

SEI Activities to support 2020 NDAA Sec 231

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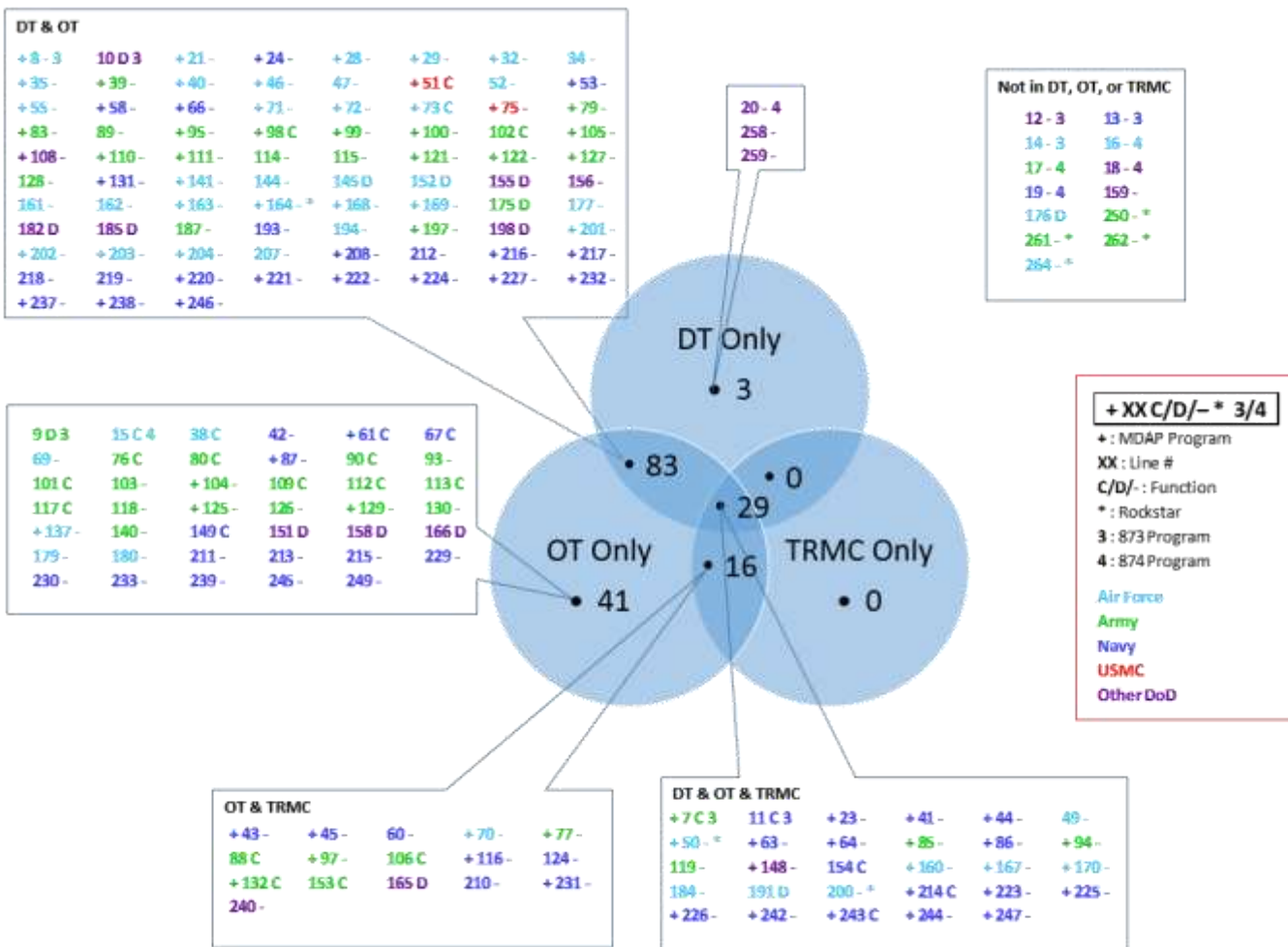
Overview

Providing support to Congressionally mandated demonstration activities of Digital Engineering (DE)

SEI focus:

- Program selection: Constructing COAs that support government stakeholders in deciding which programs (and which aspects of DE) to examine.
 - Support of technical exchanges with DE “Rockstars,” other software pilots (873/874), and other stakeholders
 - Data aggregation & visualization
 - Development of tools for data exploration
 - Ranking heuristics development
- Demo design: Planning for engagements with programs to measure, analyze, and document aspects of interest for report to Congress
 - Target demo design to DE technologies in use, program context, available data

Program Selection: Data Aggregation



$V_0 \rightarrow V_1$ down select

- Consensus-based.
- Based mostly on programmatics, politics, optics, access, and knowing what we don't want.
- 265 to 185 programs.

$V_1 \rightarrow V_2$ down select

- Will be based more on technical program data.
- Incorporating pointers from SEI work.

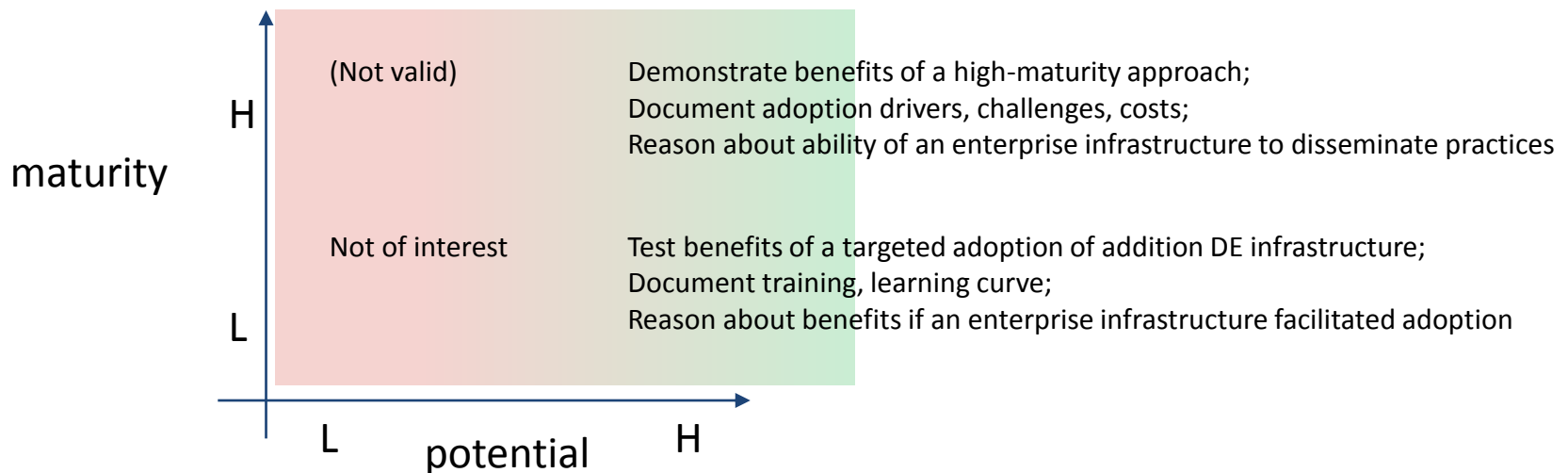
In general, as the number of programs on list decreases, the depth of knowledge on programs remaining on list increases.

Program Selection: Characterizing DE Practices

Programs are using a spectrum of DE technologies / enablers.

Rating digital maturity, digital potential:

- DevSecOps and/or automated SW testing (including Cyber/IA testing)
- Modeling & Simulation (to include MBSE, Digital Twins, AR/VR)
- Data Analytics for testing (to include AI/ML)
- Mission-or-Capabilities-Based Engineering



Demo design

Demo procedures will be selected based upon program characteristics & intended theme of Congressional report – across a spectrum of options, e.g.

- Case study (likely for High Maturity, High Potential)

- Scope



- Rigor



- Ability to Contextualize



- Minimizes Program Effort?



- Minimizes Sec231 Team Effort?



- Intervention (likely for Low Maturity, High Potential)

- Scope



- Rigor



- Ability to Contextualize



- Minimizes Program Effort?

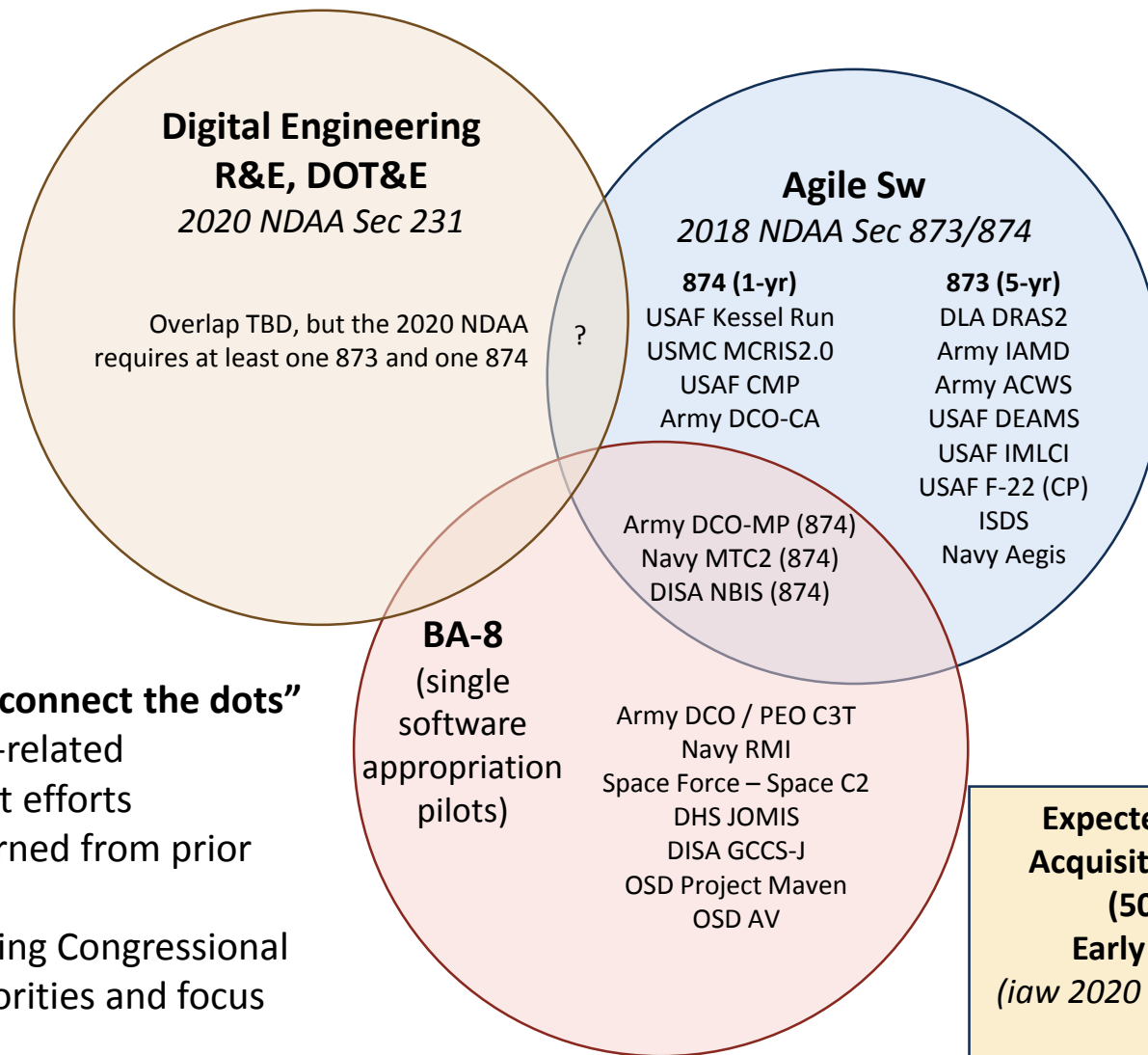


- Minimizes Sec231 Team Effort?



- Other designs may be used based on program context, amount of historical data, etc.

Connections to Other DoD SW Efforts



SEI efforts aim to help “connect the dots”

regarding DoD software-related acquisition improvement efforts

- Conveying lessons learned from prior efforts
- Connecting with ongoing Congressional and Departmental priorities and focus areas

Questions / Feedback?

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BACKUPS

ACTUAL 231 WORDING:

Demonstration Activities

b) Demonstration Activities

(1) IN GENERAL.—In developing the capability required under subsection (a), the Secretary of Defense shall carry out activities to demonstrate digital engineering approaches to automated testing that—

(A) enable continuous software development and delivery;

(B) satisfy developmental test requirements for the software-intensive programs of the Department of Defense; and

(C) satisfy operational test and evaluation requirements for such programs.

(2) PROGRAM SELECTION.—Not later than 180 days after the date of the enactment of this Act, the Secretary of Defense shall assess and select not fewer than four and not more than ten programs of the Department of Defense to participate in the demonstration activities under paragraph (1), including—

(A) at least one program participating in the pilot program authorized under section 873 of the National Defense Authorization Act for Fiscal Year 2018 (Public Law 115– 91; 10 U.S.C. 2223a note);

(B) at least one program participating in the pilot program authorized under section 874 of such Act (Public Law 115–91; 10 U.S.C. 2302 note);

(C) at least one major defense acquisition program (as defined in section 2430 of title 10, United States Code);

(D) at least one command and control program;

(E) at least one defense business system (as defined in section 2222(i) of title 10, United States Code);

and

(F) at least one program from each military service.