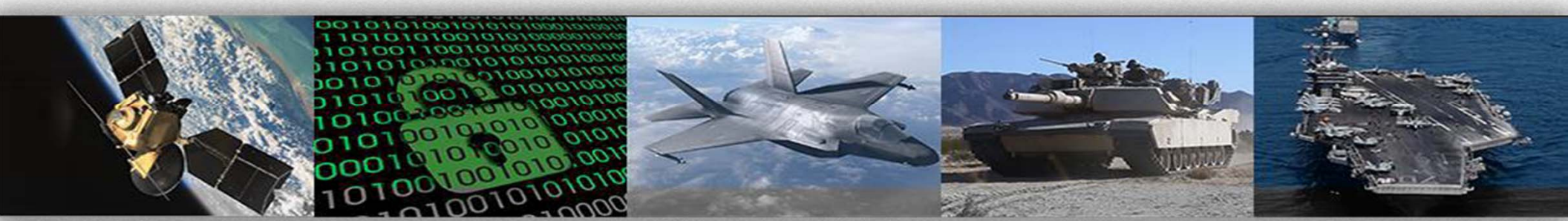
Robotics at the Tactical Edge



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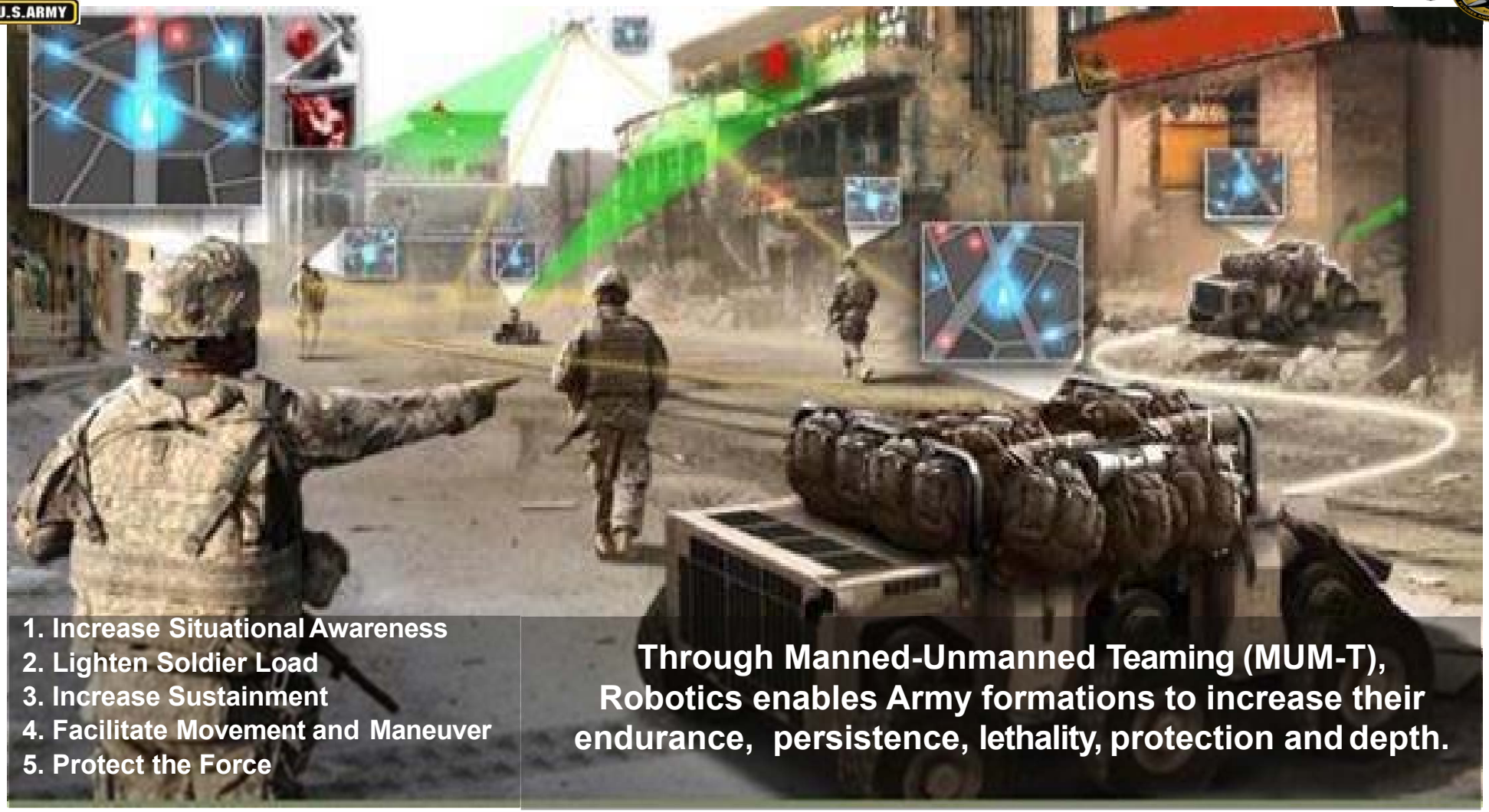
Robotics Overview

- Exciting time to be in the business of Army Robotics
  - Approved Initial Capabilities Document
  - Significant Funding of Robotics
  - Significant Key Leader Support of Robotics
- Mission - Manage Army Futures Command level activities to include requirements generation, force modernization, industry engagement, and concept development for both air and ground robotics
- Vision - Enable Army Formations to increase their lethality, endurance, persistence, protection and depth

Robots as Teammates in a Constellation ofSystems



1. Increase Situational Awareness
2. Lighten Soldier Load
3. Increase Sustainment
4. Facilitate Movement and Maneuver
5. Protect the Force

Through Manned-Unmanned Teaming (MUM-T), Robotics enables Army formations to increase their endurance, persistence, lethality, protection and depth.

Robotic Programs

- Squad Multipurpose Equipment Transport – Capability Development Document staffing
- Soldier Borne Sensor – First Unit Equipped May 19
- Short Range Recon – working assessment with PM Small Unmanned Aircraft Systems
- Robotic Combat Vehicle - Assisting Next Generation Combat Vehicle Cross Functional Team
- Common Robotic System (Individual) – QinetiQ selected for the contract award
- Long Range Recon – working requirements
- Universal Robotic Controller – working requirements
- Exoskeleton – working requirements
- Counter Small Unmanned Aircraft Systems – MCDID lead, working requirements
- Family of Integrated Tactical Sensors – working requirements

Robotic Critical Enabling Technologies

- Assured Communications
- Autonomy
- Soldier/Robotic System Interface
- Power & Energy

Artificial Intelligence

Robotically Equipped Infantry Platoon

Hypothesis: A robotically equipped dismounted Infantry Platoon can be up to 10 times more effective than the current dismounted Infantry Platoon.

Plan: Infantry Platoons will integrate – through Manned-UnManned Teaming (MUMT) – robotic ground, air, water, and virtual systems that increase the dismounted Infantry Platoon's lethality, mobility, protection, situational awareness, endurance, persistence, and depth.

Technologies to be considered for integration include:

- Network with appropriate bandwidth and protection
- Ground, Air, Water and Virtual Unmanned Systems
- Tactical Robotic Resupply (Ground and Air)
- Exoskeletons
- Lethality, protection, mobility, sustainment, network, situational awareness etc. modular mission payloads
- Common Robotic Controller with appropriate Soldier interface device
- Autonomy
- Artificial Intelligence

Artificial Intelligence Enabled Infantry Platoon

Hypothesis: Enabling Platoon leaders and Soldiers with Artificial Intelligence will enable the platoon leaders and Soldiers to observe, orient, decide, and act (OODA Loop) up to 10 times faster and with better decisions than their current capability.

Plan: Artificial Intelligence tools will take disparate streams of information from organic UxV sensors and higher echelon mission command, intelligence, and sensors; weave them into a coherent picture using Artificial Intelligence; and then provide that picture to the Soldier in an intuitive way.

Technologies to be considered for integration include:

- Network with appropriate bandwidth
- Multimodal sensor fusion from both organic UxVs and higher echelon systems
- Mission Command and relevant intelligence fusion
- Assessment of the natural environment
- Facial recognition
- Language translation
- Identification of materiel – weapons, vehicles, aircraft, watercraft, uniforms…
- Appropriate Soldier interface devices

Robotics Timeline

- Robotics Week (Columbus & Fort Benning GA)
  - SMET Modular Mission Payload Assessment – 22-26 Apr
  - NAMC Membership Meeting/Outcome Based Innovation Project – 23 Apr
  - NDIA National Robotics Conference and Exhibition – 24-25 Apr
- Robotic Complex Breach Concept Demonstration (Yakima, WA) – 1-10 May
- Robotics and AI Council of Colonels (Pittsburgh, PA) – 15 May
- Tech Demo Request for White Papers (RWP) – 15 May
- Tech Demo Table Top Exercise (TTX) – 16-19 Jul
- Tech Demo Simulation Exercise (SIMEX) – Oct/Nov
- AI & Robotic Dismounted Infantry Platoon Tech Demo – Sep 20

Questions / Discussion

Contact Information

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