



Multi-Role Armament Systems

Key Note Address

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UNPARALLELED
**COMMITMENT
& SOLUTIONS**

Act like someone's life depends on what we do.



U.S. ARMY ARMAMENT
RESEARCH, DEVELOPMENT
& ENGINEERING CENTER



Dense Urban Environments



Increased Speed Of Human Interactions

Potential For Overmatch



Spread Of Advanced Cyberspace And Counter-space Abilities



Proliferation Of Weapons Of Mass Destruction

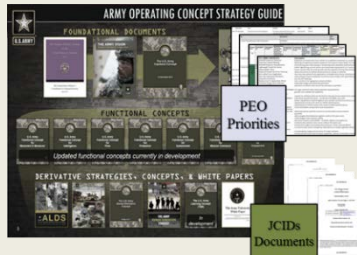


Ref: US Army Operating Concept: Winning in a Complex World 2020-2040

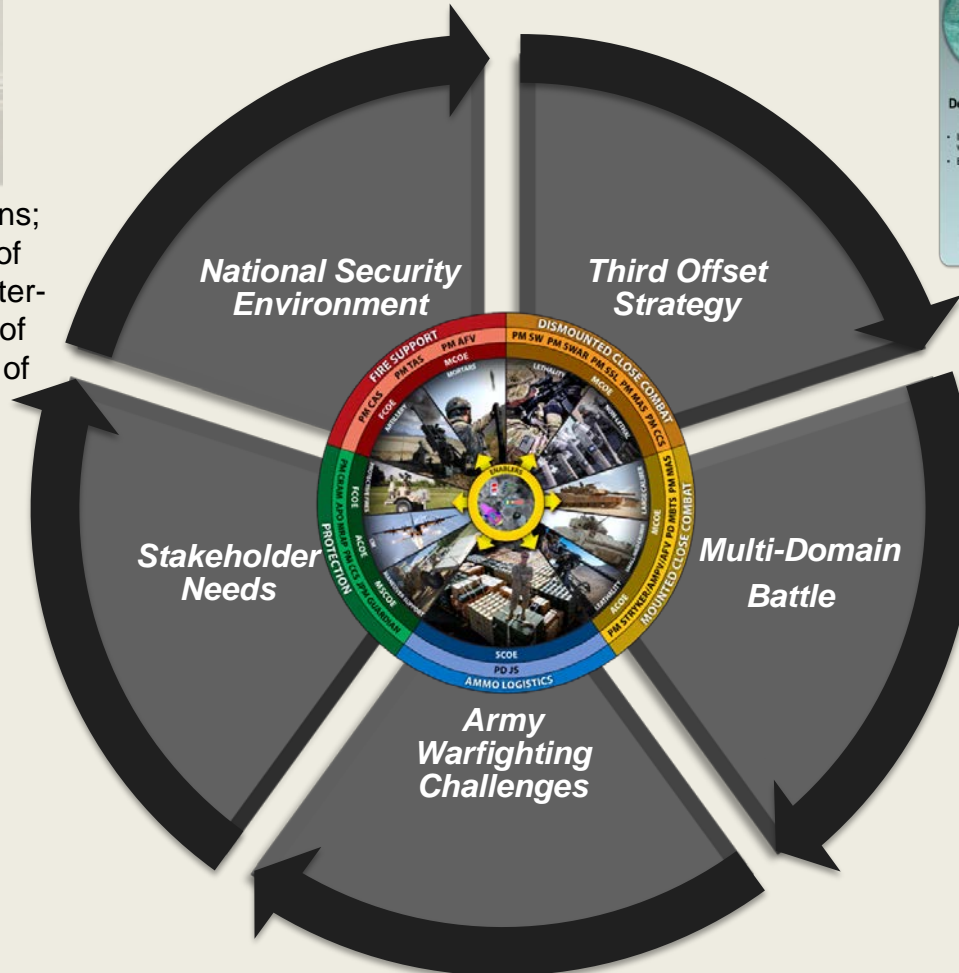


Congested and Restricted Environments; Potential for Overmatch; Spread of Advanced Cyberspace and Counter-space Abilities; Increased Speed of Human Interactions; Proliferation of Weapons of Mass Destruction

Identification, coordination, organization of individual "Source Documents" needs/gaps/priorities into one list



Enduring, first order problems, the solution to which will improve current and future force combat effectiveness



Framework, governance and strategic communications strategy to prioritize research and development

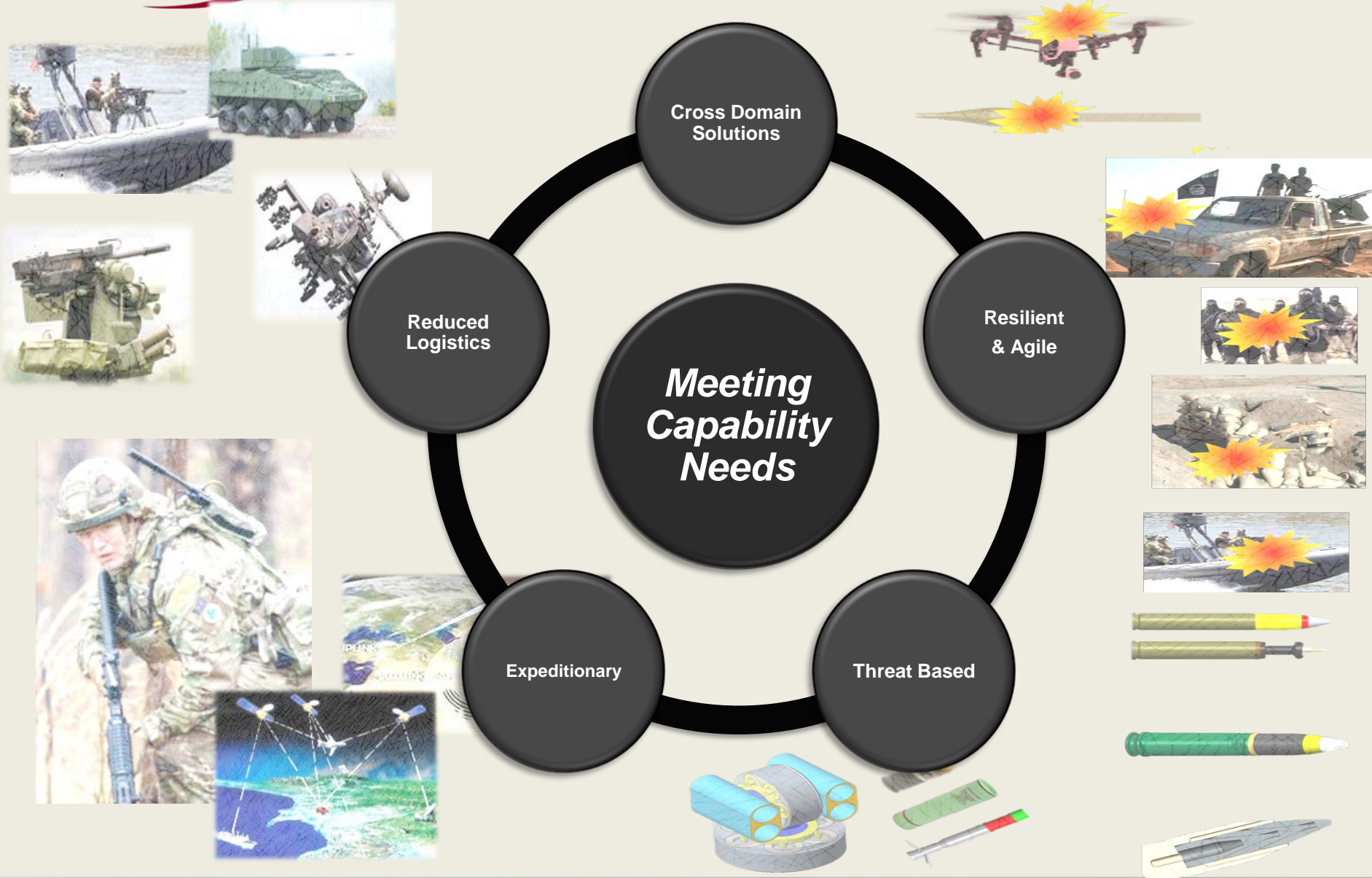
<p>Deep Learning Systems</p> <ul style="list-style-type: none"> Indications and warnings. Big data analytics 	<p>Human-Machine Collaboration</p> <ul style="list-style-type: none"> Make better, faster decisions 	<p>Human-Machine Combat Teaming</p> <ul style="list-style-type: none"> Working with unmanned systems to perform operations 	<p>Assisted Human Operations</p> <ul style="list-style-type: none"> Help warfighters in all possible contingencies Wearable electronics, heads up displays, etc 	<p>Networked Enabled, Cyber Hardened Weapons</p> <ul style="list-style-type: none"> Every weapon prepared for a cyber attack
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Asymmetric advantage - Capitalize on our strengths, exploit our enemies weaknesses

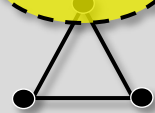
Competitive strategy to achieve decisive, asymmetric operational advantage, gain technological overmatch, and eliminate parity

<p>Future vertical Lift</p> <p>Perform missions currently conducted by fixed wing aircraft</p>	<p>Combat Vehicles</p> <p>Ensure maneuver formations overmatch</p>
<p>Cross Domain Fires</p> <p>Achieve effects which create multiple dilemmas for the adversary</p>	<p>Advanced Protection</p> <p>Apply vehicle appropriate hostile fire detection and neutralization</p>
<p>Expeditionary Mission Command/ Cyber Electromagnetic</p> <p>Exploit an advantage over enemies in cyberspace and the electromagnetic spectrum</p>	<p>Robotic and Autonomous Systems (RAS)</p> <p>Enhance formations with manned-unmanned teaming</p>
<p>Soldier performance/ Team Overmatch</p>	<p>Cross cutting capability (+1)</p>

REQUIRED ATTRIBUTE OF FUTURE ARMAMENTS



Lethality



Mobility Protection

The Armament System is central to all Combat Platforms in order to Eliminate Threats/Targets

WEAPON/TURRET

How repeatable am I?



FIRE CONTROL

*First Time,
How Fast?
How Precise?*

Precision

Accuracy

Effects

AMMUNITION

How effective is my warhead?



Combat Platform Integration



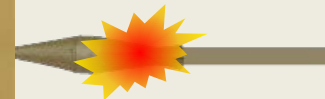
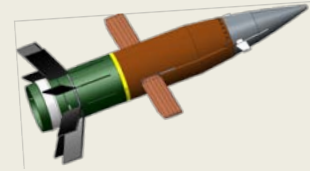
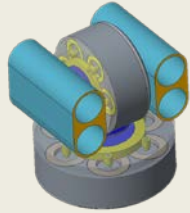
Threats/Targets



MULTI-ROLE / MULTI-MISSION ARMAMENTS

Multi-role armaments for expeditionary missions

- Non-dedicated AD systems - Leverage organic capability; focus on multi role armaments
- Scalable, non-caliber-specific munition technology
- Leverage developing component level technologies
- Defeat of multiple threats/targets across domains
 - materiel, personnel, RPG, ATGM, UAS, RAM

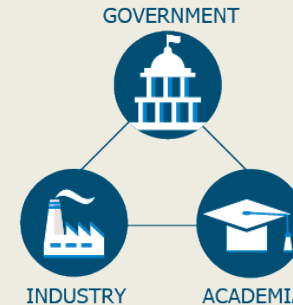


CONSIDERATIONS:

- Effectiveness
- Affordability
- Reliability
- Scalability
- Producibility
- Supportability



- Supporting the Nation and the Warfighter is our top priority
- Be agile, ready for change, prepared for the future threat
- To empower and unburden the Warfighter, we must innovate
- The key to innovation is collaboration between:
 - Government entities
 - Businesses
 - Non-traditional contractors
 - Academia



- RDECOM ARDEC's approach: Develop Platform-Agnostic Multi-Role Armament Systems capable of a full spectrum of operations.