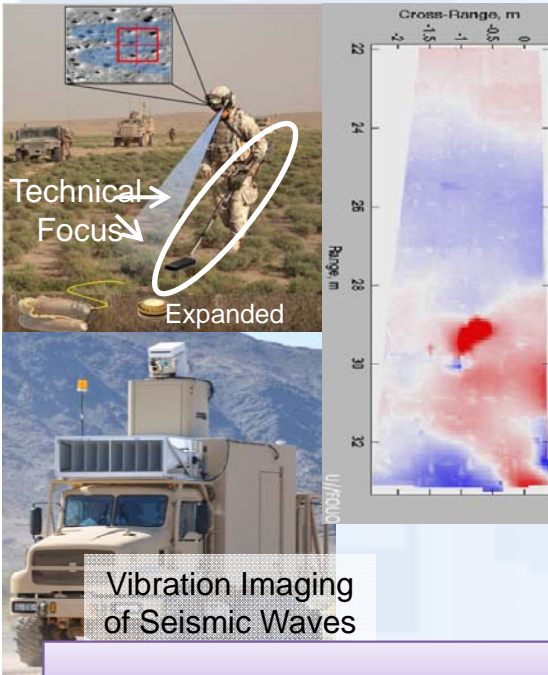
Payoff:

- “Best of Breed” component flexibility
- Avenue for technology insertion of Industry and S&T subsystems
- Designed for safety / shorter transition times
- Potential component commonality between vehicles
- Enable subsystem competition and associated cost savings



Ground Maneuver Major Efforts

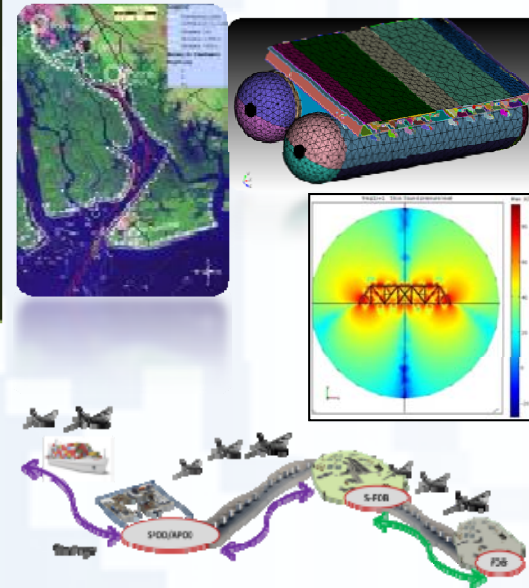
Counter Explosive Hazards



Goal: Investigate novel mine/IED detection sensors and algorithms while understanding the phenomenology behind detection of explosive hazards to enable freedom of maneuver



Austere Entry & Maneuver



Goal: Design, develop and demonstrate next generation technologies to provide proactive means to ensure Joint Forces can deploy and freely enter the theater of operations.

Robotic Ground Vehicles

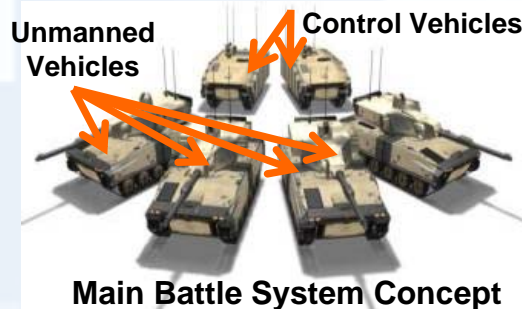
Goal: Advance ground robotic vehicle technology to reduce logistics tail, increase unit capabilities and be more expeditious



Autonomy-Enabled Convoy



Autonomous Materiel Handling Equipment



Main Battle System Concept



Support Expeditionary Forces



Summary

- Portfolio supports Army Maneuver
- Major Efforts:
 - Vehicle Protection Technologies (Armor, Underbody Blast, Active Protection)
 - Vehicle Mobility Technologies (Powertrain, Power Generation/Storage, Suspension, Track)
 - Counter Explosive Hazards (Detection and Neutralization)
 - Vehicle Electronics Architecture
 - Ground Vehicle Robotics
 - Protective Structures
 - Austere Entry & Maneuver
 - Forensic Analysis
- For Business Opportunities, see the following Organizations:
 - Tank Automotive Research Development and Engineering Center (TARDEC)
 - <http://tardec.army.mil/business/default.aspx>
 - Army Research Laboratory (ARL)
 - <http://www.arl.army.mil/www/default.cfm?page=6>
 - Communication-Electronics Research Development and Engineering Center (CERDEC)
 - www.cerdec.army.mil/opportunities_and_services/business_opportunities/
 - Engineer Research Development Center (ERDC)
 - <http://www.erd.usace.army.mil/BusinessWithUs.aspx>
 - Edgewood Chemical Biological Center (ECBC)
 - <https://www.ecbc.army.mil/about/working.html>

Defense Innovation Marketplace

(www.DefenseInnovationMarketplace.mil)



DEFENSE INNOVATION MARKETPLACE


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CONNECTING INDUSTRY & DoD

The Defense Innovation Marketplace is a centralized resource for market research:

For Industry, to learn about Department of Defense (DoD) S&T/R&D investment priorities, capability needs and technology interchanges.

For Government, to [access search tools](#) to assess and then leverage industry IR&D projects for current and future programs.

"We also have the Defense Marketplace, which is a website that we allow industry to identify IR&D opportunities... that we can then leverage."

Mary Miller, Deputy Assistant Secretary of the Army for Research & Technology

Featured Document



USMC Expeditionary Forces 21

This document provides guidance for how the Marine Corps will be postured, organized, trained, and equipped to fulfill assigned public law and national policy responsibilities.

INNOVATION OPPORTUNITIES

Resources for Industry

DoD Info for Business & Program Planning

Submit IR&D Data

Share projects with DoD Customers

Resources for DoD

DoD employee access of IR&D Search tool

NEW IN THE MARKETPLACE

<h5 style="margin: 0;">Strategic Documents</h5> <ul style="list-style-type: none"> Systems Engineering 2013 Annual Report **NEW** DoD's FY15 S&T Testimony Chairman's 2nd Term Strategic Direction Expeditionary Forces Capstone Concept Reliance 21 Operating Principles <p style="font-size: x-small; margin: 0;">More...</p>	<h5 style="margin: 0;">Doing Business with DoD</h5> <ul style="list-style-type: none"> DARPA Hand & Touch Interfaces (HAPTIX) Proposer's Day **NEW** DARPA Upward Falling Payloads **NEW** Navy Optical Telescope Assembly BAA **NEW** DARPA Tactical Boost Glide BAA <p style="font-size: x-small; margin: 0;">More...</p>	<h5 style="margin: 0;">News & Events</h5> <ul style="list-style-type: none"> Aerospace Enterprise Dialogue with Industry Wright Dialogue with Industry DAU March Newsletter Top Downloads February Army Technology Magazine Defense AT&L Magazine <p style="font-size: x-small; margin: 0;">More...</p>
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