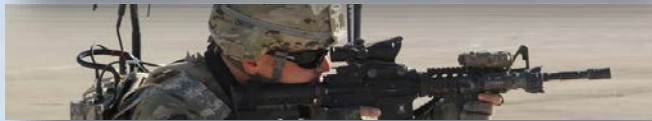


Army Science & Technology



Army Rapid Innovation Fund



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

16 Aug 2017



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

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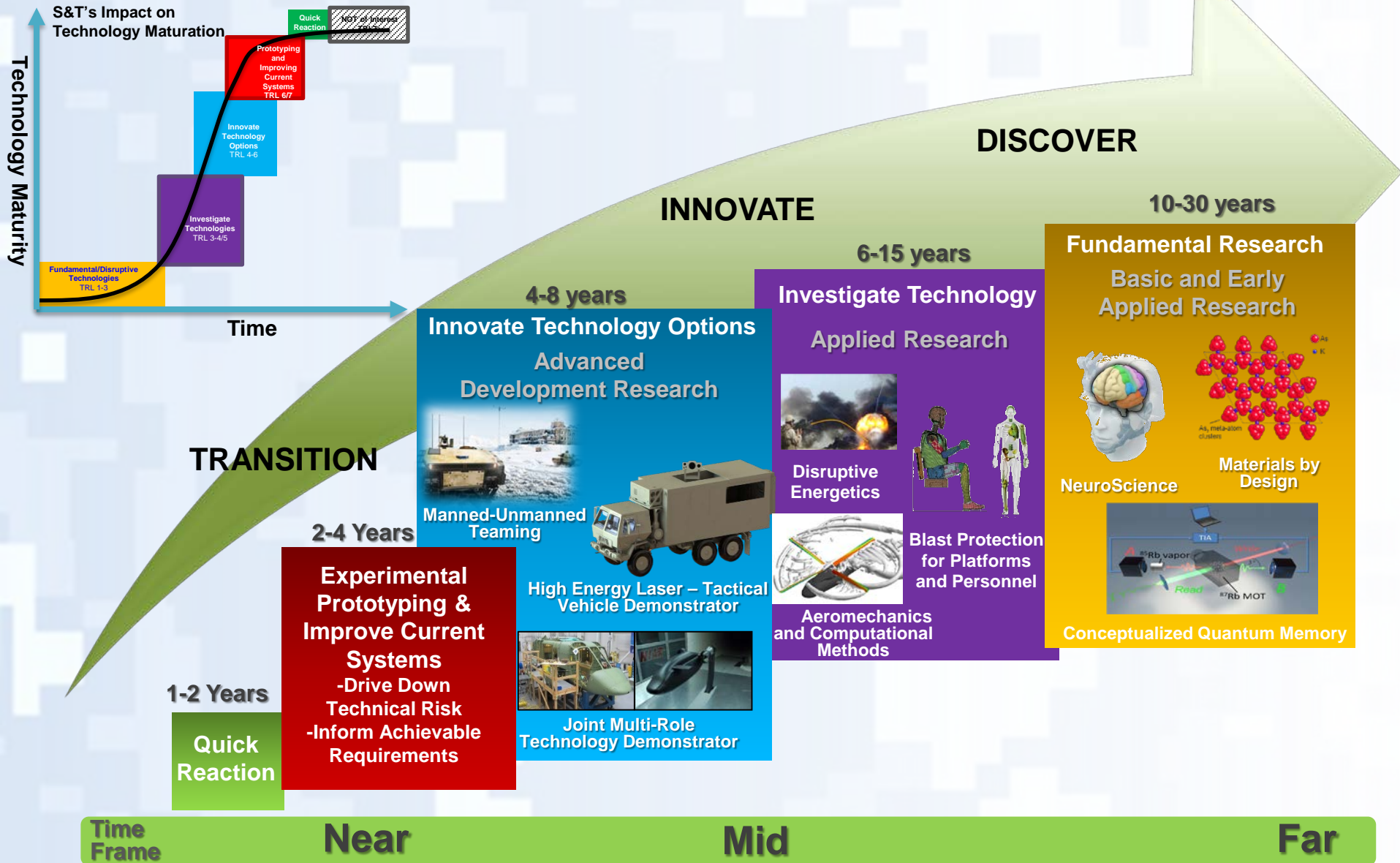
Assistant Secretary of the Army for Acquisition Logistics and Technology Mission



Provide our Soldiers a decisive advantage in any mission by developing, acquiring, fielding, and sustaining the world's best equipment and services and leveraging technologies and capabilities to meet current and future Army needs.

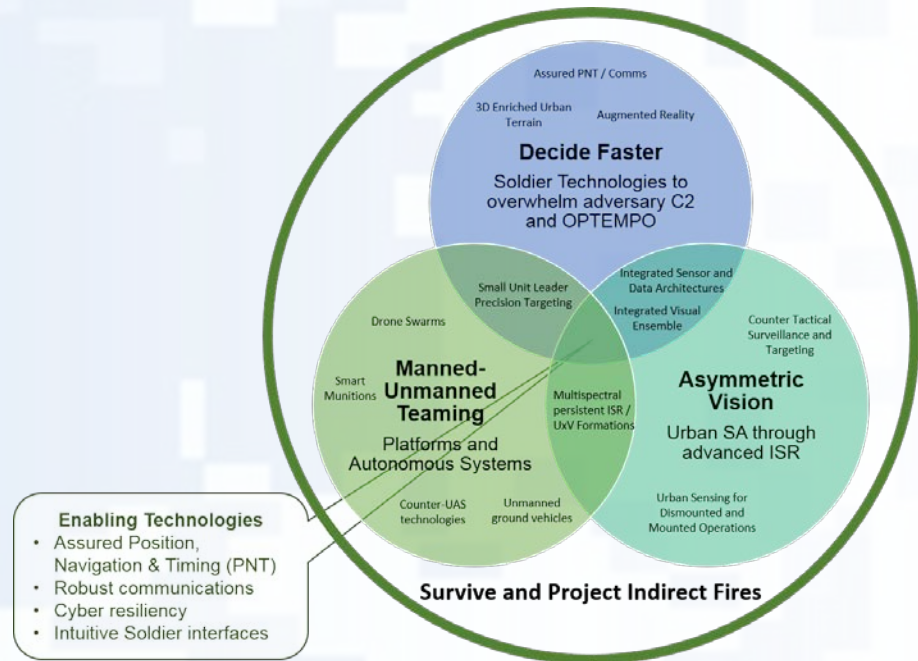


Roles of Science and Technology



Priority Investment Areas

- **Army S&T Portfolio focus towards acceleration of priority technologies**
- Priority technologies include:
 - Capability Enablers for 2026 and beyond
 - Decide Faster
 - Manned-Unmanned Teaming
 - Asymmetric Vision
 - Survive and Project Indirect Fires
 - Chief of Staff of the Army (CSA) Priorities



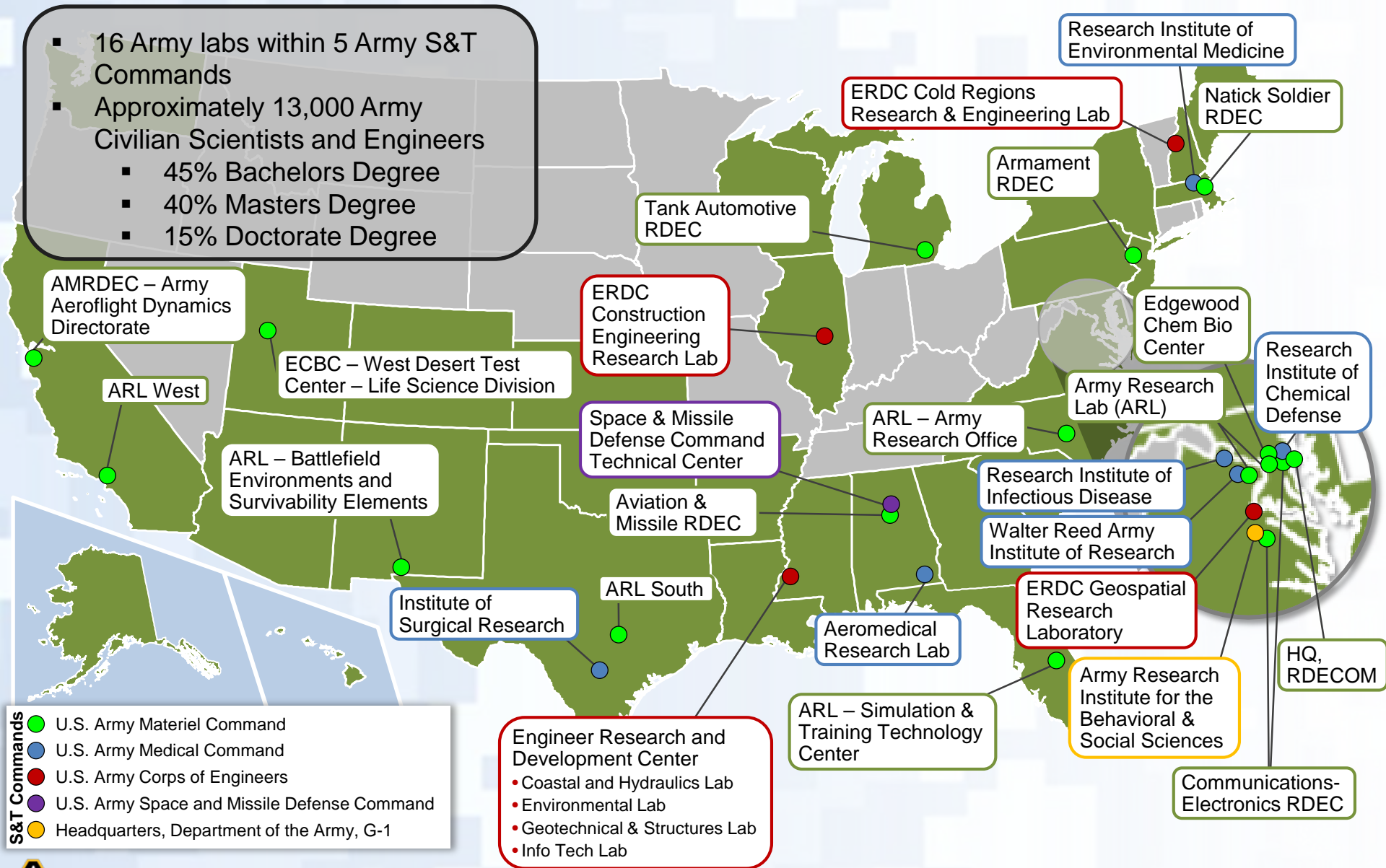
CSA Priorities

Armor	New Combat Vehicle
Future Vertical Lift	Aviation Protection
Infantry Support Technology	Networks
Autonomy	Artificial Intelligence
Cyber/Electronic Warfare	Additive Manufacturing
Assured PNT	Robotics
Air & Missile Defense	

Army S&T Enterprise—Research, Development & Engineering Centers (RDEC) & Labs



- 16 Army labs within 5 Army S&T Commands
- Approximately 13,000 Army Civilian Scientists and Engineers
 - 45% Bachelors Degree
 - 40% Masters Degree
 - 15% Doctorate Degree





How the Army Uses the Rapid Innovation Fund

Rapid Innovation Fund Topics are Driven by Near Term Program Executive Office (PEO) Needs.

PEOs are the organizations that acquire technology (e.g. PEO Missiles and Space, PEO Ammunition, PEO Aviation, etc.)

Topics in the RIF Broad Agency Announcement are provided by the PEO Program offices.

Businesses are encouraged to work with PEOs to understand PEO needs--and also to apprise the PEOs of your capabilities.

RIF gives PEOs the ability to handle unforeseen programmatic issues.

DOD/Army program development process lacks flexibility



Integrated Vehicle Platform Protection System

Challenge:

Develop an occupant centric crew cab which provides increased blast protection to 4x at 25% reduced system weight.

Army Benefit:

Demonstration of a Occupant Centric Crew Cab prototype (that demonstrates increased occupant survivability from a large 4x blast event. The Griffin prototype is leveraging new thick blast resistant aluminum alloys and forming technologies and recent advances in high-fidelity computational physics

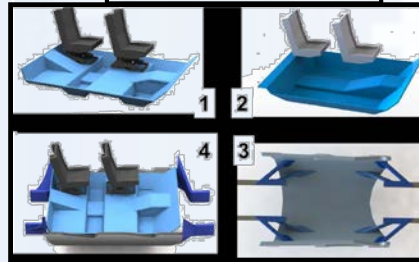
Accomplishments:

- Full Scale Testing shows greatly reduced acceleration loading to the occupants from the baseline.
- Correlation of blast models to the full scale testing
- Optimization technology, integration strategies and lessons learned incorporated into the Occupant Centric MIL-STD draft document.

Results:

- Advancement in confidence of blast modeling and simulation
- Positive Full Scale Test Results showing great improvements for reduced occupant injuries
- CAD and Build Drawings

Initial Concept

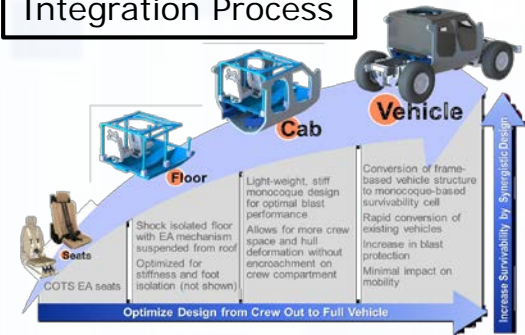


Blast Test Setup

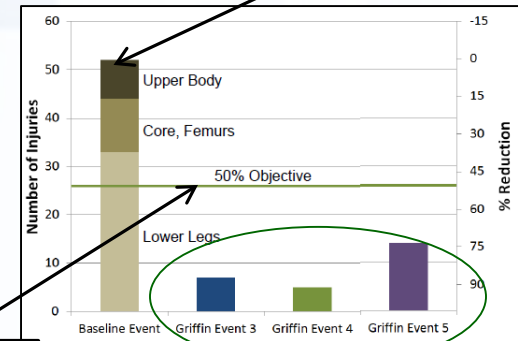


50% Reduction in # of injuries

Integration Process



Baseline Number of Injuries



Griffin Assessed Number of Injuries

Army Challenge Area – 1C Force Protection

Industry Partner: Corvid Technologies

Development of Core/Shell Permethrin Reservoirs for Enhanced Soldier Protection



Challenge:

Develop an encapsulated permethrin and attachment mechanism that will allow for a tuned, controlled release of permethrin from textiles/uniforms during laundering.

Army Benefit:

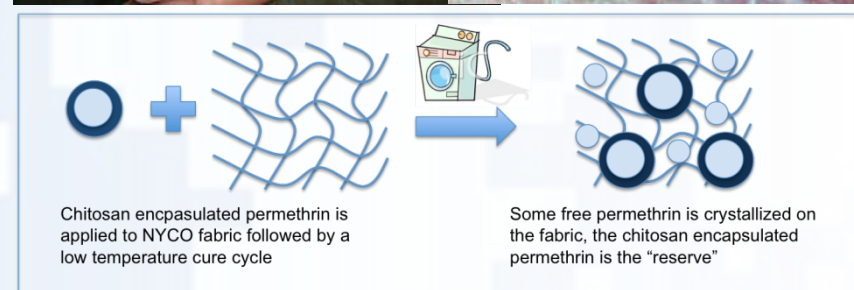
Improved permethrin retention and %Bite Protection after multiple launderings for longer lasting protection from disease carrying vectors.

Accomplishments:

Contractor testing has shown that the encapsulation technology prolonged the permethrin's presence on the surface of the treated fabric.

Results:

Increases Soldier effectiveness and readiness by reducing susceptibility to debilitating insect borne diseases such as malaria



**Army Challenge 1b: Force Protection –
Soldier and Small Unit**

Industry Partner: SciGenesis, LLC



Ground Guidance Load Based Mission Planning



Challenge:

- Soldiers are overburdened and loads affect Soldier performance and small unit capability.
- Combat loads contribute to acute and chronic injuries, and negatively impact Soldier effectiveness.
- There are no integrated tools to help the Squad leader during mission planning to support informed course of action analysis related to impacts of load & selection of routes.

Army Benefit:

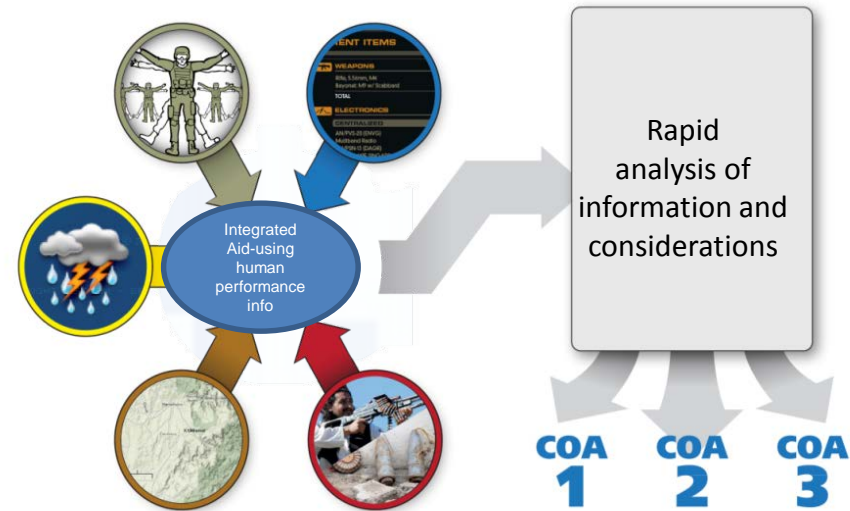
This project integrated the Ground Guidance® load and route selection tools into existing platforms to support informed course of action analysis by small unit leaders during the time constrained mission planning phase.

Accomplishments:

- The Ground Guidance ® route planning and assessment tools have been integrated via a software plug-in and demonstrated with existing, fielded battle command / mission planning systems.

Results:

Mission performance is improved by optimizing loads and courses of action



Army Challenge 2a : Overburdened – Physical Burden, NSRDEC

Industry Partner: Primordial





Summary

- The Army encourages industry participation in the Rapid Innovation Fund process
- Year of execution topic selection adds flexibility to PEO/PM community for issues not anticipated in longer range programmatic planning



Army Science & Technology



Providing Soldiers Technology Enabled Capabilities

MAINTAINING A LEADING EDGE IN TECHNOLOGY