

Fall 2014
SEI Research Review
Applying Agile Methods to
DoD

Software Engineering Institute
Carnegie Mellon University
Pittsburgh, PA 15213

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The Agile Adoption Problem in DoD

DoD programs mandated to or desiring to adopt Agile methods face challenges that are primarily socio-technical in nature:

- Inherent disconnects between principles of Agile methods and acquisition life cycle as commonly practiced
- Multiple points of conflict between cultures successfully using Agile and traditional DoD acquisition culture
- Confusion over which Agile principles and practices the DoD expects programs to adopt, under what conditions
- Lack of at least face validation of suggested Agile practices reduces likelihood of mainstream acquisition practitioner adoption



Agile Adoption Project Objectives

Understand

- Barriers and enablers to adoption of Agile and lean methods in DoD and government acquisition settings

Enable

- Appropriate adaptations of the DoD acquisition cycle by software acquisition practitioners when Agile methods are in use by their development contractors or organic staff

Translate

- Agile concepts and terminology for acquisition practitioners steeped in traditional acquisition culture
- Traditional acquisition concepts and mandates to Agile advocates trying to work in government settings

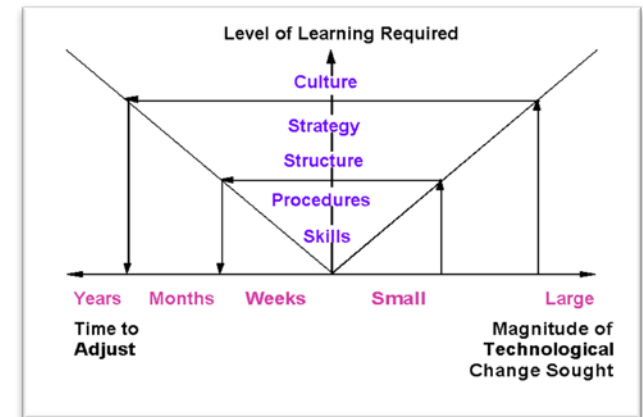


Research Methods

- Use accepted qualitative research methods - grounded theory, action research, and affinity analysis - to
 - **Address the socio-technical** operational and acquisition **challenges** of Agile Adoption in DoD
 - Gather, via surveys and interviews with the DoD community, and **publish structured** anecdotal data on **key topics to guide DoD acquisition professionals** who are facing either voluntary or involuntary adoption of Agile or lean methods
 - **Investigate the state of adoption of Agile methods in DoD**



From Version One 2013 Agile Survey.

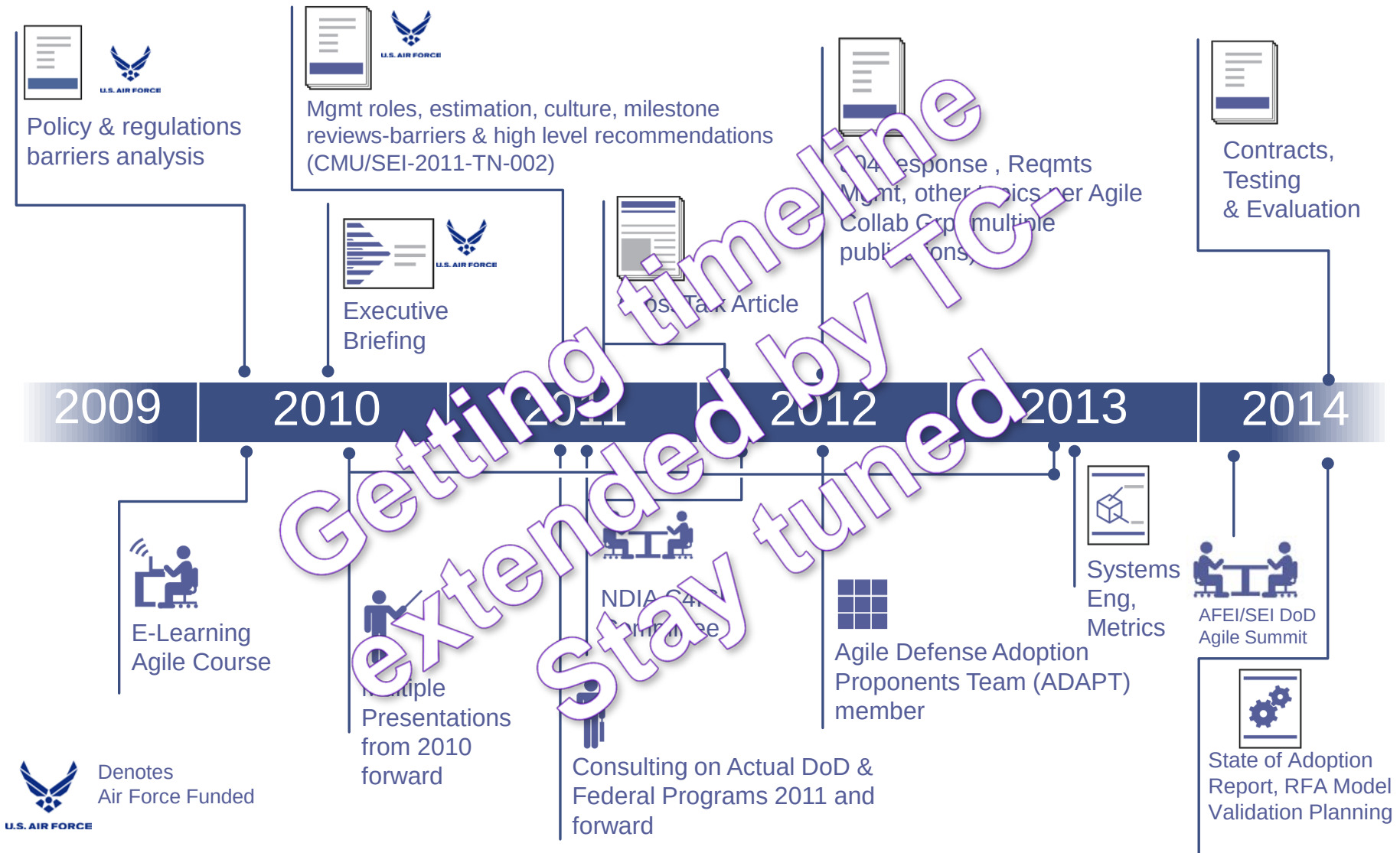


From Adler, Paul. "Adapting Your Technological Base: The Organizational Challenge", Sloan Mgmt Review, 1990.

- **Build on classic technology adoption models of Adler and Rogers**
 - **Build & apply a model of adoption risks** related to Agile adoption that focuses both on traditional adoption factors and (uniquely) on **factors specific to DoD acquisition settings**
 - Use results in SEI publications to identify unique DoD factors



Our Journey So Far



FY 14 Outcomes

Guidelines (in review)

- Test & Evaluation in Agile Government Settings
- Contracting Mechanisms to support Agile in Government Settings

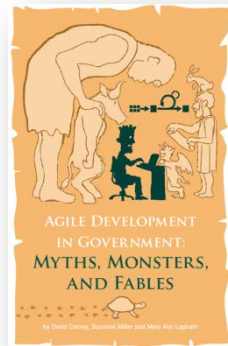
State of Agile Adoption in DoD report (postponed to FY15)

Obtained time boxed opportunity to produce key Agile adoption support products

- *Agile in Government: Practical Considerations - prototype courseware*
- *SEI Agile Adoption Toolkit prototype (initial prototype for internal use)*
- *Booklet: Agile Development in Government: Myths, Monsters, and Fables*
- *White paper: Analysis of impact of Interim DoD 5000.02*

FY 14 Conferences, Activities

- Participation via presentations, program committees:
GSAW 2014, Agile 2014, Contracts in Agile International Meeting, AFEI/SEI DoD Agile Summit, GAO Working Groups



Selected Insights from Published Work



The four top questions SEI is asked by government (potential) adopters:

- How do we accommodate traditional technical reviews like PDR, CDR?
- How do we effectively write solicitations that enable, but don't require, Agile?
- How do we write requirements at the right level to have a viable technical baseline while enabling the incremental learning that is important to Agile successes?
- How do I translate our Agile work products, metrics, etc into the traditional acquisition terminology we use to report upwards?

Technical Reviews:

- Identified 3 general approaches being taken in SEI 2013-TN-31

Contracting:

- In initial research for contracting TN, identified the specification of review cycles and CDRL requirements as more impacting on Agile program success than contract type (FFP, T&M, etc)

Requirements Management:

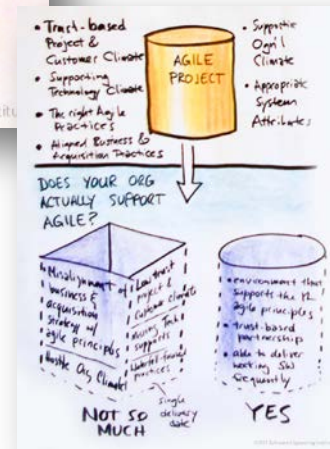
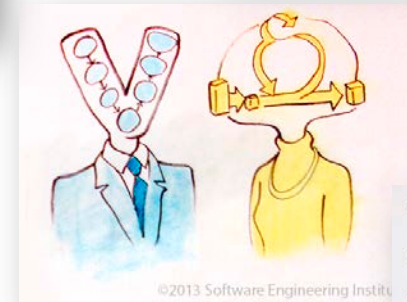
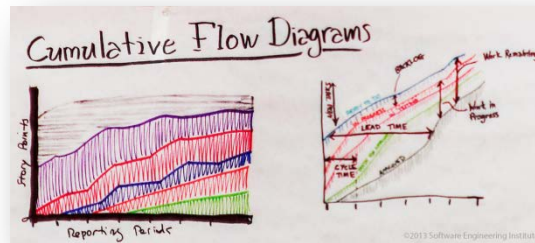
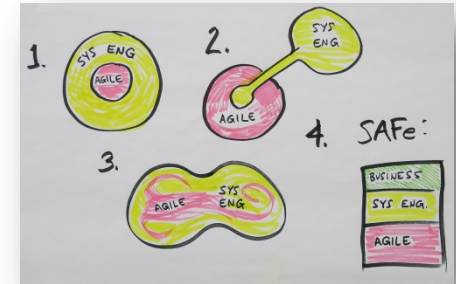
- In SEI-2013-TN-06, identified barriers and potential solutions to multiple requirements management issues

Agile→Traditional Crosswalk:

- SEI-2013-TN-21 provides a read-across between Agile concepts and traditional acquisition life cycle concepts and terms



Our Annual Agile Collaboration Group Colloquium Continues to Generate Memorable Images to Support Transition



FY 15 Plans



Guideline documents:

- Agile at Scale: Comparing Commonly-Available Frameworks

Agile Success Measures:

- Workshop to gather evidence and refine ideas for communicating Agile successes within a traditional acquisition life cycle environment

State of Agile Adoption:

- Complete work started in FY 14 to report on status of agile adoption in government settings
 - Survey results
 - Mini-Case Summaries from interviews



Agile Adoption Research--Impact



Operational Impacts

- Enable acquisition programs that adopt Agile or lean approaches to **achieve the benefits of incremental, iterative delivery** while **complying with** traditional DoD policy frameworks
- Identify risks of using Agile methods using Agile Readiness and Fit model

Research Risks

- Insufficient data sources for adoption status, guidelines, or model validity

Payoffs

- One Government contractor team **shrank by 25%** using Agile but **doing same or more work**
- **Relevant guidance** and cautions **available** for DoD acquisition professionals
- RFA Model helps to determine if appropriate to use Agile methods and which adoption risks require mitigation

Feedback received from several DoD and other government agency staff was effusive in its appreciation of our informal work products (podcasts) as well as our more formal ones.

We know of cases where our Technical Notes were used to provide supporting arguments for small programs that wanted to use Agile methods.

SEI's Agile Principles podcasts are among the most downloaded podcasts in the SEI section of Carnegie Mellon's iTunes U website.



Summary

Project Name: Applying Agile Methods to DoD

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