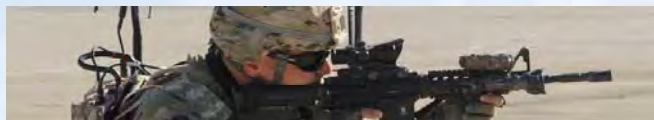


Army Science & Technology



NDIA Science Engineering & Technology Conference

Soldier Portfolio Overview



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Office of the Deputy Assistant Secretary
of the Army for Research and Technology

9 April 2014

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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

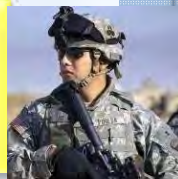
Army S&T Investments by Portfolio

PB15 FY15 6.1-6.3



Soldier/Squad

Soldier survivability equipment; human dimension/systems; power & energy; Soldier Weapons, training



Air

Advanced air vehicles; unmanned aerial systems; manned/unmanned teaming



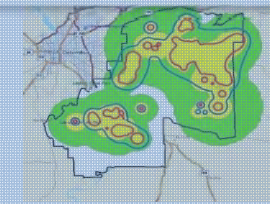
Basic Research

Neuroscience; network science, materials science; autonomy



C3I

Secure Comms-on-the-move; cyber/EW; sensors

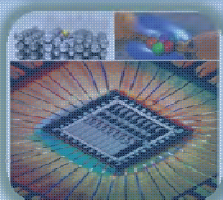


Medical

Combat Casualty Care, Infectious Disease mitigation, clinical/rehabilitative medicine

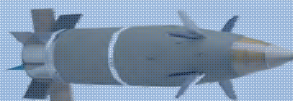
Innovation Enablers

High Performance Computing; Environmental Protection; Base Protection; Studies



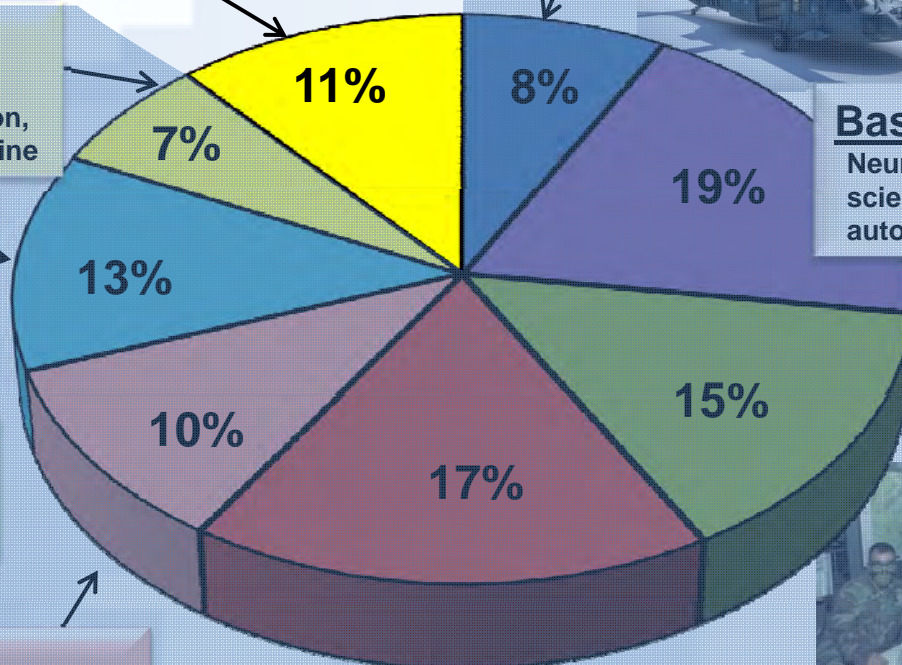
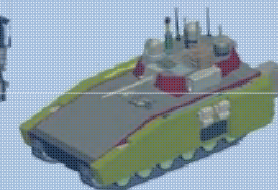
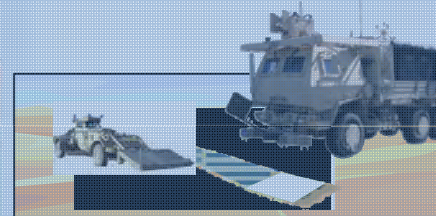
Lethality

Offensive/Defensive kinetic (guns, missiles) > 50 cal; Directed Energy (HEL) weapons



Ground Maneuver

Combat/tactical ground platforms/survivability; unmanned ground systems; austere entry; power & energy



Note: Figures may not add due to rounding



Soldier Vision Statement

Vision

Execute innovative Science and Technology programs which increase the effectiveness and reliability of the human component of the total Army allowing for rapid dominance in increasingly complex environments across a diverse range of operations



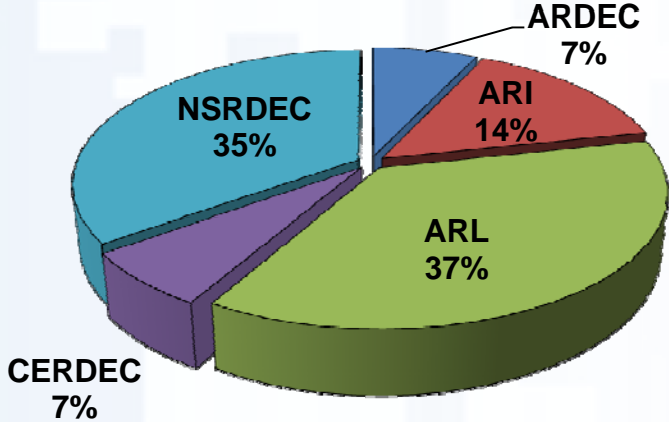
Squad as the Foundation of the Decisive Force

252M
FY15

Soldier/Squad Portfolio



Soldier/Squad Portfolio 6.2 and 6.3 Funding



Personnel

\$39M

- Investment Areas**
- Personnel Measures
 - Readiness and Resilience
 - Army Culture: Command Climate

Tactical Training

\$45M

- Investment Areas**
- Simulation Applications
 - Live, Virtual, Constructive & Gaming Enablers
 - Training – Human Performance

Soldier Lethality and Enablers

\$39M

- Investment Areas**
- System Design
 - Munitions
 - Fire Control
 - Situational Awareness

Soldier Systems Integration

\$51M

- Investment Areas**
- System Engineering and Analysis
 - Integrated Soldier Platform
 - Human Performance

Survivability

\$43

- Investment Areas**
- Environmental
 - Head-Borne
 - Ballistic and Blast
 - Signature Management

Sustainment

\$35

- Investment Areas**
- Aerial Resupply
 - Basing Technologies
 - Joint Service Combat Feeding
 - Off-loading Technologies
 - Power and Energy



Soldier/Squad Major Efforts

Soldier Training and Human Performance

Goal: Accessible, adaptable and realistic live, virtual and constructive training. Measures to access and enhance individual/unit readiness & resilience and enhance command climate for optimal performance. Optimize human aspects of technology development.

HUMAN VIEWPOINT

Soldier Overmatch

Goal: Integrated, Networked Tailorable Soldier Lethality Systems. multifunctional protection systems and smart, scalable, pre-emptive sensors and displays that allow Soldiers to push and pull data and needed.



Soldier System Engineering Architecture

Goal: Common sets of measures of performance and effectiveness to assess the impact of technology on system and human performance. Analytically assess soldier performance, mission effectiveness, logistics burden, load, interoperability factors, systems costs and use output to direct future technology efforts

Soldier Training and Human Performance



Goal: Accessible, adaptable and realistic live, virtual and constructive training. Measures to assess and enhance individual/unit readiness & resilience and enhance command climate for optimal performance. Optimize human aspects of technology development.

- Researching additional applications of non-cognitive (personality/ temperament) measures to more fully assess potential and better predict performance, behavior, attitudes, and resilience
- Developing measures, methods, and models to assess, unit readiness and resilience and applying these findings to create more effective training and leader to development
- Provides empirically valid measures and methods to assess command climate and associated outcomes.
- Advance technologies which add realism and effectiveness to Live, Virtual, Constructive and Gaming (LVCG) training capabilities used to develop critical Warfighter skills
- Modeling and simulation (M&S) research to support collaborative and individual training delivered without instructors, across multiple platforms, at point of need



Soldier System Engineering Architecture



Goal: Common sets of measures of performance and effectiveness to assess the impact of technology on system and human performance. Analytically assess soldier performance, mission effectiveness, logistics burden, load, interoperability factors, systems costs and use output to direct future technology efforts.

- Create Soldier system performance baselines, analytics and a framework to enable complex system level tradeoff decision making.
- Novel integration of advances in both non-materiel and materiel scientific knowledge to enable scientifically valid and robust analysis of the Soldier system
- Development of an analytical framework for mission requirements to understand the true impacts of Soldier capabilities
- Development of tools and models to optimize equipment design parameters in the early acquisition life cycle and inform future requirements
- Collection and analysis of equipment technical data, human physical, cognitive and social characteristics, training measures and test methods to develop correlations among all variables and predict Soldier performance outcomes



Soldier Overmatch

Goal: Integrated, Networked Tailorable Soldier Lethality Systems. multifunctional protection systems and smart, scalable, pre-emptive sensors and displays that allow Soldiers to push and pull data and needed.



- Small arms research in the areas of munitions, materials which can increase weapon life, reduce weight and signature and technologies to advance fire control
- Lightweight Protection Technologies to include Ballistic and Blast protection, integrated eye protection (UV, wind/dust, lasers, and ballistic fragmentation) and hearing protection with increased auditory situational awareness
- Enabling technologies to optimized use of small sensor systems which can be used for Dismounted surveillance and reconnaissance capabilities
- Improved display resolution and brightness, for day/night application and integrated multispectral pre-emptive threat detection (active/passive) for robust early threat targeting sensor detection
- Training enablers for marksmanship

Defense Innovation Marketplace

(www.DefenseInnovationMarketplace.mil)



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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; color: #002060;">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; color: #002060;">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; color: #002060;">More...</p>
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MAINTAINING A LEADING EDGE IN TECHNOLOGY

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