

Supporting Systems Engineering Modernization

Where 15288 meets Lean Agile



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Meeting the Challenge



Emerging Threats



Whole of nation competition: military, economic, and political

Proliferation of advanced technologies in all domains



To succeed we need to change






Systems Engineering Modernization

SE Modernization Overview

SE Modernization Problem Statement

“There is a lack of an integrated approach to implementation of SE Focus Areas that is creating a delay in full implementation of the Digital Transformation which is necessary to ensure the relevant guidance, skills, and training are available to deliver a robust, disciplined approach to weapon systems acquisition.”

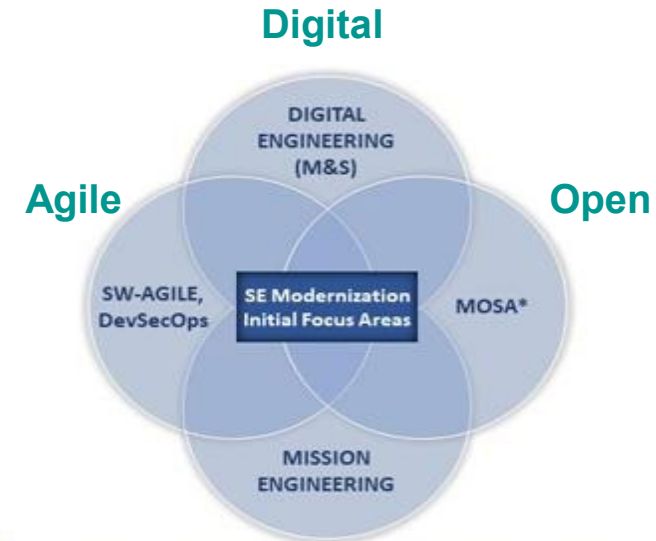
Cross-Cutting Key Enablers

| | |
|--|---|
|  Architecture | Modeling Mission & Platform levels, embracing Reference Architectures |
|  Model-Based Systems Engineering (MBSE) | Enterprise-wide implementation; models as Source of Truth |
|  SOS/Enterprise Collaboration & Data | Understand/Assess cross-platform capabilities |
|  Engineering Workflow | Evolving SE processes to model based, including V&V, R&M |
|  Workforce Training & Culture | A focused approach to workforce initiatives that enable culture change & skills gap |

ENABLERS RESULTED FROM OUTREACH/INFORMATION SESSIONS

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<https://www.cto.mil/sea/se/>



Collaborating with Government, Industry & Academia

- International Council on Systems Engineering (INCOSE)
- Defense Acquisition University (DAU)
- National Defense Industrial Association (NDIA)
- Systems Engineering Research Center (SERC)

DoD is driving Systems Engineering Modernization

Supporting Systems Engineering Modernization

Advancing the Engineering practice

Continuous modernization

Delivery of high quality, safe, secure, reliable systems

Delivering value to the warfighter



"A world-class engineering culture requires an engineering capability that adapts and mitigates evolving threats faster than the opposition can produce them."

- Paul Mann, Chief Engineer,
Assistant Secretary of the Navy for Research, Development, and Acquisition.

Enhance cross-organizational capability to ensure mission readiness and sustainability

The Power of Agile and Systems Engineering

Systems Engineering

+

Agile

=

Responsive, scalable, and innovative solutions

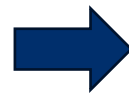
Ensures alignment, coordination and integration across the enterprise

Focus on adaptability, fast feedback, and rapid decision-making

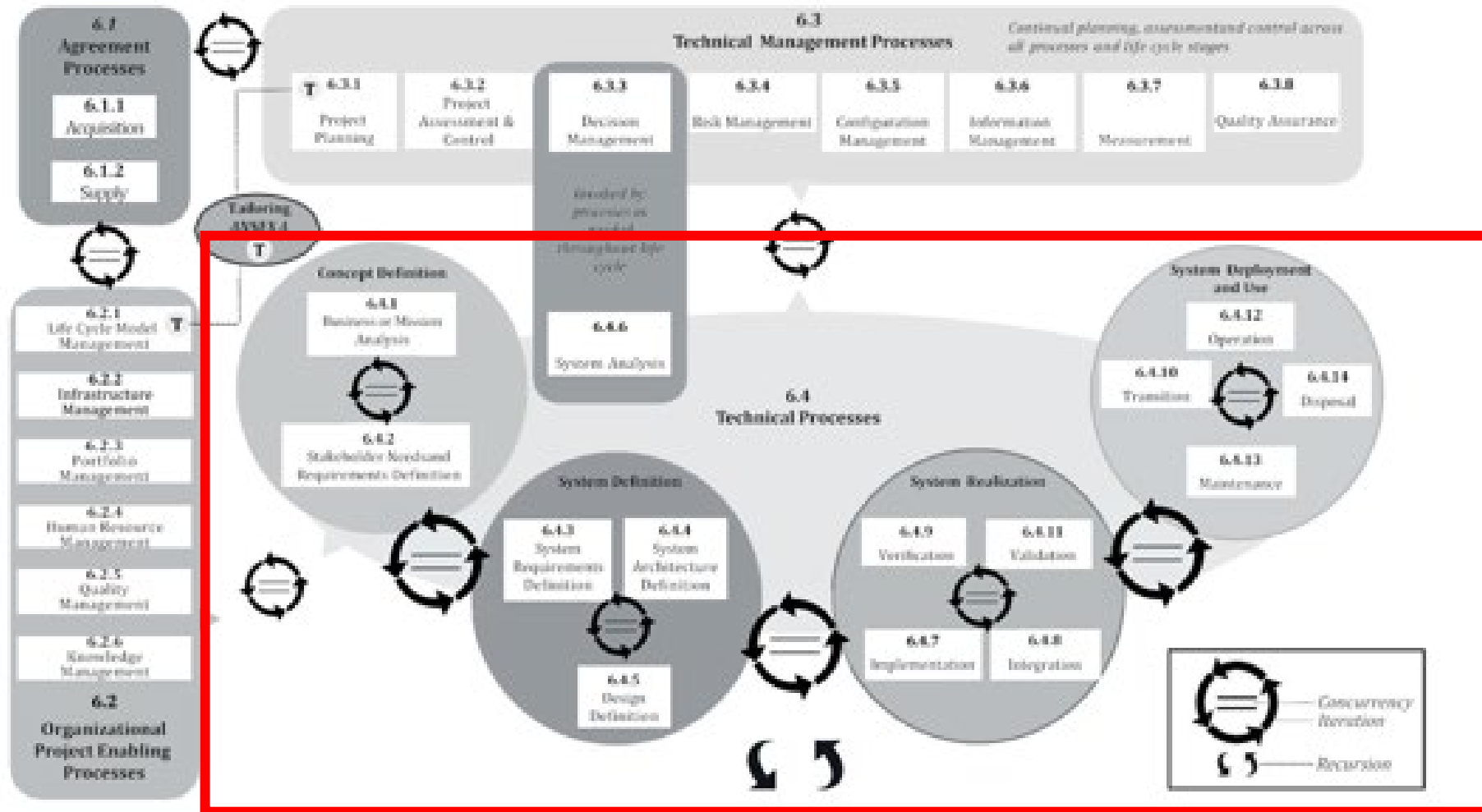
Enhanced efficiency through streamlined processes and increased collaboration

Reduced risks

Enhanced scalability and flexibility



Systems Engineering: Leading the Shift from Waterfall to Agile Across All Disciplines

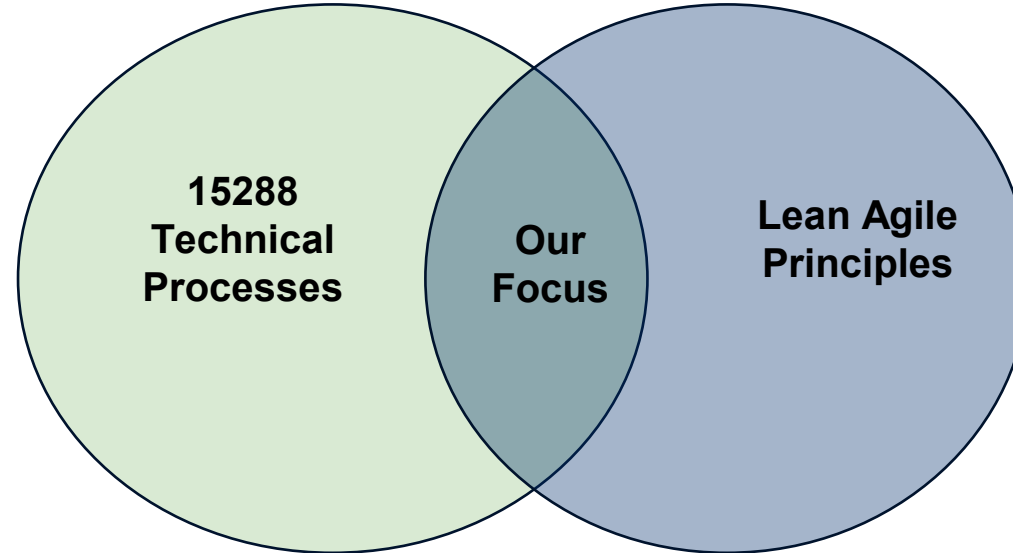


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ISO/IEC/IEEE 15288:2023 process

Intersection of 15288 and Lean Agile

Mission Analysis
Stakeholder Analysis
Requirements
Development
Architecture
Design Analysis
Implementation
Integration
Verification
Transition
Validation
Operation
Maintenance
Disposal



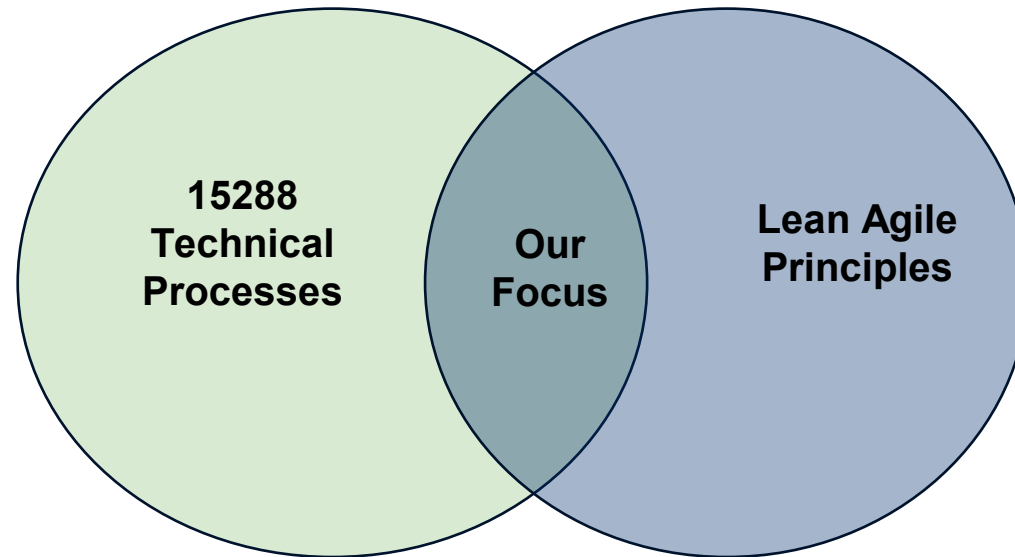
Customer Centricity
Economic View
Apply systems thinking
Assume variability and preserve options
Build incrementally
Objective evaluation of working systems
Make value flow
Apply cadence and synchronization
Intrinsic motivation
Decentralize decision making
Organize around value

Enabling responsiveness to change

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Case study 1



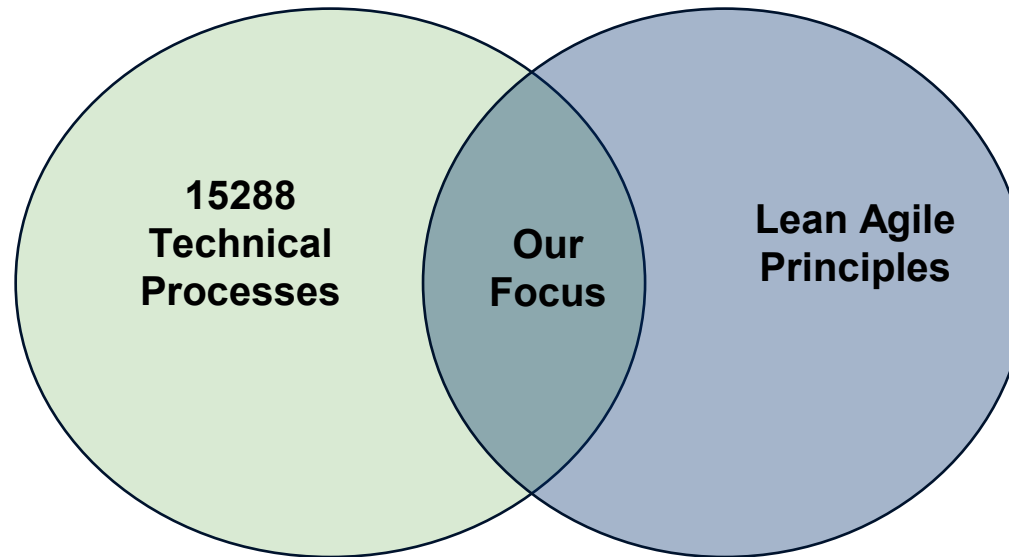
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Case study 2



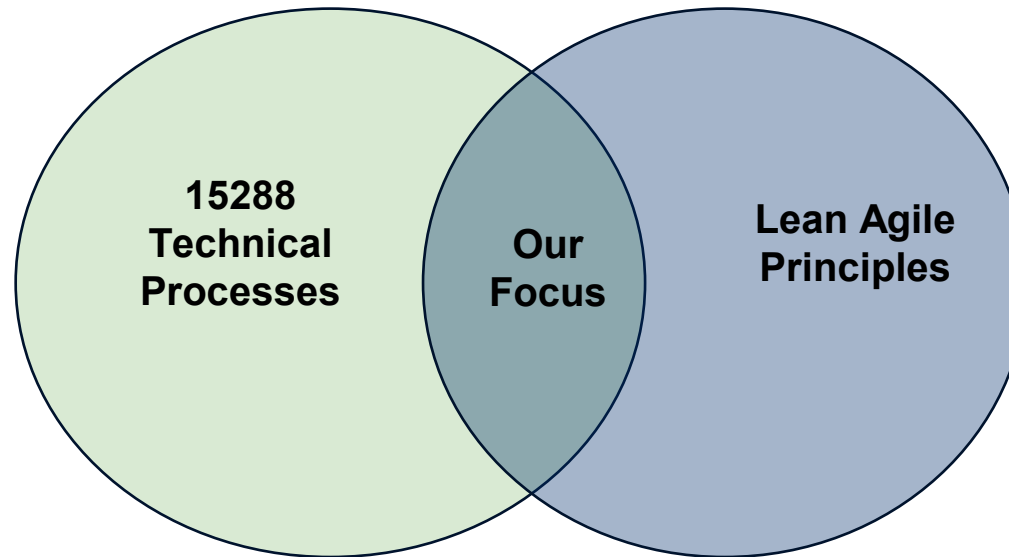
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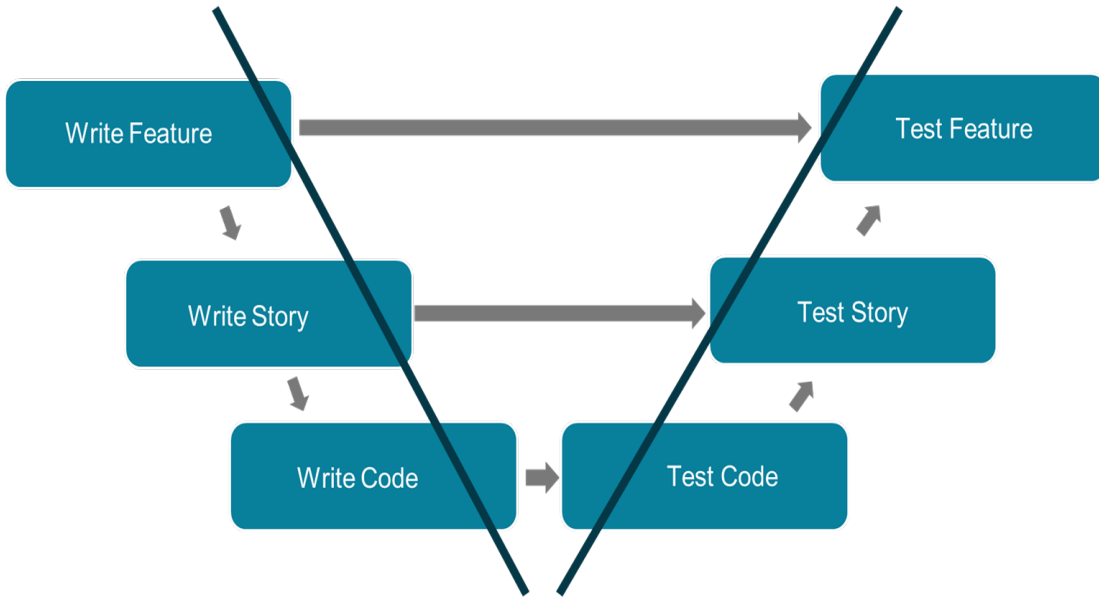
Case study 3



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Enabling responsiveness to change

Shift left

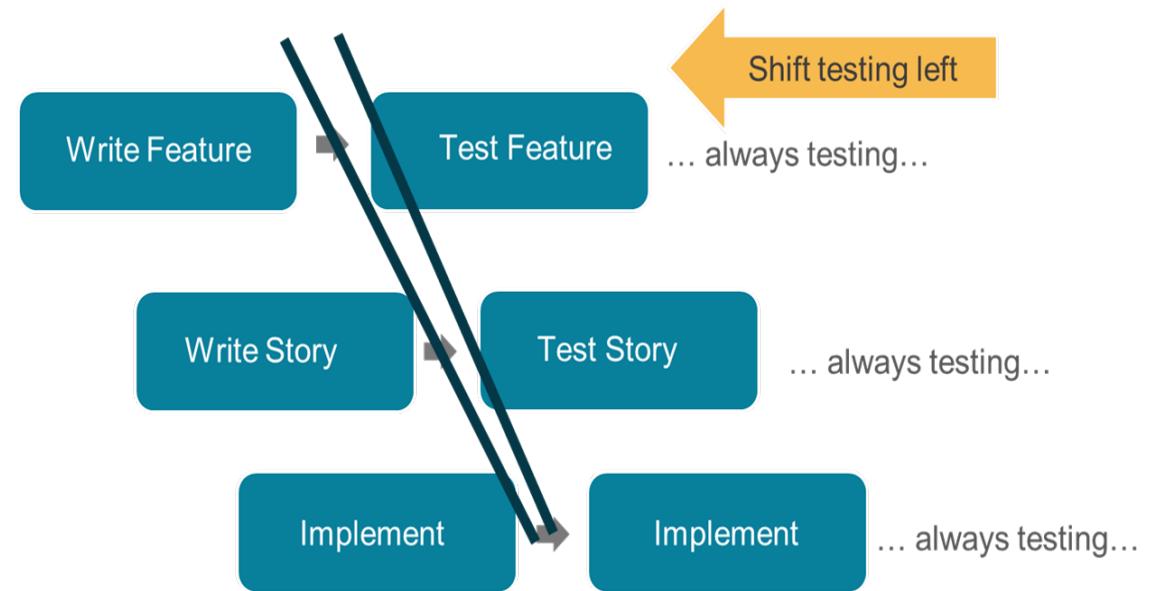


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FEATURE TESTS (BDD)

STORY TESTS (BDD)

UNIT TESTS (TDD)



Collapse the "V"

Key Takeaways

1. If you are already doing systems engineering, you are probably further along than you think.
2. Start with “what problem you are trying to solve”
3. Systems Engineers are well positioned to drive change across the enterprise

NDIA SED ADAPT working group

Call to Action

1. Learn more. Read the “Supporting Systems Engineering Modernization - Where 15288 meets Lean Agile” white paper (coming Q1 2025)
2. Apply what you’ve learned
3. Engage with the NDIA SED ADAPT working group

Be a catalyst for the change ahead

Questions?



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