



Agile Methods: Tools, Techniques, and Practices for the DoD Community

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As a senior member of the technical staff at the SEI, Mary Ann Lapham supports and improves the acquisition of software-reliant systems. She has worked with DoD Program Offices to advise on software issues at the system and/or segment level.

See her full bio at:

www.sei.cmu.edu/go/agile-research-forum/



Agenda

The Problem

Setting the context

Our Journey

Solving the problem

Differences Between Traditional and Agile Methods

Comparing cultural elements



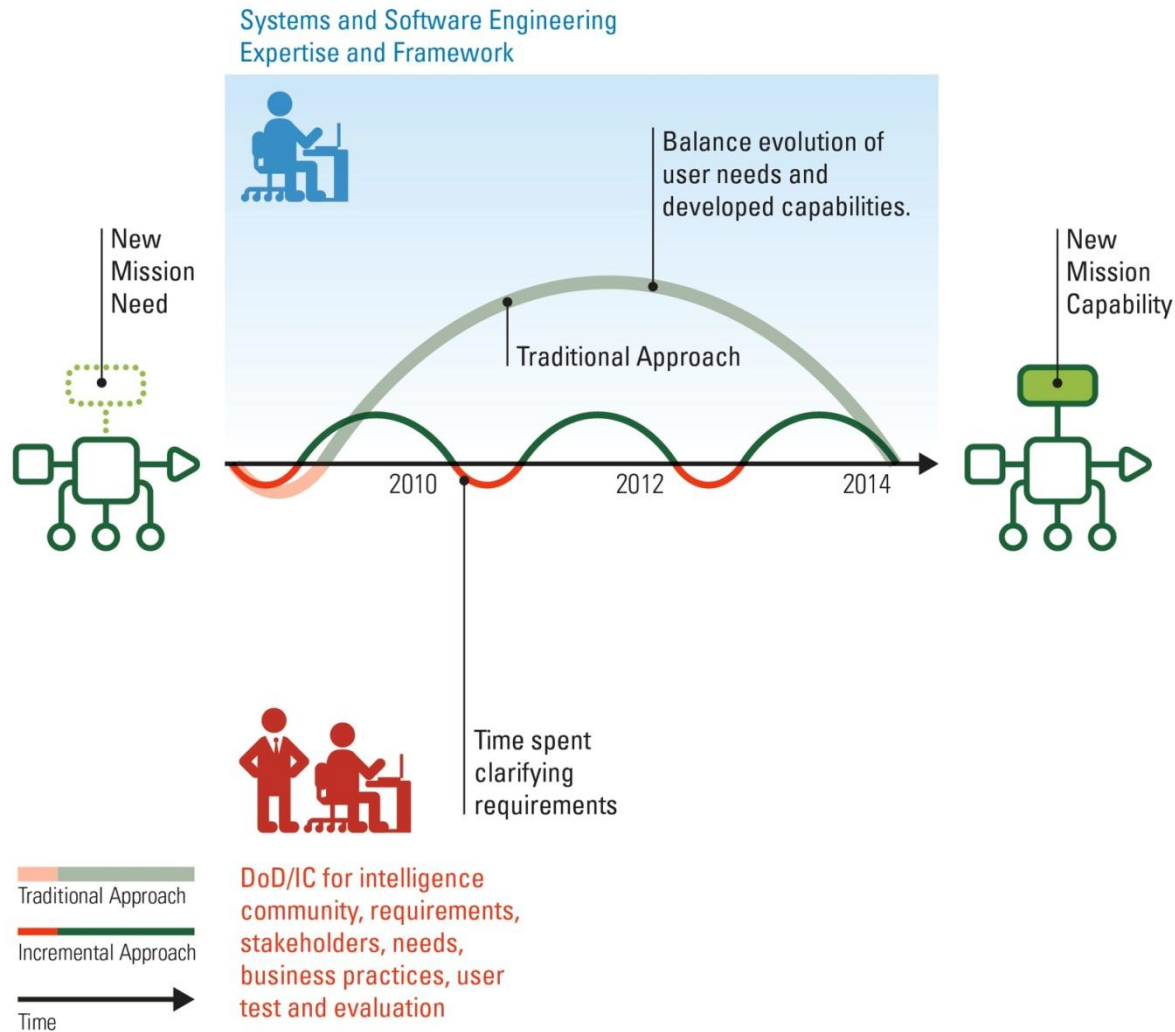
Polling Question

Please identify yourself as one of the following:

- DoD Program Office
- Federal Program Office (non-DoD)
- Contractor – Federal or DoD
- Commercial
- Consultant for tools/process
- Other

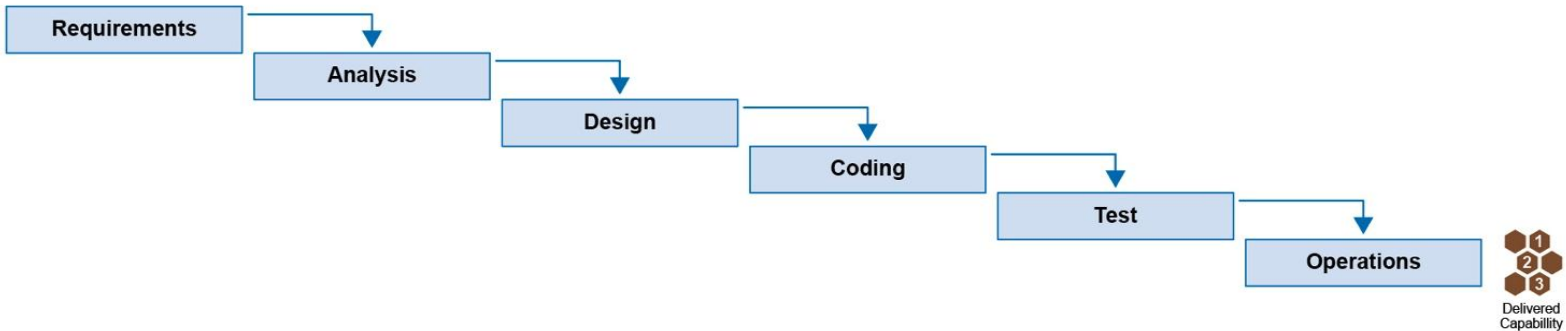


Acquisition and Innovation

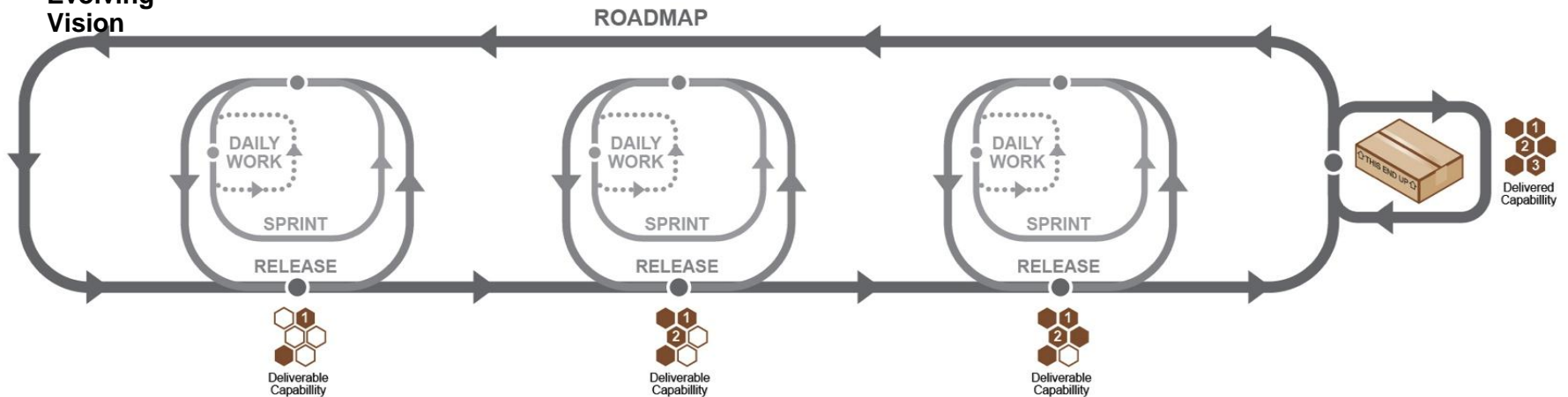


Alternate Worlds

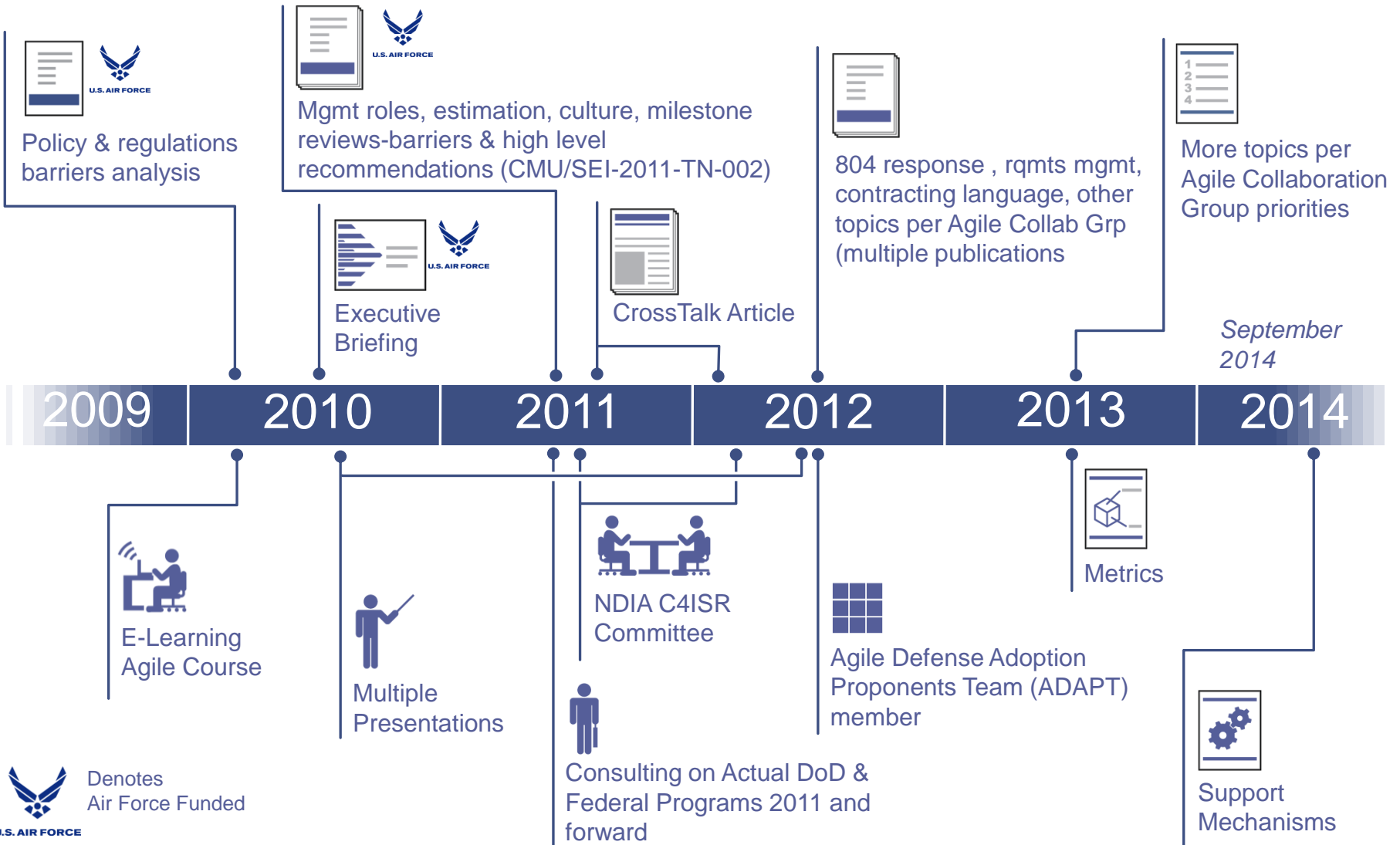
Fixed Vision



Evolving Vision

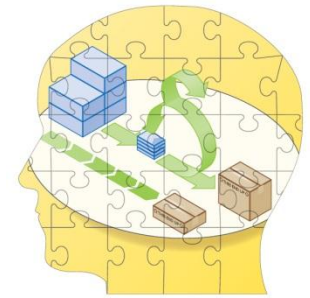
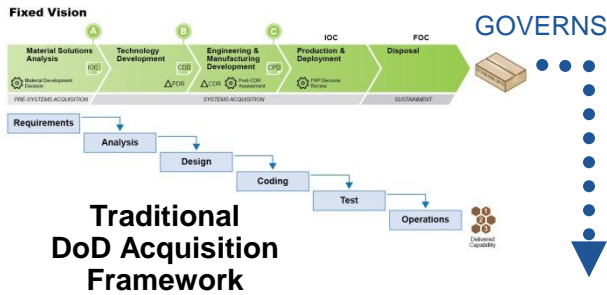


SEI ASP Agile Portfolio FY10 -14 (Our Journey)



Guiding Scenario

Using elements of grounded theory and action research



Actionable DoD-centric Agile Methods for Acquisition Practitioners



Incomplete Picture of How to Successfully Apply Agile Methods in DoD Settings

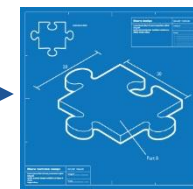
GAPS



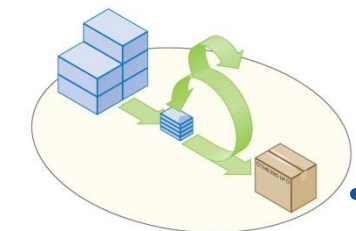
SOLICIT/RECEIVE FEEDBACK

PILOT/DISSEMINATE

CHARACTERIZE GAPS AND NEEDS



SEI Candidate Tools, Techniques, Models, Practices

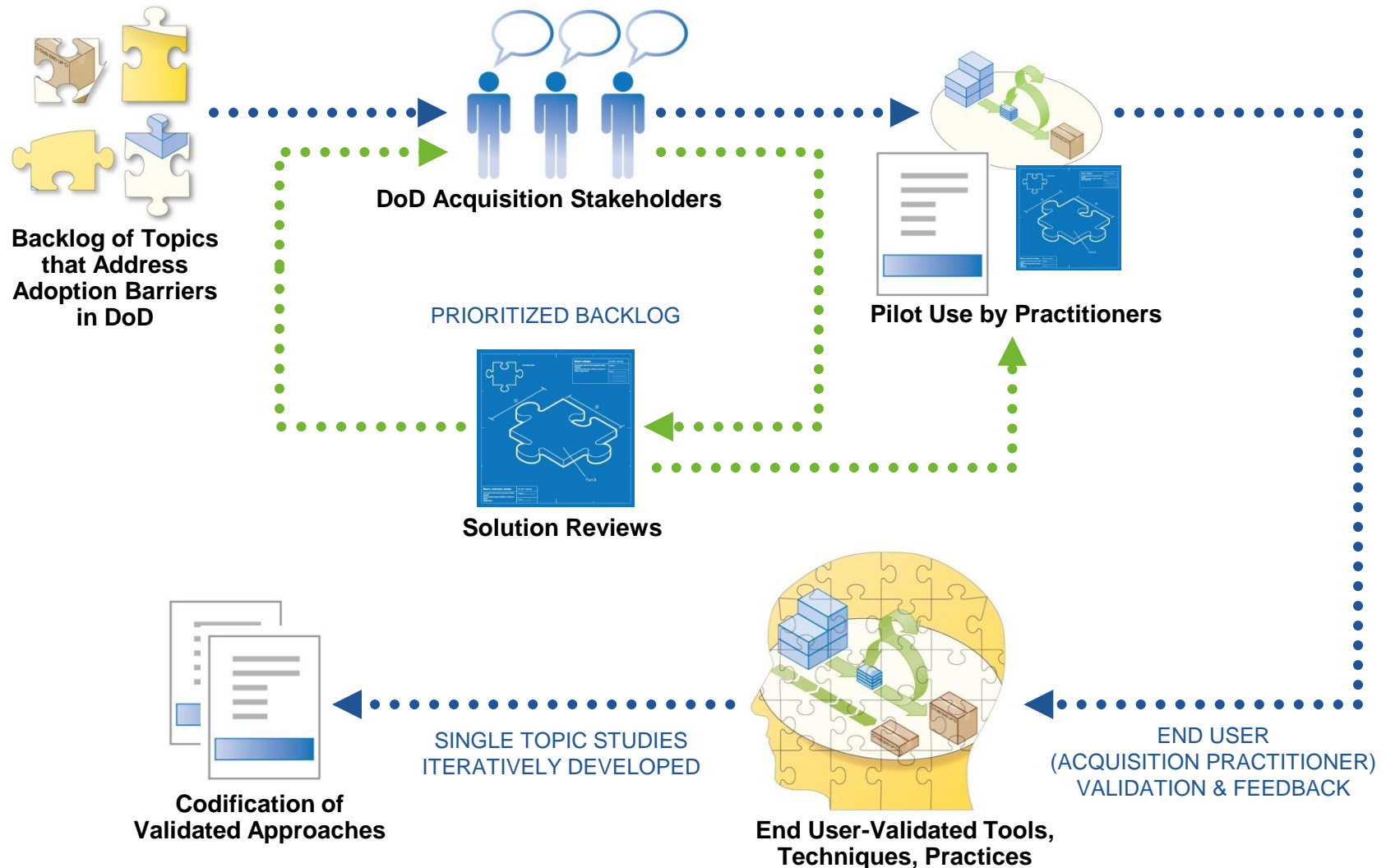


Agile & Lean Principles from Successful Commercial Use

PROVIDE POTENTIAL IMPROVED PRACTICES



Using Agile Methods to Study Agile Methods



What is different about lean/agile methods from basic incremental delivery?

Traditional Incremental Delivery

Developer-Acquirer relationship at arm's length

Hierarchical, command-and-control based teams

Leader as keeper of the vision and primary source of authority to act

Traditional, representational documents used by PMO to oversee the progress of the developer

Lifecycle model with separate teams, particularly for development and test; some IPTs to involve multiple functions

Agile Methods

Develop-Acquirer-End User collaboration

Collocated teams or strong communication mechanisms when teams are distributed

Facilitative leadership and leader as champion and team advocate

“Just enough” documentation, highly dependent on product context

Cross-functional teams including all roles across the lifecycle throughout the lifespan of the project

<http://www.sei.cmu.edu/library/abstracts/reports/11tn002.cfm?DCSext.abstractsource=SearchResults>




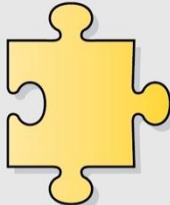
Polling Question

How Big a Challenge is Your Adoption of Agile Practices?

- large, we need a culture change
- medium, we are running into issues
- small, we are mostly ready
- no challenge at all





Comparison of Agile and Traditional DoD Cultural Elements₁

Knowledge Piece	Method	
Organizational Structure 	Agile DoD <ul style="list-style-type: none">• Flexible and adaptive structures• Self-organizing teams• Collocated teams or strong communication mechanisms when teams are distributed	Traditional DoD <ul style="list-style-type: none">• Formal structures that are difficult to change• Hierarchical, command-and-control-based teams• Integrated product teams that have formal responsibilities
Leadership Style 	Agile DoD <ul style="list-style-type: none">• Facilitative leadership• Leader as champion and team advocate	Traditional DoD <ul style="list-style-type: none">• Leader as keeper of vision• Leader as primary source of authority to act

<http://www.sei.cmu.edu/library/abstracts/reports/11tn002.cfm?DCSext.abstractsource=SearchResults>




Comparison of Agile and Traditional DoD Cultural Elements₂

Knowledge Piece	Method	
<p>Rewards System</p> 	<p>Agile DoD</p> <ul style="list-style-type: none">• Team is focus of reward systems• Sometimes team itself recognizes individuals	<p>Traditional DoD</p> <ul style="list-style-type: none">• Individual is focus of the reward system
<p>Staffing Model</p> 	<p>Agile DoD</p> <ul style="list-style-type: none">• Cross-functional teams including all roles across the life cycle throughout the lifespan of the project• Includes an Agile advocate or coach who explicitly attends to the team's process	<p>Traditional DoD</p> <ul style="list-style-type: none">• Uses traditional life-cycle model with separate teams, particularly for development and testing• Different roles are active at different defined points in the life cycle and are not substantively involved except at those times

<http://www.sei.cmu.edu/library/abstracts/reports/11tn002.cfm?DCSext.abstractsource=SearchResults>



Comparison of Agile and Traditional DoD Cultural Elements₃

Knowledge Piece	Method	
<p>Communications & Decision Making</p> 	<p>Agile DoD</p> <ul style="list-style-type: none">• Daily stand-up meetings• Frequent retrospectives to improve practices• Information radiators to communicate critical project information• Evocative documents to feed conversation• “Just enough” documentation, highly dependent on product context	<p>Traditional DoD</p> <ul style="list-style-type: none">• Top-down communication structures dominate• External regulations, policies and procedures drive the focus of work• Indirect communications, like documented activities and processes, dominate over face-to-face dialogue• Traditional, representational documents used by the PMO throughout the development life cycle to oversee the progress of the developer• PMO oversight tools focused on demonstrating compliance vs. achieving insight into progress

<http://www.sei.cmu.edu/library/abstracts/reports/11tn002.cfm?DCSext.abstractsource=SearchResults>



Agile Work – Published and in Process

Published

- **Considerations for Using Agile in DoD Acquisition**
<http://www.sei.cmu.edu/library/abstracts/reports/10tn002.cfm?DCSext.abstractsource=SearchResults>
- **Agile Methods: Selected DoD Management and Acquisition Concerns**
<http://www.sei.cmu.edu/library/abstracts/reports/11tn002.cfm?DCSext.abstractsource=SearchResults>
- **A Closer Look at 804: A Summary of Considerations for DoD Program Managers**
<http://www.sei.cmu.edu/library/abstracts/reports/11sr015.cfm?DCSext.abstractsource=SearchResults>
- **DoD Agile Adoption: Necessary Considerations, Concerns, and Changes**
<http://www.crosstalkonline.org/issues/janfeb-2012.html>

In Process Topics

- Information Assurance
- Requirements
- Contracting language and contract types
- Contingency Model (Readiness and Fit to use agile)
- Programmatic
- Guide to Agile terminology from a traditional viewpoint



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Q&A

Acquisition Support
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Software Product Lines
System of Systems
Acquisition Support
Software Architecture
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Security & Survivability
Risk & Opportunity Management
Ultra-Large-Scale Systems
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Digital Intelligence and Forensics
Measurement & Analysis
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