

NDAA Section 804

Accelerated Test, Evaluation and Certification

What is it and How Will it Impact IT Acquisitions?

Prepared for

14th Annual NDIA Systems Engineering Conference

Integrated Test Strategies Track 6 -12944

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With Guidance From:

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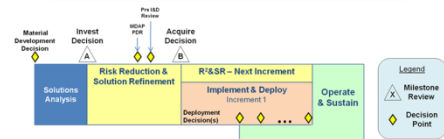
26 October 2011

Bottom Line Up Front

- 2010 NDAA Section 804
 - Directed DoD to develop a new IT acquisition process
 - 804 is still a work in progress
- TE&C Process drafted and still a work in progress
 - Key attributes are “agile”
 - Integrated, Adaptive, Early, Continuous, Test Once, Evolving Requirements, Rapid Delivery



- TE&C Process: Supports 18-month release goal
 - Materiel need to deploy



- TE&C team lead
 - Facilitates collaboration, integrates effort, removes impediments, ensures independence

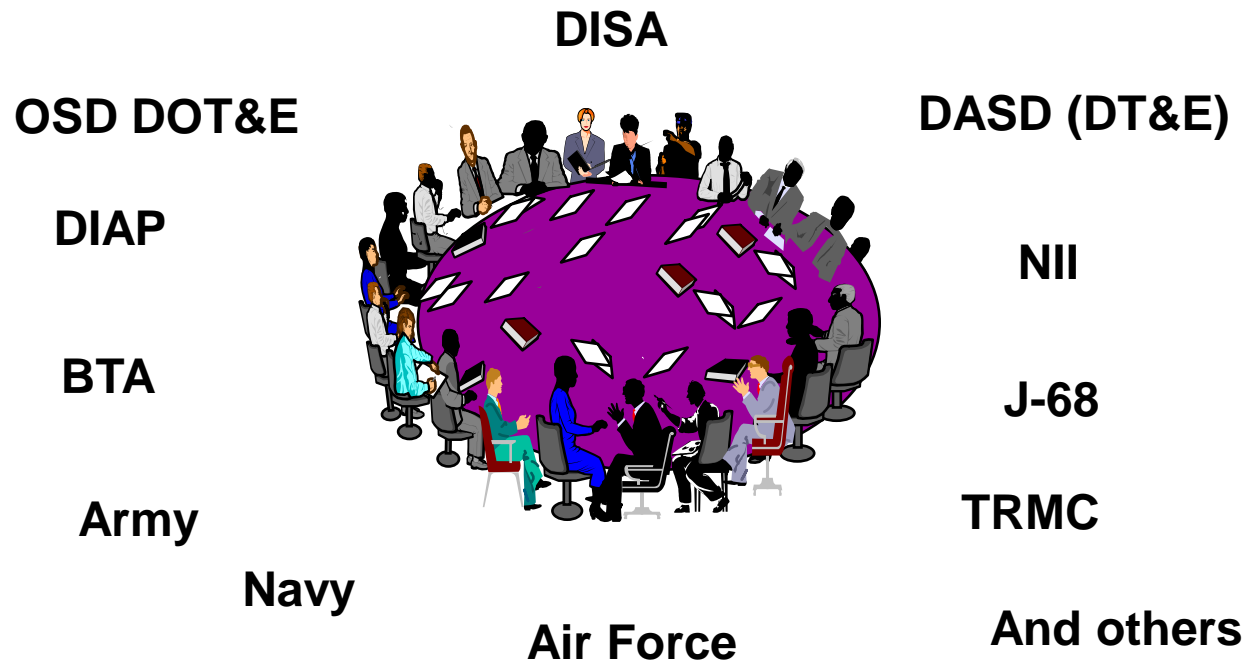
- TE&C team
 - Integrated TE&C team throughout the life cycle
 - Enables early involvement and provides continuous feedback



➤ Integrated TE&C will test by one for use by all: DT, OT, IOP and IA

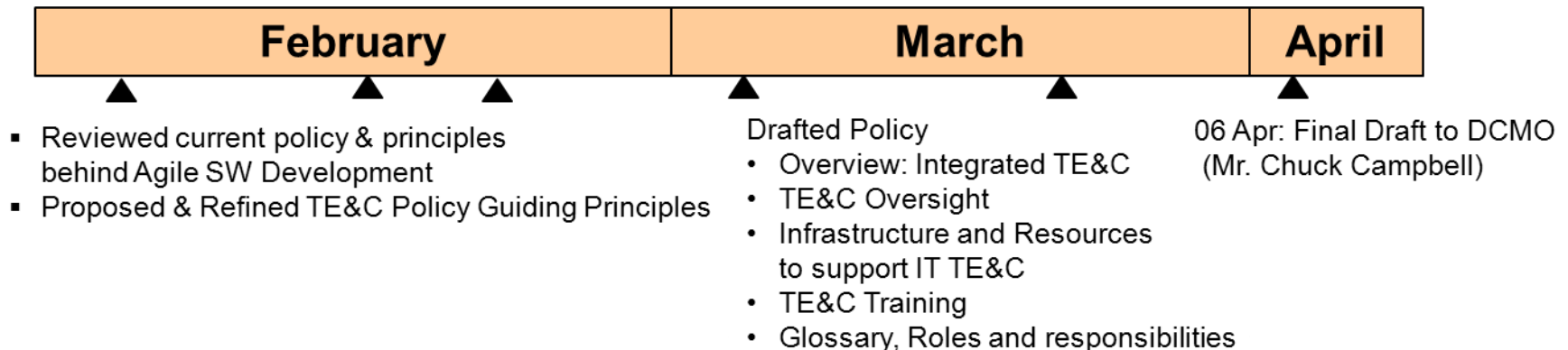
Section 804 TE&C Working Group Participants

- T&E Policy WG Chair
 - SES Dr. Steven Hutchison
- All Services and Agencies were invited to participate



Initial TE&C Process 80% Solution

- TE&C draft policy collaboratively developed; 80 % Solution
- Integrates Users, Developers with T&E, IA A&A and Interoperability Stakeholders and maintains independence
- Test Infrastructure and Automated Tools capture test data
- Single TE&C Strategy and findings report; **artifacts provide the basis for the deploy decisions**



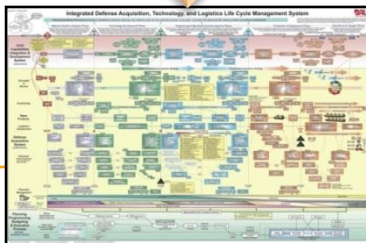
TE&C Team developed Working Draft in 55 Days!

Key Driver: IT Systems are Different Than Weapon Systems

Weapon Systems



- Weapon platform centric
- Military unique requirements
- Development of military-unique, breakthrough technologies
- Development cycle of a decade or more
- Production decisions for unique HW
- Service lives extending into decades



IT Systems



- Enterprise network centric
- Adapt existing commercial capabilities for military needs
- Technology cycle 12-18 months
 - Procure commodity HW
- Periodic technology refresh to avoid obsolescence



Demands a Different Acquisition Process

FY 2010 NDAA Sec 804

“...SEC. 804. IMPLEMENTATION OF NEW ACQUISITION PROCESS FOR INFORMATION TECHNOLOGY SYSTEMS.

(a) NEW ACQUISITION PROCESS REQUIRED.—The Secretary of Defense shall develop and implement a new acquisition process for information technology systems. The acquisition process developed and implemented pursuant to this subsection shall, to the extent determined appropriate by the Secretary—

(1) be based on the recommendations in chapter 6 of the March 2009 report of the Defense Science Board Task Force on Department of Defense Policies and Procedures for the Acquisition of Information Technology; and

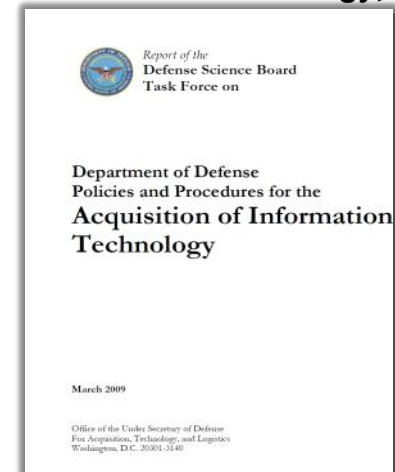
(2) be designed to include—

(A) early and continual involvement of the user;

(B) multiple, rapidly executed increments or releases of capability;

(C) early, successive prototyping to support an evolutionary approach; and

(D) a modular, open-systems approach.

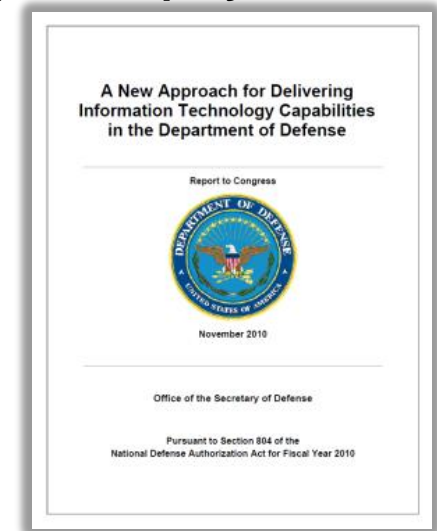


(b) REPORT TO CONGRESS.—Not later than 270 days after the date of the enactment of this Act, the Secretary of Defense shall submit to the Committees on Armed Services of the Senate and the House of Representatives a report on the new acquisition process...”

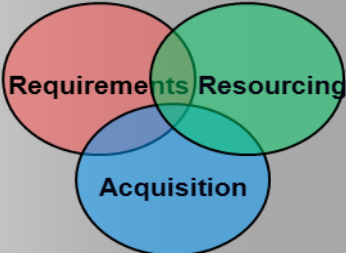
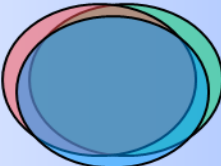
Section 804 Report to Congress

■ Guiding Principles

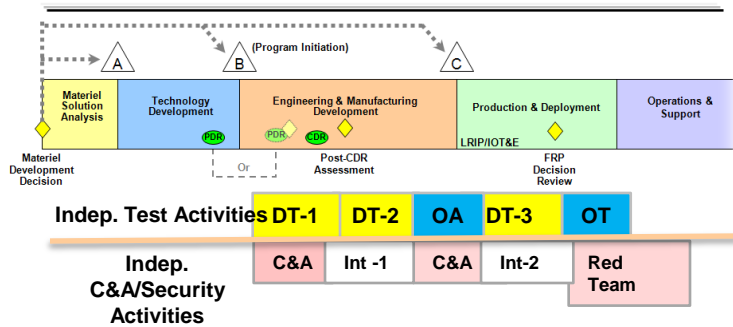
- Deliver early and often
 - Change the culture to establish an environment that supports deployed capabilities every 12 to 18 months.
- Incremental and iterative development and testing
 - Embrace the concept that incremental and iterative development and testing yields better outcomes than trying to deploy large complex IT network systems in one “big bang.”
- Rationalized requirements
 - User involvement is critical to the ultimate success and user needs must be met.
- Flexible/tailored processes
 - Embrace flexible and tailored—and risk-appropriate—IT paths based on the proposed IT acquisition.
- Knowledgeable and experienced IT workforce
 - A top priority is to establish a cadre of trained professionals and that the lack thereof is a significant impediment to successful implementation of any future process.



DCMO Sec. 804 Task Force: Key IT Acquisition Reform Concepts

			Task Force Work Groups
Oversight/ Governance		Synchronized – Integrated governance and management of Capability Sectors	•Portfolio & Governance (Lisa Oakley/Jim Coffey)
Acquisition	Program oriented <hr/> Infrequent Milestones <hr/> Separate T&E and C&A	Projects using “templates” <hr/> Portfolio context and leverage <hr/> Incremental iterative delivery <hr/> Integrated T&E and C&A <hr/> Enterprise contracting	•Acquisition Process (Renee Stevens/Harlan Loomis) •Contracting (Su Chang) •T&E & Certification (Pete Christensen)
Architecture	Stove-piped – Inconsistently enforced	Federated Enterprise Architecture defined and enforced	•Architecture (Terry Blevins)
Resourcing	Program Elements <hr/> R&D, Procurement, O&M	IT Portfolio Accounts <hr/> Single “IT” Appropriation	•Funding (Scott Anderson)
Requirements	Program oriented JCIDS “IT Box”	Capability oriented - Roadmaps <hr/> Rationalized w/constraints	•Requirements (Brian Costello)
Metrics	Program oriented, EVM centric, remainder ad hoc	Metrics hierarchy – process and product	•Metrics (Rich Staats/ Su Chang)

Test & Evaluation and Certification Overview

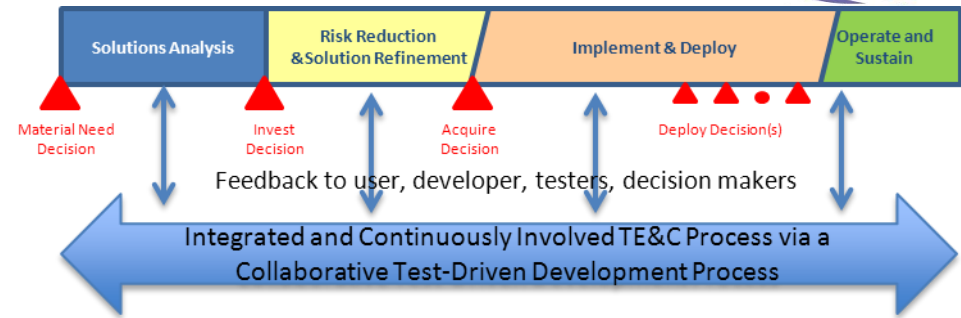


As-is

- Multiple stakeholders, certifications and testing events required
- Interoperability, security, developmental and operational testing executed independently
- Test data requirements poorly coordinated adversely impacting cost, schedule and performance



- Testing does not inform acquisition and systems engineering processes
- OT&E finds systems lacking key capabilities, which then require rework and retest



To-be

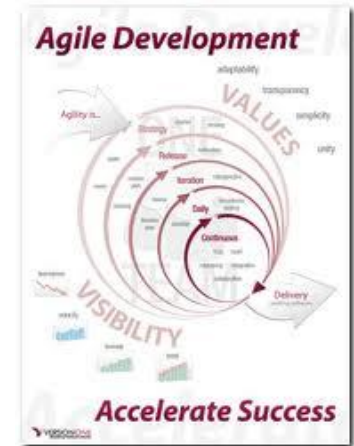
- Collaborative approach integrates users and PM with T&E, IA, and IOP stakeholders
- Integrated tests capture data once for use by all
- Common test infrastructure and Automated tools
- Single TE&C Strategy/Test and Evaluation Master Plan (TEMP) and Findings Report reduces paper
- Individual endorsements maintains stakeholder independence
- Risk determines levels of oversight



- Integrated TE&C aligned with SOS Acq/SE processes improves understanding of caps/Lims
- Early TE&C engagement and integrated testing provides continuous user feedback
- Enhanced suitability, interoperability, and security
- Improved "Affordability, Effectiveness, Efficiency"

TE&C Policy/Process Guiding Principles

- **Integrated and adaptive**
 - Testing is a shared service among developer, tester, user, etc.
 - Integrated test team DT, OT, IOP, and IA
 - Independent evaluation with no loss of rigor
 - Adaptive to acquisition approach
- **Early and continuous**
 - Feedback to user, developer, testers, and decision makers
 - Apply test-driven development
 - Early engagement of integrated test team to define acceptance tests at each iteration
 - Collaborative without infringing on organizational responsibilities
- **Tested by one and used by all**
 - Reciprocity between testing organizations and authorizing officials
- **Disciplined response to evolving requirements**
 - Rapid development of measurable, testable, operationally meaningful measures and metrics
- **Enable delivery of enhanced military capability in accordance with overarching IT acquisition strategy**
 - Satisfy customer requirements



Key Elements of TE&C Policy/Process

- TE&C process provides information to
 - Assess effectiveness, suitability, interoperability, and security capabilities and limitations
 - Assist in risk identification and management
 - Support the 18-month release goal (from materiel need to deploy)



- TE&C team lead
 - Designated by sector manager
 - Assemble team
 - Enable collaboration, integrate effort, remove impediments, and ensure independence



- TE&C team
 - Fully integrated throughout capability lifecycle
 - DT, OT, interoperability (IOP), IA, user
 - Enable early involvement and provide continuous feedback



Key Elements of Draft TE&C Policy/Process (cont.)

■ Agile TE&C execution

- Tailored to the IT acquisition
- Responsive to evolving requirements
- Risk based and mission focused

■ TE&C infrastructure and tools

- Provides “testing as a service”
 - Development, deployment, and sustainment
- Verified, Validated, and Accredited (VV&A) Infrastructure
 - Replicates an operational/production environment
 - Provides repeatable and defensible test results

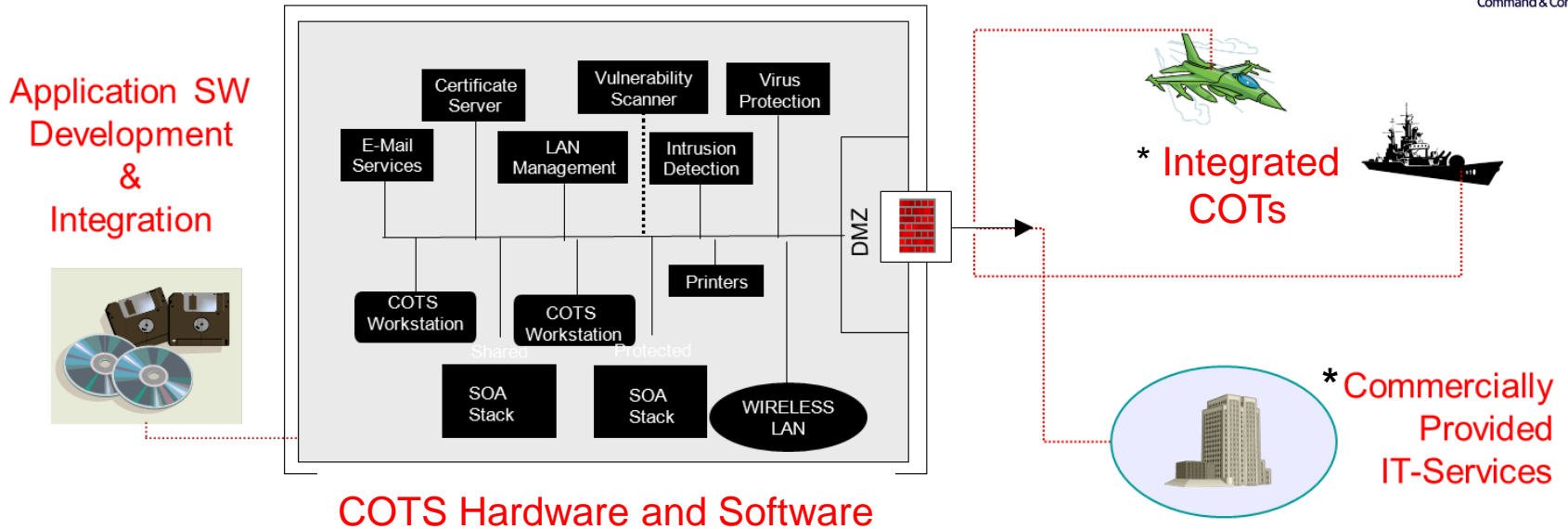


SCRUM SW Development Process



SSC LANT C4ISR Command Lab

Two IT Acquisition Types



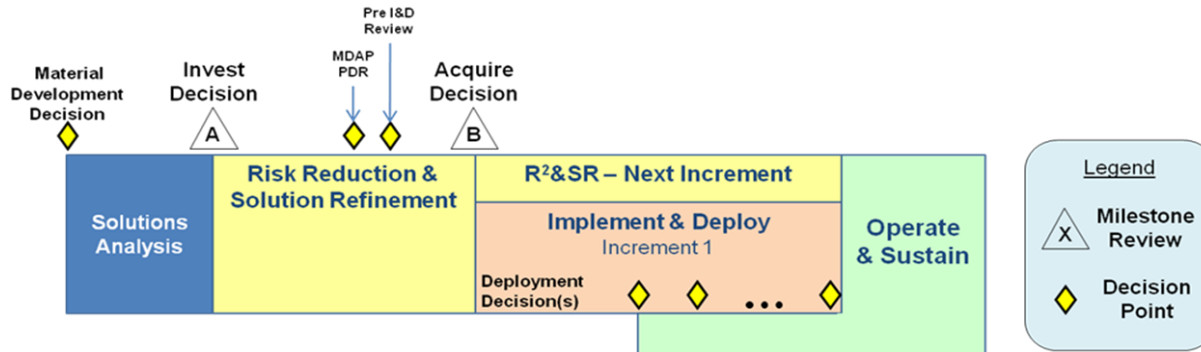
1. Application Software Development and Integration

- For projects involving custom SW development and integration
- Focuses on close interaction with users, prototyping, and iterative development
- Note: Integrated COTs and commercially provided IT services are presumed subsets

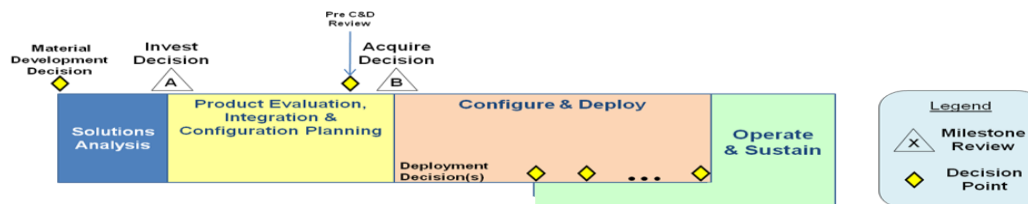
2. COTS Hardware and Software

- Non-modified COTS products, including commodity purchases
- Examples include enterprise e-mail services and SharePoint

IT Acquisition Process by Acquisition Type

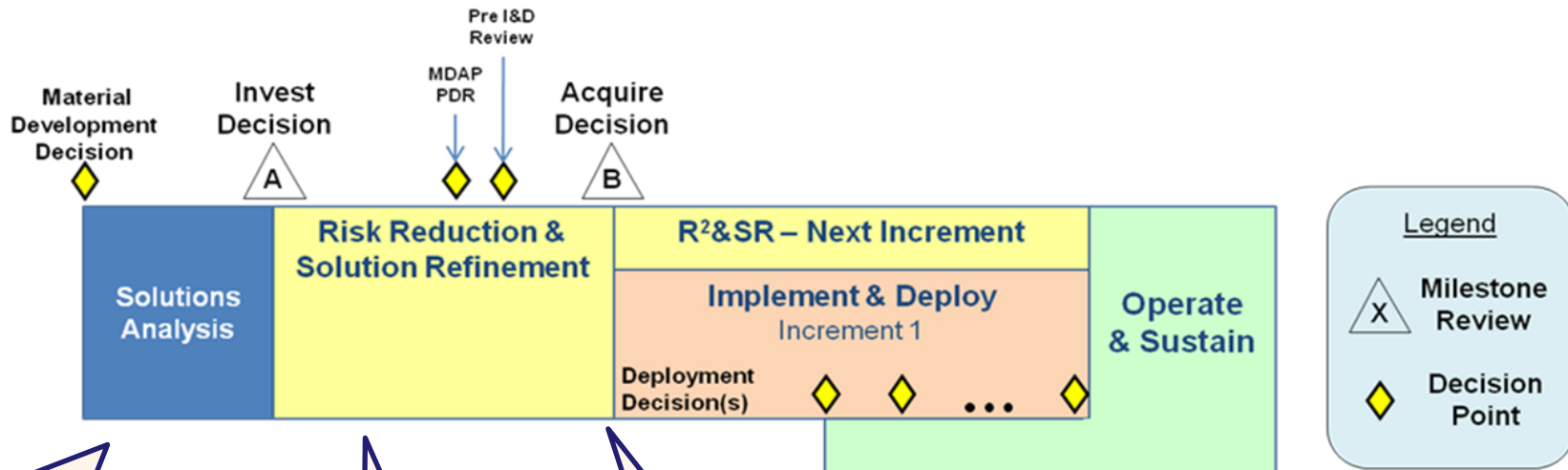


Software Development and Integration



Integrated COTS Capability

Software Development and Integration



Form TE&C Team

- Designate lead, assemble TE&C Team
- Assess requirements
- Develop initial TE&C TEMP

Prepare for TE&C

- ID Test Data Requirements
- Mature TE&C Infrastructure & Select Automated Tools
- Perform TE&C Risk Assessment
- Update TE&C TEMP

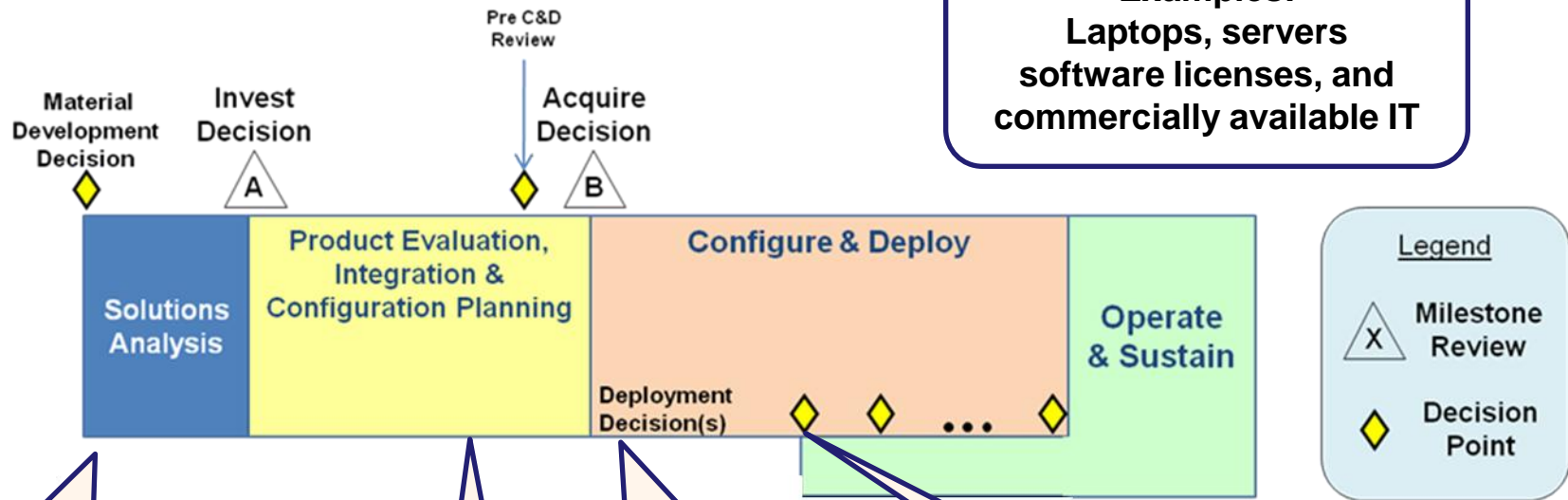
Execute, Review, Report

- Continually Assess Risk
- Integrated Planning and Execution
- Independent Evaluation; Integrated Findings
- Report Findings for Operational Releases

Continuous Monitoring

- Execute “Testing as a Service”
- Track Risks & Mitigation Plans

Integrated COTS Capability



Examples:
Laptops, servers
software licenses, and
commercially available IT

Form TE&C Team

- Designate lead, assemble TE&C team
- Assess requirements
- Develop initial TE&C TEMP

Source Selection

- Assess contractor test data
- Provide ADA risk assessments for contract awards

Contract Preparation & Solicitation

- Confirm RfP test data requirements
- Update TE&C TEMP

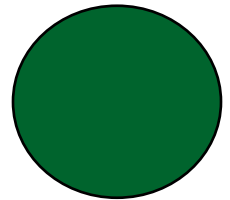
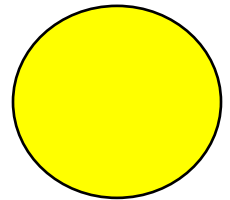
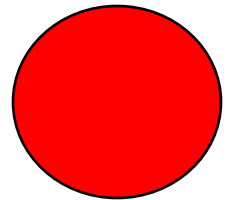
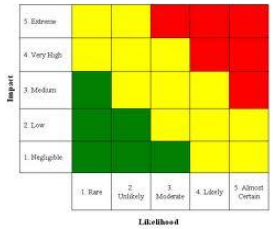
Execute, Review, Report and Monitor

- Evaluate CDRLs
- Test by exception only
- Report integrated findings
- Independent evaluation
- Monitor, track and mitigate risks

TE&C Risk Assessment

- **TE&C team uses risk to determine test adequacy**
 - Sandbox or pre-operational/production environment
 - When appropriate, conduct testing with typical users/operators/maintainers in a realistic production/operational environment

- **High risk to the user or mission**
 - Require testing in operational/production environment
 - Includes realistic threat portrayal
 - Users/operators/maintainers and help-desk
 - Computer Network Defense Service Provider (CNDSP)
- **Medium risk to the user or mission**
 - Users test in a pre-operational/production environment
- **Low risk to the user or mission**
 - Employ developer or user sandbox



Exercising Oversight

- **Oversight exercised via review and approval of TEMP and Test Plans**
 - Prior to the decision to acquire
 - Prior to the start of the test

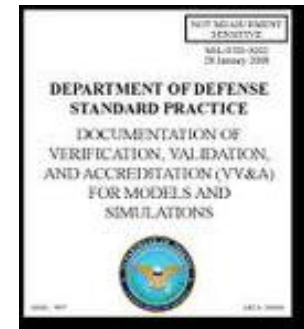
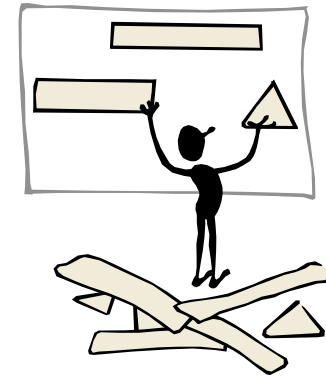
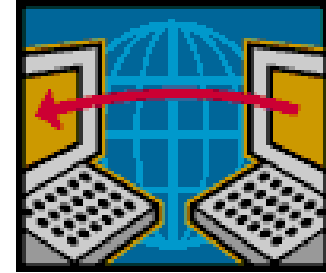
- **Reporting**
 - IOP Certifications & IA Authorizations issued IAW existing processes
 - DOT&E provides a separate report to Acquisition Decision Authority
 - Address adequacy of the testing
 - Operational effectiveness, suitability and information assurance risk posture of the deploying capability

- **Other implications for DASD (DT&E)/OSD DOT&E /IA A&A/JCS**
 - Designation of oversight projects and OPTEMPO
 - Automation/virtualization
 - Documentation

Agile TE&C Infrastructure



- **Test infrastructure facilities, networks, and tools must**
 - Be present and operationally-representative of the test environment
 - Leverage existing capabilities and augment as needed
 - Utilize common services and capabilities
 - Bandwidth, computing, power, etc. between facilities and hosting organizations
- **Test infrastructure must keep pace with agile IT**
 - For this to happen we need
 - Overarching architecture for test infrastructure
 - Federated environment
 - Governance of supporting capabilities
- **Strategic and operational planning must keep pace**
 - Rapid VV&A of test infrastructure required
 - Test infrastructure and procedures needed to support “Testing as a Service”
 - Operate as federated infrastructure across T&E mission area
 - Develop collaborative eDocumentation system



TE&C Training

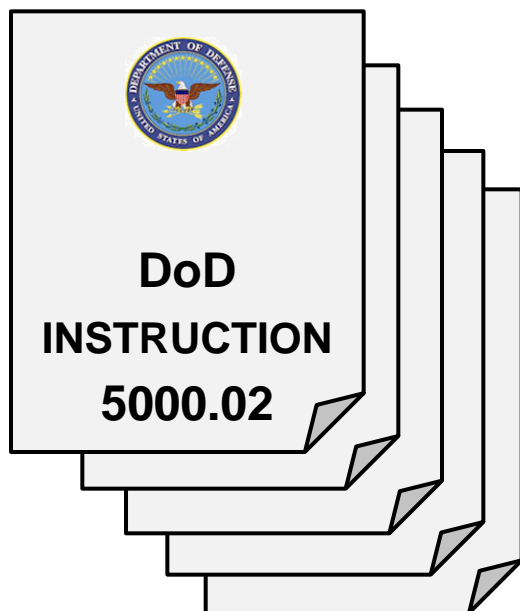
- **Agile IT TE&C acquisition skills change existing skill sets, including**
 - New IT processes, user needs, and priorities
 - Technology trends and cyber security
 - The ability to manage risk and work across functional groups
 - Creating incremental capability-based test plans
- **DASD (DT&E), as the T&E Functional Lead**
 - Reviews T&E acquisition workforce needs
 - Assesses training/certification programs
 - Develops training curriculum supporting this new acquisition processes
- **T&E Functional Leaders**
 - Advise and support USD(AT&L) on education, training, and experience requirements for civilians and military
 - Establish career development requirements
 - Serve as proponents for functional community's interests



Working TE&CS Concepts Into DoD 5000.02 IT Acquisitions

Benefits:

- Address “fact of life” changes
 - Statute
 - Policy (DTMs)
- Implement directed changes to the acquisition process



Way ahead

- Review changes to policy and statute
- Edit Enclosure 6
- Coordinate with DASD DT&E/DOT&E to draft revised language DoDI 5000.02, Encl 6
- Engage Principals early
- Brief TEWG of proposed changes
- Finish draft/provide to DPAP
- DPAP adjudicate comments

Proposed multiple volumes on the following topics:

- Weapon Systems Acquisition, including IT
- MDAPs
- Business Capability Lifecycle for Business
- Systems IT
- Acquisition of Services
- IT Acquisition (C2, etc.)
- Rapid Acquisition (JUONs, etc.)

Next Steps

- **Refine acquisition process and policy**
 - **No wine before its time!**
 - Gather feedback and update
 - Press for FY12 reprogramming
 - Refine POM 13 Issue papers

- **Proof of concept**
 - **Will that dog hunt?**
 - Select programs to prototype
 - Recommend IT TE&C infrastructure way ahead
 - Recommend DAU IT TE&C content

- **Propose Statutory, Regulatory or Policy Changes**
 - **As appropriate**



Closing

- **Biggest obstacle is culture**
 - Smash the “Old Think”
- **Key principles: think agile**
 - Integrated and adaptive
 - Early and continuous
 - Test by one and use by all
 - Evolving requirements
 - Rapid delivery of military capability
- **TE&C process**
 - Supports 18-month versus 4-year release goal
- **TE&C team leader**
 - Facilitates collaboration, integrates effort, remove impediments, and ensures independence
 - TE&C team
 - Fully integrated throughout the life cycle

