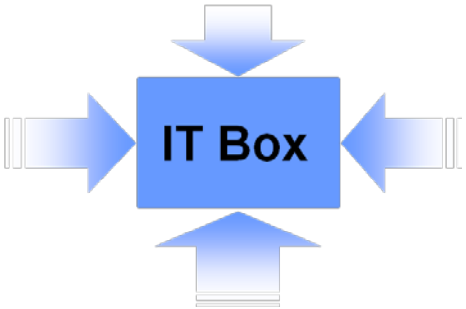
Defense Acquisition University

# The Information Technology (IT) Box
# A Primer

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22 Feb 2016

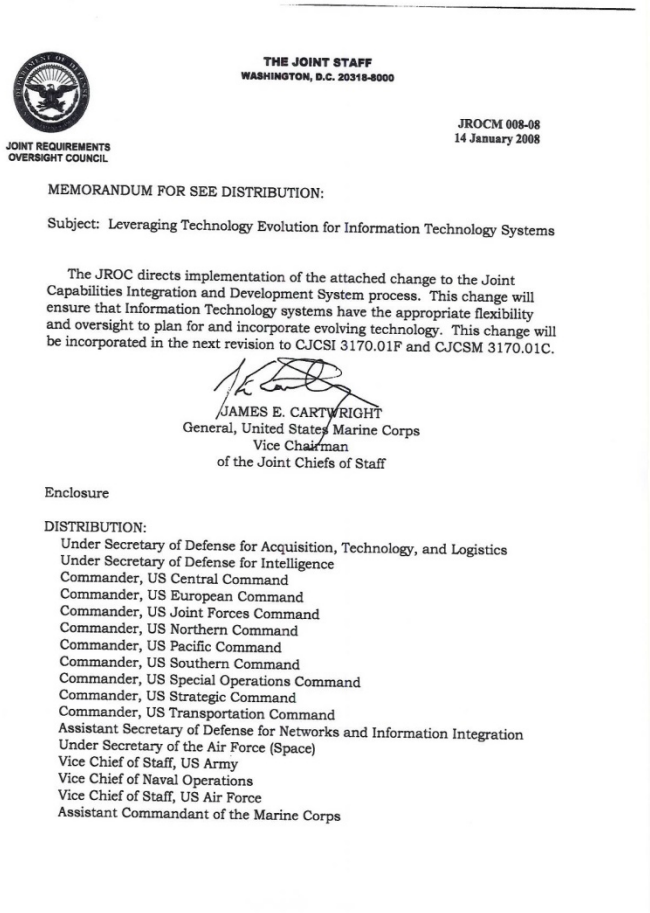
Sources:
- CJCSI 3170.01I, 23 Jan 2015 with errata 5 May 2015
- JCIDS Manual, 12 Feb 2015 with errata 18 Dec 2015

# 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

# 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 3170.01 and JCIDS Manual
  - Expands on the concepts in JROCM 008-08.



THE JOINT STAFF
WASHINGTON, D.C. 20318-9000

JOINT REQUIREMENTS OVERSIGHT COUNCIL

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:
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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

# Assumptions

- The Acquisition and Programming communities agree that IS development is different from weapon systems
  - Modification of processes and documentation are appropriate
- The Test communities (DT/OT) can deliver on more responsive testing to enable more rapid delivery of capabilities
  - Necessitates incremental/iterative development and testing
- Validation Authority for managing IS requirements can be pushed down to the lowest level to allow for rapid changes/decisions

# Reasons for Changes

- Traditional JCIDS and documents are not supportive of the rapid pace of development necessary with IS systems/capabilities
- 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 to changes in the operational environment
- Desired Outcome - Provide agile and responsive capability requirements process for rapid development of IS capabilities

*DODD 5000.02 provides some software intensive program models

# The IT Box

**Requirements Organization & Oversight**

Flag-level oversight through [describe oversight body]

- Chair
- Members (list)

**IS-ICD**

**Capability Requirements & Attribute. Initial Minimum Values**

List Capabilities & initial minimum values

**JROC Approved IS-ICD or IS-CDD**

**Hardware Refresh and System Enhancements & Integration Cost Controls**

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

**IS-CDD**

**Key Performance Parameters**

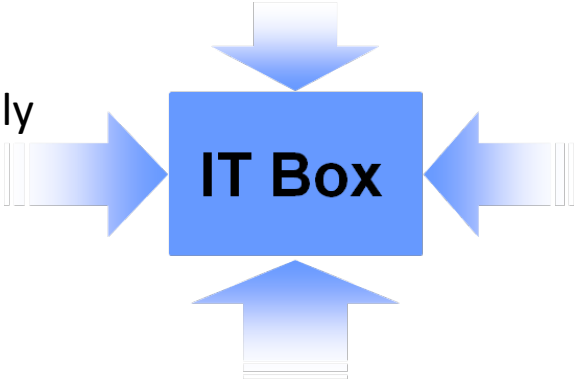
List KPPs

**Application and System Software Development Cost Controls**

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

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

# 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)
  - Software for services (DoDI 5000.02 and JCIDS do not apply to acquisition of services)
  - Hardware development efforts or capturing capability requirements which span a broad scope of combined hardware, software, and/or DOTmLPF-P efforts.

# Information System ICD (IS-ICD)

- IS-ICDs Implement the 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
- Capability Development Documents (CDDs) are not required as successor documents for an IS-ICD – the delegated authority may prescribe alternate document formats

# 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, such as a manned or unmanned vehicle, 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

***Capability Requirements & Attributes***

List operational attributes / initial values (not threshold & objectives)

**Net-Ready KPP**

Added by JCIDS Manual Feb 2015

**JROC-Approved IS-ICD**
Oversight Organization
Execution Organization

***Hardware Refresh and System Enhancements & Integration Cost Controls***

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

***Application and System Software Development Cost Controls***

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

# Information Systems CDD (IS-CDD)

- IS-CDD
  - Implements IT Box model used; <u>but is not a follow-on to an IS-ICD</u>
  - 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 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.***

**JROC-Approved IS-CDD**
Oversight Organization
Execution Organization

***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

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

# Key Difference In Usage: IS-ICD & IS-CDD

- Key difference in usage of IS-ICDs and IS-CDDs is whether the AoA takes place before or after delegating authorities under the IT Box.
  - ***For an IS-ICD to be appropriate, it must be very clear from the CBA that an IS solution is the only viable approach to be considered.***
  - The AoA conducted in the MSA phase takes place after delegating authorities under the IT Box and will therefore only consider IS alternatives.
- An IS-CDD is more appropriate when an IS solution is not presumed at the time the ICD is validated and the Materiel Development Decision (MDD) approved, or other materiel and/or non-materiel solution(s) are expected to be necessary along with the IS solution.
  - ***The IS-CDD is a result of the AoA conducted in the MSA phase*** and represents an IS solution for part or all of the capability requirements validated in the ICD.

# 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.

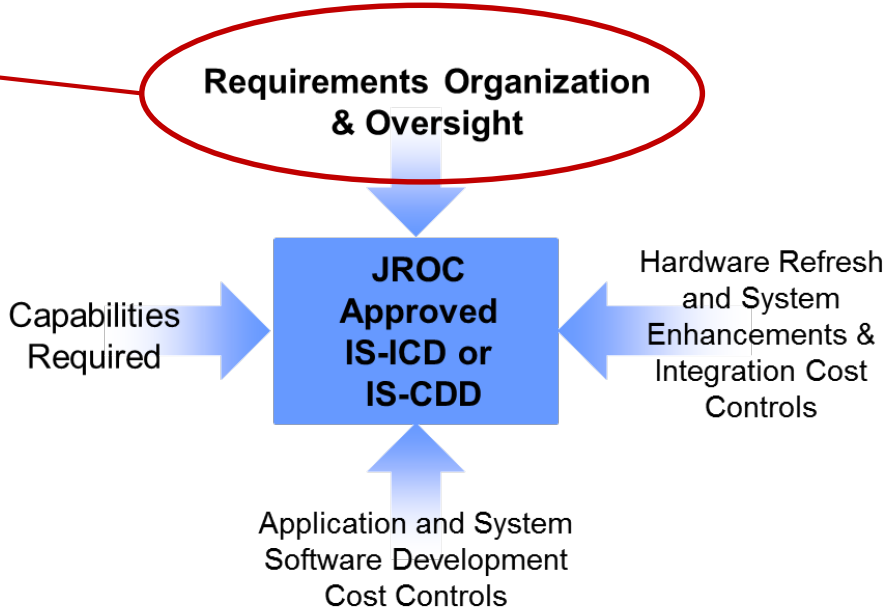
# Governance and Requirements Management

## 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.



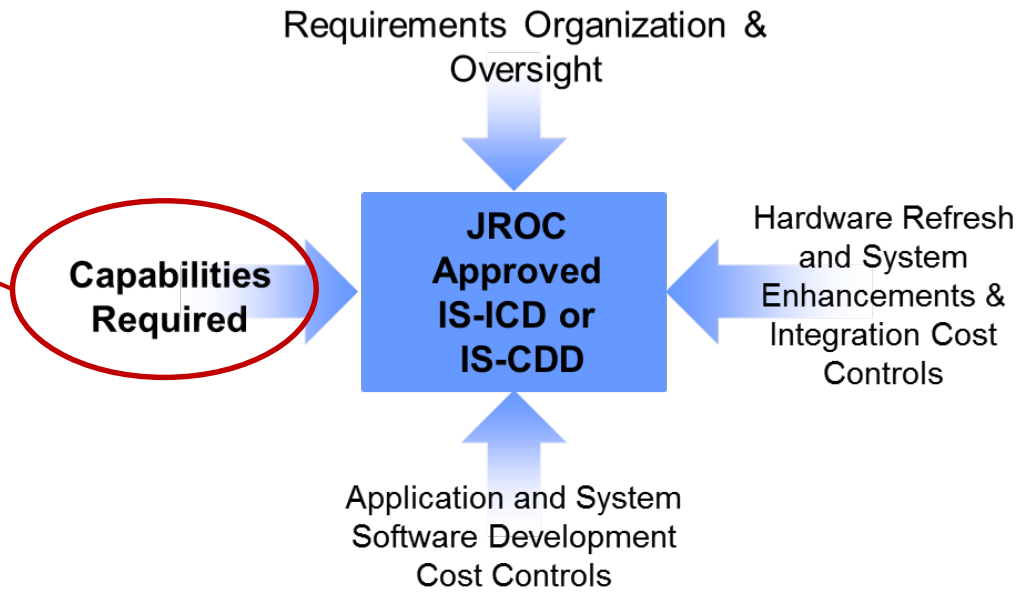
# Capabilities Required

**Validated Capability Requirements and Initial Minimum Levels:**

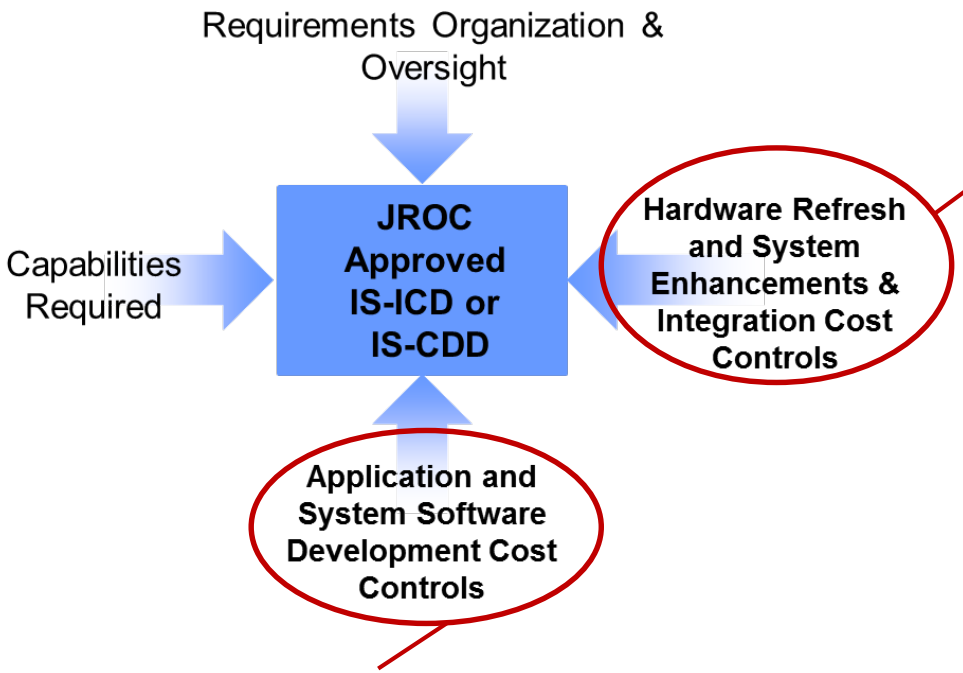
The initial minimum performance levels required for the entire IS program.

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




**Hardware Refresh and System Enhancements & Integration:**
Estimated sustainment costs over the life cycle of the program..

**Cost estimates**

- Seek help for initial and updated cost estimates from program office/ acquisition command
- Cite applicable life cycle cost analysis
- Ensure cost estimates have been reviewed by Component Cost Agency

**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 IS-ICDs; CPDs are Not required as successor documents for IS-CDDs.
  - Sponsors have management flexibility for successor documents
  - JCIDS Manual provides following examples of potential IS ICD/IS-CDD follow-on documents (actual names, content, and approval determined by the delegated validation authority):
    - Requirements Definition Package (RDP) – identifies KPPs, KSAs, and APAs, 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 (FCB may recommend elevating to JROC Oversight)

Recommend RDPs and CDs be co-developed by the RM and PM Office

# Requirements Definition Packages (RDPs)

- RDP is an example – *It Is Not a JCIDS Document; It identifies performance attributes, it does not contain software specs*
  - Created to show how requirements can be broken into deliverable increments
  - Components define content and approval process
- Provides a more detailed definition of capabilities in the IS-ICD
  - Enables detailed design activity
  - Enables detailed costing of the requirements
- Provides link between the IS-ICD and the acquisition and program budget processes
- Approved by the delegated requirements management authority
  - FO/GO-level body that holds authority over, and provides governance for requirements

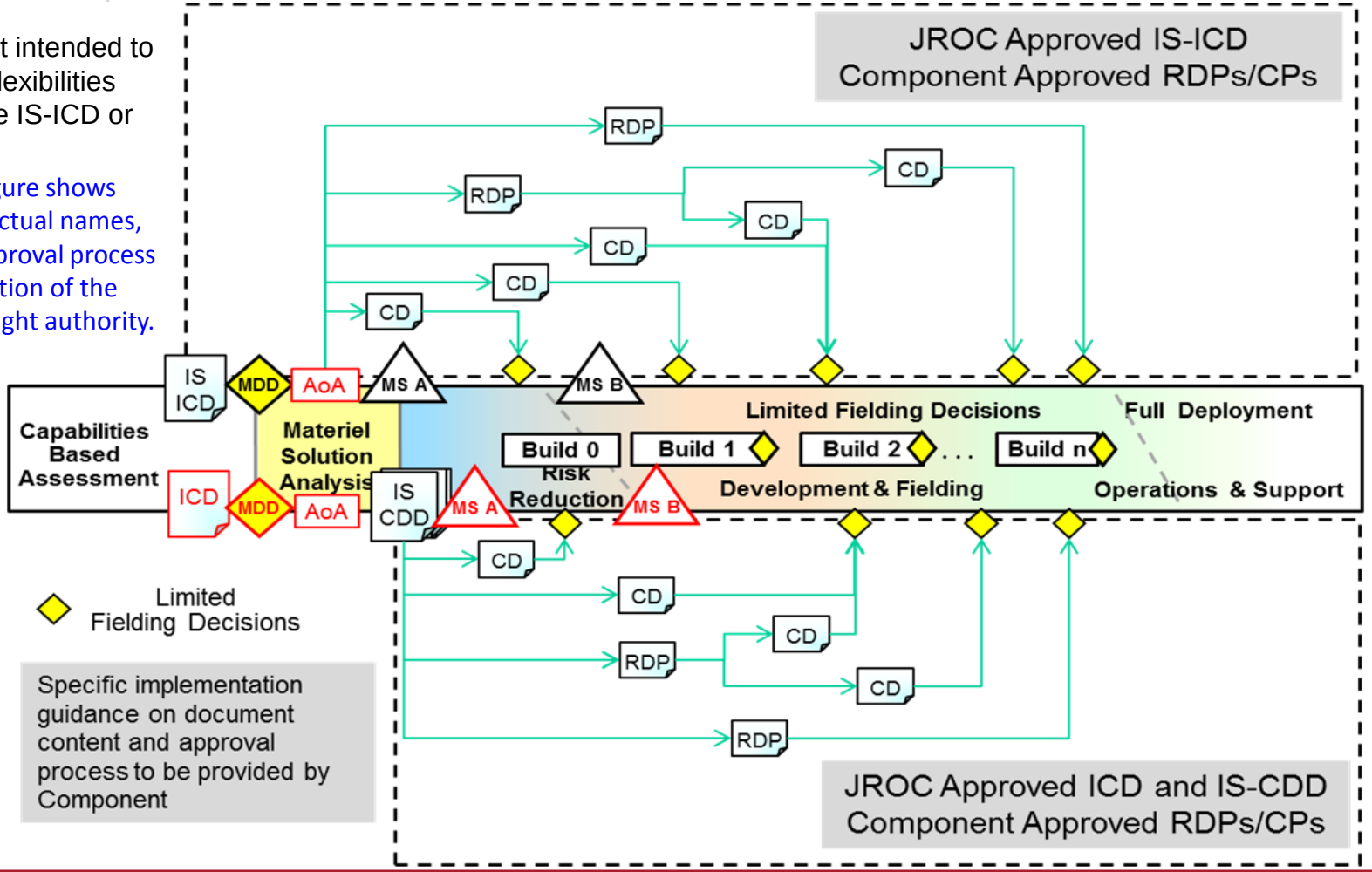
# Capability Drops (CDs)

- CD is an Example – *It Is Not a JCIDS Document; It describes performance characteristics, it does not contain software specs*
  - Manages 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 CD development are released incrementally through full deployment decisions as they are ready
- Approval may delegated to lowest appropriate level (as determined by the oversight authority) to ensure timely decision making

# Example of IS-ICD or IS-CDD Successor Documents

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

Although this figure shows RDPs and CDs, actual names, content, and approval process are at the discretion of the delegated oversight authority.



# 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

THE JOINT STAFF
WASHINGTON, D.C. 20318-8000

JOINT REQUIREMENTS OVERSIGHT COUNCIL

JROCM 030-14
25 March 2014

MEMORANDUM FOR: SEE DISTRIBUTION

SUBJECT: Link Monitoring and Management Tool Information System Initial Capabilities Document

1. The Joint Capabilities Board (JCB) reviewed and approves the Link Monitoring and Management Tool (LMMT) Information System (IS) Initial Capabilities Document (ICD). The LMMT IS ICD is assigned the Joint Staffing Designator of "JCB Interest." The Navy is designated as the lead component.

2. The JCB delegates oversight of this program to the Navy Capabilities Board (NCB) as outlined in the enclosure. The enclosure defines the approved measures for the Capability Requirements and the resource constraints placed on this program. The NCB may approve spiral development of this capability as long as the minimum values for the Capability Requirements are met and funding constraints are not exceeded.

3. The NCB will ensure that the LMMT IS ICD returns to the JCB if the funding levels identified in the enclosure are exceeded or capabilities are not achieved. Approval authority for capability attributes beyond minimum values is delegated to the NCB. Additionally, the LMMT IS ICD will return to the C4/Cyber FCB biennially for review.

MARK F. RAMSAY
Lieutenant General, USAF
JROC Secretary

Enclosure

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*

### JCIDS INFO

REQ'D ACTION: Review and assess cost, performance and IT Box construct; Approve JSD

DOC TYPE: IS ICD
SPONSOR: Navy
ACAT: III
JSD: JCB Interest
NEXT MS: Build Decision 1
DRIVER: FY16 IOC
SUPPORT FCB: N/A

SCHEDULE

| | |
|---|---|
| C4/Cyber WG: | 15 Jan 14 |
| C4/Cyber FCB: | 19 Feb 14 |
| JCB: | TBD |

### SPECIFICS

DESCRIPTION:
- 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

### SUPPORTING DOCUMENTS

- 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)

### STAFFING COMMENTS

O-6 level staffing comments
- 4 Critical comments resolved

SERVICE POSITIONS / CCMD POSITION:
- All Services and CCMDs concur

Recommendation: Endorse LMMT IS ICD

UNCLASSIFIED