

# How Agile Development Can Transform Defense IT Acquisition

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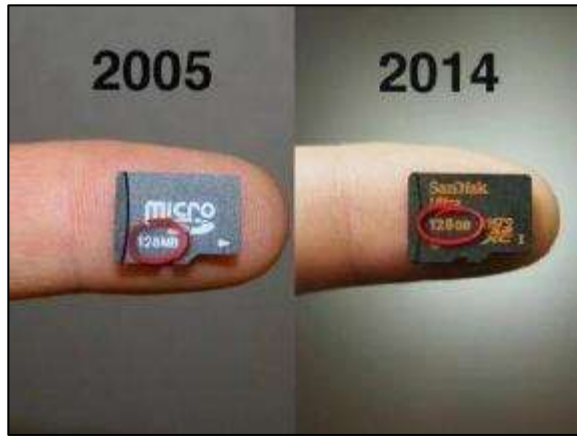
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# Agile and Defense IT Acquisition

- **Defense acquisition processes do not match the speed of new IT capabilities**
- **Agile has demonstrated success across enterprises as the leading global software development methodology**
- **US and Italian defense programs are overcoming huge barriers adopt Agile via tailored**
  - Culture
  - Structures/Processes
  - Requirements
  - Contracting



# Current Defense IT Environment



**Rapid Technology  
Advancements**

**Dynamic  
Operational  
Environment**

**IT Central To  
Every Mission  
and System**

# IT Acquisition Environment

## Major DoD IT Systems



**Moore's Law**

# Defense Barriers to Agile Acquisition



**Big Bang Waterfall**

**Extensive Documentation**

**Define Everything Upfront**

**Heavily Regulated**



**Agile**

**Iterative releases**

**Working Software**

**Responsive to Changes**

**Empowered Teams**



# Eight Reasons for Agile Success Among ITA Early Adopters



**1. Trust in People**

**2. People do their best if given enough freedom**



**3. No project mgmt. on top of Scrum teams**

**4. Scrum doesn't improve quality, capable people do**

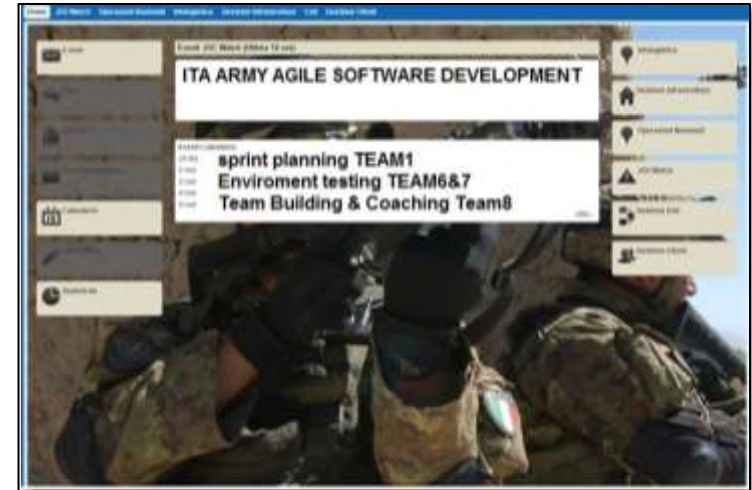
# Eight Reasons for Agile Success Among ITA Early Adopters

5. Agile teams continuously improve

6. The Product Owner role

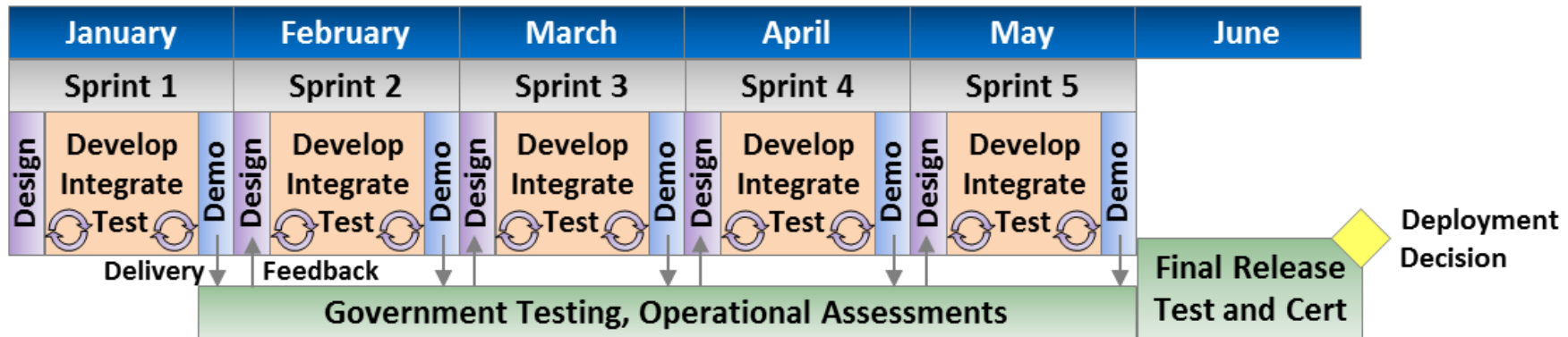
7. Product Quality

8. Tailored Organization



# Structuring an Agile Program

## Time Boxed Release



- Develop structured time-box and tailor processes to support**
  - Hold schedule, while flexing scope – Continual improvement
- Gov't testers, certifiers, and users involved early and often**
  - Minimizes work and surprises at the end of the release

**Lengths Based on Operational, Acquirer, Contractor Agreement**



# Structure Best Practices

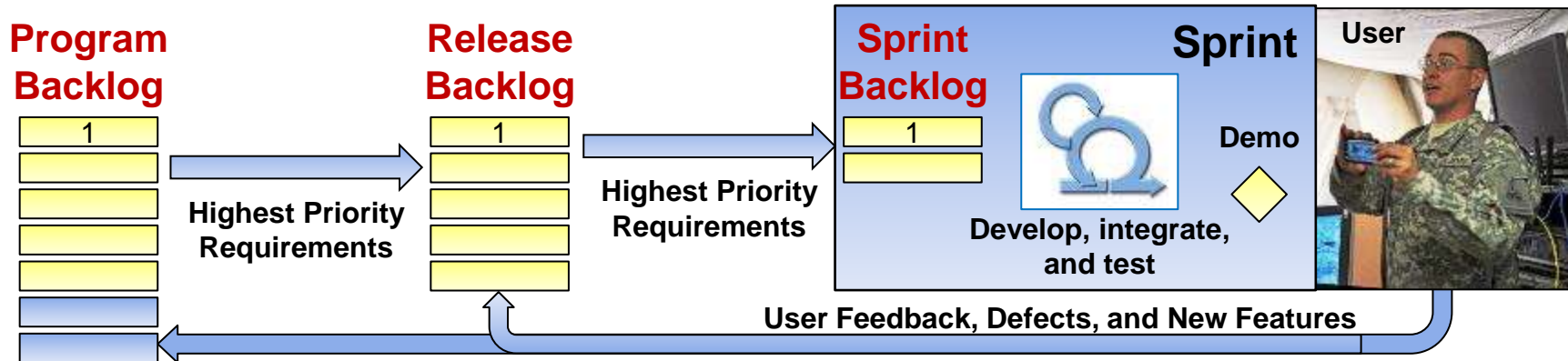
## From Early Agile Adopters



- Capabilities delivered to Warfighters 6-12 months worked best – Issues w/18+ months
- Developers iterated via monthly sprints
- Finalize scope/user stories in release planning
- Last sprint had no new features
- Demo capabilities every two sprints
- Mid-point release to Gov't integration lab

**Iterative deliveries have led to very happy testers and users**

# Agile Requirements Backlog



Product owner(s) actively manage backlogs to capture changes to:

- CONOPS
- Threats (including cyber)
- User inputs, feedback
- Interfaces, infrastructure

Contractor development team:

- Estimate complexity/time of backlog elements
- Help shape technical requirements
- Commit to scope of work for a sprint

# Requirements Best Practices

## From Early Agile Adopters

- **Ops environment supports small, frequent capability deliveries**
  - Requirements can be clearly decomposed into small tasks
- **End-users can engage throughout requirements and development**
  - Share CONOPS insights and provide immediate feedback from demos
- **Half page work packages for program backlog**
  - Rough government estimate, design context, and technical interfaces
- **Empowered Product Owners**
  - Single/multiple based on users size/diversity
- **Co-Location / Partnership**
  - Operators, acquirers, developers, testers



# Contracting For Agile

- **Commercial firms use in-house developers**
  - Government requires contracted support
- **Contracting Challenges**
  - Complex laws and regulations
  - Long contracting timelines
  - Costly change requests
  - Defined requirements to select contractor



**Design Contract Strategies to Support Short Delivery Timelines**

# Services vs Product Based Contracts

<b>Services</b>		<b>Product</b>
<b>Acquire time of an Agile developer</b>		<b>Acquire a defined software product</b>
Strongest development team	<b>Selection</b>	Strongest technical solution
Flexibility	<b>Requirements Changes</b>	Costly and Timely
Enables close teaming	<b>Gov't / Contractor Relationship</b>	Separate – Less visibility
Government	<b>Lead Systems Integrator</b>	Contractor
Government Driven	<b>Development Strategy</b>	Contractor driven
<b>Best option for Agile</b>		<b>Very difficult for Agile</b>

# Programs Should Consider Agile When...

- Requirements can be decomposed into small tasks
- Ops environment supports small, frequent capability deliveries
- Users can engage in development on CONOPS and feedback
- Programs can use existing infrastructure, focus on applications
- Decision authority supports Agile and tailored processes

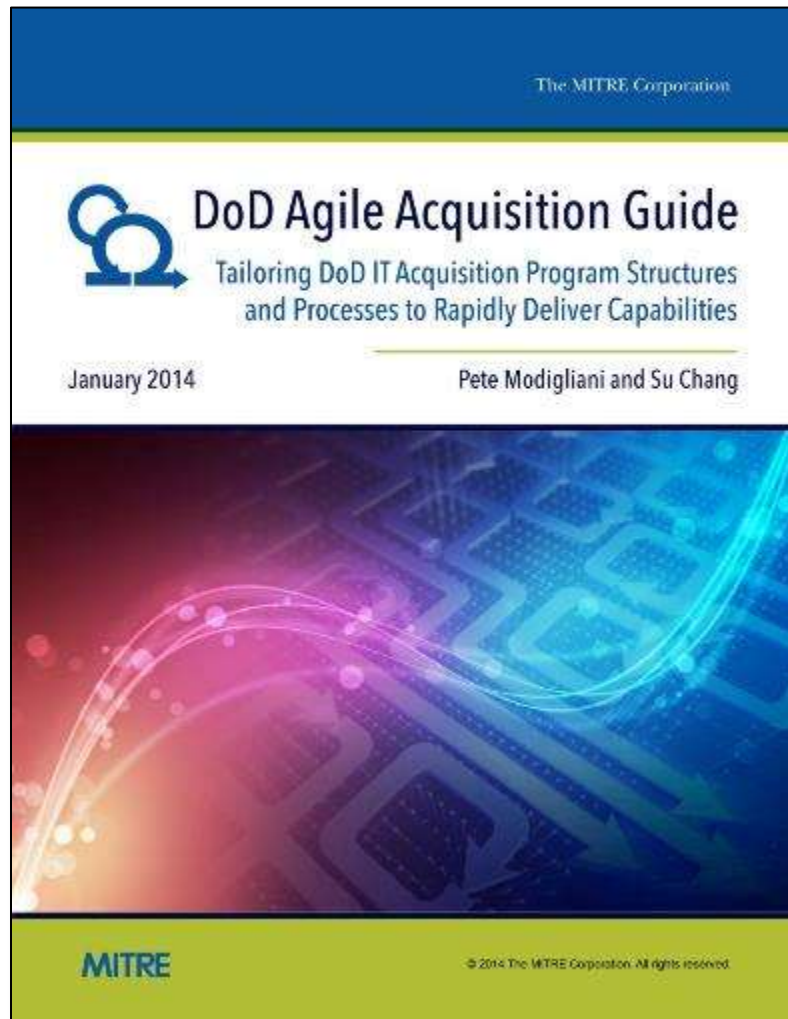


# Agile in Defense Acquisition Summary

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- **Using Agile development is an attractive option for IT programs**
  - Regular capability deliveries
  - Responsive to changes in operations, tech, and budgets
  - Active user involvement and empowered teams
- **Structure 6-12 month releases and tailor processes**
- **Dynamic and iterative requirements management**
- **Portfolio services contracting for industry partnership**
- **Tailoring DoD acquisitions to enable Agile adoption, successful IT**
- **For additional info, see [MITRE Defense Agile Acquisition Guide](#)**

# MITRE's DoD Agile Acquisition Guide



- I. Agile Fundamentals**
- II. Implementing an Agile Approach**
  - Deciding to Adopt Agile
  - Agile Culture
  - Agile Teams
  - Tailoring Program Structure/Processes
  - Planning
- III. Agile Acquisition Processes**
  - Requirements
  - Systems Engineering
  - Contracting
  - Cost Estimation
  - Metrics
  - Testing
  - Deployment/Sustainment
  - Pulling it All Together
  - Scaling Agile

<http://www.mitre.org/publications/technical-papers/defense-agile-acquisition-guide-tailoring-dod-it-acquisition-program>