DoD Analysis Update:
Support to T&E in a Net-Centric World

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- ❑ OSD ATL – Developmental Planning

- ❑ Army USA/VCSA – Strategic Assessment

- ❑ ASA(ALT) – SoS Systems Engineering
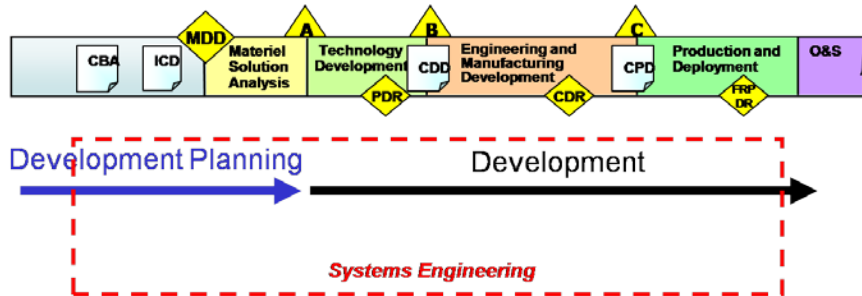
- ❑ AMC – AMC Analysis Center

Multiple Initiatives at Multiple Levels

Putting the Pieces Together

## OSD ATL: Early Development Planning

- Iterative, rapid anticipatory interface between operational and technical community.
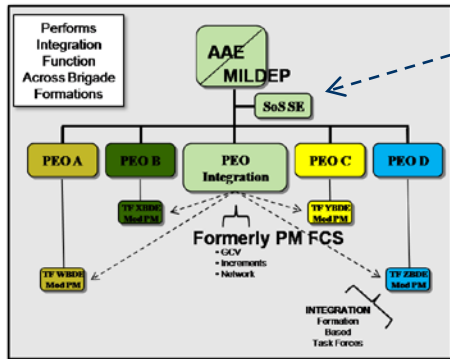- Mature, valid concepts and technical models to enter and bolster the AoA.
- Engineering analysis that is broad based, considering strategic and operational direction, SoS and legacy integration.

Army USA/VCSA: Strategic Assessment

Improve ARFORGEN   Adopt an Enterprise Approach   Reform Requirements & Resource Processes
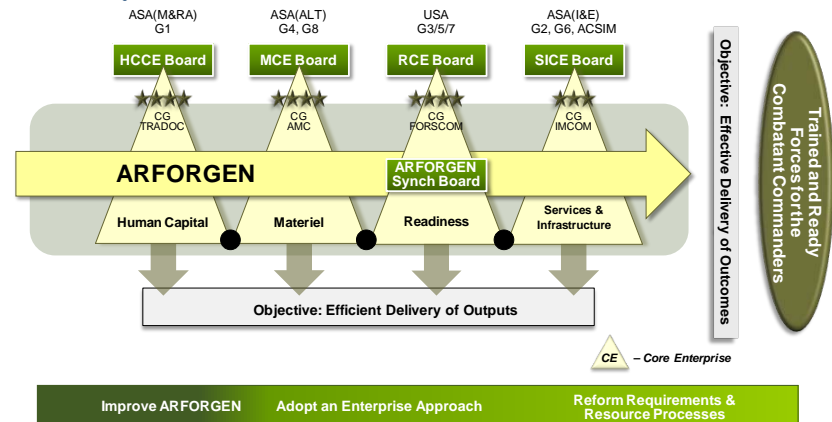
ASA(ALT): SoS Sys Engineering Organization

All Materiel Solutions

All Network Solutions

Integrate across the entire Army and across the POM years.

Relevant, Integrated and Affordable Capabilities

AMC: Analysis for the Materiel Enterprise

Working within VCSA Assessment Support Capability Framework
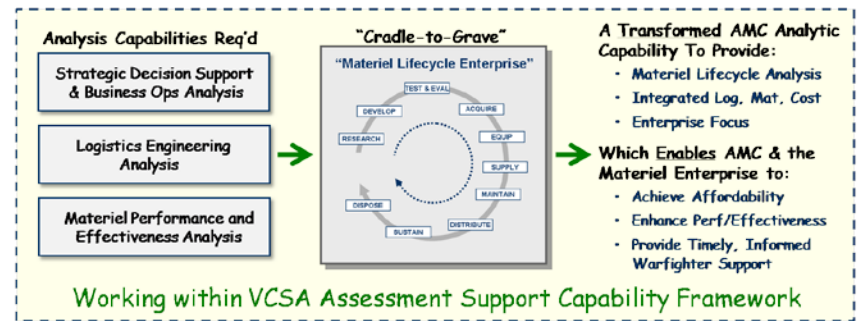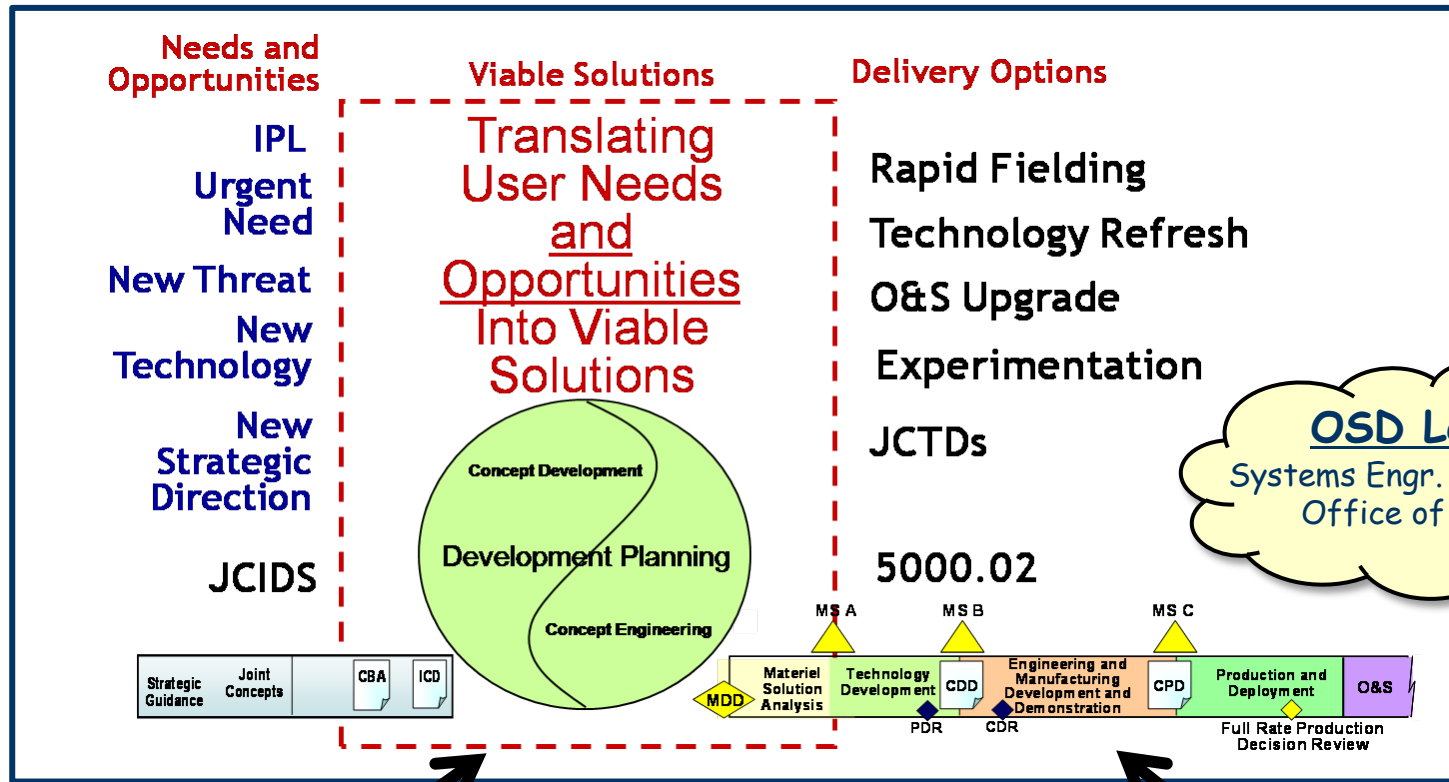
Focus on Lifecycle Analysis Support

Key Ongoing Initiatives Provide an Opportunity to Better Sync Analysis, Enterprise Assessment and SoS System Engineering to Improve Acq & T&E

40 Years of AMSAA
Excellence in Analysis

Needs and Opportunities

IPL

Urgent Need

New Threat

New Technology

New Strategic Direction

JCIDS

Viable Solutions

Translating User Needs and Opportunities Into Viable Solutions

Concept Development

Development Planning

Concept Engineering

Delivery Options

Rapid Fielding

Technology Refresh

O&S Upgrade

Experimentation

JCTDs

5000.02

OSD Lead: Systems Engr. Directorate Office of DDR&E

| Strategic Guidance | Joint Concepts | CBA | ICD |

MS A · MS B · MS C

| MDD | Materiel Solution Analysis | Technology Development | CDD | Engineering and Manufacturing Development and Demonstration | CPD | Production and Deployment | O&S |

PDR   CDR   Full Rate Production Decision Review

Analysis, Tightly Coupled with SoS System Engineering during Development Planning

Strongly Supports

Improved Acq and T&E of Programs w/ Realistic Reqmts and Lower-Risk Solutions

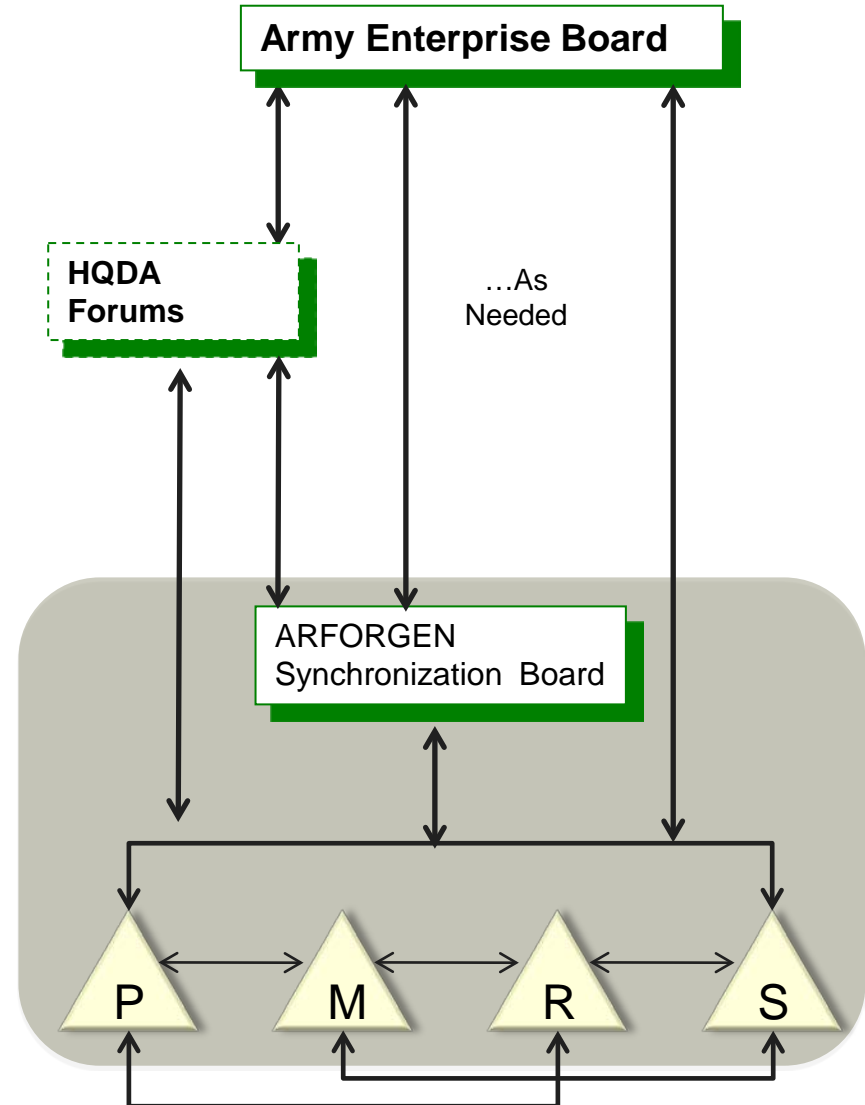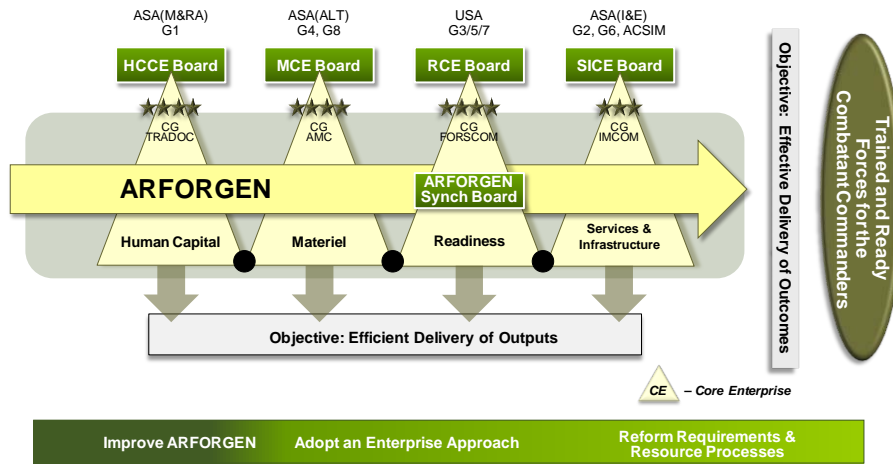**Plus, the Tools, Knowledge & Data Developed Early On --- Support T&E**
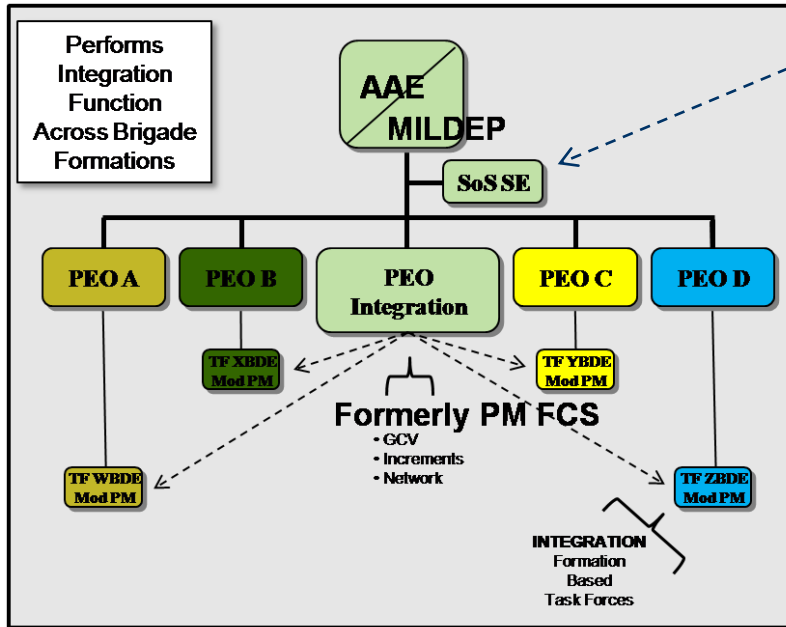
Problem Statement: The problems with the Army's current assessment process are: (1) time constraints, (2) lack of cross-functional perspective and (3) lack of visibility into past, present or planned analysis.
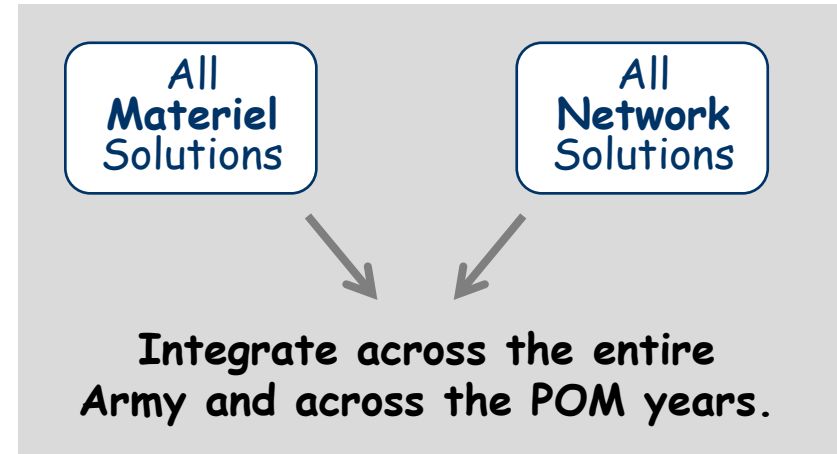
How does the Army ensure that senior-level decision makers and forums have all relevant information and analysis?

Will Directly Impact Army Acquisition and T&E Processes

ASAALT's SoS Systems Engineering Org.

New Organization (SoSSEO)

All **Materiel** Solutions

All **Network** Solutions

Integrate across the entire Army and across the POM years.

<u>**Relevant**</u>, <u>**Integrated**</u> and <u>**Affordable**</u> **Capabilities**

Materiel Enterprise (ME) Analysis to Improve the Army Acquisition Process

- ❑ Identify capability gaps
- ❑ Identify potential efficiencies
- ❑ Identify redundancies

SoSSEO Can Be a Focal Point for Integrating Analysis Support to the ME

40 Years of
AMSAA
Excellence in Analysis
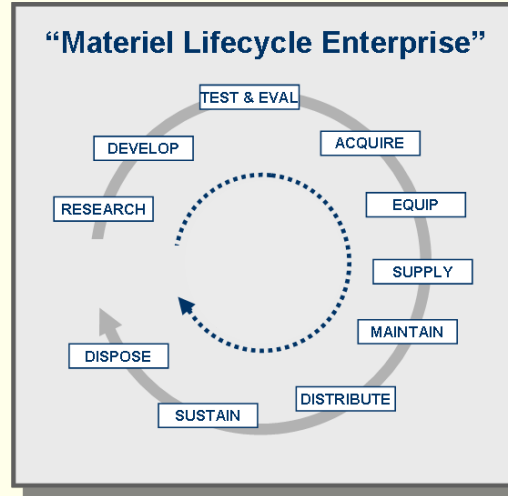
Analysis Capabilities Req'd

| Strategic Decision Support & Business Ops Analysis |

| Logistics Engineering Analysis |

| Materiel Performance and Effectiveness Analysis |

"Cradle-to-Grave"

"Materiel Lifecycle Enterprise"

TEST & EVAL
DEVELOP
ACQUIRE
RESEARCH
EQUIP
SUPPLY
DISPOSE
MAINTAIN
SUSTAIN
DISTRIBUTE

A _Transformed_ AMC Analytic Capability To Provide:

- **Materiel Lifecycle Analysis**
- **Integrated Log, Mat, Cost**
- **Enterprise Focus**

Which _Enables_ AMC & the Materiel Enterprise to:

- **Achieve Affordability**
- **Enhance Perf/Effectiveness**
- **Provide Timely, Informed Warfighter Support**

Working within VCSA Assessment Support Capability Framework

Examples:

| Ground Combat Vehicle (GCV) AoA |

| PEO-CS&CSS Fleet Mgt Study |

| Responsible Retrograde Task Force (R2TF) |

| Army Materiel Mgt Strategy Study (AMMSS) |

ME – Materiel Enterprise

Integrated Lifecycle Data, Info & Analysis to Improve Enterprise Decision-Making

ASA(ALT) SoSSEO & AMSAA Collaboration

AMC

ASA(ALT)

Needs, Trends, Issues, Priorities, etc.

AMSAA

SoS SE Organization

Strategic Decision Support & Business Ops Analysis

M&S

Data

Analysis

SME

Logistics Engineering Analysis & Data

Materiel Performance & Effectiveness Analysis & Data

Identify how early concept design, technology feasibility, & supportability requirements impact total lifecycle cost.

Conduct independent assessments of technology feasibility, technical maturity/risk, & supportability for PEO/PM's

Help identify key performance & supportability drivers & provide cost-benefits trade analysis to inform PEO/PM's

❑ Cross Organization Collaboration & Coordination

❑ Capabilities/Requirements Analysis & Decomposition

❑ Integrated Architectures

❑ Technology Transition / Insertion

❑ Focused Trade Decision Support

❑ Mechanisms, Governance, & Processes

❑ Strategic Communications

Perform integrated AMC analysis across entire materiel lifecycle in support of Army's ME.

Apply SE at SoS-level across Army Enterprise to support Senior Army decision-making process.

Both Organizations Collaborate to Inform Senior Army Enterprise Decision Making --- to Facilitate Delivery of Relevant, Integrated & Affordable Materiel Solutions

Some Parting Thoughts

- ❑ Successful acquisition and its associated T&E are dependent on doing our homework upfront --- <u>realistic requirements</u> & <u>acceptable-risk solutions</u>.

- ❑ That upfront piece needs to be better addressed by the analysis and SoS Systems Engineering communities during Development Planning.

- ❑ All of the tools, the data, the methodologies and the knowledge gained during that upfront phase can be directly applied to the follow-on T&E.

- ❑ Finally, continuing a "lifecycle", "SoS", and "enterprise" mindset throughout the acquisition cycle will improve the product & facilitate T&E.

A Few Observations & Insights From an Army Analyst ….

"Myth"

Doing more analysis earlier in the acq. cycle always leads to better system development, T&E, and acquisition.

"Another View"
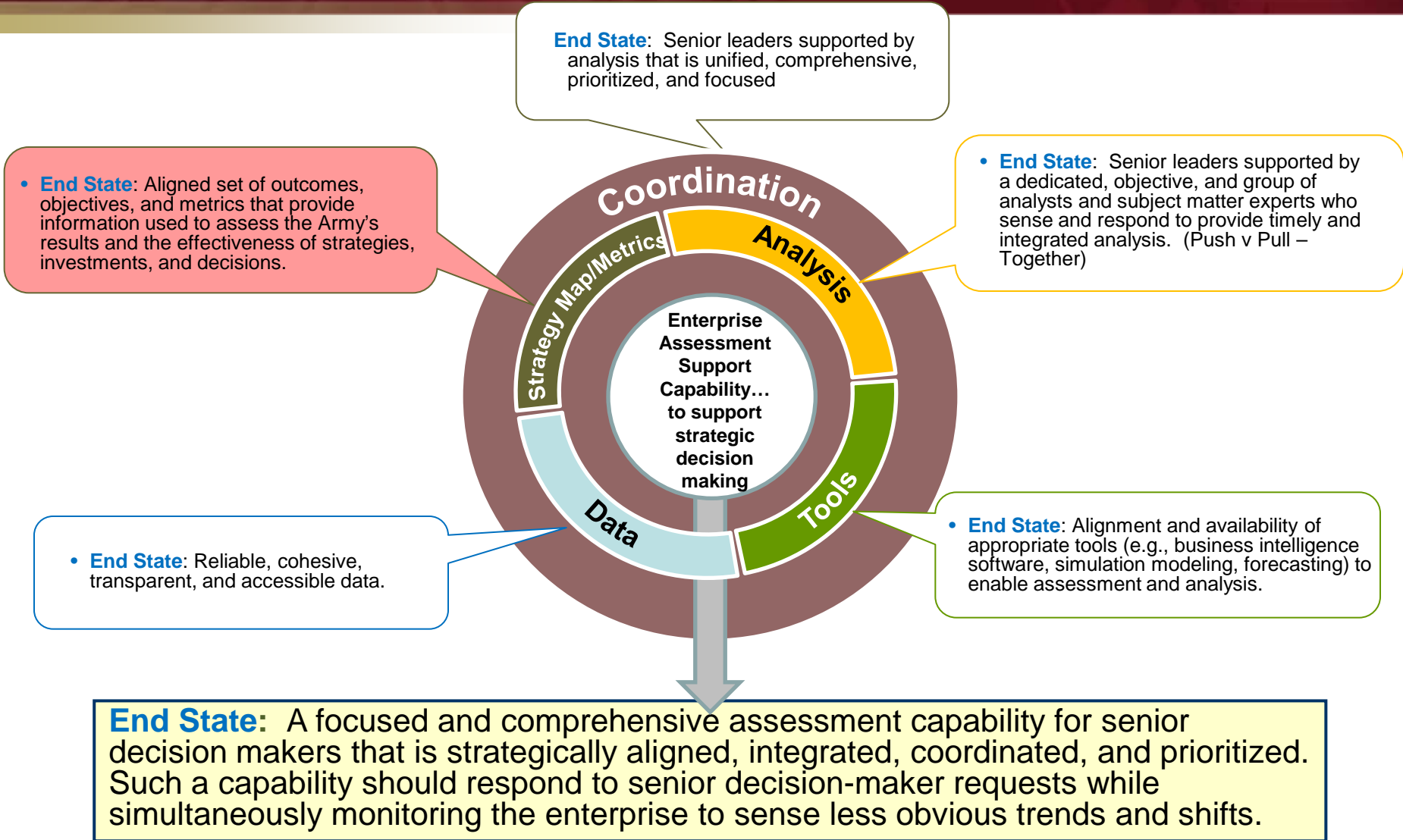
Doing better analysis, tightly coupled with SoS Systems Engineering, as part of early Development Planning --- leads to:
- ✓ More *realistic reqmts*
- ✓ *Better solutions*

Key Drivers of Successful Acquisition and T&E

A Few Observations & Insights From an Army Analyst ….

Enterprise Assessment Capability End States

End State: Senior leaders supported by analysis that is unified, comprehensive, prioritized, and focused

End State: Aligned set of outcomes, objectives, and metrics that provide information used to assess the Army's results and the effectiveness of strategies, investments, and decisions.

End State: Senior leaders supported by a dedicated, objective, and group of analysts and subject matter experts who sense and respond to provide timely and integrated analysis. (Push v Pull – Together)

End State: Reliable, cohesive, transparent, and accessible data.

End State: Alignment and availability of appropriate tools (e.g., business intelligence software, simulation modeling, forecasting) to enable assessment and analysis.

Coordination

Strategy Map/Metrics

Analysis

Tools

Data

Enterprise Assessment Support Capability… to support strategic decision making

End State: A focused and comprehensive assessment capability for senior decision makers that is strategically aligned, integrated, coordinated, and prioritized. Such a capability should respond to senior decision-maker requests while simultaneously monitoring the enterprise to sense less obvious trends and shifts.

This Is A Work In Progress --- and It Will Influence Acquisition & T&E

Operational Requirements Documentation
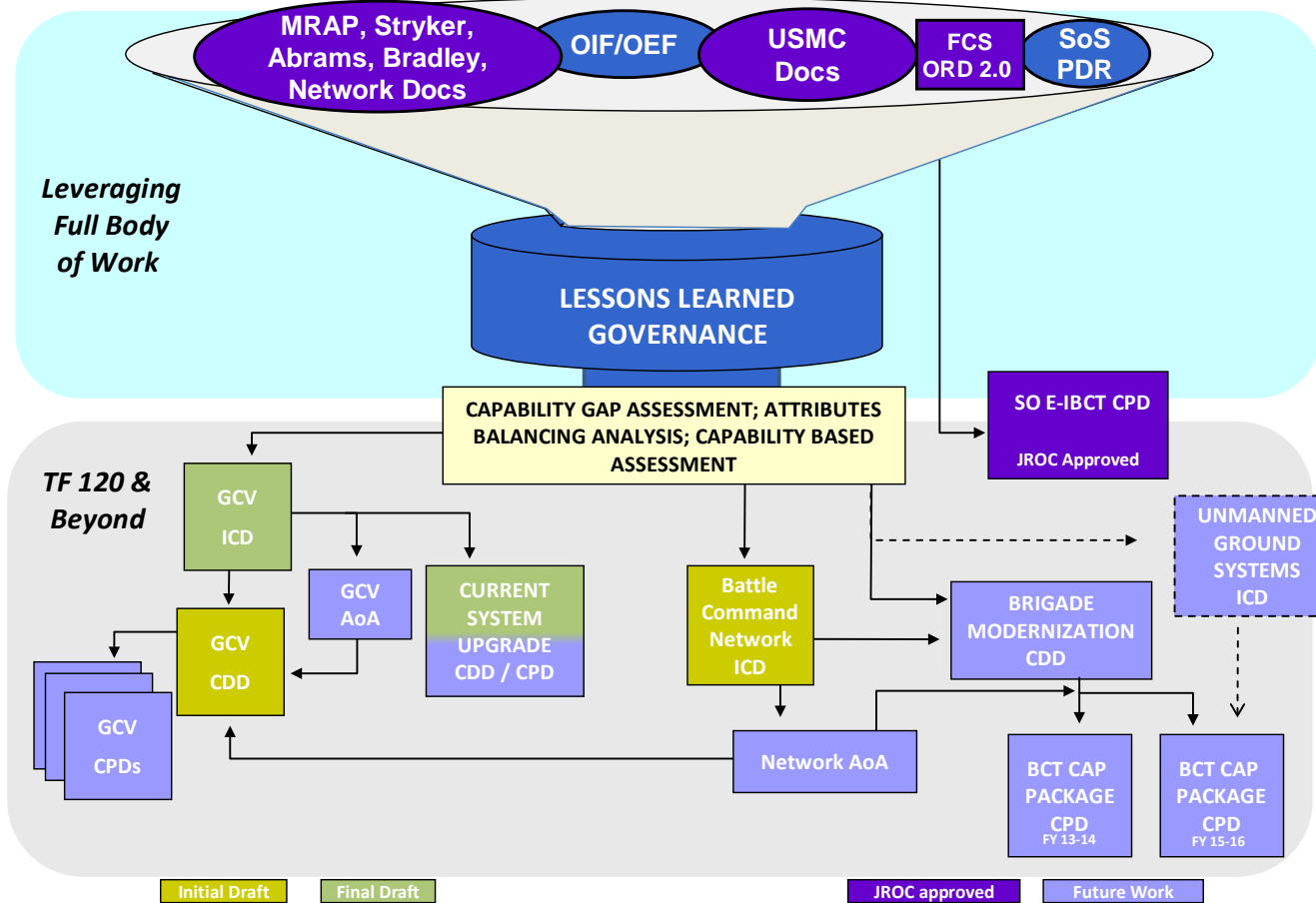
Army DP is integrated into Army force management process and addresses "capability sets" needed to address future threats

Army's Enterprise Approach to ARFORGEN Will Change the Way We Approach Acquisition, T&E --- and Our Supporting Analysis & SE

- ❑ Understand need in the context of operations and other systems
  - Put the need into operational, threat and systems context (CONOPs, and mission threads, thread profile and current SoS architecture)
- ❑ Identify ideas/concepts for solutions
  - Communicate capability needs and gaps to concept generating organizations (i.e., industry, academia, S&T community, etc.)
  - Receive and catalogue ideas and concepts
- ❑ Assess ideas/concepts to identify feasible material solution options
  - Apply MS&A to confirm military utility (via modeling, via prototyping)
  - Identify the impact on current systems
  - Conduct initial lifecycle cost estimate
- ❑ Technical analysis of the proposed concepts
  - Conduct SE and refine concept technical analysis artifact on promising concepts to provide technical foundation (via prototyping)
- ❑ Identify best mechanism to provide solution based on need & solution options
  - Formal acquisition program, technology refresh, rapid fielding, etc.
- ❑ Continue System Analysis and SE support into the solution development
  - For acquisition, technical advisor supporting the AoA study and analysis teams

Tools/Data/Knowledge Dev'd Here Provide Healthy Foundation for T&E Later.