### Software Acquisition Pathway: SEI Technical Work

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## SEI Providing Cross-Cutting Support for Modernization of DoD Software Acquisition Practice

SEI personnel on site at Pentagon / Mark Center, part of OSD's Acquisition Enablers team

- Government lead: Mr. Sean Brady, ODASD(AE)
- Team also includes government, MITRE, BAH personnel
- SEI provides deep technical expertise in a variety of software engineering topics

DoDI 5000.87 (Software Acquisition Pathway) became effective October 2, 2020.

- Represents the capstone of multiple, empirically based lines of work
- Pilot programs (2018 NDAA Sec 873/874) were effective inputs and change agents.

Current work focused on institutionalizing Pathway and related practices; and supporting programs as they restructure to adopt the programs

# Software Pathway is being used and supporting programs in speedy, iterative delivery of capability to the warfighter

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## SEI Technical Work Impacting the Acquisition Workforce



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# SW Acq. Pathway: A Radically Different Approach for DoD



- Rapid and iterative delivery to the operational environment to meet the highest priority user needs
- Use of modern software development practices (Agile, DevSecOps, Lean)
- Capitalizes on active user engagement and enterprise services
- Tightly coupled mission-focused government-industry software teams
- Automated tools for development, integration, testing, certification

### Learning from Pilots, Programs, and Feedback from the Field

Challenges and Pain Points

Pilot and Program Observations and Analysis

ODASD(AE) works with early adopters

- Gets feedback, understands pain points
- Receives technical questions

Works with other early adopters and pilots, vets answers

**Dissemination and Outreach** 

**Reports to Congress & Policy updates** 

Transparency, and fixes to improve performance, applicability

#### Training

"How-to" info, in context

Templates / Guidance

"How-to" info, in context

**Roadshow / outreach** 

Correct misimpressions, Discuss benefits and applicability

FAQs

Common, straightforward questions

Information about Practical Application

New

#### Adapting to Innovative Technology Changes

- Need to adapt to the constant pace of technology evolution
- Informed by Software S&T Roadmap (NDAA 2020 Sec 255), SEI National Agenda, etc.

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### Policy is Only One Piece of the Solution

Software S&T Modernization			Sec255 – Department-wide software science and technology strategy	SEI expertise providing technical input and "connecting the dots"
Software Workforce and Training	<b>Sec891</b> – Training on Agile or iterative development methods		Sec230 – Talent management of digital expertise and software professionals Sec862 – Software development, software acquisition training and mgmt. programs	across multiple lines of effort needed to affect change
Software Acquisition Policy	Sec872 – Defense Innovation Board analysis of software acquisition regulations	<b>Sec868</b> – Implementation of recommendations of the final report of the Defense Science Board on the design and acquisition of software	Sec800 – Authority for continuous integration and delivery of software applications and upgrades to embedded systems	
Pilot Programs	Sec873 – Pilot program to use Agile or iterative development methods Sec874 – Software development pilot program using Agile best practices	Sec869 – Implementation of pilot program to use Agile or iterative development methods	Sec231 – Digital Engineering capability to automate testing and evaluation	
	FY18	FY19	FY20	NDAAs

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# What's Next?

- Large-scale organizational change is a long-term endeavor.
- SEI has the competencies to continue playing a key role in **scaling up and institutionalizing** the progress made to date.

Specialized software expertise to evolve practices across the acquisition ecosystem, e.g.

- Cost estimation
- Interoperability
- Test and Evaluation

Program acquisition, to help programs instantiate the policy appropriately for context.

Empirical methods and measurement to learn from ongoing pilots and/or pathfinders:

- Early adopters of the Sw Pathway
- Agile adoption (2018 NDAA Sec 873)
- Software appropriations (BA-08)
- Digital Engineering (2020 NDAA Sec 231)
- And others...

## **Questions and Discussion**

- Thank you to the other SEI members of the team, and the many staff who have helped on specialized topics.
- Additional thoughts or feedback? <u>fjshull@sei.cmu.edu</u>

