SYSTEMS ENGINEERING RESEARCH CENTER

WWW.SERCUARC.ORG

AIRC | ACQUISITION INNOVATION RESEARCH CENTER

WWW.ACQIRC.ORG

A UNIQUE COLLABORATIVE DOD UARC (UNIVERSITY AFFILIATED RESEARCH CENTER)

Briefing to NDIA, 25 January 2022

Tom McDermott, Deputy Director and CTO

SYSTEMS ENGINEERING RESEARCH CENTER

PRIORITY RESEARCH AREAS

AIRC ACQUISITION INNOVATION RESEARCH CENTER

Enterprises and Innovation

- *Comprehensive Enterprise/ SoS Modeling and Analysis*
- *Mission Engineering*
- *Digital Enterprise Transformation*

Models and Data

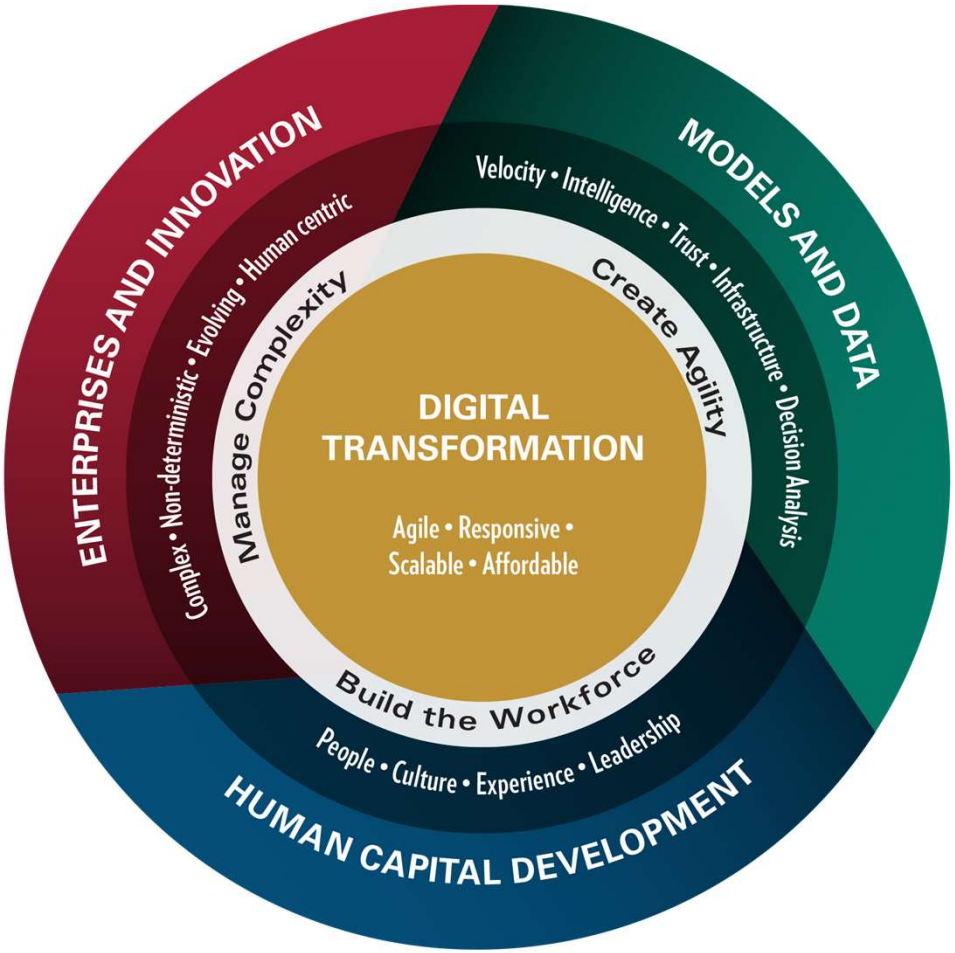
- *Systemic Security*
- *Common Architectures*

Human Capital Development

- *Evolving Body of Knowledge*
- *Digital Literacy/ Experience*
- *SE and Technical Leadership*
- *Cyber Resilience*

Digital Transformation

- *Velocity and Agility*
- *Digital Engineering*
- *SE Methods for AI and Autonomous Systems*



Enterprises and Innovation

- *Innovation Culture*
- *Intellectual Property*
- *Digital Enterprise Transformation*
- *Portfolio-based Acquisition*

Models and Data

- *Data Infrastructure*
- *Analytic Platform*

Human Capital Development

- *Digital Competencies*
- *Leadership & Innovation Culture*
- *Cognitive Assistants*

Digital Transformation

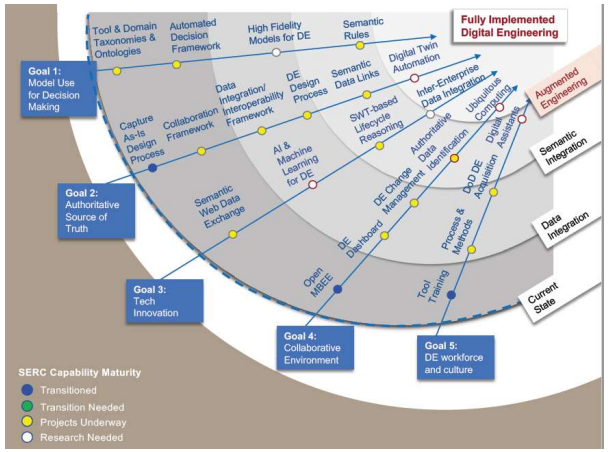
- *Data Management & Sharing*
- *End-to-end Lifecycles*
- *Policy Analytics*
- *Agile Program Management*

SYSTEMS ENGINEERING RESEARCH CENTER

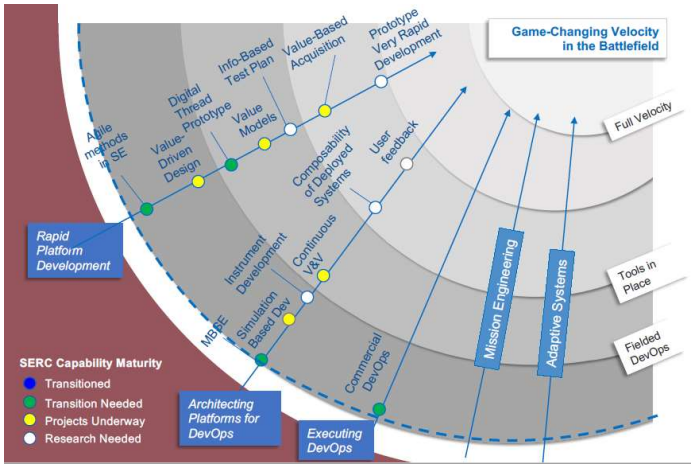
CURRENT ROADMAPS

https://sercuarc.org/what-we-do/

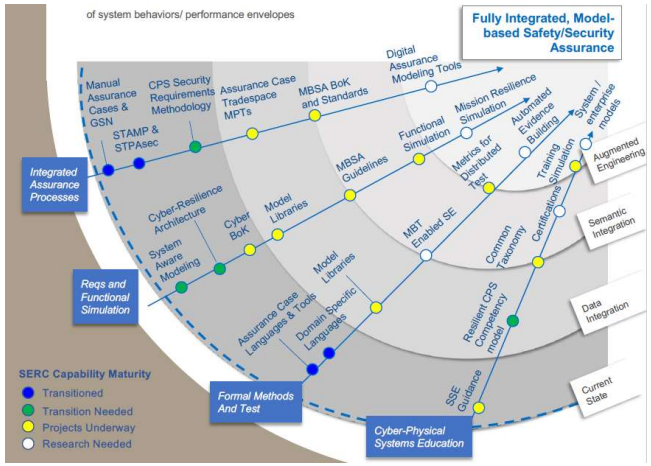
Digital Engineering as the Enabler



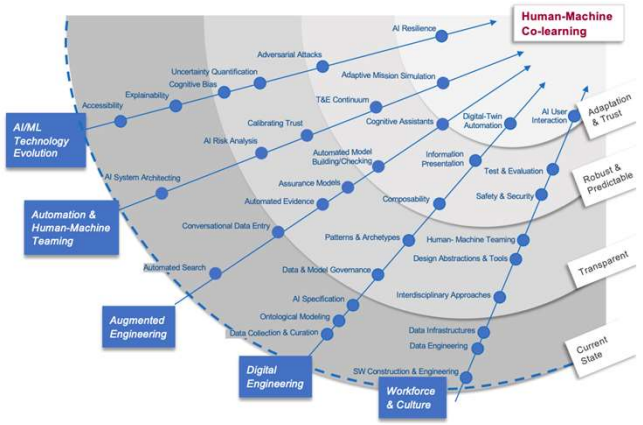
Velocity: Continuous Dev't & Deploy't



Security: Trusted Systems Metamodel



AI & Autonomy: Augmented Engineering



AIRC ACQUISITION INNOVATION RESEARCH CENTER

AIRC RESEARCH AREAS AND MISSIONS

Acquisition Innovation

Timely Delivery of Effective Capabilities for Our Warfighters

INFORMATION

Data and Knowledge Sharing Across DoD, Industry, and Academia

Enable and align secure information flows to inform, improve, and accelerate acquisition functions and decisions

ACQUISITION TOOLS AND FUNCTIONS

Enable and Improve Our Tradecraft

Leverage information, models, and commercial innovation to improve functions and outcomes

POLICY TEST RANGES AND DECISION TOOLS

Assess Ideas and Inform Decisions to Improve Policies and Processes

Models and analytics for evidence-based decision making

PEOPLE AND CULTURE

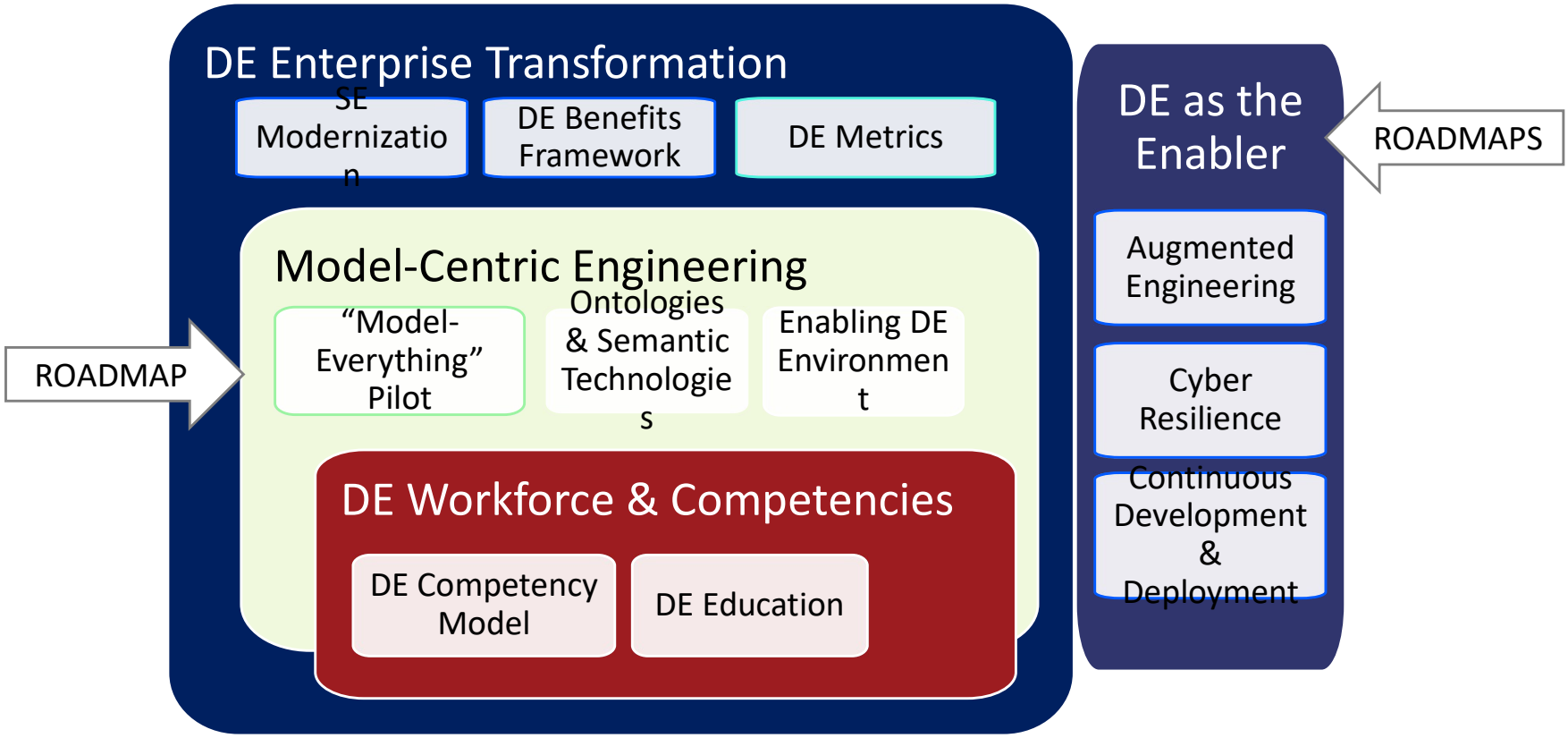
Agile Workforce, Leadership, and Organizations

Enable & incentivize agile, innovative, and outcome-focused communities. Modern education & training

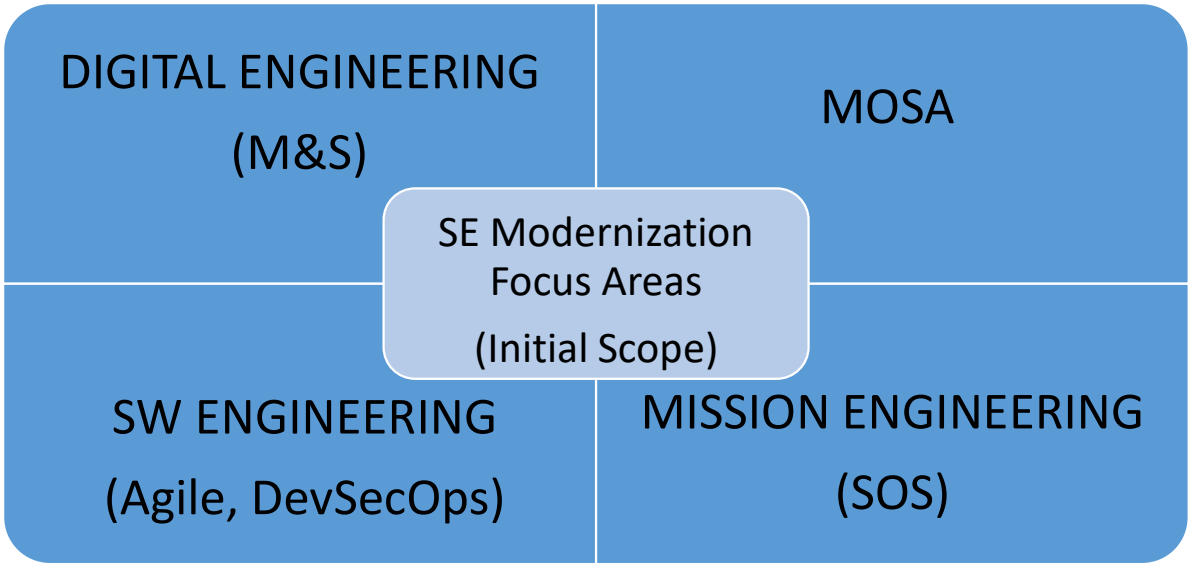
DATA SCIENCE; ENGINEERING; MANAGEMENT; BUSINESS; LAW; PUBLIC POLICY; PSYCHOLOGY; EDUCATION

Digital Acquisition Digital Data/Analytic Strategy

SERC DIGITAL ENGINEERING RESEARCH



SE MODERNIZATION



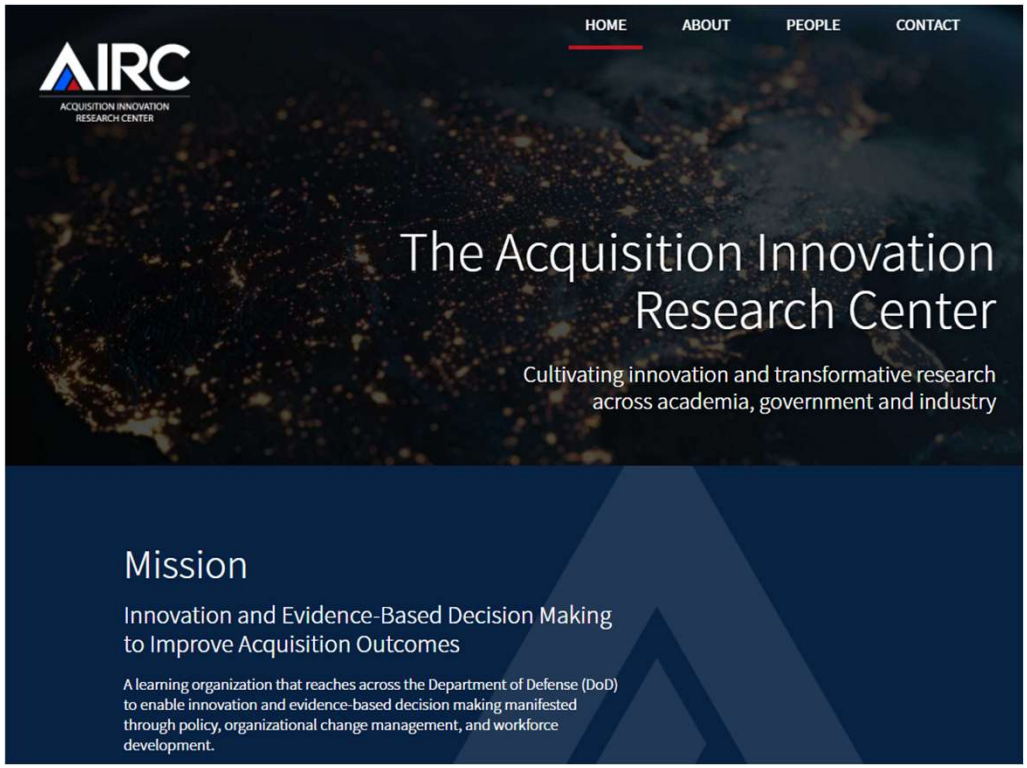
Cross Cutting Key Enablers

Architecture	• What role does Reference Architecture & other products play?
Model Based Systems Engineering (MBSE)	• Workforce Training and Experiential Learning
SOS/Enterprise Collaboration	• How do we maintain a shared understanding?
Engineering Workflow	• What is the Impact on SE processes & reviews including DTE&A?
Workforce Culture	• How do we transform to a digital culture?

Distribution Statement A: Approved for public release. Distribution is unlimited.

FURTHER INFORMATION

WWW.SERCUARC.ORG



WWW.ACQIRC.ORG