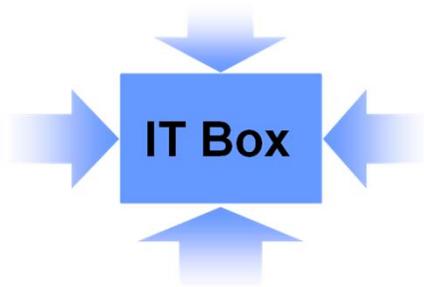




The Information Technology (IT) Box A Primer



Sources:

- CJCSI 3170.01I, 23 Jan 2015
- JCIDS Manual, 12 Feb 2015 with errata, 23 Feb 2015

Patrick Wills
Acting Dean,
Defense Systems Management College
Defense Acquisition University
work: 703-805-4563 cell: 703-615-5234
23 March 2015



IT Box Topics

- IT Box Background
- Assumptions
- Applicability
- Information Systems Initial Capabilities Document (IS ICD)
- Information Systems Capability Development Document (IS-CDD)
- Governance
- Successor Documents and the Acquisition Process
- Converting Existing ICDs and CDD
- Examples
- Conclusions



IT Box Background

- Why implement an IT box?
- Moore's Law:
 - “The number of transistors on an integrated circuit doubles approximately every 18-24 months.”
 - The US has been able to leverage rapidly-evolving IT for [decisive military advantage](#).
 - However, the JCIDS process does not [provide the required flexibility](#) to take full advantage of evolving commercial information technology.
- JROCM 008-08
 - The JROC wants to ensure the IT programs have the flexibility to [“plan for and incorporate evolving technology”](#) throughout the program's lifecycle.
- CJCSI 3170.01H
 - Expands on the concepts in JROCM 008-08.



JOINT REQUIREMENTS
OVERSIGHT COUNCIL

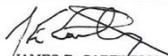
THE JOINT STAFF
WASHINGTON, D.C. 20315-5000

JROCM 008-08
14 January 2008

MEMORANDUM FOR SEE DISTRIBUTION:

Subject: Leveraging Technology Evolution for Information Technology Systems

The JROC directs implementation of the attached change to the Joint Capabilities Integration and Development System process. This change will ensure that Information Technology systems have the appropriate flexibility and oversight to plan for and incorporate evolving technology. This change will be incorporated in the next revision to CJCSI 3170.01F and CJCSM 3170.01C.


JAMES E. CARTWRIGHT
General, United States Marine Corps
Vice Chairman
of the Joint Chiefs of Staff

Enclosure

DISTRIBUTION:

Under Secretary of Defense for Acquisition, Technology, and Logistics
Under Secretary of Defense for Intelligence
Commander, US Central Command
Commander, US European Command
Commander, US Joint Forces Command
Commander, US Northern Command
Commander, US Pacific Command
Commander, US Southern Command
Commander, US Special Operations Command
Commander, US Strategic Command
Commander, US Transportation Command
Assistant Secretary of Defense for Networks and Information Integration
Under Secretary of the Air Force (Space)
Vice Chief of Staff, US Army
Vice Chief of Naval Operations
Vice Chief of Staff, US Air Force
Assistant Commandant of the Marine Corps



JROCM 008-08 Detail



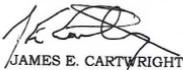
THE JOINT STAFF
WASHINGTON, D.C. 20318-5000

JROCM 008-08
14 January 2008

MEMORANDUM FOR SEE DISTRIBUTION:

Subject: Leveraging Technology Evolution for Information Technology Systems

The JROC directs implementation of the attached change to the Joint Capabilities Integration and Development System process. This change will ensure that Information Technology systems have the appropriate flexibility and oversight to plan for and incorporate evolving technology. This change will be incorporated in the next revision to CJCSI 3170.01F and CJCSM 3170.01C.


JAMES E. CARTWRIGHT
General, United States Marine Corps
Vice Chairman
of the Joint Chiefs of Staff

Enclosure

DISTRIBUTION:

Under Secretary of Defense for Acquisition, Technology, and Logistics
Under Secretary of Defense for Intelligence
Commander, US Central Command
Commander, US European Command
Commander, US Joint Forces Command
Commander, US Northern Command
Commander, US Pacific Command
Commander, US Southern Command
Commander, US Special Operations Command
Commander, US Strategic Command
Commander, US Transportation Command
Assistant Secretary of Defense for Networks and Information Integration
Under Secretary of the Air Force (Space)
Vice Chief of Staff, US Army
Vice Chief of Naval Operations
Vice Chief of Staff, US Air Force
Assistant Commandant of the Marine Corps

- Define [minimum capability levels](#) based upon what is achievable with today's technology. (IS ICD paragraph 4 and JROC briefing)
- Describe process for approving capability enhancements. Who will have the authority to manage requirements? (JROC Briefing)
- Describe the plan for delivering capability (JROC briefing):
 - How often will releases of new or enhanced capability be delivered?
 - What is the plan for assessing the application of new technologies?
 - What is the plan for technology refresh?
- Identify the level of effort funding which will be used for the software development effort. (IS ICD paragraph 4 and JROC briefing)



Assumptions

- The Acquisition and Programming Communities Agree That IS Development is Different From Major Weapon Systems
 - Modify their processes and documentation expectations accordingly
- The Test and Certification Communities Can Deliver on More Responsive Test and Certification Processes to Enable More Rapid Delivery of Capabilities
 - Necessitates incremental/iterative development and testing
- Validation Authority for Managing Requirements can be Pushed Down to the Lowest Level to Allow for Rapid Changes/Decisions (Currently Within JROC Authority)



Reasoning for Additional Change

- Traditional JCIDS Process and Documents are Structured to Support Development of Major Hardware Weapon Systems
- Traditional JCIDS and Documents are not Supportive of the Rapid Pace of Development Necessary With IS Systems/Capabilities
 - Previous JCIDS Manual IT Box process addressed a more agile and responsive process – January 2015 version expands on this
- In Conjunction With Changes in the Acquisition Process*, the JCIDS Process Needs to Meet the Needs of the Operational User so that New Capabilities can be Delivered Rapidly, and Adapted as Necessitated by Changes in the Operational Environment
- Desired Outcome - Provide Agile and Responsive Requirements/ Capability Needs Process to Enable Rapid Development of IS Capabilities

*DODD 5000.02, Jan 2015, provides software intensive program models



The IT Box

Requirements Organization & Oversight

Flag-level oversight through [describe oversight body]

- Chair
- Members (list)

IS-ICD
Capabilities & Initial
Minimum Values
List Capabilities
& initial values
List Operational Attributes
& initial values

IS-CDD
Key Performance
Parameters
List KPPs

Application and System Software
Development Cost Controls

- Per year = \$XXX
- Lifecycle cost = \$XXX
- Rationale

Hardware Refresh and
System Enhancements &
Integration Cost Controls

- Per year = \$XXX
- Lifecycle cost = \$XXX
- Rationale

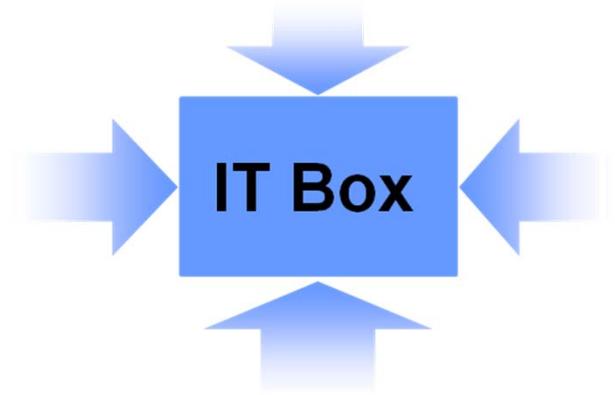
JROC
Approved
IS-ICD or
IS-CDD

- No return to the JROC unless new core capabilities added to the ICD/CDD
- Further definition of capabilities through Requirements Definition Packages/Capability Drops



Applicability of the IT Box

- IT Box Applies to:
 - Information Systems (IS) with software development only
 - Includes integration onto commercial off-the-shelf hardware
 - Program costs that exceed \$15 million
- IT Box *DOES NOT* Apply to:
 - IS with a developmental cost less than \$15 million
 - Defense Business Systems (DBS)
 - Systems which are an integral part of a weapon or weapon system which enables weapon capabilities and are considered part of the weapon system program
- Jan 2015 JCIDS Manual Expands on the Jan 2012 version by Implementing the “IS CDD”.





Information System ICD (IS-ICD)

- IS-ICDs Implement the “Information Technology (IT) Box” Model
- IS-ICDs must be used when applicable for capability requirements documents with JSDs of JROC and JCB Interest. Specifically appropriate for:
 - Procurement or modification of Commercial off the Shelf (COTS)/Government off the Shelf (GOTS) IS products
 - Additional production or modification of previously developed U.S and/or Allied or interagency systems or equipment
 - Development, integration, and acquisition of customized application software
 - Approaches where the solution involves research and development and / or acquisition of applications systems software, and the projected life-cycle costs exceed \$15 million
- Associated hardware must be COTS/GOTS



When an IS-ICD Is Not Appropriate

IS-ICDs are NOT Appropriate for:

- Software embedded as a subset of a capability solution developed under other validated capability requirement documents.
 - Software requirements are validated as part of the overall capability solution
- Software requiring a host platform which does not yet have validated capability requirement documents.
 - Software requirements can be included in the capability requirements of the host platform, or as a separate IS-ICD submitted after validation of the host platform capability requirement documents.
- Increases in quantities of previously fielded IS without modification, which are not addressed by an IT Box.
 - Increased quantities may be addressed by a DCR. Increases in quantity which remain within the scope of a previously validated IT Box, may be accomplished without revalidation.
- Requirements for Defense Business System (DBS) capabilities



IT Box Components for IS-ICD

Organization & Oversight

Flag-level Chair
& Members

Capabilities and Initial Minimum Values

List operational
attributes / initial
values

Net-Ready KPP

Added by JCIDS Manual
Feb 2015

Applications and System Software Development Cost Controls

- Per year = \$xxx
- Life cycle cost = \$xxx
- Rationale

Hardware Refresh and System Enhancements & Integration Cost Controls

- Per year = \$xxx
- Life cycle cost = \$xxx
- Rationale

**JROC
Approved
IS ICD**



Information Systems CDD (IS-CDD)

- IS-CDD
 - Implements IT Box model used in the IS-ICD
 - May be used where a validated ICD contains capability requirements which can be addressed by a combination of IS and non-IS solution and the IT Box is applicable to the IS portion
 - May be used for MDAP and MAIS programs to comply with statutory requirements for a CDD while allowing for the flexibilities of the IT Box
 - May be used when a validated CDD was generated before the IT Box construct was introduced, and the Sponsor wants to revalidate under the IT Box construct.
- IS-CDDs are appropriate in the same situations where the IS-ICD is appropriate, and are NOT appropriate in the same situations where the IS-ICD is not appropriate.
- Capability Production Documents (CPDs) are not required as successor documents for an IS-CDD – the delegated authority may prescribe alternate document formats



IT Box Components for IS-CDD

Organization & Oversight

Flag-level Chair
& Members



Key Performance Parameters

List KPPs

Major difference from IS-ICD IT Box.

KPPs may be quantified in terms of initial performance values rather than objective / threshold values. Same applies to KSAs and APAs used in the body of the IS-CDD

Hardware Refresh and System Enhancements & Integration Cost Controls

- Per year = \$xxx
- Life cycle cost = \$xxx
- Rationale

Applications and System Software Development Cost Controls

- Per year = \$xxx
- Life cycle cost = \$xxx
- Rationale



Governance and Requirements Management

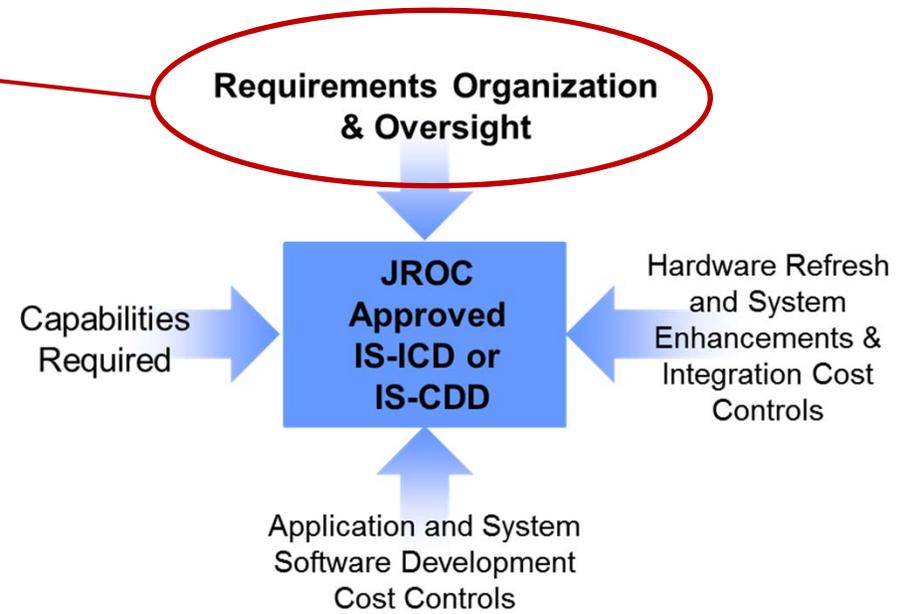
Requirements Organization

And Oversight:

Determines schedule/content of capability releases based upon collaboration between users and the program manager

Guidance:

- Name the flag-level body holding authority over and governance for requirements
- Identify chair
- Identify represented organizations, including all stakeholders. Include the acquisition community to provide advice on technical feasibility, cost and schedule.





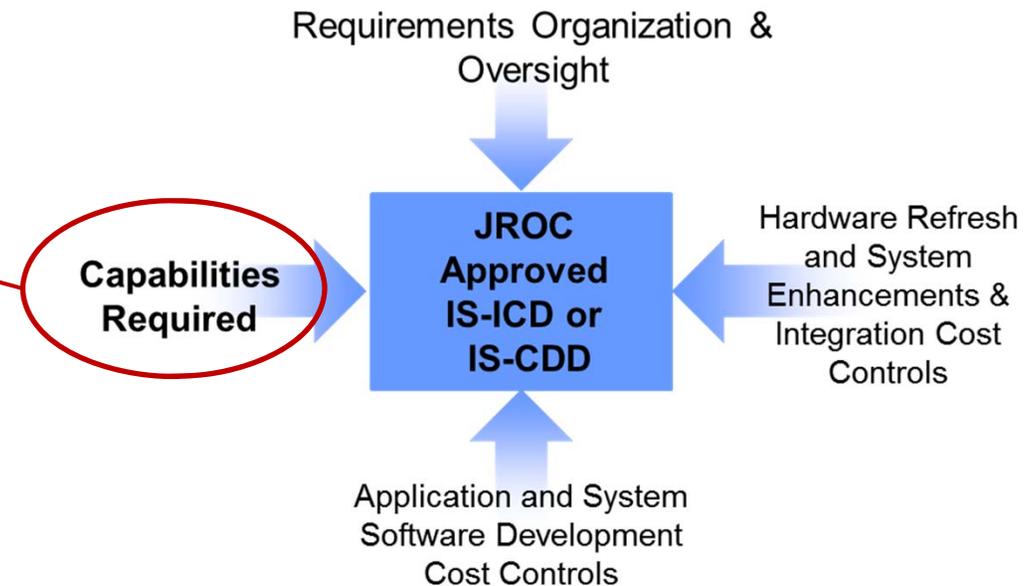
Capabilities Required

Validated Capability Requirements And Initial Minimum Levels:

The initial minimum performance levels required for the entire IS program.

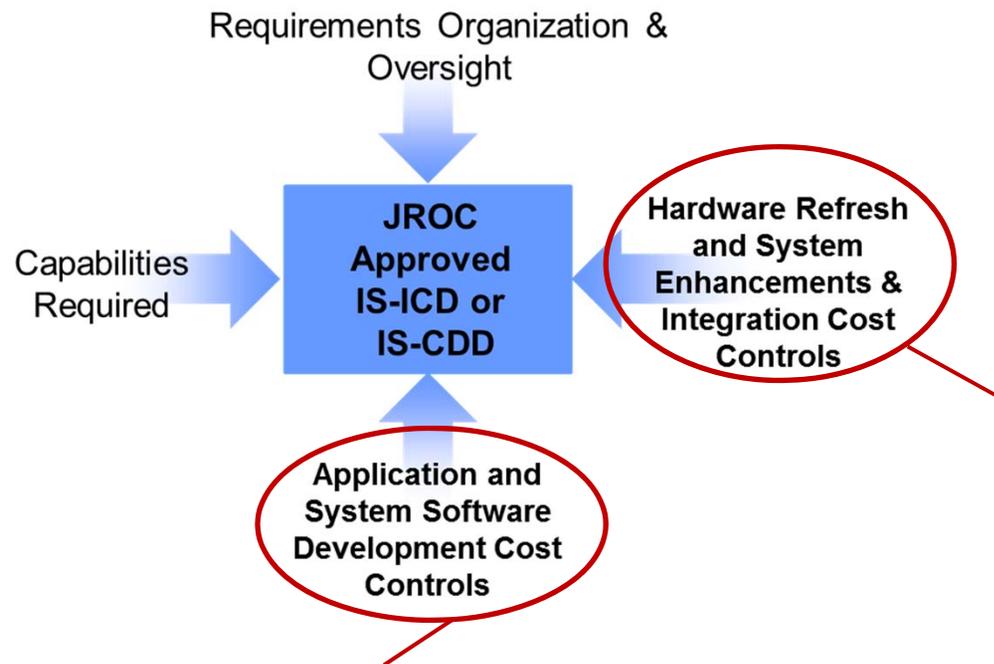
May be less than traditional Threshold values. Allows for incremental improvement from the 70% level to 100% of what would have been the Threshold.

Objective values not required nor briefed. It is understood and expected that performance will move beyond the Threshold as technology capability improves.





Estimated Development and Sustainment Costs



IS ICD contains ROM estimates

- How much can the DoD afford to invest in this capability?
- Consistent annual level of investment

Hardware Refresh and System Enhancements & Integration:

- Estimated sustainment costs over the life cycle of the program..

Application and System Software Development and Acquisition:

- Estimated development and integration costs for the lifetime of the program.



Successor Documents for IS-ICDs and IS-CDDs

- CDDs are Not Required as Successor Documents for Non-MDAP IS-ICDs; CPDs are Not Required as Successor Documents for IS-CDDs.
 - Sponsors have management flexibility for successor documents
 - JCIDS Manual provides examples of potential IS ICD/CDD follow-on documents (actual names, content, and approval TBD by the delegated validation authority):
 - Requirements Definition Package (RDP) – identifies KPPs and non-materiel changes
 - Capability Drop (CD) – lower level document that specifies the characteristics of a “widget” or “app” for partial deployment of the solution
- FCB is Briefed Every 2nd Year After Validation on Progress Toward Delivering the Solution (May Recommend JROC Oversight)



Requirements Definition Packages (RDPs)

- RDP is an Example – *It Is Not a JCIDS Document*
 - Created to show how requirements can be broken into deliverable increments
 - Components define content and approval process
- Provides a More Detailed Definition of One or More Capabilities in the ICD
 - Enables detailed design activity
 - Enables detailed costing of the requirements
- Provides a Link Between the ICD (Requirements) and the Acquisition and Programming Processes
- Approved by the Delegated Requirements Management Authority
 - FO/GO-level body that holds authority over, and provides governance for requirements



Capability Drops (CDs)

- CD is an Example – *It Is Not a JCIDS Document*
 - Managing delivery of capabilities through more specifically defined subsets of an RDP
 - The details of how to do this are left to the components and the acquisition process
- The RDP is Further Broken Down into CDs to Deliver Individual “Widgets” or “Slices” of Capability
- The Results of the CD Development are Released Incrementally Through Full Deployment Decisions as They Are Ready
- Approved by the Delegated Requirements Management Authority and the Component PM lead



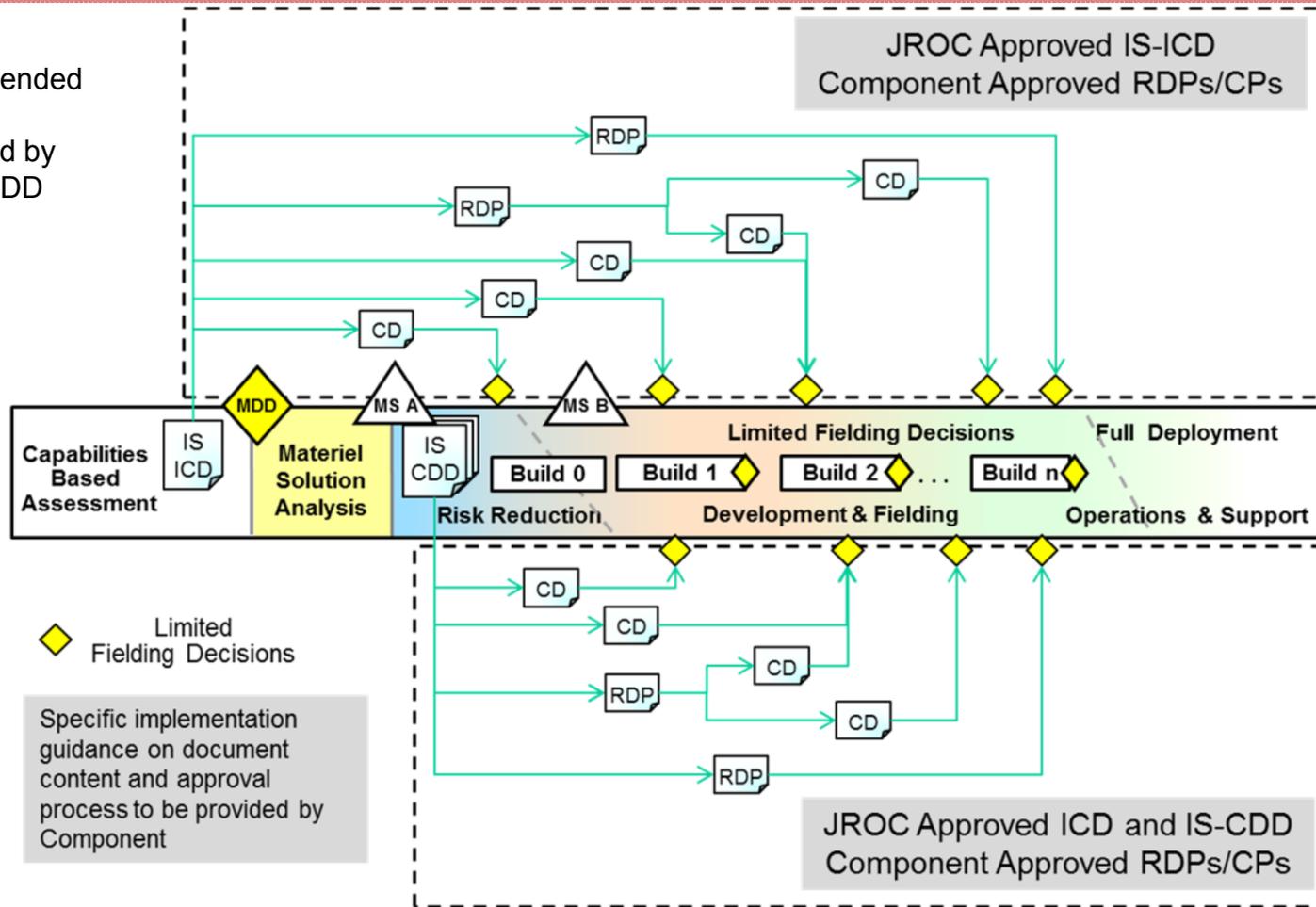
Managing an IS Requirement Using the IT Box Construct

- As the IS-ICD and IS-CDD only streamline the applicable requirements processes, the Sponsor must still ensure compliance with acquisition policy and processes in DoDI 5000.02, and Information Support Plan (ISP) policy and processes in accordance with DoDI 8330.01.
- Since the standard CDD and CPD are not typically required, an IS-ICD or IS-CDD provides Sponsors the flexibility to manage IS requirements with alternate documents and validation processes as necessary, as long as development efforts remain within the boundaries of the validated IT-Box and any additional guidance provided by the validation authority.



Example of IS-ICD or IS-CDD Successor Documents

Illustrative - not intended to limit potential flexibilities provided by the IS-ICD or IS-CDD





Converting Existing ICDs and CDDs

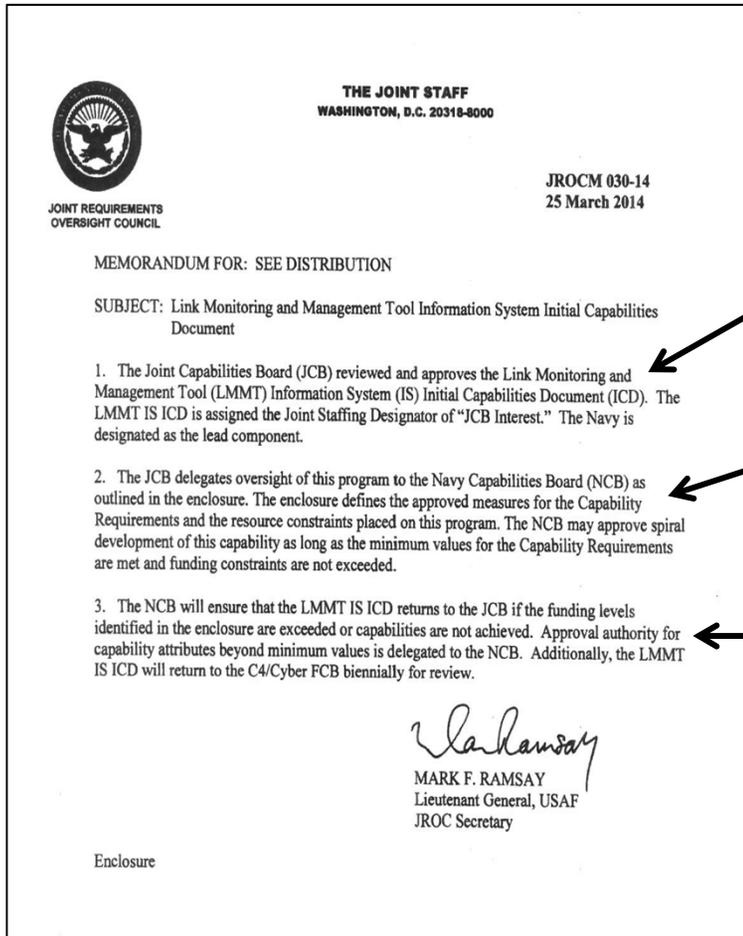
- ICD Conversion
 - Brief the FCB/JCB on the request
 - Include information necessary for the IT Box
 - Minimum performance for capabilities
 - ROM costs for development and sustainment
 - Identification of Requirements Management GO/FO body
 - Work with FCB to draft appropriate JROCM
- CDD Conversion (for MDAPs)
 - Brief the FCB/JCB on the request
 - Show KPP changes from Threshold/Objective to minimum performance required
 - Identify Requirements Management GO/FO body
 - Capture costs from the Affordability section of the CDD
 - Work with FCB to draft appropriate JROCM



Examples



Example JROC IS-ICD Approval Memo



JROC approval. JSD of "JCD Interest" assigned

Oversight delegated to the Navy Capabilities Board

Required to return to JCB if funding levels exceed or capabilities not achieved.



Example Quad Chart for Briefing JROC

UNCLASSIFIED

LINK MONITORING AND MANAGEMENT TOOL IS ICD

<u>JCIDS INFO</u>	<u>SPECIFICS</u>
<p>REQ'D ACTION: Review and assess cost, performance and IT Box construct; Approve JSD</p> <p>DOC TYPE: IS ICD SPONSOR: Navy ACAT: III JSD: JCB Interest NEXT MS: Build Decision 1 DRIVER: FY16 IOC SUPPORT FCB: N/A</p>	<p>DESCRIPTION:</p> <ul style="list-style-type: none">• Tier 1: Command and Control; Net-Centric• Tier 2: Organize, Understand, Planning, Decide, Direct, and Monitor; Information Transport, Enterprise Services, Net Management, and Information Assurance• Identifies critical software-enabled capabilities needed to achieve time sensitive planning and maintenance requirements of the multi-TDL network
<p><u>SUPPORTING DOCUMENTS</u></p> <ul style="list-style-type: none">• JP 3-0, Joint Operations, 11 August 2011• JROCM 116-02, JICO Support System ORD (Automated Network Management and Monitoring)• JROCM 109-11, 19 July 2011, FY13-17 CGA Results and Recommendations for Mitigating Capability Gaps(69A, 69B, and 69D)• JROCM 094-12, Maritime Tactical C2 ICD (Maintain SA across multiple networks, monitor network health)	<p><u>STAFFING COMMENTS</u></p> <p>O-6 level staffing comments</p> <ul style="list-style-type: none">• 4 Critical comments resolved <p>SERVICE POSITIONS / CCMD POSITION:</p> <ul style="list-style-type: none">• All Services and CCMDs concur <p>Recommendation: Endorse LMMT IS ICD</p>

UNCLASSIFIED



Conclusion

- The IT box is the right thing to do for IT programs
 - Provides required flexibility for IT program success
 - Allows more effective support to the Warfighter
- High-level guidance and agreement
 - VCJCS, JROC, DOD CIO
 - Supports FY 2010 NDAA:
“The Secretary of Defense shall develop and implement a new acquisition process for IT systems Based on recommendations for the DSB Task Force on Acquisition of IT.”
- Detailed Guidance for both the IS-ICD and IS-CDD are in the JCIDS Manual, 12 Feb 2015