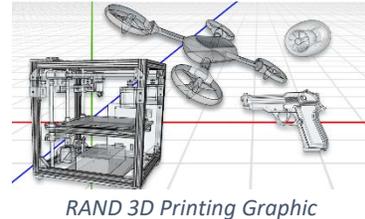


Illustrative examples to initiate innovation discussions (as applied to multi-domain operations – MDO)

Logistics – What concepts can be used to reduce the time of planning, movement, and maintenance of military forces? How do we develop a “logistics on demand” approach? How can things like 3D printing and additive manufacturing make parts production easier in MDO? What techniques in commercial sector transport and logistics could we use for the military to improve operations (and how)? What do we need to improve the storing and tracking of supplies? What can be done to capture the status of those supplies nearing the end of their shelf life or inspection window? How do we leverage capabilities like the USN Autonomous Aerial Cargo/Utility System (AACUS) mobile app for requesting supplies for air transport?



Mobility – What can we do in tomorrow’s fight to deliver supplies any time, any place? Traditionally, we have taken an airport-to-airport or airport-to-airdrop approach for the delivery of supplies and personnel. These methods have limitations. In contrast, a small company like Zipline UAS can deliver blood and medicine across regions of Africa on an on-demand basis, with deliveries arriving as fast as their intended patients. How do we leverage systems similar to that or pilotless air taxis for military purposes? How do we speed short and long range delivery of supplies in various size and quantities? How do we increase mobility from large and slow strategic quantities to a model that enables rapid, small, and on-demand operations?



Communications – Data, mesh networks, cloud and edge computing, broadband cellular, and encryption technologies are advancing faster than legacy military approaches. What new concepts do we need to consider in this age of large public datasets? Traffic flow in cities can be rerouted in near real time through networked traffic management with human-machine teaming tools like Google Maps and WAZE. How do we connect sensors, platforms and nodes in a similar manner? Starting with a specific solution to specific problem and scaling fast, how can we better secure, integrate, and translate data into information for real-time understanding of our operating environments?

Social Media – In today’s world, the first indication of a threat may be across social media or through a financial transaction. A cascade of activities and actions may be sparked by a single Tweet or doctored image. A local event that one may wish to contain can become global news in seconds with bots used to spread or restrict activity on the message. The movement of a unit may be detected by changes in how unit personnel present (or don’t present) themselves on social media. Terrorist recruiting and training occurs across social media, gaming systems, and point-to-point messaging with encryption in some of these systems. What technologies can we apply to adapt, leverage, and protect us from the power and reach of social media?

Augmented Reality (AR) – From guiding doctors through complex surgeries to providing steering cues for drivers and pilots, AR has great potential to ensure US dominance in MDO. What datasets do we need to look at presenting to whom? How would this data improve our operations; e.g. virtual overlays of details to illuminate real-time threats in the air, or the radio frequency bubble around the house that just tweeted an alert to our enemy about our ground forces? How can we see the image of the person/vehicle represented, fuse target recognition to their location in video, and have a virtual chat to provide steering cues that guide them to the threat while they provide us cues on where they need additional sensors? How can we add street names to airborne video feeds, blue force tracks and reference points to add decision speed to communications with teammates operating from other domains? How do you see AR being used to help the Air Force in MDO and why?



Augmented Reality Display used by Police

Other potential topics:

1. Fires
2. ISR
3. Rescue
4. Maintenance
5. Trend Prediction
6. Machine Learning
7. Autonomy
8. Security
9. Space
10. Directed Energy
11. Virtualized Data
12. Communications
13. C2 Tools
14. Software
15. Applications
16. Establishing Priorities
17. Situational Awareness
18. Overwhelming the Enemy
19. Generate Surprise
20. Planning
21. Enabling partners
22. Multi-lingual ops
23. Homeland Defense
24. Urban Operations
25. Network Attack
26. Non-traditional data-sets (financial, social, economic, political, gaming, education)
27. Kinetic Effects
28. Non-kinetic effects
29. Anti-Access
30. Deception