Department of the Air Force

Integrity - Service - Excellence

Closing the Energy Gap

Improving Energy Analysis in OPLANs and Weapon System Acquisition

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Disclaimer

- Views expressed in the brief are those of the author and are not to be construed as official opinions of any sort by Air Force or the Department of Defense
- Any mistakes contained therein are the sole fault and responsibility of the author

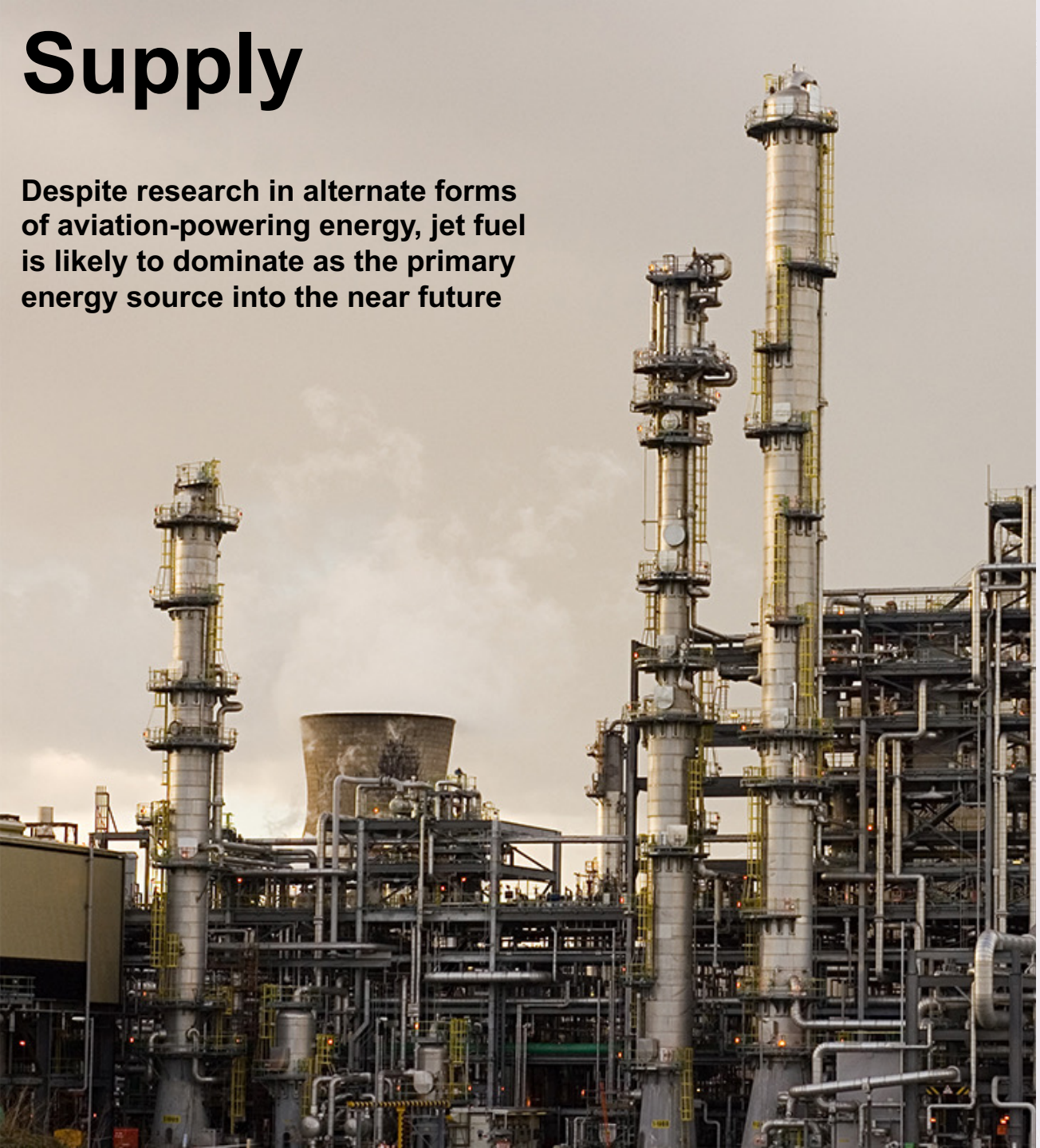
Intent and Scope

- **What we will do from the perspective of someone who supports energy-related planning, wargaming, and analysis for the Department of the Air Force…**
  - **Review the future operating environment and energy-related challenges contained within it**
  - **Review key activities associated with energy-related gaps in deliberate planning and weapon system acquisition**
  - **Discuss perspectives on why these gaps arise**
  - **Discuss examples of overcoming identified energy-related gaps**

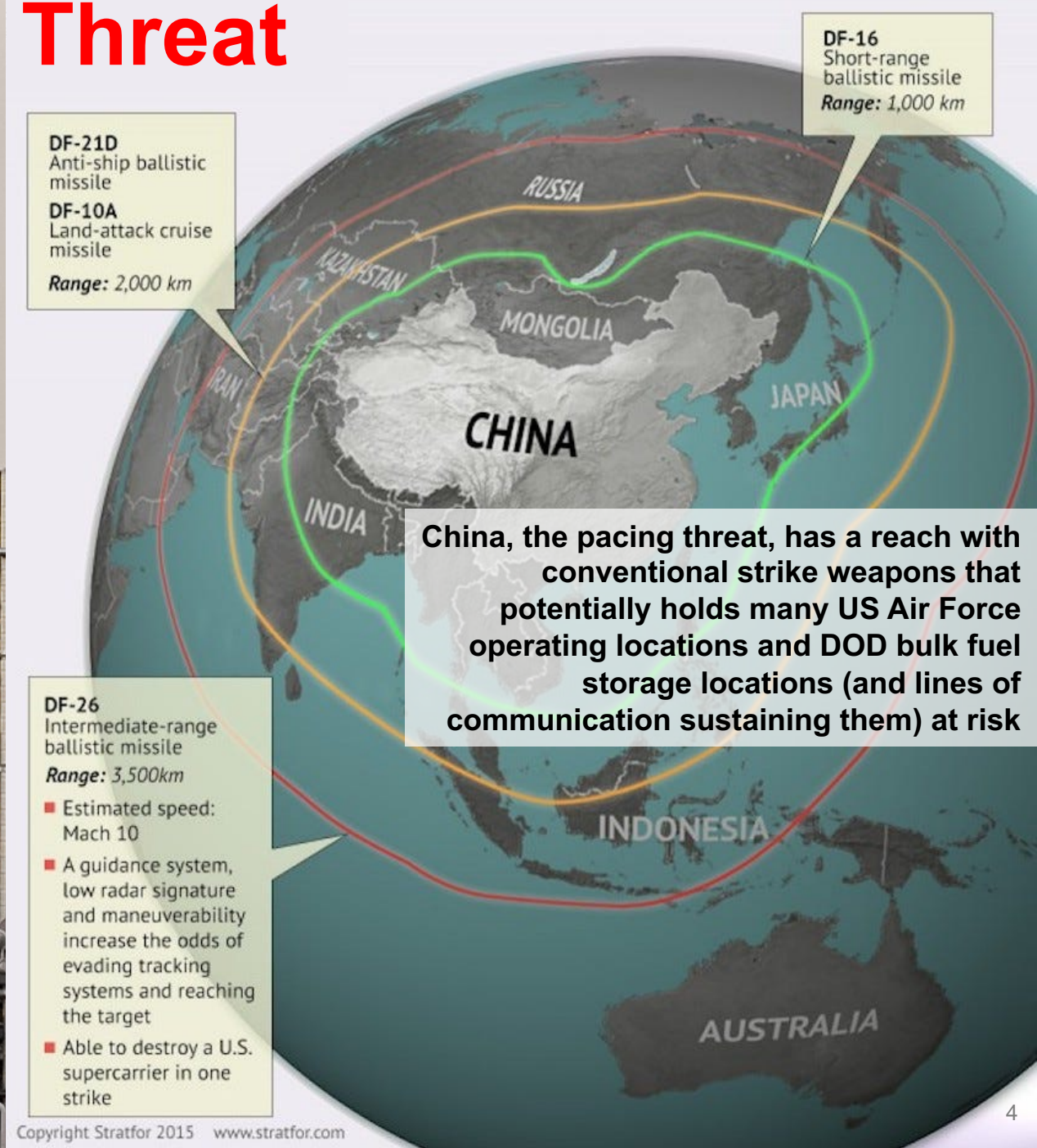
- **What we will not do…**
  - **Exhaustively and extensively discuss either activity**
    - **That's best left to doctrine (e.g., Joint Publication 5-0, Joint Planning) and coursework (e.g., the curriculum of the Defense Acquisition University)**
  - **Claim have the analytic silver bullet with yet another example of vaporware**
    - **System of systems simulation examples referenced draw from the direct experience of the speaker**

Supply

Despite research in alternate forms of aviation-powering energy, jet fuel is likely to dominate as the primary energy source into the near future



Threat



China, the pacing threat, has a reach with conventional strike weapons that potentially holds many US Air Force operating locations and DOD bulk fuel storage locations (and lines of communication sustaining them) at risk

Demand

Relative Energy Demand / Survivability	Concentrated Posture (MOBs)	Dispersed Posture (MOBs + Spokes)
	Lower	Higher
	Low	Medium to High

MOBs = Main Operating Bases

- ❑ Potentially more effective operationally
- ✓ Definitely more expensive to deploy and sustain

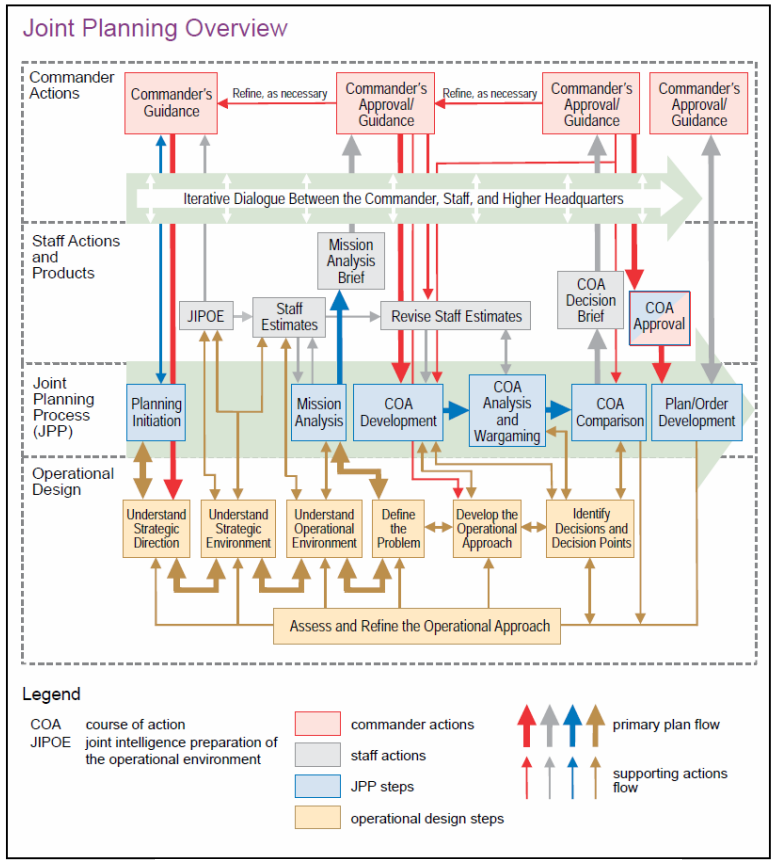
Future Weapon Systems…

- May require less energy and/or provide more of it, but striking the balance should not be up to chance
- Doing so should result from pursuing "gap focused" system of systems innovative engineering processes

Joint Planning

Joint Planning Process Steps

Step 1	Planning Initiation
Step 2	Mission Analysis
Step 3	Course of Action (COA) Development
Step 4	COA Analysis and Wargaming
Step 5	COA Comparison
Step 6	COA Approval
Step 7	Plan or Order Development



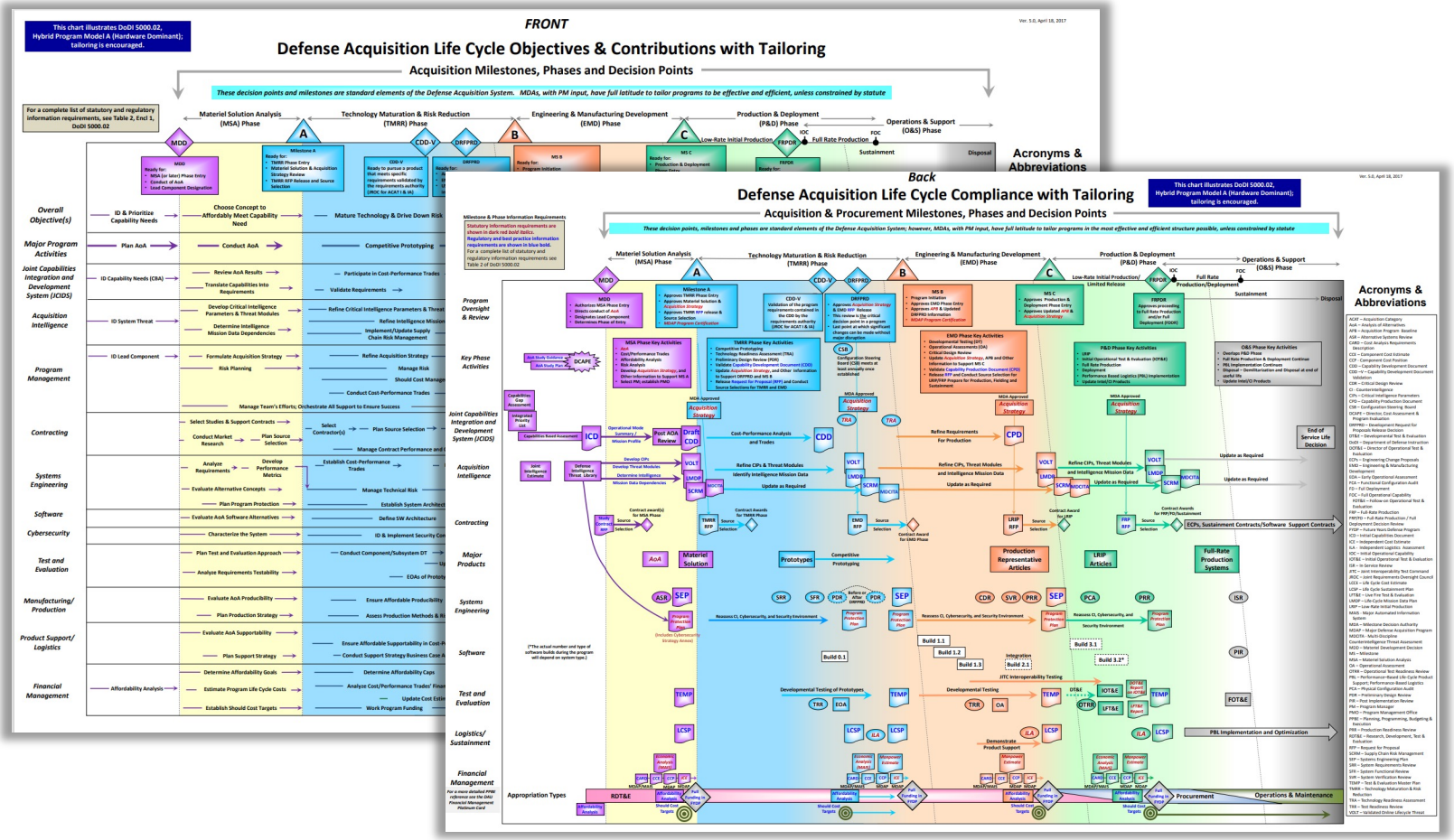
- **Systematic**
- **Underpinned by doctrine**
- **Complex**

But Logistics Supportability Analyses don't definitively ID gaps because…

- **Planning factors (PMJ + Art) instead of updated and reliable data**
- **"Silos of excellence" assumed away interdependence(e.g., AR tankers; connectors)**
- **Under-utilized campaign analyses (JS J8 STORM)**

Current planning and Logistics Supportability Analyses are not reliably producing insights into gaps needed to compel logistical innovation

Defense Acquisition



- Systematic
- Underpinned by policy
- Complex

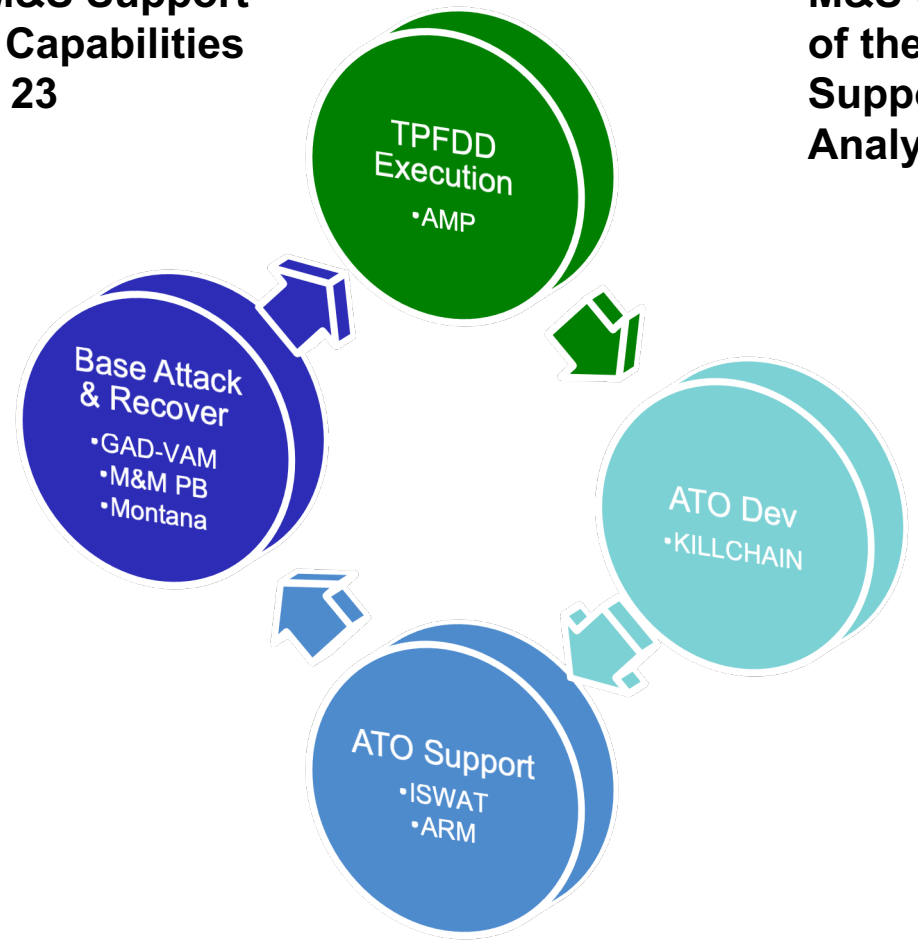
But Energy Supportability Analyses (ESAs) rarely define Energy Key Performance Parameters because…

- Energy is not always in the assessed "trade space"
- Ops-oriented JFOS process assumes away logistics
- Under-utilized campaign analyses (JS J8 STORM)

Energy is more of an after-thought that shapes the operating environment according to weapon systems, rather than vice versa

Modeling & Simulation System of Systems (M&S SoS)

Primary M&S Support to Future Capabilities Wargame 23



M&S Used in Support of the KC-Y Energy Supportability Analysis (ESA)

Wargaming - Simulated Planning and Execution

Acquisition Analysis

Next Steps

Planning

- TRANSCOM's Bulk Fuel Feasibility Assessment (BFFA)
- Leveraging Joint Staff J8's Campaign Modeling in STORM
  - Moving beyond planning factors

Acquisition

- Petition for the Explicit Modeling of Logistics in the Joint Force Operating Scenario (JFOS)
- Continue development and integration of M&S SoS
  - Posture, Deployment, Execution, Sustainment, …

Cross-Cutting Initiatives

- Enterprise-level data repositories
- Enterprise-level M&S tool development and maintenance

Thank you for your time…