



OUSD (ACQUISITION, TECHNOLOGY & LOGISTICS)
LAND WARFARE AND MUNITIONS



JOINT GROUND ROBOTICS ENTERPRISE

Joint Ground Robotics Enterprise

NDIA

4 June 2014





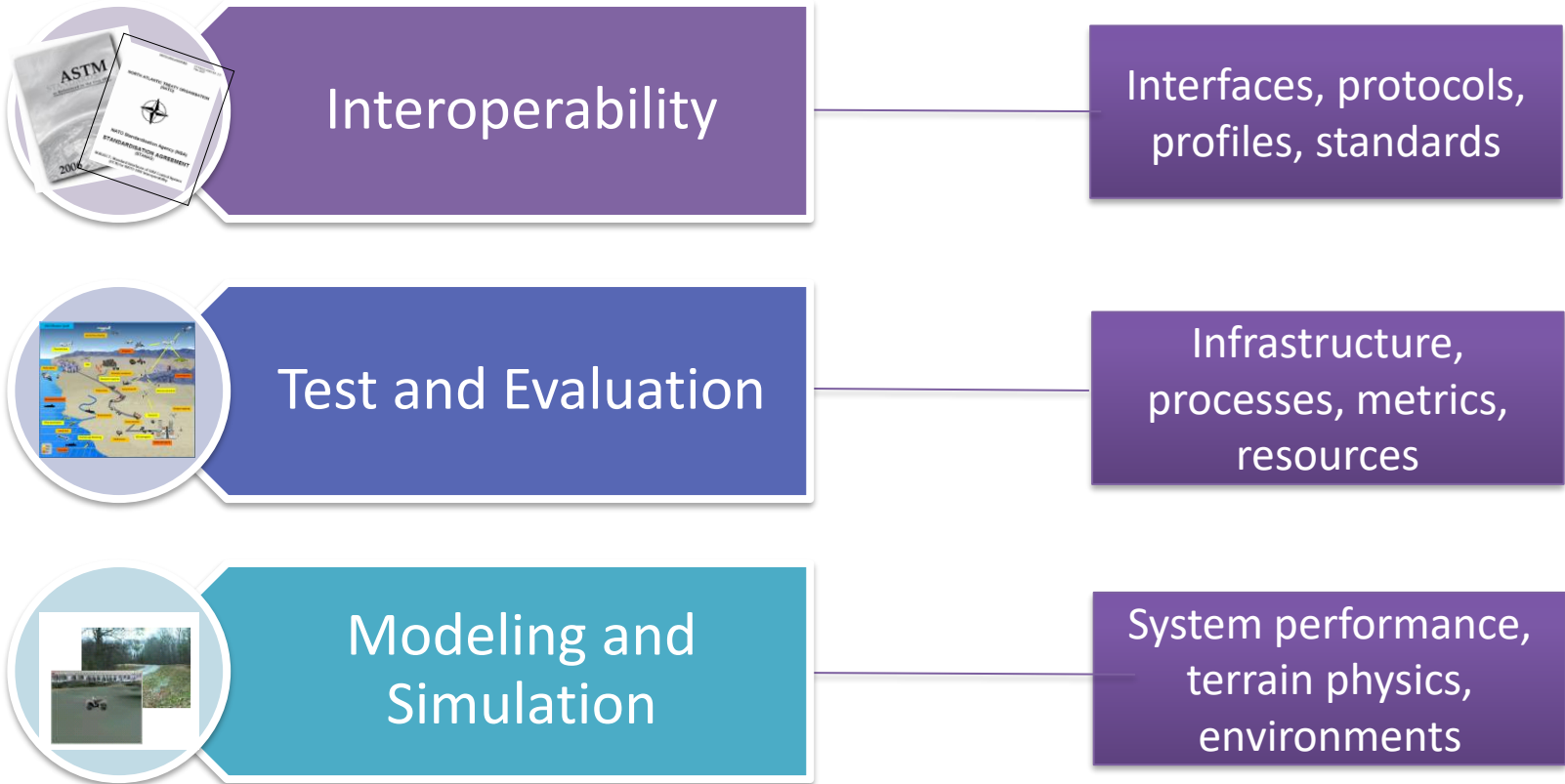
Current Environment



- Users and leaders accept unmanned ground systems
- Interest in unmanned systems to reduce support costs
- Interoperability of current systems will enhance capability of fielded and planned assets
- Tactical Warfare Systems oversight for land, air and naval platforms



JGRE Roles





Interoperability Background



- Current Unmanned Ground Systems (UGSs) fielded are mostly proprietary systems originally developed for Service-specific needs driven by rapid fielding timelines in support of immediate operational requirements
 - Fielded UGSs generally demonstrate only limited interoperability with other manned and unmanned platforms in all domains (ground, air & maritime)
- Payloads, sensors, software & computing devices are anticipated to evolve much faster than base mobility platforms requiring modularity within a system
- Open architectures (OAs), nonproprietary interfaces, government-owned data rights, and standard Interoperability Profiles (IOPs) are required for a broader net-centric environment



Ensuring Success in IOP



- **Combat Developers & Battle Labs:**
 - Requiring IOP compliance in CDDs/CPDs cannot hurt (although simply asking for “interoperability/modularity” is sufficient)
 - Encourage industry adoption of IOPs
 - Help synch IOP adoption w/ other domains through requirements
 - i.e., AMDS, NGCS, UAS, mobile/hand-held, manned/unmanned, radios, joint/multi-national, etc.
- **S&T Organizations:**
 - Encourage IOP compliance in S&T programs
 - Increase body of knowledge in gov’t labs
- **RS JPO & Other PM Offices**
 - Require IOP in RFPs; Develop IOP Instantiations
- **Resource Providers**
 - Recognize the value of 1) IOP development/evolution (across programs), and 2) IOP application (within programs)
 - Recognize IOP as an investment for BBP 2.0
 - BBP 2.0 >> Promote Effective Competition >> Enforce Open System Architecture



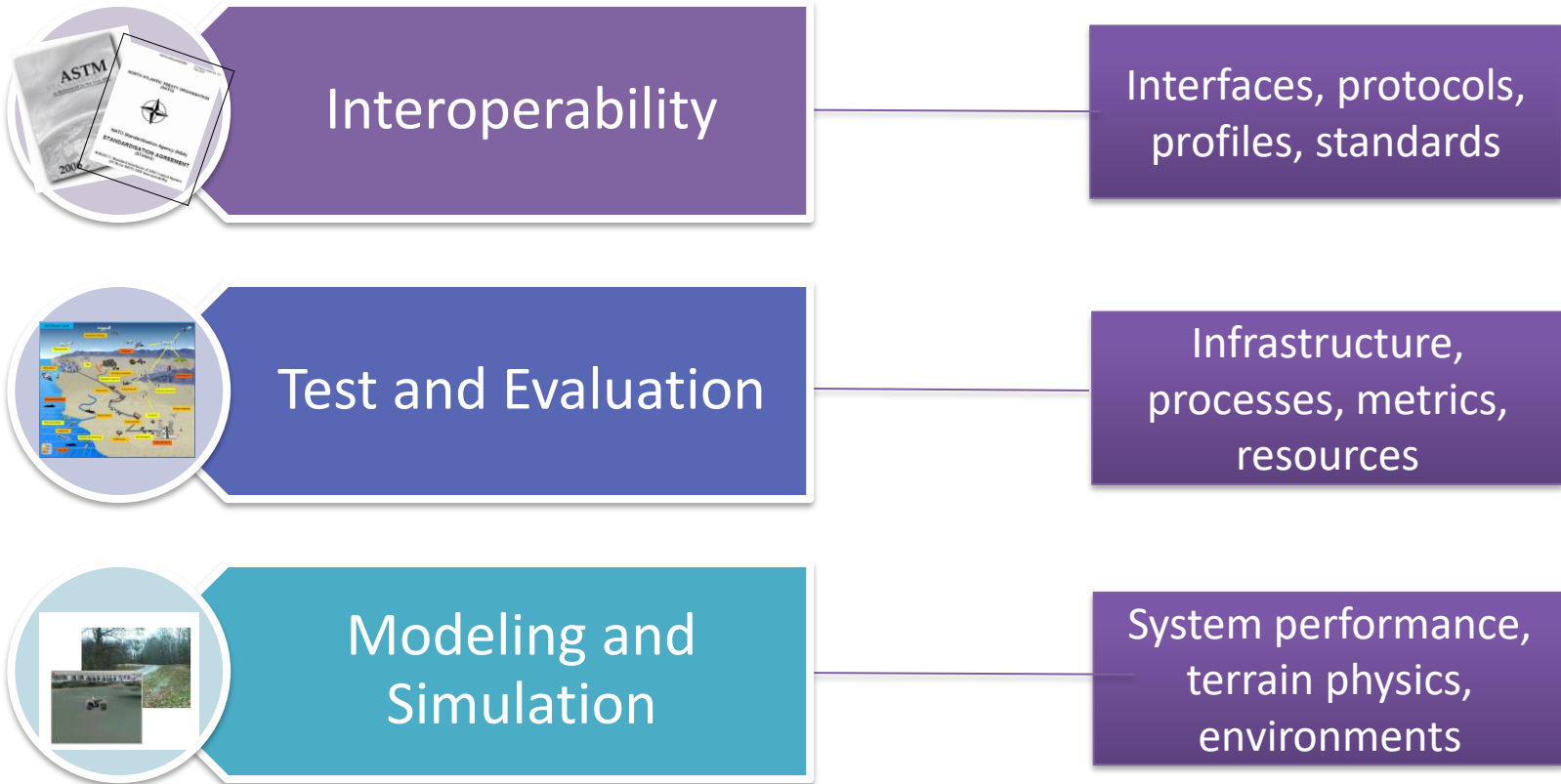
Interoperability Path Forward



- Alignment of IOP to a standard
 - Industry Standard
 - DoD MIL-SPEC
 - NATO STANAG
 - OSD & Service Policies
- Development of a military waveform for small unmanned systems
- Study the interface standards for a common control architecture for small unmanned systems



JGRE Roles





T&E Background



- Emerging requirements, declining budgets, and the Department's need for preparedness pushed coordination between the JGRE and the OSD test community for collaboration with regards to UGSs testing
- Collaboration was initiated through the OSD test community to identify areas where additional resources and/or focus should be implemented
- Goal of these study areas is to prepare the Department of Defense for the future of UGS, by preparing for testing these systems



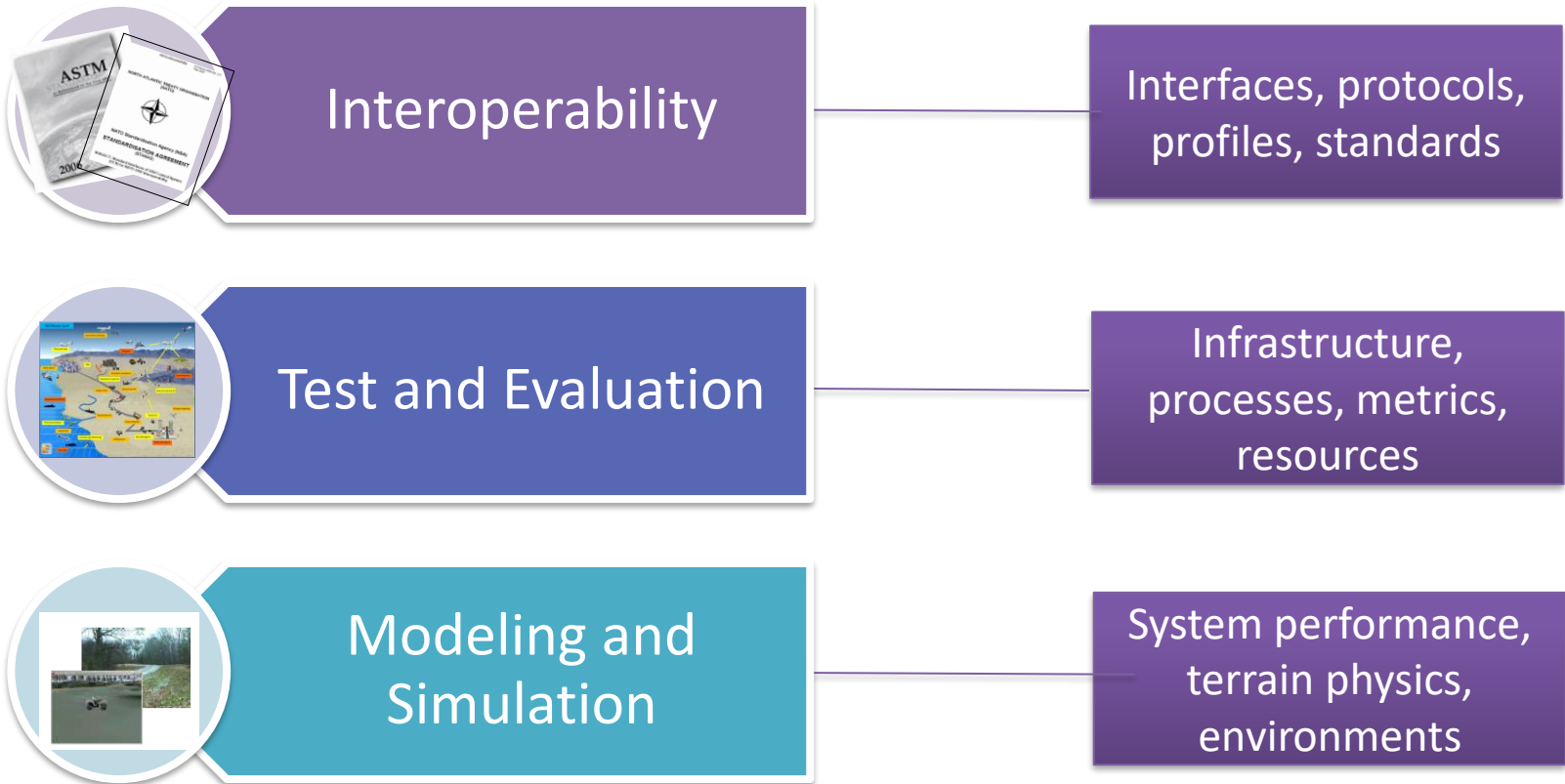
T&E Path Forward



- To complete the necessary studies to prepare for UGS testing we need to do the following:
 - Identify stakeholders for each study area
 - Hold workshops to address/define issues within each area
 - Establish working groups to develop solutions
 - Disseminate solutions throughout the community
 - Coordinate with Air and Maritime



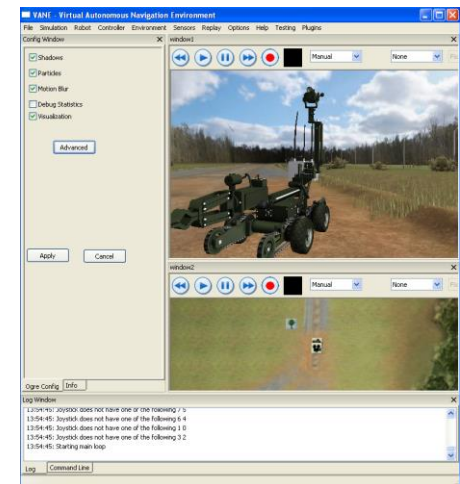
JGRE Roles





M&S Background

- As UGS continue to emerge as an enabling capability for our future forces, M&S is a critical technology that will underpin everything from requirements development to research to testing
- The complexity of these UGS, combined with declining budgets for development and fully representative testing, will require increased reliance on M&S
- M&S will be critical in the design of experiments to ensure that unmanned systems are thoroughly tested and evaluated without the need for repetitive and costly full system testing





M&S Potential Path Forward



- To foster greater coordination throughout the community and ensure the more effective use of current and future models and simulation, it will be necessary to:
 - **Verification/Validation/Accreditation Process**: Determine the verification, validation, and/or accreditation processes used to develop M&S efforts
 - **Identify Needs**: Determine the areas within the development and testing of unmanned ground systems that can be adequately addressed by the use of M&S
 - **Assess the Gap**: Determine those areas not covered by already existing models or simulations and create a path forward to fill those gaps either by modifying existing tools or creating new capabilities
 - **Create a Baseline**: Create a comprehensive “card catalog” of all models and simulations currently in existence throughout DoD





Questions?

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