DoD’s Strategy

• Deliver performance at the speed of relevance.
• Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting.
• Current processes are not responsive to need; the Department is over-optimized for exceptional performance at the expense of providing timely decisions, policies, and capabilities to the warfighter.
• Our response will be to **prioritize speed of delivery, continuous adaptation, and frequent modular upgrades.**
• We must not accept cumbersome approval chains, wasteful applications of resources in uncompetitive space, or overly risk-averse thinking that impedes change.

**SW Pathway Policy Goals:**

• Establish business decisions in lieu of formal milestones
• Establish a framework to assess risk for software
• Remain consistent with Agile philosophy and DIB SWAP Study
• Empower PEOs and PMs to tailor

**Expected Outcomes:**

• Streamline activities to align with rapid, frequent, secure deliveries
• Bring the user closer to the acquisition community
• Deploy meaningful capability early and often
• Establish meaningful measures of progress that provide adequate insight into effort
Introduction to the New Software Acquisition Pathway Policy

**Purpose:**

- Simplifies acquisition model to enable continuous integration and delivery of software (SW) capability on timelines relevant to Warfighter.

- Establishes the preferred path for acquisition and development of SW-intensive systems.

- Establishes business decision artifacts to manage risk & enable success

**Applicability:**

- OSD, Military Departments, all DoD Agencies and Components

- Programs that demonstrate viability/effectiveness of capabilities for operational use **not later than 1 year after funds obligated** to acquire capability.

- Acquisition, development, operations, and sustainment of any DoD SW-intensive system or subsystem (embedded included).

- DBS (COTS) will still follow DoDI 5000.75
  - custom code can use pathway

Interim policy will be replaced by DoDI within 1 year
**DoDI 5000.02 Operation of the Adaptive Acquisition Framework**

- Introducing the new software acquisition pathway policy

**Tenets of the Defense Acquisition System**
1. Simplify Acquisition Policy
2. Tailor Acquisition Approaches
3. Empower Program Managers
4. Data Driven Analysis
5. Active Risk Management
6. Emphasize Sustainment

**DoDD 5000.01: The Defense Acquisition System**

**DoDI 5000.02: Operation of the Adaptive Acquisition Framework**

Enable execution at the speed of relevance.
Adaptive Acquisition Framework Policies

**DODD 5000.01: The Defense Acquisition System**
Updated to specify the overarching policy and the responsibilities of key officials.

**DODI 5000.02: Operation of the Adaptive Acquisition Framework**
Outlines the six pathways of the Adaptive Acquisition Framework.

Currently in coordination

5000.02T was published in conjunction with 5000.02 to cover functional policies that have not been released yet. 02T will have enclosures cancelled as functional policies are released.
**OSD Guidance Supporting Agile DSO Acquisitions**

**OVERVIEW**

- **DoDI 5000.xx**
- **Statute and Policy**
- **Software Acquisition Pathway Selection and Applicability**
- **Planning Phase**
- **Execution Phase**
- **Enterprise Services**
- **DevSecOps**
- **MVP, MVCR**
- **Metrics, Value Assessment**
- **Vignettes, Class Exercise**
- **Summary**
- **Point of Contact**

**Web-based Guide: SW Pathway Website**

- **Acquisition Strategy Template**
- **Contracting Considerations for Agile Solutions**
- **Agile 101 – Agile Primer**
- **Agile Software Acquisition Guidebook**
  - Best Practices & Lessons Learned from NDAA Agile Pilots

**DEPARTMENT OF DEFENSE**

- **Agile Roadmap & Minimum Viable Product (MVP) Guide**
- **Agile Metrics Guide**
- **DevSecOps Best Practices Guide**

**DEPARTMENT OF DEFENSE**

- **OSD DevSecOps Best Practice Guide**
  - Version 1.0
  - 15 January 2020

- **Minimum Viable Product (MVP) Roadmap**
  - What are they and why programs should

- **Agile Metrics Guide**
  - Strategy Considerations and Sample Metrics for Agile Development Solutions
  - Version 1.1
  - 23 September 2019

- **Agile 101 – Agile Primer**
  - Version 1.0
  - 18 November 2019
  - OUSD(A&S)

- **Contracting Considerations for Agile**
  - Key Agile Concepts and Sample Work Statements
  - Version 1.0
  - 18 November 2019
  - OUSD(A&S)
Why a New Software Acquisition Pathway?

DoDI 5000.02 milestones, models, and documentation did not provide the proper structure for managing SW development.

“...we need to catch up with the private sector and make sure we are using contemporary SW development processes,” - The Honorable Ellen Lord, USD, A&S

The new way facilitates rapid and iterative delivery of software capability to the user.
FY2020 NDAA SEC 800 Authorities for the Software Pathway

- **SEC. 800. AUTHORITY FOR CONTINUOUS INTEGRATION AND DELIVERY OF SOFTWARE APPLICATIONS AND UPGRADES TO EMBEDDED SYSTEMS.**

  - **(a) SOFTWARE ACQUISITION AND DEVELOPMENT PATHWAYS.** SECDEF shall establish pathways ... to provide for the efficient and effective acquisition, development, integration, and timely delivery of secure software.
    - 1. **USE OF PROVEN TECHNOLOGIES AND SOLUTIONS.** A pathway established under this section shall provide for the use of proven technologies and solutions to continuously engineer and deliver capabilities in software.
    - 2. **USE OF AUTHORITY.** In using the authority, SECDEF shall consider how such use will—
      - A. initiate the engineering of new software capabilities quickly;
      - B. demonstrate the viability and effectiveness of such capabilities for operational use not later than one year after the date on which funds are first obligated to acquire or develop software; and
      - C. allow for the continuous updating and delivery of new capabilities not less frequently than annually to iteratively meet a requirement.

- **TREATMENT NOT AS MAJOR DEFENSE ACQUISITION PROGRAM.** SW acquired or developed using the authority shall not be treated as a major defense acquisition program for purposes of section 2430 of title 10, United States Code, or Department of Defense Directive 5000.01 without the specific direction of the USD(A&S) or a SAE.

  - **EXPEDITED PROCESS.** (1) IN GENERAL. A pathway established under subsection (a) shall provide for—(A) a streamlined and coordinated requirements, budget, and acquisition process to support rapid fielding of software applications and of software upgrades to embedded systems for operational use in a period of not more than one year from the time that the process is initiated;

  - **EXPEDITED SOFTWARE REQUIREMENTS PROCESS.**
    - (A) INAPPLICABILITY OF JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM (JCIDS) MANUAL. SW acquisition or development conducted under the authority shall not be subject to the Joint Capabilities Integration and Development System Manual, except pursuant to a modified process specifically provided for the acquisition or development of software by the Vice Chairman of the Joint Chiefs of Staff, in consultation with Under Secretary of Defense for Acquisition and Sustainment and each service acquisition executive (as defined in section 101(a)(10) of title 3, United States Code).
    - HOUSE CONF REPORT: Finally, the conferees request a briefing no later than March 30, 2020 from the Joint Staff on how the JCIDS process can be updated to accommodate more flexibility given the iterative and ever-changing nature of present-day acquisition of software.
Software Acquisition Pathway Planning and Execution Phase

- Initial functional release (MVP) delivery in potentially months; viable capability for operational use (MVCR) within a year;
  - subsequent major deliveries annually (and typically earlier, frequent capability deployments)
  - Initial MVP may satisfy user needs in ops environment and intent of MVCR!
- Not subject to JCIDS (Component develops process for iterative/flexible needs)
- PM uses Enterprise Level Services as first choice (tech stack/contract vehicles)
- Requires modern SW development practices such as: Agile, DevSecOps, Lean
- Active user engagement with tightly coupled mission-focused gov-industry SW teams leveraging automated tools for development, integration, testing, and certification to iteratively deploy SW capabilities to operational environment.
## Policy – Responsibilities: Approval and Decision Authority

<table>
<thead>
<tr>
<th>Role</th>
<th>Responsibilities</th>
</tr>
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<tbody>
<tr>
<td><strong>DAE</strong></td>
<td>Serves as approval authority for programs that request to use SW Pathway</td>
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<tr>
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<td>- Determines appropriateness: can direct a program to use other pathway</td>
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</tr>
<tr>
<td></td>
<td>- notifies USD(A&amp;S) of pathway use</td>
</tr>
<tr>
<td></td>
<td>- can delegate authority to designated official</td>
</tr>
<tr>
<td><strong>Decision Authority (DAE or CAE or PEO)</strong></td>
<td>- documents decision to use the pathway in an Acquisition Decision Memorandum (ADM)</td>
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<tr>
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<td>- Include rationale for using the software pathway</td>
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<td>- Designate a PM</td>
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<td><strong>PM</strong></td>
<td>In conjunction with the Sponsor, develop the Capability Need Statement (CNS); develop User Agreement (UA) with the user community</td>
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<td>In conjunction with the PM, develop the CNS and UA</td>
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**Summary**

- DAЕ: Serves as approval authority for programs that request to use SW Pathway.
- or delegate to CAE
- Determines appropriateness: can direct a program to use other pathway.
- Component Acquisition Executive (CAE):
  - elects to use the pathway
  - notifies USD(A&S) of pathway use
  - can delegate authority to designated official
- Decision Authority (DAE or CAE or PEO):
  - documents decision to use the pathway in an Acquisition Decision Memorandum (ADM)
  - Include rationale for using the software pathway
  - Designate a PM
- PM:
  - In conjunction with the Sponsor, develop the Capability Need Statement (CNS); develop User Agreement (UA) with the user community
- SPONSOR (End User Representative):
  - In conjunction with the PM, develop the CNS and UA
Planning Phase

**Required Planning Documents (Business decision artifacts approved by DAE or CAE)**

1) Capability Need Statement  
2) User Agreement  
3) Acquisition Strategy  
4) Cost Estimates

**SOME STATUTORY AND REGULATORY DOCUMENTATION MAY STILL BE REQUIRED TO EXECUTE THE PROGRAM**

**PMO Roles and Responsibilities to Complete Planning Activities**

- Understand the users’ / systems’ needs  
- Understand CONOPs, environment, external systems, interfaces  
- Software design and **architecture / bake-in cybersecurity**  
- Must leverage enterprise services, plan to establish **SW factory (DevSecOps pipeline)**  
- PMO will develop strategies for acquisition, contracting, systems engineering, T&E,  
- Develop cost estimates, metrics and value assessment plans  
- ADM to begin execution phase
Capability Need Statement and User Agreement

**POLICY**

- The Sponsor and Program Manager (PM) shall develop a **Capability Needs Statement (CNS)** and a **User Agreement (UA)** prior to acquisition of software capabilities.

- **CNSs** identify mission deficiencies, required enhancements to existing operational capabilities, features, interoperability needs, legacy interfaces, and other attributes.

- **UAs** capture a commitment between the PM office, the sponsor, and end user(s) of the system.

- CAEs will ensure the approved **CNS** document is available in the Knowledge Management and Decision Support (KMDS) system.

**PROCEDURE**

- The **CNS** is a high-level capture of need that provides enough information to define the software solution space, considering the threat environment. The CNS must accompany the UA.

- **UA:** An agreement between the operational and acquisition communities to gain commitment to continuous user involvement and assign decision-making authority in the development and delivery of software capability releases, as well as operational tradeoffs among software features, cadence, and management of the requirements backlog.

- The **UA** will ensure proper resourcing of operational user involvement, which should occur as frequently as possible.
Acquisition Strategy

POLICY

• The PM shall develop an Acquisition Strategy that outlines the program's approach to performing software acquisition in increments consistent with the user's requirements that results in demonstrating the viability and effectiveness of capabilities for operational use not later than one year after the date on which funds are first obligated to acquire or develop new software capability, and to continuously engineer and deliver capability updates at least annually.

• Addresses Intellectual Property (IP) and data rights

PROCEDURE

• Describe the contract type(s) and contracting strategy to be used

• The approach to cost-effectively obtaining appropriate intellectual property rights and maintaining an open system architecture

• Development and test platforms, test resources and infrastructure

• Identification of dependencies with other programs, either in development or in operation

• Cadence for operational delivery of the software being acquired

• A roadmap that describes short-term plans with fidelity while outlining longer term objectives

• Identification of sustainment factors such as for upgrades, security and performance

• Document use or acquisition of Enterprise level Services, development methodologies such as Agile, DevSecOps

• Address persistent cyber security at program inception
**OVERVIEW**

Software Acquisition Pathway Interim Policy and Procedures

**Cost Estimate**

**POLICY**

- An initial cost estimate for the program lifecycle, considering the technical content of the program described in the CNS, UA, and acquisition strategy; factors associated with continuous capability delivery; and factors associated with an emphasis on software security, software quality, and functionality.

- The initial cost estimate shall be completed prior to entry into the execution phase to support contract initiation

- Updated annually thereafter

- DoDI 5000.73 Cost Analysis Guidance and Procedures (draft)
  - The PMO should engage the Cost Assessment and Program Evaluation (CAPE) office to determine the need for a cost analysis requirements description and independent cost estimate (CARD and ICE)
  - The PMO will prepare and deliver a draft CARD to CAPE (210 days prior to Execution Phase)
  - The Service Cost Agency will notify CAPE of an upcoming decision that requires either a DoD Component ICE or CAPE ICE
  - Where applicable, cost and software data reporting is still required, to include software resource data reports (SRDRs)
Why a New Software Acquisition Pathway?

DoD 5000.2

NDAA: demonstrate viability/effectiveness of capabilities for operational use not later than one year after the date on which funds are first obligated for SW
Execution Phase

• The Decision Authority assesses achievement of planning phase and approves by ADM program transition to Execution Phase 1.
  • Design decisions made during the Planning Phase are critical (e.g., systems and software architecture, software integration strategy, software development factory and pipelines) and will have a major impact on future program cost and schedule during the Execution Phase.

Activities

• Contract award
• Establish Enterprise Services and DevSecOps Pipeline, factory, dev teams
• Define and develop a Minimum Viable Product (MVP), and a Minimum Viable Capability Release (MVCR) and product roadmap for the end user
• Develop the Test Strategy
• Develop a Secure Software & Cyber Security Plan with continuous ATO
• Develop a Metrics Plan – measure measure measure - automate
• Value assessment
• Demonstrated viability for operational use within 1 yr after funds are 1st obligated to acquire/develop new capability
Plan and Develop Your Enterprise Services and DevSecOps Pipeline (Software Factory) - must use Enterprise Services as first choice

**People + Process + Tools = DSO Ecosystem**

- A well-balanced Ecosystem and skilled workforce is the path to DevSecOps enlightenment

- Enterprise Ecosystem Keystones:
  - Culture and Continuous improvement
  - Evolutionary Architecture **must** support frequent deliveries/interoperability
  - Refactoring and pay down technical debt
Example DoD Enterprise DevSecOps Architecture and tool stack

DevSecOps Technology Stack

DoD Enterprise DevSecOps Technology Stack (Exemplar)

Reciprocity: authorize once, use many times

Inherit large percentage of controls from existing ATO’ed stack and containers; focus on controls for application

https://software.af.mil/dsop/
https://software.af.mil/training/
Secure Software & Cyber Security Plan

- The Sec in DevSecOps is baked into the planning, architecture & design, and embedded throughout the entire process
- DevSecOps shifts Cybersecurity to the left; true risk managed process
- Cybersecurity risk is continuously scanned, evaluated & monitored – yields accessible, automated artifacts enabling continuous ATO
Continuous ATO (cATO) enables bug and security fixes in minutes instead of months to years, and provides rapid deployment of critical capabilities to the war fighter at the speed of relevance.
OVERVIEW

Develop a MINIMUM Viable PRODUCT (MVP), MINIMUM Viable CAPABILITY RELEASE (MVCR), and PRODUCT ROADMAP

• **MVP**
  - Sponsor and PM shall define a MVP
  - Minimal initial set of SW capabilities for user evaluation and feedback
  - MVP in potentially months
  - May be sufficient to achieve goal of MVCR

• **MVCR** (equivalent to industry MMR – minimum marketable product)
  - Set of features suitable to be delivered to an operational environment
  - Goal: provide initial value and warfighting capability to end user on a reduced delivery timeline
  - MVCR within 12 months of funding obligation
  - Subsequent capability deliveries must occur at least annually

• **Product Roadmap**
  - A high-level visual summary that maps out the vision and direction of product offerings over time
  - Used to build MVP, next viable product, and next capability releases
Test Strategy

**SUMMARY**

PM collaborates early with DT and OT organizations to streamline and automate DT&E and OT; DT & OT work together with the PM to shift left

The Test Strategy will define the process by which user features, stories and use cases will be tested and accepted to provide quality assurance. The strategy should include system-level performance requirements, non-functional requirements and the metrics to be used to verify that the system will meet user needs.

**BUSINESS DECISION GUIDANCE**

- Identify key independent organizations, roles and responsibilities, and establish agreements on how they will be integrated early into the development activities and throughout the system lifecycle to streamline activities and support cycle time.

- Identify the tools and resources necessary to assist in data collection and transparency to support Development Test and Evaluation and Operational Test and Evaluation.

- Automated testing should be used at the unit level, API and integration tests to the maximum extent possible and preferably during sprint development.

- Build automation and telemetry from the DevSecOps pipeline – should be leveraged to enable satisfaction of DT & OT Criteria

Obtain evidence to determine what it takes to deploy software to ops

Leverage new OT Policy that integrates DT/OT; supports modern SW
SUMMARY

Identifies key metrics, their benefits, and implementation challenges to manage execution of program.

Organizes metrics by common types (or classes) and provides guidance on how to read and interpret each metric.

BUSINESS DECISION GUIDANCE

- There are five key classes of metrics:
  - Process Metrics – efficiency of processes
  - Quality Metrics – quality of software and work performed
  - SW Development Progress – progress toward capability delivery
  - Capability Delivered / Value Metrics – delivery of value to users
  - Cost Metrics – Related to Agile cost measures

- DevSecOps Metrics – Related to efficiency of the value delivery pipeline

Programs report minimal set of metrics to USD(A&S) on Quarterly Basis

Core set of metrics are in addition to SRDR
## Software Metrics Reporting Requirements

<table>
<thead>
<tr>
<th>Minimal Set of Metrics – SW Policy</th>
<th>OUSD(A&amp;S) Software Policy Guidance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Process Efficiency Metrics</strong>*</td>
<td>Feature Points (story points, uses cases, etc)</td>
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<tr>
<td></td>
<td>Velocity</td>
</tr>
<tr>
<td></td>
<td>Feature completion rate</td>
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<td></td>
<td>Feature burn down chart</td>
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<tr>
<td></td>
<td>Release burn up</td>
</tr>
<tr>
<td></td>
<td>Number of Blockers</td>
</tr>
<tr>
<td><strong>Software Quality Metrics</strong>*</td>
<td>Recidivism rate</td>
</tr>
<tr>
<td></td>
<td>Defect count</td>
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<tr>
<td></td>
<td>Change fail rate</td>
</tr>
<tr>
<td><strong>Software Development Progress</strong>*</td>
<td>Deployment frequency</td>
</tr>
<tr>
<td></td>
<td>Progress against roadmap</td>
</tr>
<tr>
<td></td>
<td>Achievement of MVP / MVCR</td>
</tr>
<tr>
<td><strong>Cost Metrics</strong>*</td>
<td>Total cost estimate</td>
</tr>
<tr>
<td></td>
<td>Burn rate</td>
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<tr>
<td><strong>Capability delivery / Value Metrics</strong>*</td>
<td>Delivered Features</td>
</tr>
<tr>
<td></td>
<td>Delivered value points</td>
</tr>
<tr>
<td></td>
<td>Level of user satisfaction</td>
</tr>
<tr>
<td><strong>DevSecOps Metrics</strong>*</td>
<td>Deployment frequency</td>
</tr>
<tr>
<td></td>
<td>Change lead time (for applications)</td>
</tr>
<tr>
<td></td>
<td>Change failure rate</td>
</tr>
<tr>
<td></td>
<td>Mean time to recovery (MTTR of applications)</td>
</tr>
<tr>
<td></td>
<td>Time to patch vulnerabilities</td>
</tr>
</tbody>
</table>

*Minimal set of metrics data provided to OSD on a quarterly basis*
Reduced lead time and continuous ATO (cATO) are important, but ability to deliver value at scale determines true worth to the program.

Metrics to inform success:

**DSO Capability**
- Lead Time
- Deployment Frequency

**Scale**
- Deployment % of Target Platform
- Mean time to recovery (MTTR)
- Time to patch vulnerabilities

**Value**
- Change failure rate
- User satisfaction

**DSO pipeline** produces metrics & logs/artifacts to enable fast feedback, Test Strategy & Security/cATO

As lead time decreases and deployment frequency increases; ability to deliver value at scale increases.
Value Assessment

• Value assessments –
  • Sponsor and PM shall conduct value assessments at least annually
  • Operational value from end user is commensurate with investment
  • Value assessments inform Decision Authority’s future resource investments

• Tie user agreement, test strategy and value assessment to your MVP, MVCR, and to next viable product and capability release

• Update roadmap and groom your backlog for next viable product and next capability release

• Kill the program or reassess acquisition strategy if cannot deliver a MVP in 12 months
Vignettes: Pathway Usable for both Hardware and Software Intensive Systems and Subsystems -
Vignette 1 – MDAP, post-IOC, has major upgrades to sensors, avionics, and mission systems

- **New CNS? Yes.** Cover scope of upgrade – depending on degree of change, derive from original REQ Doc.
- **New AS? Maybe.** Shifting from traditional to modern? New contractor or approach?
- **New ICE? Maybe.** What is current funding of program? What is scope – new threat/capability?
- **New Test Strategy? Yes.** Reflect changes in testing approach to reflect automation/continuous testing.
Vignette 2 – MDAP struggling with software intensive system for years using the traditional “5000 model” and wants new ACQ approach

- **New CNS? Maybe.** How long ago the JCIDS document was approved and reflects current needs? CNS may be required.
- **New AS? Yes.** How many new vendors anticipated?
- **New ICE? Yes.** New approach and teams.
- **New Test Strategy? Yes.** Reflect new ACQ and contracting approach and modern test strategies.
Vignette 3 – New MDAP weapon system early in lifecycle (aircraft, ship, ground vehicle, ground and space segments)

**Software Acquisition Pathway Interim Policy and Procedures**

**OVERVIEW**

DoDI 5000.xx

Statute and Policy

Software Acquisition Pathway Selection and Applicability

Planning Phase

Execution Phase

Enterprise Services

DevSecOps

MVP, MVCR

Metrics, Value Assessment

Vignettes, Class Exercise

Summary

Point of Contact

3/17/2020

**Software Acquisition**

- **New CNS? Yes.** CNS will be more abstract but aligned and consistent with CDD.
- **New AS? Maybe.** Separate line of effort for SW may benefit from separate contractor and contracting approach.
- **New ICE? Likely.** Delivered as a separate line of effort?
- **New Test Strategy? No.** Integrate the approach as part of overall weapon development process.
Vignettes - Which pathway(s) would be viable?

1) Situation 1: Program Office which has deployed software defined radio, there is a new requirement to be able to change waveforms on demand. Program office will procure and install a new card (COTS) that include a FPGA to allow it to be reprogrammed remotely and should allow waveforms and associated applications to be deployed independent of hardware. They are also developing new waveforms to be deployed. Prototype must be demonstrated within 2 years. Which pathway(s) would be viable?

2) Situation 2: Program Office for an unmanned aerial vehicle (UAV) requires software changes to C&C and Flight software to deal with new threats. This software will require Air Worthiness certification as well as Interoperability certification. These changes are needed to be fielded in the next 2 years. Which pathway(s) would be viable?

3) Situation 3: Program office needs to create a new application to run on an existing C4ISR platform to process and overlay new sensor data on to the common operating picture (COP). There is an existing maintenance contractor but they have not been effective at release major changes. Since this would be a new capability, Program Office is considering releasing as a new RFP to see if a commercial solution or another contractor can develop. The users would like to have some prototype or limited fielding within a year. Which pathway(s) would be viable?

4) Situation 4: New ACAT1 program is preparing to move to EMD, planned for up to 8 years of development. The program is for a new nuclear device with an extensive software development for C&C, Cyber, Device Protection, and Arming/Activation. Program office wants to develop the software in an Agile methodology and deliver capability incrementally. Software must support the hardware development which will follow a traditional development methodology and must meet safety, nuclear and cyber certification requirements. Which pathway(s) would be viable?

5) Situation 5: Program Office needs to update a fielded laptops and must complete in 3 years, but in the process wants to migrate some of the applications to the cloud versus being locally installed. The computers are COTS and the applications are combination of GOTS and COTS. Applications can be deployed incrementally. Which pathway(s) would be viable?

Learning Exercise – Select the Best Acquisition Pathway(s)
SW Pathway Website and related Communities

Adaptive Acquisition Framework website integrates policies, guidance, and resources to enable navigation of pathways with greater speed and success.

Overview

Software Acquisition Pathway Interim Policy and Procedures

Vignettes, Class Exercise

Summary

Point of Contact

3/17/2020

https://aaf.dau.edu/aaf/software/
SW Pathway Website and related Communities

Each activity across the software acquisition pathway outlines what is required and how to do it, along with helpful videos and resources.

Continuous Learning Modules
- Introduction to Agile Software Acquisition
- Introduction to DoD Software Lifecycle Management
- Practical Software and Systems Management
- Software Acquisition for the Program Office
- Continuous Process Improvement

Program Management Resources
- 10 Commandments for Software, Defense Innovation Board
- Detecting Agile BS, Defense Innovation Board
- Dos and Don'ts for Software, Defense Innovation Board
- Metrics for Software Development, Defense Innovation Board
- Software Acquisition Practice Study, Defense Innovation Board

https://aaf.dau.edu/aaf/software/
Summary – Software Acquisition Pathway

- Adaptive Acquisition Framework and Software Acquisition Pathway
  - PMO recommends acquisition pathway
  - Two Phases - Planning Phase 0 and Execution Phase 1
  - Tailor in processes and documentation as needed
  - No Milestones; NDAA: MDAP status (impacts statutory applicability) and JCIDS do not apply
  - Deliver viable/effective capability for operational use w/in 1 year
  - Must use Enterprise Services / DevSecOps / SW factory / pipelines
  - Teaming approach for software development (Government and Contractor)

- Demonstrate viability of capability for operational use within 1 year of fund obligation

- Shift Left cyber & DT/OT; early collaboration, integrated testing; leveraging automation

- Requires significant early user engagement (assess threats/capabilities; define Warfighter needs)

- Drives need for an intensive planning phase to create, review and obtain approval of required program-initiation documents
  - Capability Needs Statement (CNS), User Agreement (UA), Acquisition Strategy, and cost estimate
  - CNS and UA are flexible products, updated iteratively to reflect the capabilities baseline

- May require innovative acquisition through rapid contracting authorities

- PMO and User address
  - Backlog and roadmap
  - Priority, Capability delivery, Value
  - MVP and MVCR, next VP
Point of Contact for DAU

Sean Brady
Learning Director, Software Acquisition
Defense Acquisition University
sean.brady@dau.mil
SW Pathway Website and related Communities

- SW Pathway Community of Interest

- DevSecOps CoP (Modern Software CoP)
OSD Agile and DevSecOps SW Acquisition Guides

Agile Software Acquisition Guidebook - Best Practices and Lessons Learned from NDAA Agile Pilot Program Provides Program Managers with information on developing acquisition strategies for Agile software development. This guide will also support all other members of the program team by providing an understanding of Agile practices. While this guidebook offers actionable information, it focuses primarily on the principles and good practices of an Agile software development approach through the lens of an acquisition strategy. This guidebook references several white papers that provide actionable guidance in specific areas related to the acquisition strategy (e.g., contracting; roadmap and MVP development; acquisition strategy; and metrics).

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/AgilePilotsGuidebook%20V1.0%2027Feb20.pdf

Acquisition Strategy Template Encapsulates the decisions made by a program regarding how the acquisition will be structured and executed in order to achieve the desired capabilities. The document summarizes these decisions for a number of reasons: so that they can be analyzed, reviewed, and vetted by oversight; to communicate to key stakeholders what they can expect regarding the program; and to document the choices made so that other programs can better understand options and best practices. The Agile Software Acquisition document contains key sections and guidance for each specific to an Agile approach to acquiring software-intensive capabilities. It emphasizes key practices that are central to effective Agile approaches, including iterative and incremental development, user engagement, and “shifting left” of multiple stakeholder responsibilities.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/WP-ASD-v1.2.1.docx

Contracting Considerations for Agile Solutions Identifies key focus areas that merit special attention when contracting for and developing capabilities using Agile methodologies. Specifically, it offers actionable guidance and sample work statement language that programs could use as a starting point and tailor to meet their unique needs.

• Explains key differences between waterfall and Agile projects to increase understanding and context.
• Presents frequently asked questions and responses.
• Suggests considerations for selecting contract strategies.
• Discusses the contractual impacts of an Agile software development approach, and provides considerations, guidance, and sample language for key areas.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/Contracting%20Considerations%20for%20Agile%20Solutions%20v1.0.pdf

Agile 101 – An Agile Primer Provides an overview of Agile values, principles, concepts, vocabulary, terms and roles to provide an understanding of the breadth of Agile and how it differs from traditional project management practices. This document also touches on Agile ties to Lean and DevSecOps practices.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/Agile%20101%20v1.0.pdf

Agile Roadmap and Minimum Viable Product (MVP) Guide Provides Pilot teams, Product Owners/Product Managers (PMs), and key stakeholders with a better understanding of what a product roadmap and MVP are and strategies for defining each.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/ProductRoadmapAndMVP_WhitePaper%20v1.0%20FINAL.pdf

The Agile Metrics Guide Provides Agile development, testing, operations and program management teams with a set of Agile metrics organized by category: process; quality; product; cost; value; and DevSecOps.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/Agile%20Metrics%20v1.1%2020191122.pdf

DevSecOps Best Practices Guide Provides Pilot teams, Product Owners/Product Managers (PMs), Project/Program Managers and key stakeholders with a better understanding of how to successfully address both the cultural and technical challenges that are presented when implementing DevSecOps. Fundamental concepts include necessary organizational cultural changes; Infrastructure as Code (IaC); Continuous Integration (CI); Continuous Delivery/Deployment (CD); automated testing, and containerization.

https://www.dau.edu/cop/it/DAU%20Sponsored%20Documents/DevSecOps_Whitepaper_v1.0.pdf
### What’s Different – List of Statutory Requirements for ACAT I

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**NDAA: SW Pathway programs are not to be treated as MDAPs**

Ongoing review of statutory requirements applicability

10 Artifacts required for SW Pathway but statutory documents may still apply

Reduction in requirements. Many of the statutory documents content will be included in the Acquisition Strategy and not as stand alone documents.
Regulatory documents should be developed if essential to program execution. Some documents can be combined.

### REGULATORY REQUIREMENTS ACAT IB, IC, AND ID

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**Software Pathway**

**Most regulatory docs are replaced by the CNS, User Agreement, Acquisition Strategy, and Cost Estimates.**

**Some Regulatory docs may still be required on a case by case basis based on capabilities being delivered (e.g., Waveform Assessment if delivering new or modified signal formats)**