Unmanned Ground Systems:

Robots in the Fight

LTC Stuart Hatfield
Chief, Lethality Branch,
Maneuver, Aviation, & Soldier Division,
Army Capabilities Integration Center

Agenda

- ***Current Unmanned Ground Vehicles (UGV)***
- ***UGV Strategy***
- ***Common Control***
- ***Modularity***
- ***Joint Ground Robotics Integration Team (JGRIT)***

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Orientation

(Feb – Aug 2011)

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Orientation

(Feb – Aug 2011)

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

UGVs in the Current Fight

Sustain:
+ Trust and Confidence
+ Reduced Operator Workload
+ Expanded Missions

Improve:
- Modularity
- Interoperability
- Collaboration
- Autonomy

Large UGV

Small UGV

Medium UGV

Micro UGV

Packbot
FIDO

Mini EOD

SUGV

SMSS

MTRS

MK3

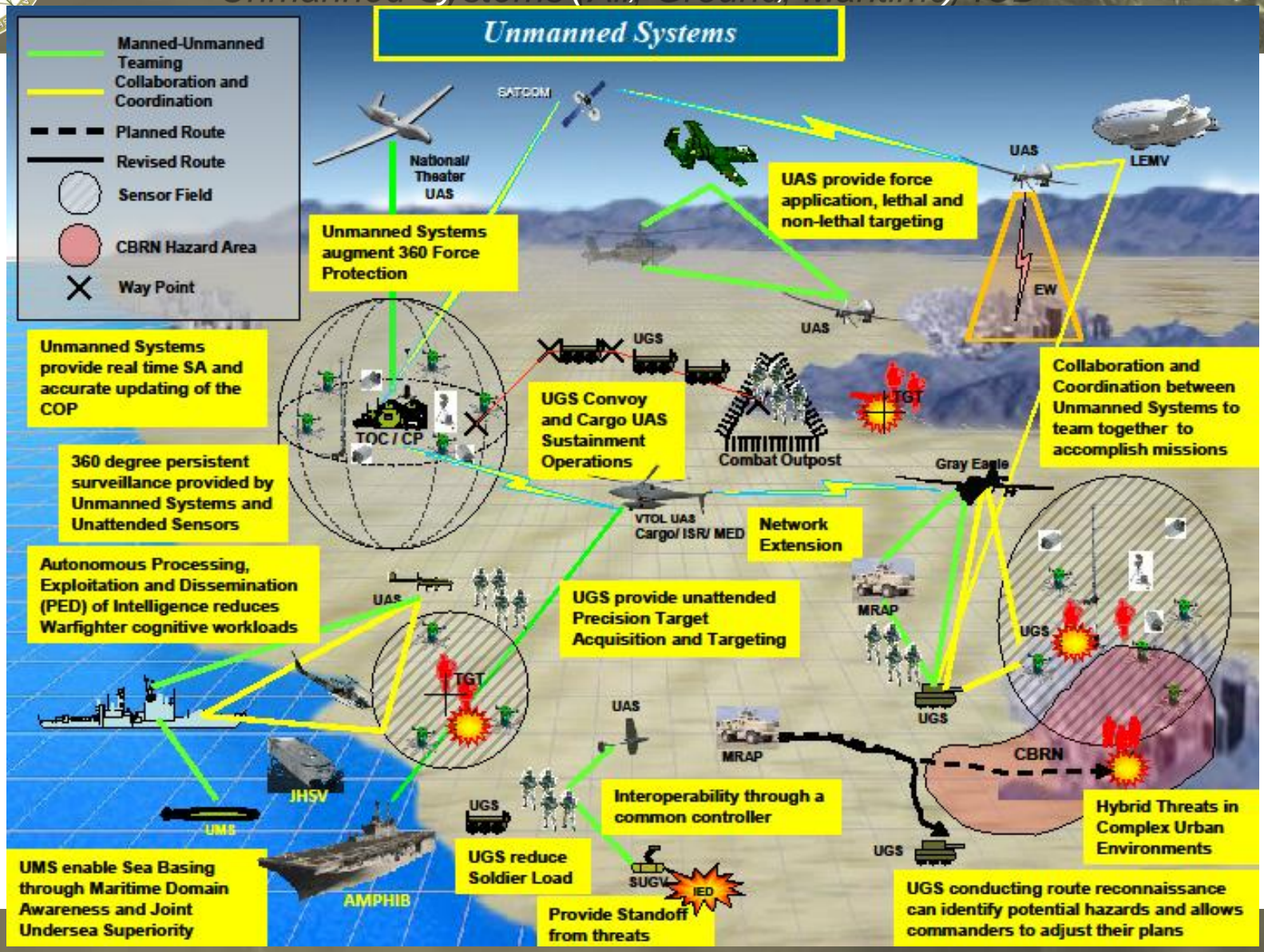
M160 Light Flail

HMDS

SANDI

Operational View

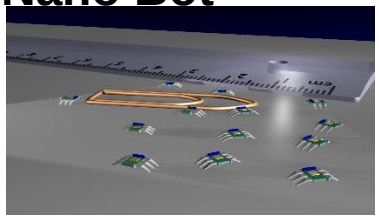
Unmanned Systems (Air, Ground, Maritime) ICD



MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Ground Robotics Capability Sets

Photos are Notional Representations

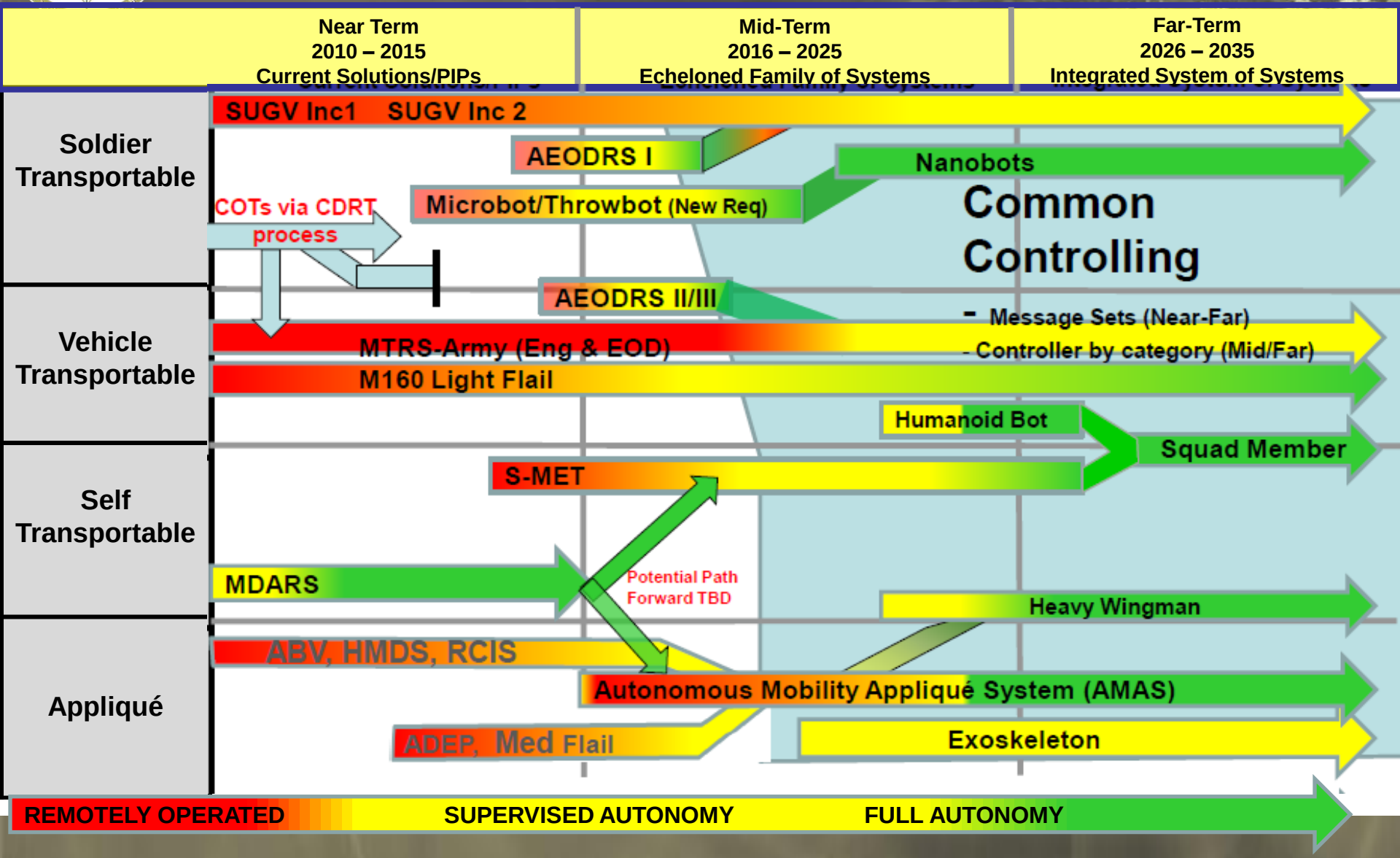
Soldier Transportable	Vehicle Transportable	Self Transportable	Appliqué
Crew Served Bot 	**Mounted**  MTRS POR; Advanced EOD Robotic System (AEODRS) POR	**Soldier Follower IBCT**  Squad Multi-purpose Equipment Transport (SMET) CDD	**Remote Operation**  Husky Mounted Detection System (HMDS) POR
Small Bot  Small Unmanned Ground Vehicle (SUGV) CDD	**Towed**  M160 Light Flail POR	**Medium Wingman SBCT**  Multi-Mission Unmanned Ground Vehicle (MM-UGV) CDD	**Supervised Autonomy**  Autonomous Mobility Appliqué System (AMAS) CDD
Micro Bot  Micro Unmanned Ground Vehicle (MUGV) CPD	**Armed** 	**Heavy Wingman HBCT** 	**Full Autonomy** 
Nano Bot 	**Humanoid**  Battlefield Extraction Assist Robot (BEAR) Initiative	**Squad Member**  Legged Squad Support System (LS3)	**Exoskeleton**  Exoskeleton (XOS) CDD

Common Controller (CC) CDD

1-5741

Army UGV Capabilities Timeline

Supported by the UGV Campaign Plan



MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Common Controllers

Brigade and Above

Universal Ground Control Station (UGCS)

Gray Eagle

Shadow

Hunter

All unmanned systems must be controlled by the Universal Ground Control Station (UGCS) or the Common Controller (CC), based on the complexity of the system

Raven
Family of Small UAS (Wasp, Raven, Puma)

Battalion and Below

Common Controller

SUGV

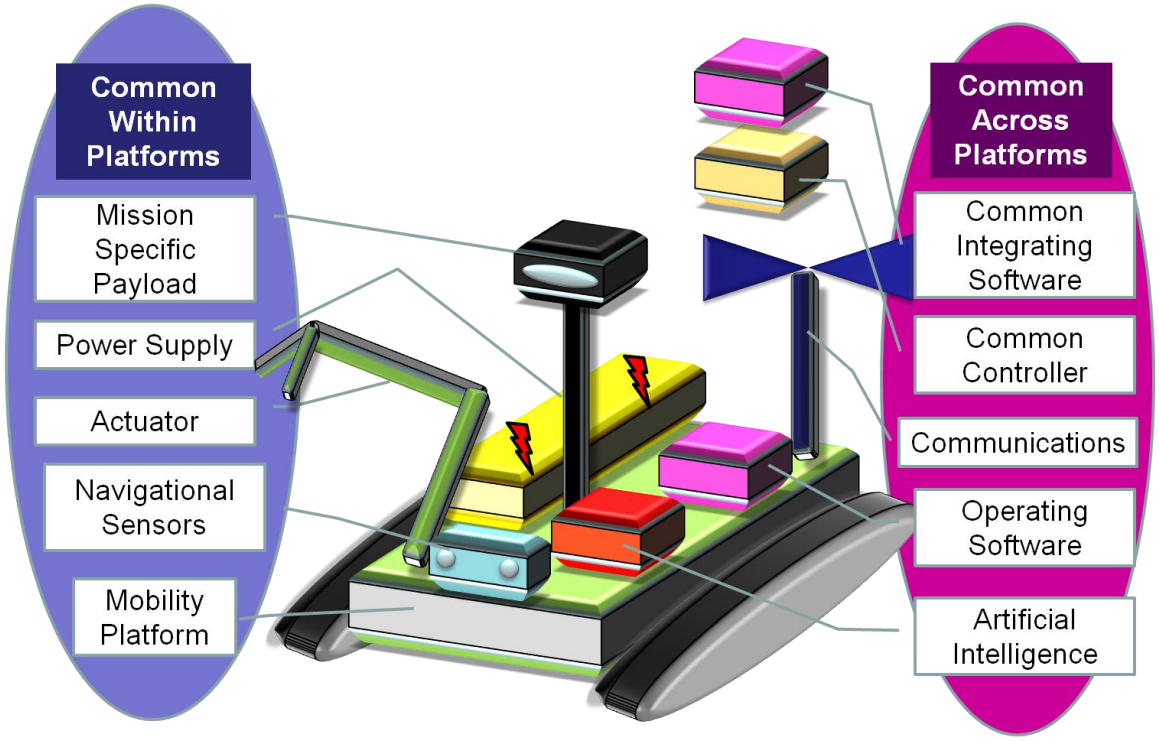
SMET

M160 Mini Flail

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Modularity

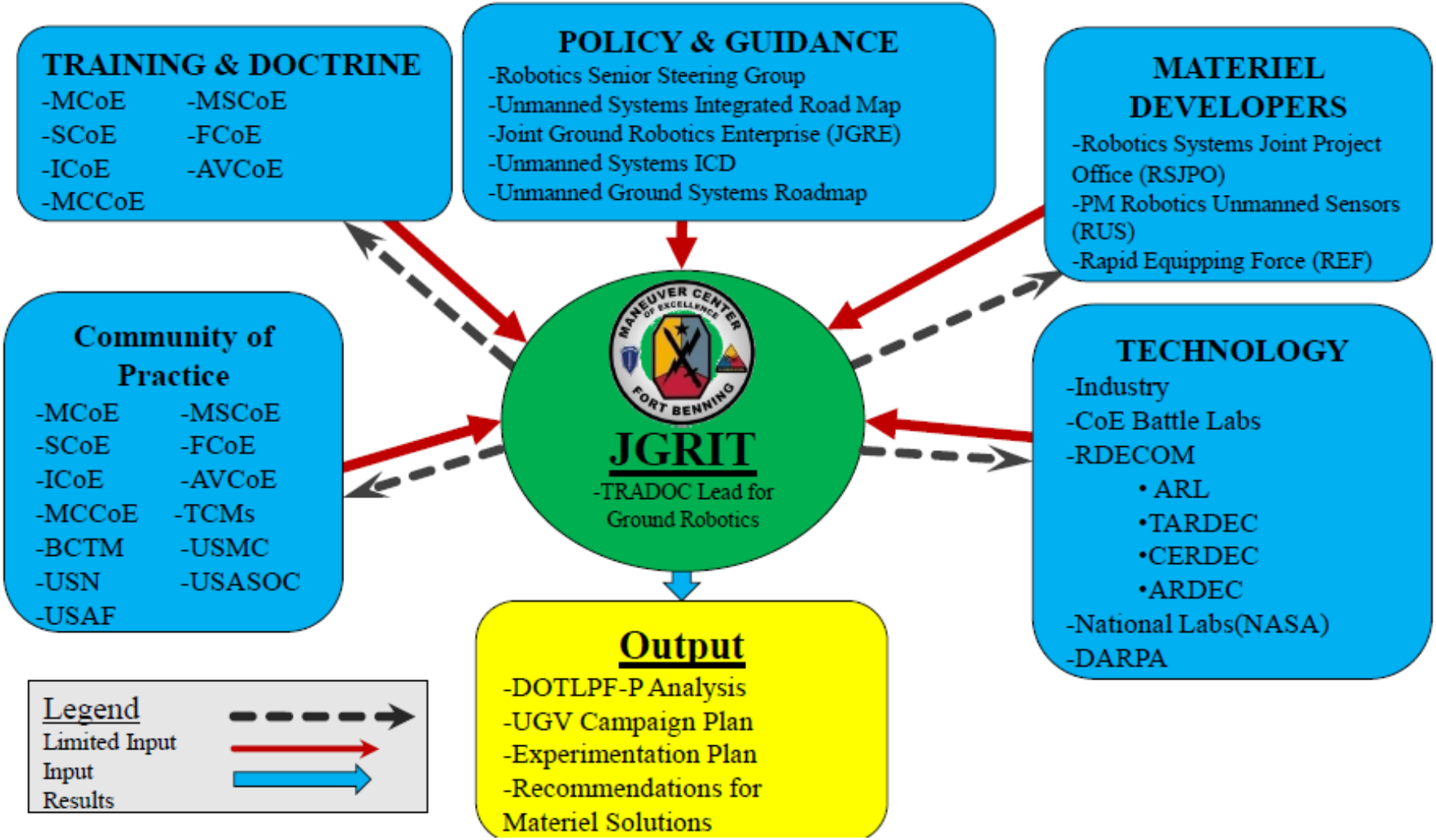
- All UGV have these common Modules:
  - Common within a platform size
  - Common across platforms of various sizes
- Integration of components is completely open-architecture
- Interoperability standards define the requirements for the interfaces between modules and the form factor of the modules



- The mission specific payload determines the function of system
- Modularity is the countermeasure to Obsolescence in a rapidly evolving technology environment
  - Compete for the best modules available within the interoperability standards
  - Upgrade or modernize select modules (such as sensors) as needed, while others (such as mobility platform) endure for longer periods

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Joint Ground Robotics Integration Team (JGRIT)



MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil

Questions?

MASD / LTC Hatfield / (757)501-5741
stuart.hatfield@us.army.mil