Mission Engineering Digital Ecosystem (MEDE)

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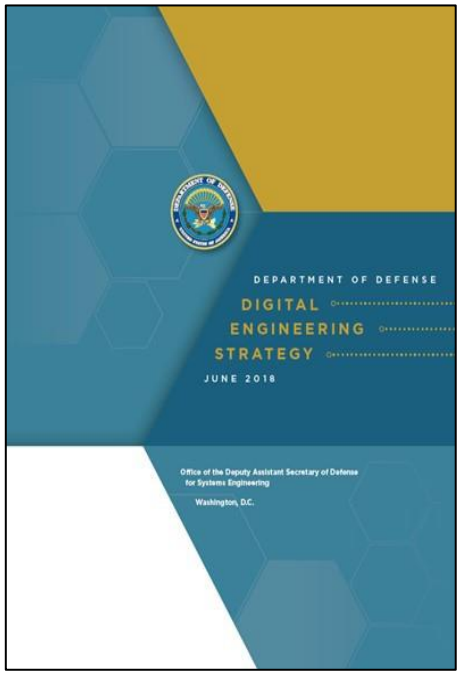
Outline

- Background
- Digital Ecosystem Requirements Key Attributes
- Digital Ecosystem Influencers
- MEDE Pilot
- Expected Benefits
- Digital Ecosystem Pipeline
- Summary / Next Steps

Background: Digital Engineering Strategy



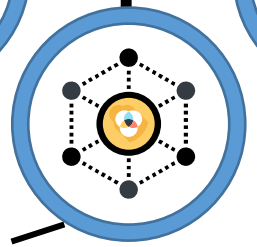
1. Formalize the development, integration, and use of models to inform enterprise and program decision making
2. Provide an enduring, authoritative source of truth
3. Incorporate technological innovation to improve the engineering practice
4. Establish a supporting infrastructure and environments to perform activities, collaborate, and communicate across stakeholders
5. Transform the culture and workforce to adopt and support digital engineering across the lifecycle

Digital Ecosystem Requirements Key Attributes

Environment

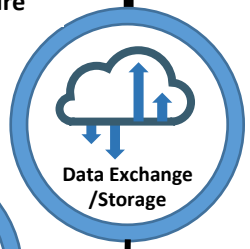
Integrated workflows, model centric activities, automation, reuse, sustainment, and autonomous artifact generation

Infrastructure



Hardware Computing power, Software tool suite and IT topologies of networks with flexible connectivity, extensibility and seamless Interoperability

Data Exchange & Storage

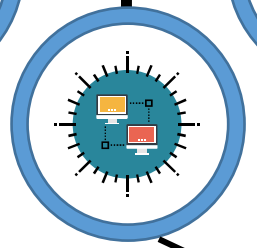


Curated shared model and data environment with high speed throughput to broker, exchange and store data

Security

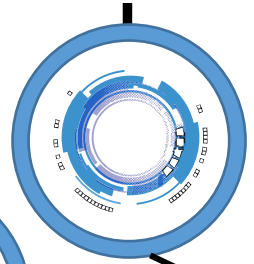
Access to secure DoD infrastructure at appropriate classifications

Collaboration



Collaboration across users, stakeholders, organizations, engineering disciplines, and lifecycle phases

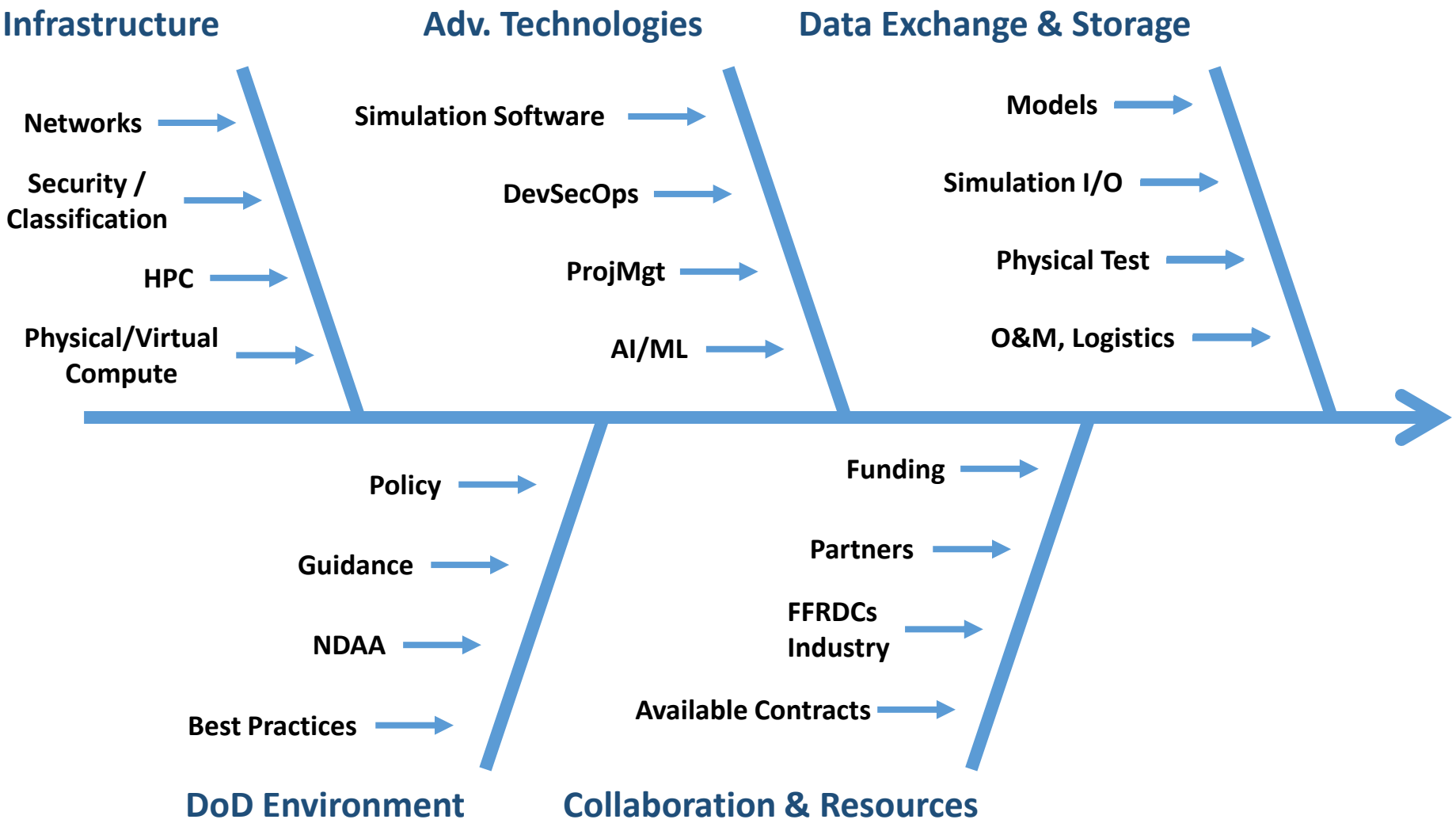
Advanced Technologies & Innovation



Intelligent applications that enable rigorous development, DEVOPs, prototyping, automated testing, and cross domain traceability

Driving Requirements: Tools, Cloud Migration, Concurrent Users, Classification & IT Support

Ecosystem Influencers



Introduction: What Is Mission Engineering?

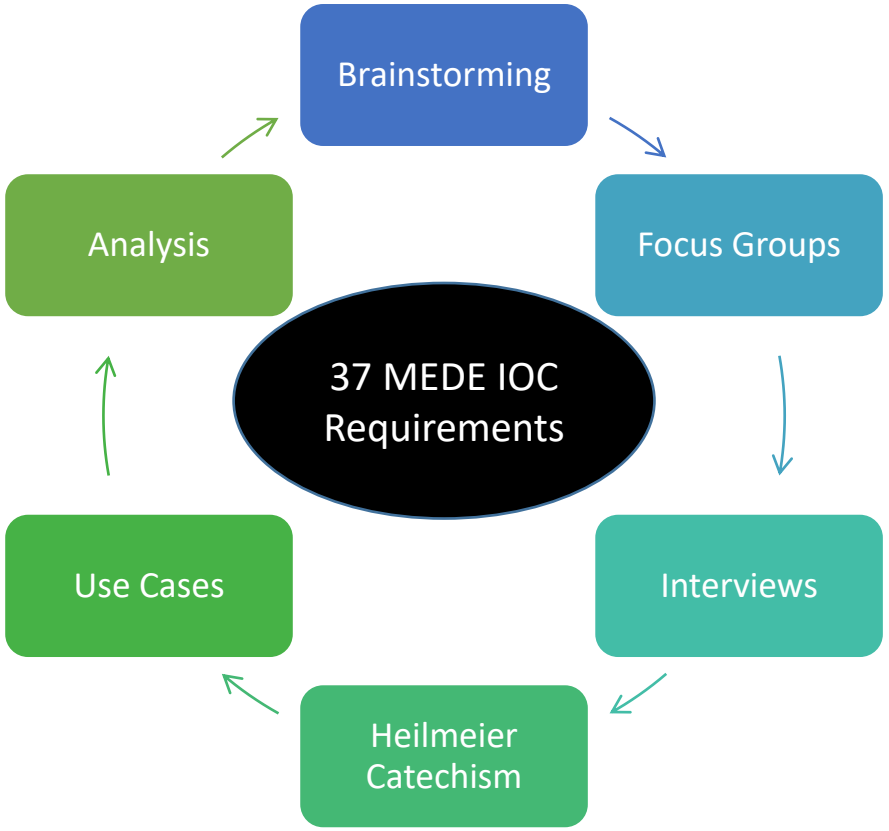
ME is the deliberate planning, analyzing, organizing, and integrating of current and emerging operational and system capabilities to achieve desired warfighting mission effects.

- Mission-focused threat-informed analysis to evaluate capability solutions, advise on development of requirements and inform technology investment decisions.
- Identify enhanced capabilities, technologies, system inter-dependencies, and architectures to close mission gaps.
- Develop Government Reference Architectures to guide technology development, prototypes, experiments, and system-of-systems portfolio management to achieve reference missions.
- Inform stakeholders on building the right things, not just building things right; align capability maturation relevant to the evolving threat and future warfighter needs.

Mission Engineering analyzes systems and systems of systems in an operational mission context.

MEDE Requirements

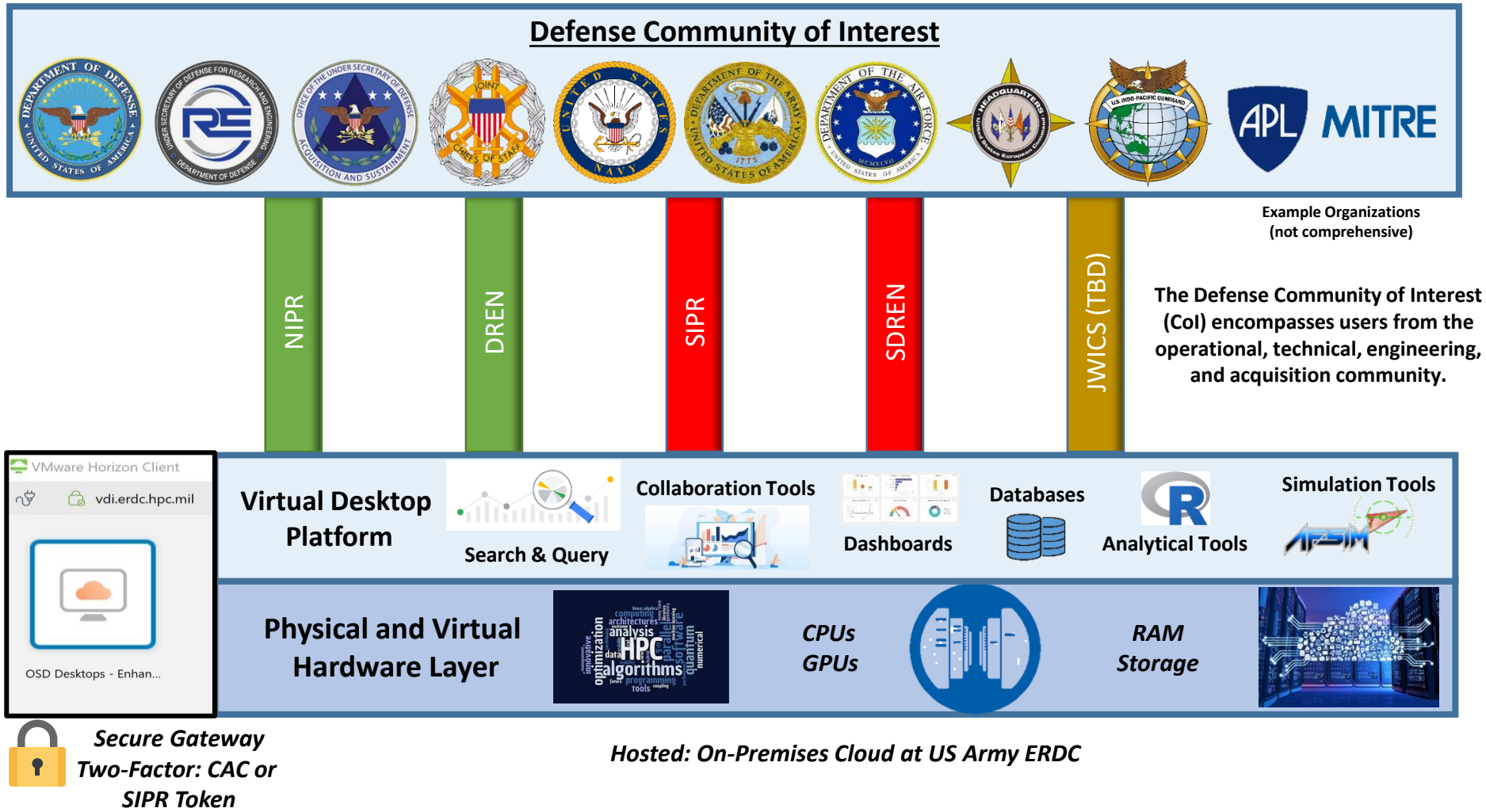
Requirement Elicitation Process



MEDE Requirement Categories

- Software
- Security
- Connectivity
- Scalability
- Adaptability
- Licensing
- Users
- Transportability
- Curation
- Visualization
- Access Control
- Ingest
- Storage
- Knowledge Management
- Customer Service
- ATO approval
- Network management
- Service level agreement

MEDE High-Level Operational View



Extensible capability for Mission Engineering that connects to the broader DoD digital engineering enterprise.

Expected Benefits

Improved KM	Increased Collaboration	Known Source of Truth	Automated Tool Chain	Data-Centric Configuration Management
Quick find	Visualize your relationships	Known definitions of terms	More collaboration among current silos	Improved search
Minimized data set	Automation	Improved coordination	Re-usable reference architectures	Same information takes less space
Knowledge maps	Re-use templates	Studies have better accuracy	Studies occur at increased cadence	More precise governance
				Visualize the effect of change

Digital Ecosystem Pipeline

<u>Align</u>

Policy & Guidance
Digital Engineering
Requirements
Architectures
Roadmaps & Assessments
DoD 5000 artifacts
Standardized data formats
Cultural Shift

<u>Leverage Cloud Infrastructure</u>

Shared Cloud Space
Software Development
Artificial Intelligence
Machine Learning
High Performance Computing
Tool repository
Big Data Analytics
Visualization

<u>Development & Testing</u>

Software Development
DEVSECOPS
Configuration Management
Design Reviews
Assess
Testing
DoD 5000 artifacts
Visualization

<u>Manage, Share & Curate Data</u>

Data Accessibility
Data Discoverability
Knowledge Management
Visualization
Bodies of Knowledge
Automated Reports
Visualization

Improve the Pipeline to the Warfighter

Summary/Next Steps

- OUSD(R&E) developed an interim solution for the technical infrastructure for engineering and analysis including data, modeling, analytic tools and simulations based on requirements
- Continue focused Mission Engineering demonstration; Track issues at SECRET and TOP SECRET
- Focus on “Connecting the Engineering Community” vice prescribing particular ecosystems or tools
- OUSD(R&E) supports evolution of interoperable, collaborative, and interacting ecosystems and data

For Additional Information

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