



CHAIRMAN OF THE JOINT CHIEFS OF STAFF MANUAL

J-8

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CJCSM 3170.01C

1 May 2007

OPERATION OF THE JOINT CAPABILITIES INTEGRATION AND DEVELOPMENT SYSTEM

References: See Enclosure I.

1. Purpose. This manual sets forth guidelines and procedures for operation of the Joint Capabilities Integration and Development System (JCIDS) regarding the development and staffing of JCIDS documents in support of reference a.
2. Cancellation. CJCSM 3170.01B, 11 May 2005, "Operation of the Joint Capabilities Integration and Development System," is canceled.
3. Applicability. In accordance with references a and b, this manual applies to the Joint Staff, Services, combatant commands, Defense agencies, Department of Defense (DOD) field activities and joint and combined activities. It also applies to other agencies preparing and submitting JCIDS documents in accordance with references a, b, and c.
4. Summary. Guidance on the conduct of JCIDS analyses, the development of key performance parameters, and the JCIDS staffing process are provided in this manual. It also contains procedures and instructions regarding the staffing and development of joint capabilities documents (JCDs), initial capabilities documents (ICDs), capability development documents (CDDs), capability production documents (CPDs), and joint doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) change recommendations (DCRs).
5. Summary of Changes
 - a. Provides additional guidance on the capabilities-based assessment (CBA) process and provides guidelines for use in determining the adequacy of the analysis.

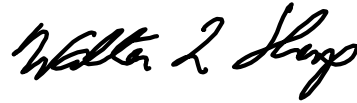
- b. Per reference d, implements streamlining changes to the staffing process.
- c. Per reference e, provides new guidance on the incorporation of the safe weapons endorsement.
- d. Per reference f, incorporates the mandatory force protection and survivability key performance parameters (KPP).
- e. Per reference g, incorporates various changes to include: incorporation of joint capability areas (JCA); defining a more rapid process for updating KPPs; deleting the post independent analysis as a requirement; adding the requirement for a CBA study plan for Joint Requirements Oversight Council (JROC)-directed CBAs; including an alternate CONOPs in the FSA; requiring a more complete description of the threats and mitigation strategy; and permitting the use of CONOPs to initiate a CBA.
- f. Per reference h, provides new guidance on implementation of a mandatory sustainment KPP and selectively applied system training and energy efficiency KPPs; additional guidance on a process to identify appropriate KPPs and key system attributes (KSA) for each CDD; and direction to identify the timeframe when capabilities are required.
- g. Per reference i, implements new guidance on timelines for comment resolution and the process for ensuring critical comments are resolved in a timely manner.
- h. Removes the requirement for functional process owners (FPOs) to provide an endorsement statement.
- i. Removes the requirement for an insensitive munitions certification or waiver per JROC direction.

6. Releasability. This manual is approved for public release; distribution is unlimited. DOD components (to include the combatant commands), other federal agencies, and the public may obtain copies of this manual through the Internet from the CJCS Directives Home Page--http://www.dtic.mil/cjcs_directives.

CJCSM 3170.01C

1 May 2007

7. Effective Date. This manual is effective upon receipt.



WALTER L. SHARP
Lieutenant General, USA
Director, Joint Staff

Enclosures:

- A -- Capabilities-Based Assessment Process
- B -- Performance Attributes and Key Performance Parameters
- C -- JCIDS Staffing Process
- D -- Joint Capabilities Document
- E -- Initial Capabilities Document
- F -- Capability Development Document
- G -- Capability Production Document
- H -- Joint DOTMLPF Change Recommendation
- I -- References
- GL -- Glossary

CJCSM 3170.01C
1 May 2007

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CJCSM 3170.01C
1 May 2007

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The following is a list of effective pages for. Use this list to verify the currency and completeness of the document. An "O" indicates a page in the original document.

PAGE	CHANGE	PAGE	CHANGE
1 thru 4	O	F-1 thru F-8	O
i thru x	O	F-A-1 thru F-A-8	O
A-1 thru A-18	O	G-1 thru G-6	O
B-1 thru B-10	O	G-A-1 thru G-A-8	O
B-A-1 thru B-A-6	O	H-1 thru H-8	O
C-1 thru C-14	O	H-A-1 thru H-A-6	O
D-1 thru D-4	O	I-1 thru I-2	O
D-A-1 thru D-A-4	O	GL-1 thru GL-22	O
E-1 thru E-4	O		O
E-A-1 thru E-A-6	O		O

CJCSM 3170.01C
1 May 2007

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CJCSM 3170.01C
1 May 2007

RECORD OF CHANGES

Change No.	Date of Change	Date Entered	Name of Person Entering Change

CJCSM 3170.01C
1 May 2007

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TABLE OF CONTENTS

ENCLOSURE	PAGE
A	CAPABILITIES-BASED ASSESSMENT PROCESS A-1
	Capabilities-Based Assessment (CBA)..... A-1
	Exemplar CBA Process Flows A-3
	CBA Study Team Organization and Study Plan..... A-7
	Functional Area Analysis (FAA)..... A-8
	Functional Needs Analysis..... A-11
	Functional Solution Analysis A-13
	Joint Concept Technology Demonstration (JCTD) and Advanced Concept Technology Demonstration (ACTD) Transition A-17
	Prototypes A-18
	Joint IED Defeat Initiative Transition..... A-18
B	PERFORMANCE ATTRIBUTES AND KEY PERFORMANCE PARAMETERS..... B-1
	Performance Attributes and Key Performance Parameters..... B-1
	Required KPPs..... B-2
	Development of KPPs..... B-7
	Changing KPPs..... B-10
	Appendix A – Attributes for Potential Key Performance Parameter Designation B-A-1
C	JCIDS STAFFING PROCESS C-1
	Process Overview..... C-1
	Certifications and Weapon Safety Endorsement..... C-4
	Staffing Process..... C-6
	Waivers C-13
D	JOINT CAPABILITIES DOCUMENT D-1
	General D-1
	JCD Focus D-1
	JCD Development and Documentation D-2
	JCD Validation and Approval D-3
	JCD Publication and Archiving..... D-3

ENCLOSURE	PAGE
Appendix A – Joint Capabilities Document Format	D-A-1
E INITIAL CAPABILITIES DOCUMENT	E-1
General	E-1
ICD Focus	E-2
ICD Development and Documentation	E-2
ICD Validation and Approval	E-3
ICD Publication and Archiving.....	E-3
Appendix A – Initial Capabilities Document Format	E-A-1
F CAPABILITY DEVELOPMENT DOCUMENT	F-1
General	F-1
CDD Focus.....	F-4
CDD Development and Documentation.....	F-4
CDD Validation and Approval.....	F-5
Certifications and Weapon Safety Endorsement.....	F-5
Formal CDD Staffing	F-5
CDD Review and Revalidation.....	F-6
CDD Publication and Archiving	F-6
System Capabilities	F-6
Key Performance Parameters	F-6
Appendix A – Capability Development Document Format	F-A-1
G CAPABILITY PRODUCTION DOCUMENT	G-1
General	G-1
CPD Focus	G-3
CPD Development and Documentation	G-3
CPD Validation and Approval	G-4
Certifications and Weapon safety Endorsement	G-4
Formal CPD Staffing.....	G-4
CPD Review and Approval	G-4
CPD Publication and Archiving.....	G-5
System Capabilities	G-5
Key Performance Parameters	G-6
Appendix A – Capability Production Document Format	G-A-1

ENCLOSURE

PAGE

H	JOINT DOTMLPF CHANGE RECOMMENDATION.....	H-1
	Purpose.....	H-1
	Procedures -- Integrating Joint DCRs Into the JROC	
	Process	H-1
	Formal Change Recommendation Review Process	H-3
	Implementation of Joint DCRs.....	H-3
	Appendix A – Joint DOTMLPF Change	
	Recommendation Format	H-A-1
I	REFERENCES.....	I-1
	GLOSSARY	GL-1
	Part I – Acronyms.....	GL-1
	Part II – Definitions	GL-5

FIGURES

A-1	Key Strategic Documents.....	A-2
A-2	CBA Flow and Resulting Documents	A-3
A-3	Exemplar Combatant Command CBA Process	A-4
A-4	Exemplar FCB CBA Process	A-5
A-5	Exemplar Sponsor CBA Process.....	A-6
B-1	CDD and CPD Attributes.....	B-9
C-1	Gatekeeping Process.....	C-1
C-2	JROC Interest Staffing Process	C-7
C-3	Joint Integration Staffing Process	C-10
C-4	Joint Information and Independent Staffing Process	C-11
H-1	Joint Staff DOTMLPF FPOs	H-5

TABLES

A-1	Functional Area Analysis (FAA) Guide.....	A-10
A-2	Functional Needs Analysis (FNA) Guide	A-13
A-3	Functional Solutions Analysis (FSA) Guide	A-16
C-1	Staffing Matrix	C-4
D-1	JCD Linkage to Program Documents	D-2
E-1	ICD Linkage to Program Documents	E-1
F-1	CDD Linkage to Program Documents.....	F-2
G-1	CPD Linkage to Program Documents	G-2

CJCSM 3170.01C
1 May 2007

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ENCLOSURE A

CAPABILITIES-BASED ASSESSMENT PROCESS

1. Capability-Based Assessment (CBA). The CBA is the analysis part of the JCIDS process that defines capability needs, capability gaps, capability excesses, and approaches to provide those capabilities within a specified functional or operational area. Based on strategic guidance and centered on the Joint Operations Concepts (JOPsC) reference j, CBAs become the basis for the development of JCIDS documents and result in the potential development and deployment of integrated, joint capabilities.

a. A CBA may be based on a JROC approved Joint Integrating Concept (JIC); a CONOPs endorsed by a combatant command, Service, or defense agency; or an identified operational need. A CBA may be initiated by any number of organizations, to include combatant commands, Functional Capabilities Boards (FCBs), Services, and Defense agencies.

b. The CBA process is rooted in a chain of strategic guidance documents. The National Security Strategy, the National Defense Strategy (NDS) and the National Military Strategy (NMS) provide the overarching description of the country's defense interests, objectives, and priorities. In addition, the Strategic Planning Guidance, the Contingency Planning Guidance, and the Quadrennial Defense Review Report contain further refinement of objectives and priorities, and help provide a framework for a CBA.

c. This guidance is further refined at the battle space level in reference j, as shown in Figure A-1. The Joint Operations Concepts -- consisting of the Capstone Concept for Joint Operations (CCJO), and the various Joint Operating Concepts (JOCs), the Joint Functional Concepts, and the JICs -- provide a common vision of how the Department of Defense would like to operate in the future, along with the desired attributes of the force.

d. These documents provide the foundation for a formal JCIDS CBA. The major outputs of a CBA are: the functional area analysis (FAA), a description of the mission area being assessed; the functional needs analysis (FNA), an assessment of how well the current or programmed force performs that mission; and the functional solutions analysis (FSA), an analysis of possible solutions to shortcomings in mission performance.

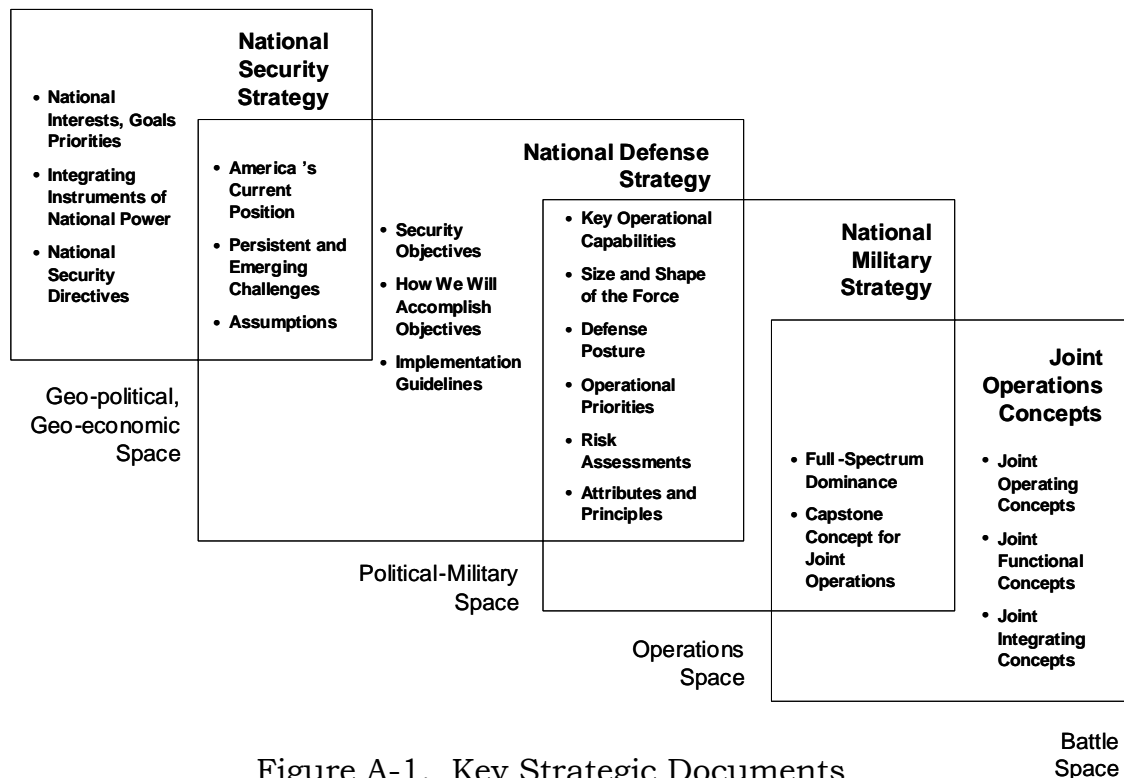


Figure A-1. Key Strategic Documents

e. When a CONOPs is used as the basis for a CBA, it must be first endorsed by the JROC, combatant command, or sponsoring DOD component. CONOPs that have not been staffed through the JROC for endorsement must be attached as an appendix to the JCD, ICD, or joint DCR so that the reviewers can understand the context used to identify and evaluate the capabilities identified. There is no strict format for a CONOPs, but it should cover the following areas at a minimum: the problem being addressed, the mission, the commander's intent, an operational overview, functions or effects to be carried out/achieved, and the roles and responsibilities of affected organizations.

f. Figure A-2 shows the general flow of the CBA and the key documents that may result from a CBA. In particular, combatant commands and FCBs may sponsor a JCD resulting from an FAA and FNA into the Joint Staff for JROC approval. For a CBA that will lead to an ICD, a sponsor must participate in the CBA as early as possible to ensure the resulting document is a logical result of the assessment. The sponsor-initiated JCIDS analyses also provide the necessary information for the development of joint DCRs.

g. The CBA should include information and analysis that will support development of integrated architectures that are used to fully define solutions to capability gaps; furthermore, the CBA can use existing architectures as means of assessing current and programmed approaches to the military problems being assessed. The results of the CBA are also used to support an analysis of alternatives (AoA) when required. In addition, joint experimentation

(reference j) and technology development are linked to the CBA process. The results of experimentation may be used as input to the CBA; or, the results of the CBA may direct new experimentation efforts or identify areas where additional technology development is required to deliver the required capability. Due to the wide array of issues that will be considered through the CBA process, the breadth and depth of the analysis must be tailored to suit the issue. The depth of analysis for a potential acquisition category (ACAT) III program is not expected to be the same as it would be for a potential ACAT I program. The analysis must be sufficient for the validation authority to validate the capabilities and capability gaps identified.

h. Organizing and executing a successful JCIDS CBA is a significant challenge. The JOpsC are specifically designed to induce progress in the Department of Defense, and achieving its aims as well as the demands of the strategic guidance poses significant challenges to the force. Consequently, a CBA, particularly one aimed at a broad mission area, must be conducted with a capable joint team that can bring the necessary spectrum of expertise to bear on the problem. While this manual outlines the CBA process, other documents (such as references k, l, and m) offer much more comprehensive advice in performing such analyses.

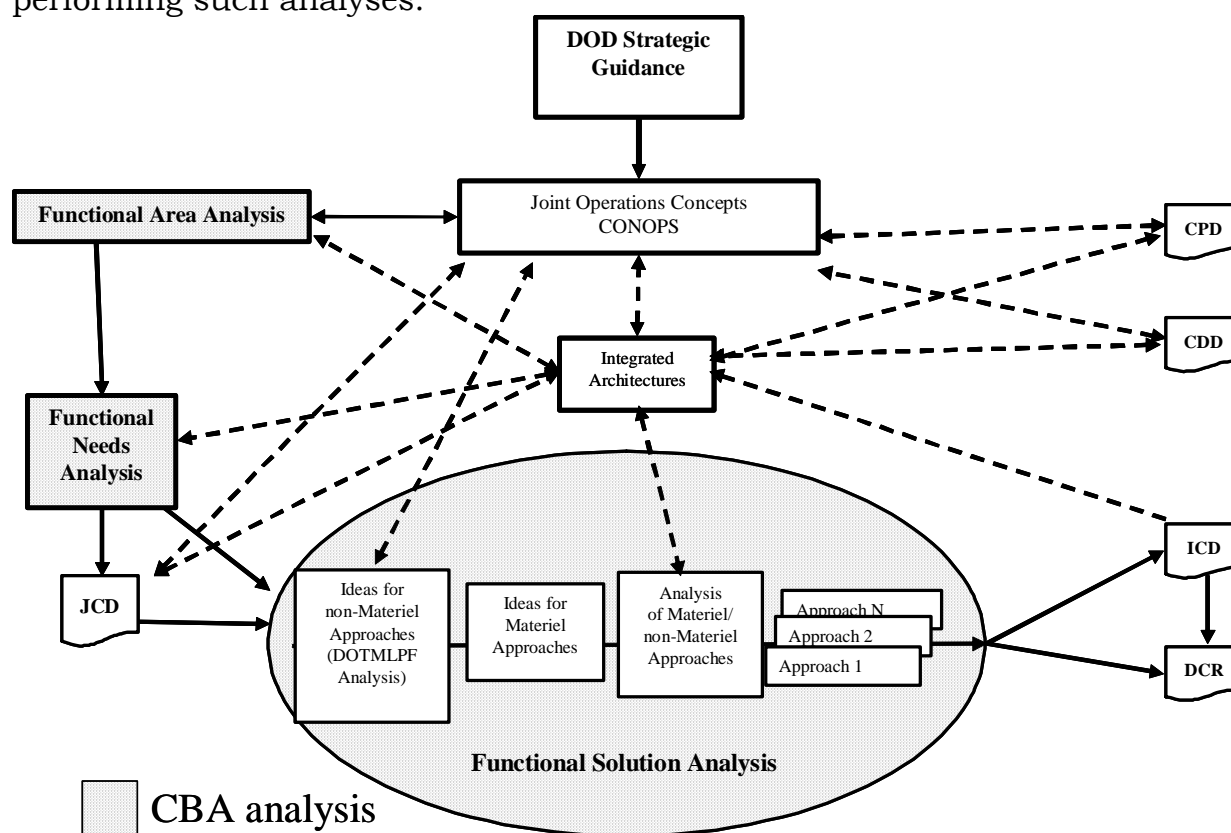


Figure A-2. CBA Flow and Resulting Documents

2. Exemplar CBA Process Flows

a. Figure A-3 describes the CBA process as it could be used by a combatant command. The combatant commander may initiate the CBA process based on: a CONOPs developed for the command's Unified Command Plan (UCP), Joint Strategic Capabilities Plan (JSCP), or other assigned missions; a JROC directed and approved JIC where the combatant command is the lead; or the results of a Senior Warfighter Forum (SWarF). The CBA performed by the combatant command may consist of only the FAA and FNA. The results of these analyses will be documented in a JCD submitted by the combatant command for JROC validation. The JROC will assign a Service or agency as appropriate to perform the necessary FSAs and develop the requisite DCRs or ICDs to support AoAs (if required) and initiate the development of solutions to the gaps identified by the combatant command. The combatant command and the JROC will also identify those gaps where the department will take risk and not pursue solutions.

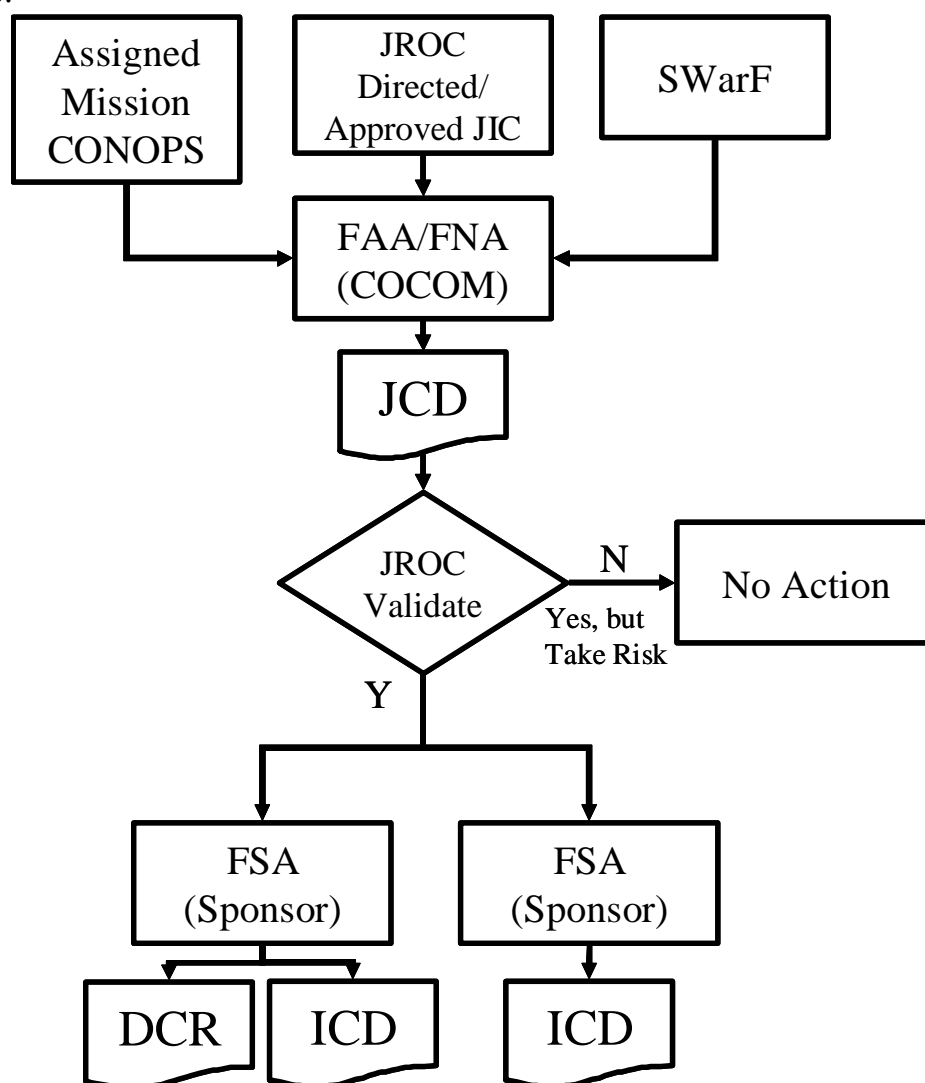


Figure A-3. Exemplar Combatant Command CBA Process

b. Figure A-4 describes the CBA process as it could be used by an FCB. The FCB initiates the CBA process based on a JROC-directed and approved JIC where the FCB is the lead. The CBA performed by the FCB will consist of only the FAA and FNA. The results of these analyses will be documented in a JCD submitted by the FCB for JROC validation. The JROC will assign a Service or agency as appropriate to perform the necessary FSAs and develop the requisite DCRs to initiate non-materiel changes or ICDs to support AoAs (if required) and to initiate the development of solutions to the gaps identified by the FCB. The FCB and the JROC will also identify those gaps where the department will take risk and not pursue solutions.

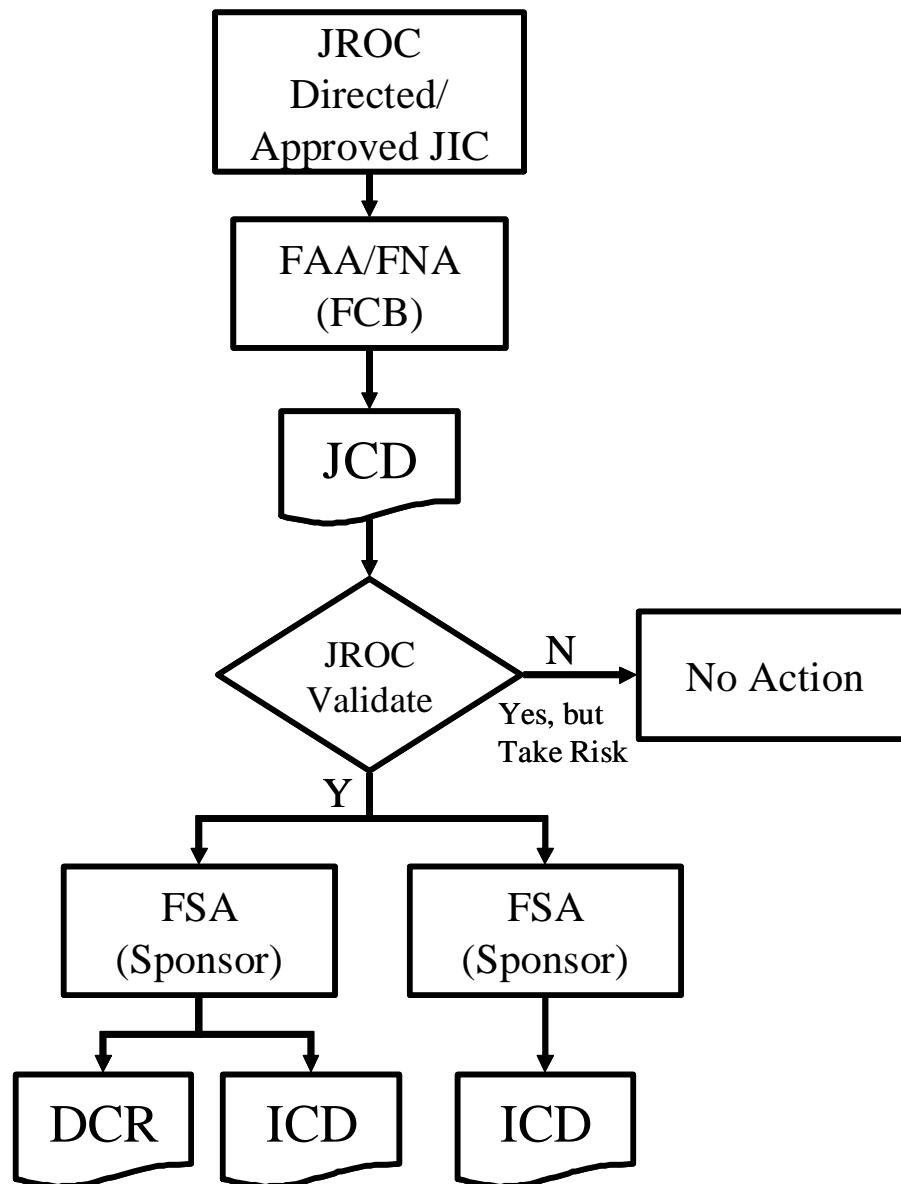


Figure A-4. Exemplar FCB CBA Process

c. Figure A-5 describes the CBA process as it could be used by a sponsor (Service or Defense agency). The sponsor may initiate the CBA process based on a sponsor CONOPs that is either derived from, or directly supports, the JOpsC or a valid operational need. The CBA performed by the sponsor begins with the FAA and FNA. At the conclusion of this portion of the CBA, the sponsor working with the lead FCB will determine whether or not to draft a JCD. If the assessment addresses a broad set of capabilities and gaps, then the development of a JCD is appropriate. If the assessment describes a very specific capability or gap unique to that sponsor, then it is more appropriate to continue the CBA with the performance of the FSA and the development of a DCR or ICD. The results of these analyses will be documented in a JCD, ICD, or DCR (as determined by the sponsor) and submitted by the sponsor to the

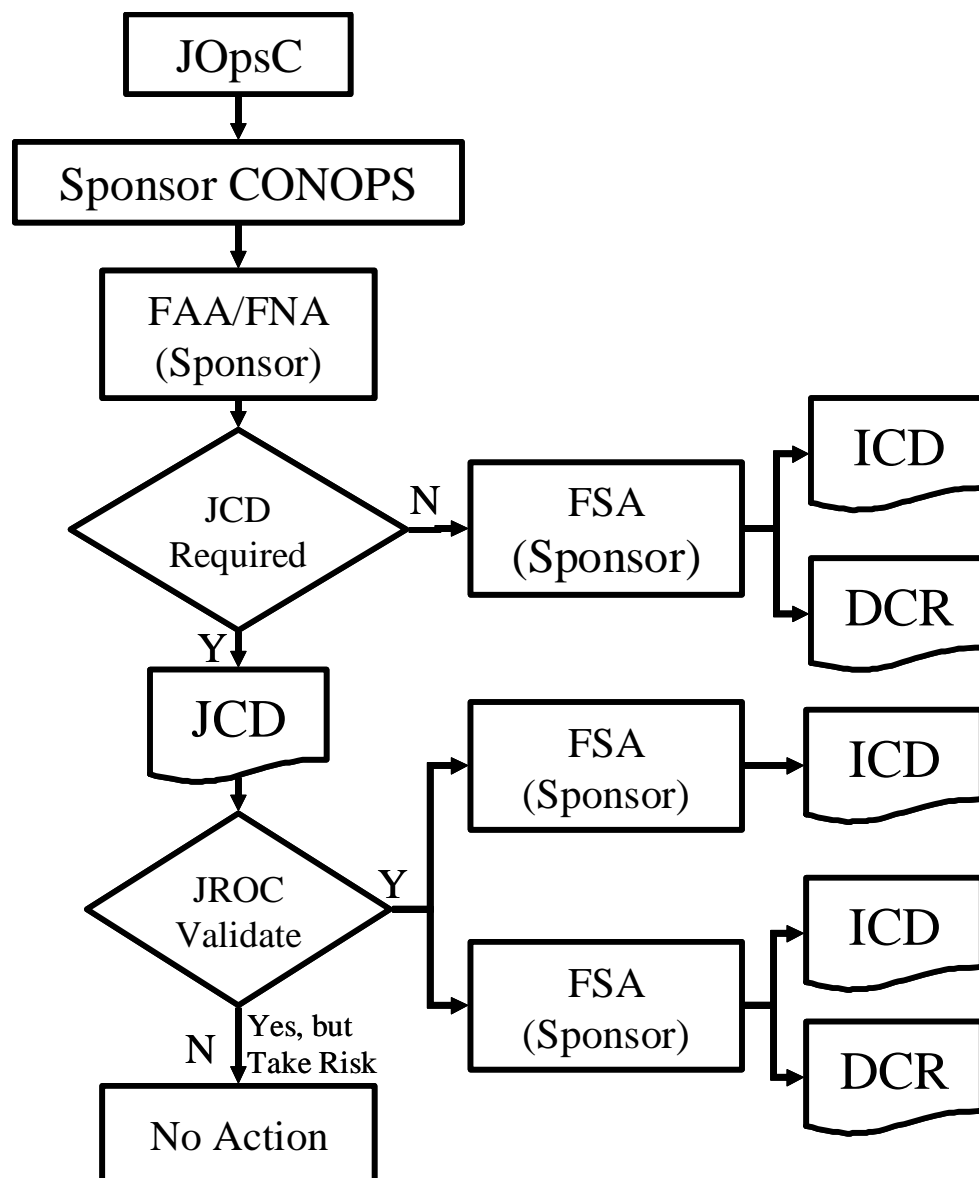


Figure A-5. Exemplar Sponsor CBA Process

JROC for validation. For the JCD, the JROC will assign an appropriate sponsor to perform the necessary FSAs and develop the requisite DCRs to initiate non-materiel changes or ICDs to initiate the development of solutions to the gaps identified by the FCB. For the ICD, the JROC will validate the gap and solution set as appropriate, or decide to take risk on the gap.

3. CBA Study Team Organization and Study Plan. The size and composition of a CBA study depends on the area being assessed, the time available to do the effort, and organization responsible for conducting the CBA. If directed by the JROC, the JROC will appoint a CBA team lead; otherwise, the organization initiating the CBA will identify the leader.

a. A CBA study team should contain at least the following types of expertise:

- (1) knowledge of adversary objectives and capabilities;
- (2) knowledge of current doctrinal approaches and capabilities;
- (3) knowledge of possible technical (materiel) alternatives and risks;
- (4) knowledge of possible policy and other non-materiel alternatives and risks;
- (5) analytical capability to assess the effectiveness, costs, and risks of alternatives;
- (6) ability to formulate and execute a joint assessment;
- (7) ability to communicate findings and recommendations clearly and concisely; and
- (8) knowledge of appropriate integrated architectures and the ability to analyze them.

b. The requirements above clearly show the need for a joint study team with a broad range of skills. While there are many options for finding and employing the necessary expertise, the point is that the assessment, to fully consider the breadth of solutions demanded by JCIDS, must be supported by expertise that knows the spectrum of possible solutions and can estimate their effectiveness. Sometimes necessary expertise lies outside expected channels, such as in other combatant commands, Defense agencies, and non-warfighting portions of the Services.

c. While only required for a JROC-directed CBA, every CBA should have a written study plan that clearly defines, scopes, and schedules the assessment. While this is not a required submission for CBAs initiated by the combatant

commands, Services, or agencies, it is a best practice that ensures a complete understanding of the scope of the problem being assessed. At a minimum, the study plan should contain the following:

- (1) purpose;
- (2) background and relevant strategic guidance;
- (3) objectives;
- (4) scope, including scenarios to be used, capabilities desired, functions to be assessed, doctrinal approaches to be assessed, and the time horizon of the assessment (near-, mid-, or far-term);
- (5) methodology;
- (6) CBA organization and governance;
- (7) responsibilities;
- (8) projected schedule; and
- (9) references.

d. CBAs commissioned by the JROC must have their study plans coordinated through the Joint Staff/J-8 Deputy Director for Force Management, and the final study plan must be approved by the Joint Capabilities Board (JCB) or the JROC.

4. Functional Area Analysis. An FAA identifies the mission area or military problem to be assessed, the concepts to be examined, the timeframe in which the problem is being assessed, and the scope of the assessment. As noted in the sections above, a CBA is motivated by both the existence of military objectives to be achieved and by the publication of a concept or a formal CONOPs for achieving them. The FAA describes the relevant objectives and CONOPs or concepts, and lists the relevant effects to be generated. Since a capability is the ability to generate an effect, the FAA connects capabilities to the defense strategy via objectives, concepts, and CONOPs. Furthermore, the capabilities identified in the FAA also scope the assessment and identify which capabilities will be examined. The capabilities must be defined (with associated tasks, conditions, and standards) using the common lexicon for capabilities established in the JCAs. The definitions of the JCAs are maintained at www.dtic.mil/futurejointwarfare. The FAA identifies the joint interdependencies between Service and agency capabilities.

a. The mission area or military problem considered by the CBA must have operational context that is both relevant to the problem and the needs of the

defense strategy. As a result, the FAA should use either formally tasked operational and contingency plans for near-term assessments or the Defense Planning Scenarios (DPS) published by OSD under the Analytic Agenda (reference n). Furthermore, the scenarios must be chosen in such a way that the full spectrum of operational situations relevant to the defense strategy will be examined. Capstone documents such as the NDS, the NMS, and the CCJO provide several frameworks for describing the breadth of the strategy environment, and these documents should be used to select an adequate scenario sample. While it is important to scope the assessment to make it manageable, it is equally important that the assessment not be limited to a very narrow set of operational situations.

b. The military objectives of these scenarios provide a source for developing the list of capabilities to be examined. These capabilities, coupled with the scenarios, should be further refined in the Universal Joint Task List (UJTL) or Service or Defense agency task lists. At this point in the assessment, the emphasis should be on describing how the objectives would be achieved with the programmed force. The task representation, however, must also be able to account for the proposed concept or CONOPs, so some flexibility is required. The JCAs are currently the preferred method the Department of Defense uses for reviewing and managing capabilities; for the associated tasks, several frameworks, such as the UJTL, are readily available.

c. FAA conditions are derived from scenarios, and tasks are derived from capabilities needed to achieve the military objectives of those scenarios. The final output of the FAA is the standards, which are the set of metrics used to assess the programmed capabilities of the force in the FNA. A standard is a quantitative or qualitative measure for specifying the level of a performance of a task, and the FAA defines the standards for the CBA. Along with standards, the FAA should use attributes derived from the JOpsC and the basic information in the scenario to develop criteria for adequate mission performance. In most cases, these criteria will not be simple pass-fail criteria, but instead will represent the continuum of values. The FAA should develop these values using the strategic guidance so that the JROC and other bodies have sufficient information to evaluate risks.

d. For IT capabilities, the FAA identifies the operational tasks, conditions, and operational performance standards needed to achieve desired mission area outcomes appropriate for the business, warfighting, enterprise information environment, and DOD intelligence mission areas. It uses business area strategic plans, the enterprise transition plan, enterprise objectives, the approved business capabilities identified in the business enterprise architecture, industry best practices, and other sources as input.

e. Table A-1 represents a list of questions to ask about a completed FAA. It is not all encompassing, but being able to answer all of the questions indicates the analysis is probably sufficient to move forward to the FNA.

Table A-1: Functional Area Analysis (FAA) Guide

Item	Requirement	Yes / No	Required Corrective Actions
1	Does the FAA accurately portray the mission, function, or concept to be assessed?		
2	Does the FAA employ a set of relevant scenarios and military objectives?		
3	Do the conditions, as expressed by the scenarios, cover the breadth of the defense strategy and reflect current DOD priorities?		
4	Does the scope of the FAA address the issues but still allow the assessment to be done in a responsive amount of time?		
5	Are the desired capabilities directly linked to the military objectives of the scenarios?		
6	Does the task structure support a concise depiction of the military objectives and doctrinal approaches?		
7	Is the task structure flexible enough to accommodate approaches envisioned in applicable concepts or CONOPs?		
8	Are the standards derived from both the strategic guidance and the attributes in the CCJO?		
9	Are the evaluation criteria associated with the standards broad enough to allow subsequent analysis of the trades between effectiveness, cost, and risk?		
10	Does the FAA identify the timeframe when the capabilities are required?		
11	Does the FAA identify the Tier 1 and 2 JCAs applicable to the capabilities identified?		

e. DIA will produce an Initial Threat Warning Assessment (ITWA) to support the CBA. The ITWA will identify adversarial capabilities that could specifically affect missions and functions being assessed in the CBA. Contact the DIA Defense Warning Office, Acquisition Support Division for assistance:

(1) DSN: 428-4526

(2) JWICS: <http://www.dia.ic.gov/homepage/homepages/ta2/homepage.htm>

(3) SIPRNET: <http://www.delphi-s.dia.smil.mil/intel/j2/j2p/irco/main.html>

5. Functional Needs Analysis. The FNA assesses the capabilities of the current and programmed force to meet the relevant military objectives of the scenarios chosen in the FAA using doctrinal approaches. Using the standards and evaluation criteria described in the FAA, the FNA assesses whether or not an inability to achieve a desired effect (a capability gap) exists. The FNA also identifies any capability areas that may have overlaps or redundancies. These become opportunities to determine during the FSA whether there is unnecessary redundancy or overlap in solutions sets that can be streamlined to support developing solution sets for the validated gaps.

a. The FNA must first describe the gaps in terms of the scenarios assessed and the effects on achieving the relevant military objectives. It is likely that the gaps will not be consistent (or even applicable) across scenarios, so it is essential to link the gaps to their operational context.

b. The FNA must then assess the impact of the capability gap in terms of the risk to mission (the ability to achieve the objectives of the scenario), the risk to force (the potential losses due to the capability gap), and other important considerations, such as effects on allies and noncombatants. These assessments must be done using the standards developed for the FAA.

c. Using the programmed force and doctrinal approaches, the FNA should attempt to characterize whether the capability gaps are due to:

(1) proficiency (inability to achieve the relevant effect in particular conditions);

(2) sufficiency (ability to achieve the effect but inability to bring the needed force to bear due to force shortages or other commitments);

(3) lack of existing capability;

- (4) need for recapitalization due to aging of an existing capability;
- (5) policy limitations (inability to use the force as needed due to operational constraints); or
- (6) other factors.

d. Finally, the FNA must list a set of gaps that the Department of Defense should address, or conclude that no pressing gaps exist. The gaps may not include all the capability gaps uncovered, but they must be the ones that pose unacceptable risks to achieving the aims of the defense strategy. Since the JCIDS process will ultimately decide which gaps are pervasive or important enough to commit to solving them, the suggested gaps must be directly linked to operational situations and consequences of failing to meet objectives. There is no firm rule for whether or not a capability gap will actually be acted upon; that decision is a complex function of the likelihood of the situation, the consequences of unfavorable outcomes, the pervasiveness of the gap across a multitude of situations, and the rough order or magnitude estimate of the costs of addressing the gap. The FNA should offer a prioritization of gaps that is directly linked to priorities in the strategic guidance, but the document must publish sufficient information to expose how these priorities were developed. While the FNA must present its conclusions concisely, it must also completely document the significant driving factors behind the recommended priorities to give senior leaders the information they need if they choose to make adjustments. The FNA priorities may be adjusted during the FSA once approaches are proposed, assessed, and costed, so the FNA must document the relevant information and not aggregate important factors into a single priority list.

e. For IT capabilities, the FNA assesses the ability of the current and programmed IT mission area systems and processes to deliver the capabilities the FAA identified under the full range of operating conditions and the outcome-based performance measures.

f. Combatant commands and FCBs will document the results of their CBA in a JCD at the conclusion of the FAA and FNA. Combat support agencies (CSAs) with designated functional management roles may develop JCDs based on their assigned functional roles and missions. A sponsor may also submit a JCD to the JROC for validation and approval prior to proceeding into the FSA, if the capabilities described impact on joint warfighting. The sponsor will coordinate with the appropriate FCB to determine if a JCD and JROC approval is required before proceeding or soliciting a FSA from a different sponsor.

g. Table A-2 represents a list of questions to ask about a completed FNA. It is not all encompassing, but being able to answer all of the questions indicates the analysis is probably sufficient to move forward to the FSA.

Table A-2: Functional Needs Analysis (FNA) Guide

Item	Requirement	Yes / No	Required Corrective Actions
1	Has the FNA considered the relevant doctrinal approaches to the military problems posed in the scenarios?		
2	Has the FNA identified which objectives have an unacceptable likelihood of being achieved in those scenarios?		
3	Has the FNA sufficiently defined and identified which capabilities and tasks limit the ability to produce the desired effects?		
4	Does the FNA use the standards developed in the FAA to characterize the severity of the capability gaps?		
5	Has the FNA produced and documented sufficient analytical results to justify the capability gaps it describes?		
6	Does the FNA prioritize the gaps using a framework derived from current strategic guidance?		
7	Does the FNA contain sufficient information to determine how the gaps were prioritized and the main factors driving the prioritization?		
8	Does the FNA make a compelling case for which gaps pose the most significant risk and must be resolved?		

6. Functional Solution Analysis. The sponsor of an FSA is normally a Service or agency, but it may be a combatant command or CSA when they have the authority to acquire the solutions. The sponsor leads the FSA with support from the combatant commands and oversight by the FCBs. It is a joint assessment of potential DOTMLPF and policy approaches to solving, or at least mitigating, one or more of the capability gaps identified in the FNA. The approaches identified should include the broadest possible range of joint possibilities for addressing the capability gaps. For each approach, the range of potential sustainment alternatives must be identified and evaluated as part of determining which approaches are viable. The results of the FSA will influence the future direction of integrated architectures and provide input to capability roadmaps.

a. Approaches proposed by an FSA must meet three criteria:

(1) they are strategically responsive and deliver approaches when and where they are needed;

(2) they are feasible with respect to policy, sustainment, personnel limitations, and technological risk; and

(3) they are realizable -- the Department of Defense could actually resource and implement the approaches within the timeframe required.

b. Scope of Approaches Considered. Too often, a solution analysis calls for an improved version of an existing system or force. JCIDS will not accept solutions analyses that prematurely narrow the approach focus and enforces the following order for considering approaches:

(1) changes to the existing doctrine, organization, and education;

(2) changes to policy guidance, including force posture;

(3) changes to personnel, including staffing, skill levels, and unit composition;

(4) product improvements to existing materiel and facilities;

(5) adopting interagency or foreign-supplied materiel approaches;

(6) potential international cooperative developments;

(7) new materiel starts; and

(8) for IT capabilities, on the basis of the capability gaps, potential approaches are identified, including (in order of priority): mission area process re-engineering as described by integrated DOTMLPF and policy changes that leverage existing capabilities; improvements to existing processes or systems; adoption of inter- and intra-agency approaches; and initiation of new programs.

c. Ideas for Non-Materiel Approaches

(1) Alternative Doctrinal Approaches and Alternative CONOPs. Investigating alternative CONOPs is a JCIDS FSA requirement. The FNA should only assess doctrinal CONOPs, but the FSA is free to assess alternatives, including potential doctrinal changes (which will likely result in organizational and educational changes) and those concepts described in the JOpsC. If the sponsor determines that the capability gap(s) can be partially addressed by non-materiel approaches, the sponsor will develop a joint DCR in addition to required CDDs or CPDs. If the sponsor determines that the

capability gap(s) can be completely addressed by a joint non-materiel approach, the sponsor will develop a joint DCR in lieu of completing the ICD.

(2) Policy and Personnel Alternatives. When considering policy alternatives, the FSA must rely on the FNA having exposed which policies are contributing to capability gaps and under which circumstances. While any military problem can be mitigated immediately by adopting a policy to not react to the problem, such suggestions rarely result in meaningful recommendations. A policy change, however, that allows new applications of existing capabilities or modifies force posture to increase deterrence is always of interest and should be considered in an FSA. Policy alternatives involving interagency and multinational issues must be carefully investigated in an FSA. Similarly, personnel alternatives can be overwhelming if not framed with some care. An FSA on a particular issue cannot be expected to redesign the personnel structure of a large part of the force, but it can suggest ways in which certain functions can be strengthened to eliminate gaps and point out mismatches between force availability and force needs. Finally, note that operating the programmed force under substantially different policy or personnel assumptions will generally require the development of an alternative CONOPs in the FSA to support those assumptions.

d. Ideas for Materiel Approaches. Materiel approaches run the gamut from new uses of possessed systems to research, development, and fielding programs on the scale of the Manhattan Project. The proposed approaches must comply with reference o. Again, the emphasis in JCIDS is to fully examine and assess existing materiel before recommending new starts. Regardless, the technical risk of any proposed approach should be examined using reference p.

e. Analysis of Materiel/non-Materiel Approaches (AMA). The AMA will determine which approach or combination of approaches may provide the desired capability or capabilities. As with the policy and personnel alternatives, approaches that use systems in radically new ways (or propose radically different types of systems) will likely require investigation of appropriate CONOPs for their use.

(1) Recommendations for Experimentation or Technology Development. Proposed approaches that would operate in a vastly different manner from the programmed force are likely to have a high degree of uncertainty associated with them. Such approaches are ideal candidates for joint experimentation, since that allows the approach to be explored in a controlled way before committing to it in the DOD program. FSAs will identify approaches with large uncertainty (with respect to either responsiveness, policy and technology feasibility, or realizability) that have potentially high payoffs and prioritize them for joint experimentation or advanced technology development. The prioritization mechanism should be similar, if not identical, to one used to

evaluate capability gaps in the FNA. Joint experimentation is an important risk mitigation step and allows the Department of Defense to investigate promising approaches without incurring significant program risk. The FSA is an appropriate vehicle to generate these recommendations. Advanced technology development can lead to breakthrough capabilities with the potential to transform warfighting; thus, the FSA should make these recommendations where appropriate. These recommendations will inform the JWSTP.

(2) Set of Approaches and FSA Integration. If a JCD has spawned multiple FSAs, the JCIDS process must have sufficient information from the FSAs to make reasonable decisions on the collection of approaches to support. The FSA must contain sufficient information on the approaches it considers and recommends to allow construction of a robust set of approaches. The FSA must directly link these approaches to the scenario conditions, task structures, and standards described in the FAA, and also directly link its candidate approaches to the capability gaps described in the FNA. Furthermore, the FSA must characterize the risks associated with the approaches, in terms of the three approach criteria listed above: responsiveness; policy, personnel, and technological feasibility; and realizability. A JCD creates multiple FSAs; the lead FCB will staff the approaches presented in the FSAs through the JCB and JROC as part of their portfolio management responsibilities.

(3) If a single FSA is considering a wide range of approaches covering a number of functional areas, the FSA should propose alternative portfolios of approaches. At the very least, the set of approaches should include a cost-neutral set (containing both new initiatives and offsets) as well as a cost-unconstrained (best possible) approach set. The set of approaches should also consider major uncertainties in future security environments, sustainment alternatives, and describe how the recommendations may change based on the uncertainties identified in the strategic guidance.

f. Table A-3 represents a list of questions to ask about a completed FSA. It is not all encompassing but being able to answer all of the questions indicates the analysis is probably sufficient to complete development of the ICD.

Table A-3: Functional Solutions Analysis (FSA) Guide

Item	Requirement	Yes / No	Required Corrective Actions
1	Does the FSA evaluate the spectrum of non-materiel approaches, particularly policy alternatives?		
2	Does the FSA investigate the full spectrum of materiel approaches, including use of interagency or foreign systems and new uses of existing systems?		
3	Does the FSA evaluate the range of sustainment alternatives for each approach?		
4	Does the FSA investigate at least one alternative CONOPs?		
5	Does the FSA present alternative CONOPs where necessary for its approach alternatives?		
6	Does the FSA provide estimates of the responsiveness, feasibility, and realizability of its proposed approaches?		
7	Does the FSA fully document how it assessed the effectiveness and risks of the approaches?		
8	In cases where an approach has high uncertainties but promising payoffs, does the FSA identify it as a candidate for joint experimentation or advanced technology development?		
9	If the FSA contains approach portfolios, does it propose a cost-neutral and a cost-unconstrained portfolio?		
10	If the FSA contains portfolio recommendations, does it show how those recommendations might change given strategic shifts described in the defense guidance?		

7. Joint Capability Technology Demonstration (JCTD), Advanced Concept Technology Demonstration (ACTD) Transition. The military utility assessment (MUA), which is completed at the end of the JCTD/ACTD, may be a suitable replacement for the required analysis used as the basis for ICD preparation. MUAs that do not contain the critical elements of information presented in the ICD (description of the capability gap(s); associated tasks, conditions and operational performance standards/metrics; and how the materiel and non-materiel approaches and analyses from the JCTD/ACTD addressed these factors) will be augmented with a final demonstration report to qualify the results as equivalent to an ICD. The MUA/final demonstration report will be used to support the development and subsequent JROC approval of the CDD or CPD. A CDD or CPD, as appropriate, will be developed for the JCTD/ACTD to transition into a program of record.

8. Prototypes. Results of prototype projects (e.g., USJFCOM prototypes) and operationally validated quick reaction technology projects intended for direct transition to fielded capabilities may also be eligible for consideration as joint solutions. This consideration shall be based on mission need validation and MUA processes as applied to JCTDs/ACTDs.

9. Joint IED Defeat Initiative Transition. The Joint IED Defeat Transition Packet, which is complete after the Joint IED Defeat Organization (JIEDDO) (reference q) validates an initiative, may be the appropriate replacement for the required analysis used as the bases for ICD preparation. The Transition Packet will be used as the CDD/CPD equivalent document for subsequent JROC approval and transition to a program of record.

ENCLOSURE B

PERFORMANCE ATTRIBUTES AND KEY PERFORMANCE PARAMETERS

1. Performance Attributes and Key Performance Parameters. The CDD and CPD state the operational and sustainment-related performance attributes of a system(s) that provides the capabilities required by the warfighter -- attributes so significant they must be verified by testing and evaluation or analysis. KPPs are those attributes or characteristics of a system that are considered critical or essential to the development of an effective military capability and those attributes that make a significant contribution to the characteristics of the future joint force as defined in the CCJO. The CDD and CPD identify the attributes that contribute most significantly to the desired operational capability in threshold-objective format. Whenever possible, attributes should be stated in terms that reflect the range of military operations that the capabilities must support and the joint operating environment intended for the system (family of systems (FoS) or system of systems (SoS)). There are compatibility and interoperability attributes (e.g., databases, fuel, transportability, ammunition) that might need to be identified for a capability to ensure its effectiveness. These statements will guide the acquisition community in making tradeoff decisions between the threshold and objective values of the stated attributes. Because operational testing will assess the ability of the system(s) to meet the production threshold values as defined by the KPPs, KSAs, and other performance attributes, these attributes must be testable.

a. Each attribute will be supported by an operationally oriented analysis that takes into account technology maturity, fiscal constraints, and the timeframe the capability is required before determining threshold and objective values. Given these constraints, an evolutionary acquisition approach may be necessary, delivering the capability in achievable increments that allow management of the risks, ensuring delivery of the complete capability within the timeframe required. Below the threshold value, the military utility of the system(s) becomes questionable. In an evolutionary acquisition, it is expected that threshold values will generally improve between increments. Different attributes may come into play as follow-on increments deliver additional capability. An attribute may apply to more than one increment. The threshold and objective values of an attribute may differ in each increment. DOD components will, at a minimum, budget to achieve all stated thresholds.

b. The threshold value for an attribute is the minimum acceptable value considered achievable within the available cost, schedule, and technology at low-to-moderate risk. Performance below the threshold value is not operationally effective or suitable. The objective value for an attribute is the

desired operational goal achievable but at higher risk in cost, schedule, and technology. Performance above the objective does not justify additional expense. The difference between threshold and objective values sets the trade space for meeting the thresholds of multiple KPPs. Advances in technology or changes in JOpsC may result in changes to threshold and objective values in future increments.

c. The attributes and their supporting rationale should reflect analytical insights identified by the CBA used to develop an ICD. The attributes should be directly related to the measures of effectiveness related to the capability as defined in the ICD. As a minimum, supporting analyses must include: the AoA for potential ACAT I programs and other programs as directed by the milestone decision authority (MDA); the cost-schedule-performance tradeoffs analysis; the capability cost tradeoffs analysis; the results of experimentation; testing and evaluation; sustainment, system training, and energy efficiency analysis; lessons learned during the system development and demonstration (SDD) phase; life-cycle/total ownership cost analysis; and user feedback on fielded production increments.

d. KPPs are those system attributes considered most critical or essential for an effective military capability. The CDD and the CPD must contain sufficient KPPs to capture the minimum operational effectiveness, suitability, and sustainment attributes needed to achieve the overall desired capabilities for the system (or systems if the CDD/CPD describes an SoS) during the applicable increment. Failure to meet a CDD or CPD KPP threshold may result in a reevaluation or reassessment of the program or a modification of the production increments.

e. KSAs are those system attributes considered most critical or essential for an effective military capability but not selected as a KPP. KSAs provide decision makers with an additional level of capability prioritization below the KPP but with senior sponsor leadership control (generally 4-star level, Defense agency commander, or Principal Staff Assistant). In the case of the mandated Sustainment KPP (Materiel Availability), the supporting Materiel Reliability and Ownership Cost KSAs require any changes to be documented in the subsequent update to the acquisition program baseline. KSAs do not apply to the net-ready KPP (NR-KPP).

2. Required KPPs

a. Mandatory KPPs for Force Protection and Survivability. All staffed systems and systems designed to enhance personnel survivability will identify KPPs for force protection and survivability when those systems may be employed in an asymmetric threat environment. The Protection FCB, in coordination with the lead FCB, will assess these KPPs and their applicability for JROC Interest CDDs and CPDs and make a recommendation to the JROC

on validation. The sponsoring component will validate the KPPs for non-JROC Interest CDDs and CPDs. A single KPP can be developed provided it complies with the congressional direction pertaining to force protection and survivability.

(1) Survivability KPP. Survivability attributes are those that contribute to the survivability of a manned system. This includes attributes such as speed, maneuverability, detectability, and countermeasures that reduce a system's likelihood of being engaged by hostile fire, as well as attributes such as armor and redundancy or critical components that reduce the system's vulnerability if it is hit by hostile fire.

(2) Force Protection KPP. Force protection attributes are those that contribute to the protection of personnel by preventing or mitigating hostile actions against friendly personnel, military and civilian. This may include the same attributes as those that contribute to survivability, but the emphasis is on protecting the system operator or other personnel rather than protecting the system itself. Attributes that are offensive in nature and primarily intended to defeat enemy forces before they can engage friendly forces are not considered force protection attributes. Attributes that protect against accidents, weather, natural environmental hazards, or disease (except when related to a biological attack) are also not part of force protection.

(3) Exemptions. Document sponsors who determine that the survivability and/or force protection KPPs do not apply will include rationale in the CDD/CPD explaining why they are not appropriate. The JROC must concur in this recommendation for JROC Interest documents.

b. Sustainment KPP. A Sustainment KPP (Materiel Availability) and two mandatory supporting KSAs (Materiel Reliability and Ownership Cost) will be developed for all JROC Interest programs involving materiel solutions. For non-JROC Interest programs, the sponsor will determine the applicability of this KPP. During the CBA, the relevant sustainment criteria and alternatives will be evaluated to provide the analytical foundation for the establishment of the sustainment KPP and KSAs.

(1) Mandatory KPP. Materiel Availability is a measure of the percentage of the total inventory of a system operationally capable (ready for tasking) of performing an assigned mission at a given time, based on materiel condition. This can be expressed mathematically as (number of operational end items/total population). Materiel Availability also indicates the percentage of time that a system is operationally capable of performing an assigned mission and can be expressed as (uptime/(uptime + downtime)). Determining the optimum value for Materiel Availability requires a comprehensive analysis of the system and its planned use, including the planned operating environment, operating tempo, reliability alternatives, maintenance approaches, and supply chain solutions. Materiel Availability is primarily determined by system

downtime, both planned and unplanned, requiring the early examination and determination of critical factors such as the total number of end items to be fielded and the major categories and drivers of system downtime. The Materiel Availability KPP must address the total population of end items planned for operational use, including those temporarily in a non-operational status once placed into service (such as for depot-level maintenance). The total life-cycle timeframe, from placement into operational service through the planned end of service life, must be included.

(a) Mandatory KSA (Materiel Reliability): Materiel Reliability is a measure of the probability that the system will perform without failure over a specific interval. Reliability must be sufficient to support the warfighting capability needed. Materiel Reliability is generally expressed in terms of a mean time between failures (MTBF), and once operational can be measured by dividing actual operating hours by the number of failures experienced during a specific interval. Reliability may initially be expressed as a desired failure-free interval that can be converted to MTBF for use as a KSA (e.g., 95 percent probability of completing a 12-hour mission free from mission-degrading failure; 90 percent probability of completing 5 sorties without failure). Specific criteria for defining operating hours and failure criteria must be provided together with the KSA. Single-shot systems and systems for which other units of measure are appropriate must provide supporting analysis and rationale.

(b) Mandatory KSA (Ownership Cost): Ownership Cost provides balance to the sustainment solution by ensuring that the operations and support (O&S) costs associated with materiel readiness are considered in making decisions. For consistency and to capitalize on existing efforts in this area, the Cost Analysis Improvement Group O&S Cost Estimating Structure will be used in support of this KSA. Only the following cost elements are required: 2.0 Unit Operations (2.1.1 (only) Energy (fuel, petroleum, oil, lubricants, electricity)); 3.0 Maintenance (All); 4.0 Sustaining Support (All except 4.1, System Specific Training); 5.0 Continuing System Improvements (All). Fuel costs will be based on the fully burdened cost of fuel. Costs are to be included regardless of funding source. The KSA value should cover the planned lifecycle timeframe, consistent with the timeframe used in the Materiel Availability KPP. Sources of reference data, cost models, parametric cost estimating relationships, and other estimating techniques or tools must be identified in supporting analysis. Programs must plan for maintaining the traceability of costs incurred to estimates and must plan for testing and evaluation. The planned approach to monitoring, collecting, and validating operating and support cost data to supporting the KSA must be provided.

(2) Exemptions. Document sponsors who determine the materiel availability KPP does not apply will include rationale in the CDD/CPD explaining why it is not appropriate. Joint Staff/J-4 must concur in this recommendation for JROC Interest documents.

c. Net-Ready KPP (NR-KPP). A NR-KPP will be developed for all IT and NSS used to enter, process, store, display, or transmit DOD information, regardless of classification or sensitivity. Exceptions are those systems that do not communicate with external ones, including IT systems in accordance with references r, s, and t.

(1) IT and NSS interoperability is defined in reference r as the ability of systems, units, or forces to provide data, information, materiel, and services to and accept the same from other systems, units, or forces and to use the data, information, materiel, and services so exchanged to enable them to operate effectively together. IT and NSS interoperability includes the technical exchange of information and the end-to-end operational effectiveness of that exchange as required for mission accomplishment. An NR-KPP is based on the information exchange of the proposed system(s) and is derived from integrated architectures, whenever possible, as defined in references r and u.

(2) The NR-KPP should reflect the information needs of the capability under consideration and the needs of appropriate supported systems. It should cover all communication, computing, and electromagnetic spectrum (reference v) requirements involving the exchange of products and services between producer, sender, receiver, and consumer for the successful completion of the warfighter mission, business process, or transaction. It will also identify all applicable standards the system will use to make data visible, accessible, and understandable to other information producers and consumers on the Global Information Grid (GIG). Embedded training will be considered as the first alternative for operators and maintainers to optimize use of the operational systems and interface with the distributed networks. Systems will be able to operate and train in peacetime within national and regional radio spectrum regulations. These products and services include any geospatial intelligence and environmental support the system(s) needs to meet operational capabilities. The NR-KPP identified in CDDs and CPDs will be used in the information support plan (ISP) (see references s and t) to identify support required from outside the program.

(3) Information assurance (IA) capabilities must be developed and integrated with capabilities for interoperability for any system considered an asset of the GIG. Reference w provides the guiding policy for the GIG and systems that use it. IA is defined as the information operation that protects and defends information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. It includes restoration through protection, detection, and reaction capabilities. IA capabilities apply to all DOD systems that are used to enter, process, store, display, or transmit DOD information, regardless of classification or sensitivity, except those that do not communicate with external systems.

(4) Document sponsors who determine the NR-KPP does not apply will include rationale in the CDD/CPD explaining why it is not appropriate. Joint Staff/J-6 must concur in this determination for JROC Interest and Joint Integration documents.

d. Selectively Applied KPPs. The JROC has defined two KPPs to be selectively applied to programs, system training, and energy efficiency. The sponsor will perform an analysis on the use of these parameters as KPPs. If the analysis determines that they should not be KPPs, a summary of the analysis will be provided.

(1) System Training KPP. Ensure system training is addressed in the AoA and supporting analysis for subsequent acquisition phases and ensure projected training requirements and associated costs are appropriately addressed across the program life cycle.

(2) Energy Efficiency KPP. Include fuel efficiency considerations for fleet purchases and operational plans consistent with mission accomplishment. Life-cycle cost analysis will include the fully burdened cost of fuel during the AoA and subsequent analyses and acquisition program design trades. The fully burdened cost of fuel includes the price of the fuel delivery chain (to include force protection requirements).

e. KPPs Traceable to the CCJO. All systems will have KPPs that can be traced back through the ICD to those characteristics of the future joint force as defined in the CCJO to which the proposed system makes a significant contribution. These attributes will be designated as KPPs and have threshold and objective values defining the system's contribution to those key characteristics of the joint force. Guidelines for identifying the CCJO-derived KPPs are:

(1) Based on the primary mission of the system, does it contribute to one or more of the CCJO characteristics of the future joint force? For example, a bomber could contribute to multiple key characteristics: expeditionary, adaptable, and enduring/persistent; and an unmanned aerial vehicle could contribute to knowledge empowered, networked, and enduring/persistent.

(2) Does the system have other attributes that contribute significantly to any of the CCJO characteristics of the future joint force? For example, the tactical data link on a fighter may contribute to the overall networked characteristic in addition to the primary mission of the fighter.

(3) If the answer is yes to either of the above, designate at least one (if not more) attributes as a KPP for each relevant characteristic. It is not necessary to designate as a KPP every attribute associated with a particular characteristic, only those most essential to the capability. In the case of the

bomber, while it may have attributes related to range, payload, etc., range may be the one most essential to the expeditionary characteristic.

3. Development of KPPs

a. The following questions should be answered in the affirmative before a performance attribute is selected as a KPP:

(1) Is the attribute a necessary component of the mandatory KPPs (statutory, sustainment, or net-ready) or is it essential for providing the required capabilities?

(2) Does it contribute to significant improvement in warfighting capabilities, operational effectiveness, and/or operational suitability?

(3) Is it achievable and affordable (total life-cycle costs)?

(4) Is it measurable and testable?

(5) Are the definition of the attribute and the recommended threshold and objective values reflective of fiscal constraints, applicable technology maturity, timeframe the capability is required, and supported by analysis?

(6) Is the sponsor willing to consider restructuring the program if the attribute is not met?

(7) Did the analysis determine the need for the system training KPP. If not, did the analysis provide quantifiable justification for not having system training as a KPP?

(8) Did the life-cycle analysis determine the applicability of the energy efficiency KPP (utilizing the fully burdened cost of fuel)? If not, ensure the analysis is available for review.

b. A KPP will normally be a rollup of a number of supporting attributes or KSAs that may be traded off to deliver the overall performance required. The following is one methodology for developing KPPs:

(1) Step 1: List required capabilities for each mission or function as described in the proposed CDD or CPD. This review should include all requirements that the system described in the CDD/CPD is projected to meet, including those related to other systems in an FoS or SoS context. It shall also include all relevant performance metrics identified in ICDs for which the CDD/CPD is providing a capability.

(2) Step 2: Prioritize these capabilities.

(3) Step 3: Review for applicability the list of attributes associated with each of the CCJO characteristics of the future joint force in Appendix A to this Enclosure. Compile a list of potential attributes using Appendix A as a starting point and include any other performance attributes that are essential to the delivery of the capability. Cross walk this list with the capabilities in Step 2 to assist in identifying potential performance attributes to be considered for designation as KPPs.

(4) Step 4: For each mission or function, build at least one measurable performance attribute using the list from Step 3 as a starting point.

(5) Step 5: Determine the attributes that are most critical or essential to the system(s) and designate them as KPPs. (Note: A KPP need not be created for all missions and functions for the system(s). In contrast, certain missions and functions may require two or more KPPs.)

(6) Step 6: Document how the KPPs are responsive to the capability performance attributes identified in the ICDs.

c. Threshold and objective values of an attribute may change between the CDD and the CPD. The CDD attribute values are used to guide the acquisition community during SDD (see reference c for acquisition phases for DOD space programs). Threshold values should be based on what is achievable through the current state of technology as a minimum. The objective values may be defined based on a goal for the end-state of the system. During SDD, tradeoffs are made between the threshold and objective values to optimize performance, given the available technology for the increment and the competing demands introduced by combining subsystems into the overall system. A deeper review of trade-offs at and around threshold values may be beneficial to explore incremental return on investment where particular thresholds are insensitive to small deviation at great advantage in cost, performance, and schedule reviews. After the design readiness review, these tradeoff decisions are essentially completed and a more precise determination of acceptable performance can be stated in the CPD.

(1) Figure B-1 (a) shows an attribute (A) of a system with threshold and objective values (1 and 10, respectively) determined during technology development and presented in the CDD. During SDD, optimum performance values may be developed for each attribute (or some attributes) on the basis of cost, performance, or other considerations, as shown in Figure B-1 (b).

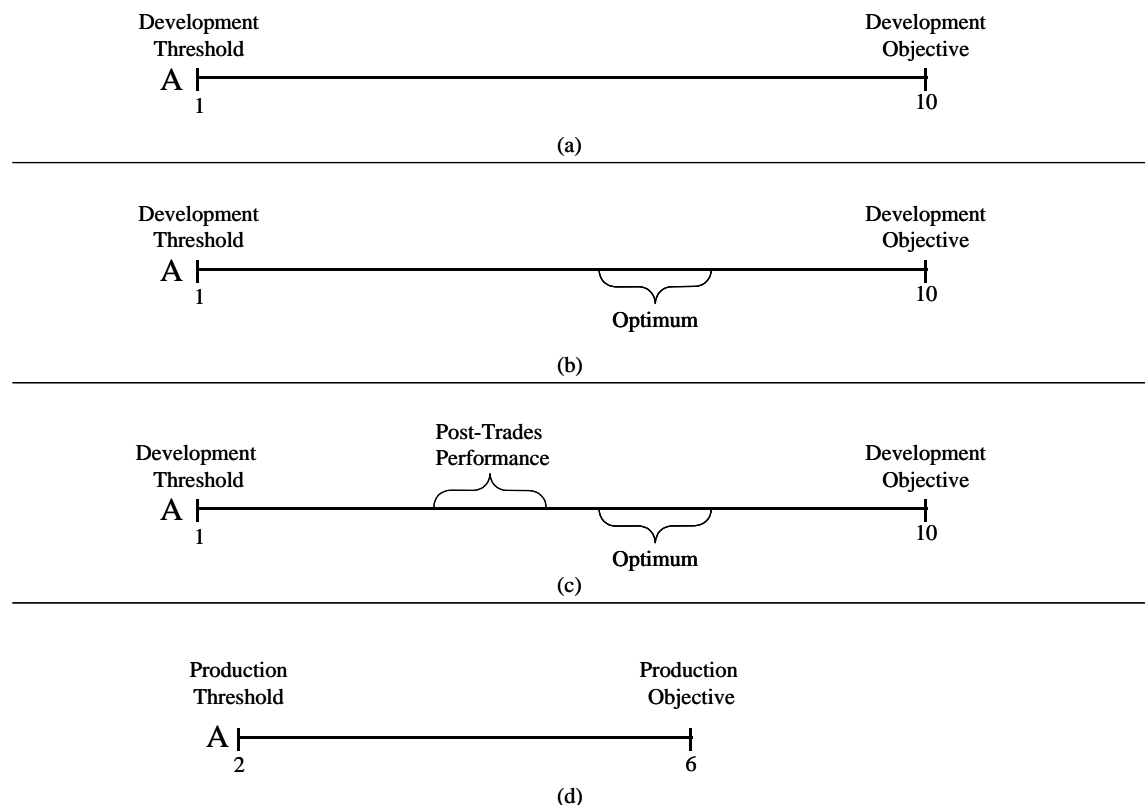


Figure B-1 (a), (b), (c), and (d). CDD and CPD Attributes

(2) Further design tradeoffs among the collective attributes may necessitate settling for design performance values different from the optimum values for the individual attributes. The design performance values may be higher or lower than the optimum values. Figure B-1 (c) shows an example in which optimum performance was traded off because of other considerations, resulting in reduced performance within attribute A.

(3) The production threshold and objective values specified for the attribute in the CPD will be a refined version of the development threshold and objective values documented in the CDD. Figure B-1 (d) shows an example of the revised performance attributes that would be included in the CPD. Each production threshold value should be determined on the basis of manufacturing risk and risk imposed by other related attributes. KPP and non-KPP threshold values in the CPD should be equal to or better than the corresponding CDD threshold values. There may be cases, however, where CDD KPP and/or non-KPP threshold values are reduced in a CPD. When this occurs, the following questions must be answered in the CPD:

- (a) Will the capability still provide sufficient military utility?
- (b) If the new capability will replace a fielded capability, will it still provide more overall military utility than the fielded capability?

(c) Is this capability still a good way to close the capability gap or should another materiel or non-materiel alternative approach be pursued?

(d) Is the reduced capability worth the costs incurred to-date and any additional investments required?

(4) For an early increment in an evolutionary acquisition, the production objective value for the increment could be less than the development objective value.

4. Changing KPPs. There may be circumstances where it is necessary to change the previously approved KPPs. These include cost, technology, production, development, or other issues that prevent meeting the threshold of the KPP. For KPPs in JROC Interest documents, where the change is not substantive in terms of the delivered capability, a streamlined process has been developed for rapid approval. The sponsor may request to bypass the JCIDS staffing and proceed directly to the JROC for validation of the change. The process is as follows:

a. The sponsor will submit the document to the Knowledge Management/ Decision Support (KM/DS) tool as an FCB draft document, and identify in the “purpose” section that this is a KPP update only and request direct consideration by the FCB without staffing.

b. The Lead FCB and the Joint Staff/J-8 Capabilities and Acquisition Division (CAD) action officer will evaluate the change and determine if staffing is required.

c. If additional staffing is required, the change will go through the normal process.

d. If the update is to the NR-KPP only, the document will be staffed to Joint Staff/J-6 for recertification via KM/DS.

e. If additional staffing is not required, the lead FCB will work with the sponsor to prepare a briefing for the JROC to obtain approval.

f. The lead FCB will schedule the briefing on the JCB and JROC calendars as required.

APPENDIX A TO ENCLOSURE B

ATTRIBUTES FOR POTENTIAL KEY PERFORMANCE PARAMETER
DESIGNATION

1. The following information is provided to assist in identifying potential performance attributes for a system based on the contribution to the characteristics of the future joint force as identified in the CCJO. For each characteristic, a definition from the CCJO is provided as well as a list of potential performance attributes. The list of potential KPP attributes represent an iterative consolidation of more than 400 KPPs historically used across the ACAT I programs, and serves as a useful aid in quickly generating potential KPP options. These should be used as part of the process delineated in Enclosure B.

a. Knowledge Empowered -- Better decisions made faster; understanding environment, adversaries, and cultures; enhanced collaborative decision-making.

- (1) Coded message error probability
- (2) Contact – detect/discriminate/classify type/identify friendly
- (3) Coverage/focus areas
- (4) Frequency range
- (5) Initial report accuracy
- (6) Onboard platform range of surveillance systems/sensors/communications
- (7) Sensor collection performance parameters
- (8) Tracking -- number/altitudes/depths/velocities
- (9) Training
- (10) Transmitted data accuracy
- (11) Geophysics/atmospherics
 - (a) Atmospheric vertical moisture profile

- (b) Global sea surface winds
 - (c) Atmospheric vertical temperature profile
 - (d) Imagery
 - (e) Sea surface temperature horizontal resolution
 - (f) Soil moisture (surface) sensing depth
- b. Networked -- connected and synchronized in time and purpose.
- (1) Access and control
 - (2) Communication throughput while mobile/non-mobile
 - (3) Interoperable/net ready
 - (4) Multi-channel routing/retransmission/operation on the same net
 - (5) Networked with specific sensors/units
 - (6) Paired time slot relay capability
- c. Interoperable -- Able to share and exchange knowledge and services; allows the joint force to act in an integrated and interdependent way; systems, capabilities, and organizations working in harmony.
- (1) Air vehicles -- land-takeoff distance/ship launch-recover parameters/deck spot factor
 - (2) Compatible on aircraft/aircraft carriers/ships
 - (3) Physically interoperable with other platforms/systems/subsystems/warheads/launchers
 - (4) Water vehicles -- land-launch spots/compatibility with other water vehicles
 - (5) Waveform compatibility
 - (6) Weapon -- launch envelope/weight/number on launchers
 - (7) Weight/volume to fit expected carrying platforms
 - (8) Works with legacy systems

d. Expeditionary -- organized, postured, and capable of rapid and simultaneous deployment, employment, and sustainment; converges mission-tailored capabilities at desired point of action; capable of transitioning to sustained operations.

(1) Ability to transport aircraft/vehicles/cargo/fuel/passengers/troops/crew

(2) Lift capacity

(3) Logistics footprint

(4) Platform transportability

(5) Self-deployment capability

e. Adaptable/Tailorable -- can handle disparate missions; scalable in applying appropriate mass and weight.

(1) Air vehicles -- vertical-short take-off and landing/aerial refueling/classes of airspace/altitude (max-min-on station-intercept)

(2) Ground vehicle -- fording

(3) Information -- ability to create, store, modify, or reconfigure

(4) Internal growth

(5) Platform -- weapons systems/launchers/firing-storing capacity

(6) Platform range -- maximum/minimum/combat-mission radius

(7) Types of broadcast supported/scalability

(8) Water vehicles -- draft/weight/stability/electrical generating capacity/test depth

(9) Weapon -- off axis launch angle, off bore sight angle, all weather, day-night

f. Enduring/Persistent -- depth and capacity to sustain operations over time.

(1) Operational availability (down-time versus up-time)

(2) Platform -- weapons systems/launchers/firing-storage capacity

(3) Sustained operations

- (4) Time
- (5) Various reliability measures
- g. Precise -- exact application of force to achieve greater success at less risk.
 - (1) Accurate engagement decision/engagement sequence
 - (2) Intercept/circular error probable
 - (3) Threat challenges -- countermeasures/radar cross section-size/multiple numbers
- h. Fast -- speed of action across domains.
 - (1) Acceptable engagement sequence time
 - (2) Cargo transfer rate
 - (3) Data -- transfer-distribution rate/update rate
 - (4) Mission response time
 - (5) Platform speed -- maximum/minimum/cruise/flank/sustained/acceleration/land-sea-air
 - (6) Power-up/fire/re-fire/weapon launch rate
 - (7) Sortie rate -- generated/sustained/surge
 - (8) Speed of initial report
- i. Resilient -- able to protect and sustain capabilities from adversaries or adverse conditions; able to withstand pressure or absorb punishment.
 - (1) Ability to withstand hit/blast/flood/shock
 - (2) Assured communications to national, missile defense, and nuclear forces
 - (3) Covertiness -- radiated noise/active target strength/radar cross section/electro magnetic quieting/radio frequency signature
 - (4) Information assurance
 - (5) Jam resistance

(6) Tactics, techniques, and procedures/countermeasures

j. Agile -- move quickly and seamlessly; timeliness.

(1) Air vehicle -- climb rate-gradient/G-load capability

(2) Automated mission planning

(3) Data variable rate capability

(4) Ground vehicles -- fording

(5) Platform specified timelines

(6) Weapon in-flight re-targeting

k. Lethal -- Ability to destroy adversary and/or systems in all conditions.

(1) Detect to engage scenarios

(2) Expected fractional damage

(3) Jamming capability

(4) Probability of kill/mission kill

(5) Weapon range

CJCSM 3170.01C
1 May 2007

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ENCLOSURE C

JCIDS STAFFING PROCESS

1. Process Overview

a. The process of obtaining validation and approval of JCIDS documents begins with the submission of a document to the KM/DS tool (see Figure C-1). Staffing continues until the document is validated and approved. The KM/DS tool will be used by DOD components to submit documents and comments for O-6 and flag reviews, search for historical information, and track the status of documents. The KM/DS tool may be found on <https://jrockmds1.js.smil.mil/guestjrcz/gbase.guesthome>.

b. Services and other organizations conducting JCIDS analyses may generate ideas, the JOpsC, and CONOPs leading to JCDs, ICDs, CDDs, CPDs and joint DCRs. JCIDS initiatives may also be generated as a result of analyses directed or conducted by an FCB. As the initiative develops into proposed DOTMLPF or materiel approaches to provide desired capabilities, an FCB may request that a Service or Defense agency become the sponsor for the initiative. Further proposal development would then become the responsibility of the sponsor.

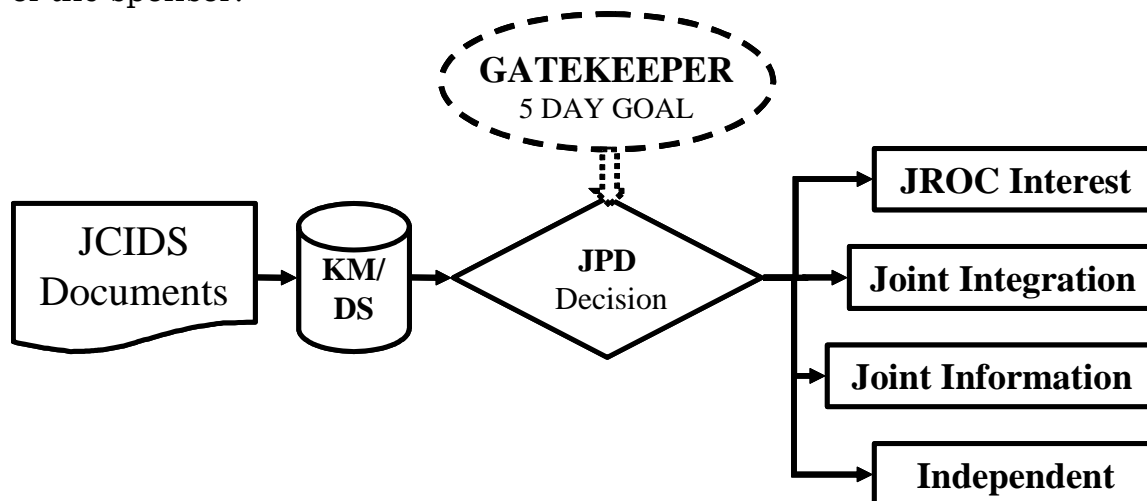


Figure C-1. Gatekeeping Process

(1) Document Submission. All JCIDS documents (JCDs, ICDs, CDDs, CPDs and joint DCRs) will be entered in the KM/DS tool by the sponsor. The document will be subjected to DOD component staffing and coordination. The document will be forwarded through KM/DS, identifying the document, date, any schedule drivers, classification, and working-level points of contact. An executive summary of the analysis supporting the development of the

document and the specific analysis used in the determination of CDD and CPD KPPs also will be provided with the draft document. All documents will be signed out by the sponsoring organization at the 3-star level (or equivalent capability oversight council) as a minimum prior to presentation to the JROC through the JCB for validation and approval. All documents undergoing the review process are considered draft until after validation and/or approval by the designated validation authority.

(a) Format. The submission will be an electronic copy in Microsoft Word version 6.0 or higher.

(b) Documents classified SECRET and below transmitted electronically and retained as a permanent JCIDS record must be accurately and completely marked in accordance with reference x.

(c) Documents for highly sensitive classified programs will be transmitted in a hard copy form to the Joint Staff/J-8 CAD, in accordance with appropriate classification guidelines and handling procedures. For TOP SECRET and SCI documents, a placeholder record will be placed into KM/DS with instructions on document location. Special access documents will not be recorded in KM/DS. Approved documents will be retained in accordance with storage and handling procedures for each program.

(2) Submission of the document to the KM/DS tool will trigger the gatekeeper process to determine whether the document has joint implications or is component-unique.

c. The Gatekeeper. The Vice Director, Joint Staff/J-8, is the Gatekeeper of the JCIDS process. With the assistance of FCB working group leads, Joint Staff/J-8 CAD, and J-6I Integration and Information Assurance Division, the Gatekeeper will evaluate all JCIDS documents.

(1) JCIDS documents will be submitted for Gatekeeper review to determine whether the proposal affects the joint force. The Gatekeeper will review each document upon initial submission, regardless of ACAT, previous delegation decisions, or previous joint potential designator (JPD) decisions. This designation will not be revisited for subsequent submission of the same document unless a recommendation for change is made by the lead FCB or the document sponsor makes a request for reassessment. The Gatekeeper will use the JPD assigned to a predecessor document in the determination of the new JPD.

(2) Based on the content of the submission, the Gatekeeper will assign a JPD of "JROC Interest," "Joint Integration," "Joint Information" or "Independent" to the JCIDS document. Per reference e, all weapons and munitions shall be designated as JROC Interest or Joint Integration, unless justification is provided to preclude those designations. The Gatekeeper will

then assign it to a lead FCB for further assessment and may designate other FCBs to support the process.

(a) The JROC Interest designation will apply to all ACAT I/IA programs and ACAT II and below programs where these capabilities have a significant impact on joint warfighting or have a potentially impact across Services or interoperability in allied and coalition operations. All JCDs and joint DCRs will be designated JROC Interest. This designation may apply to intelligence capabilities that support DOD and national intelligence requirements. These documents will receive all applicable certifications, including a weapon safety endorsement when appropriate, and be staffed through the JROC for validation and approval. An exception may be made for ACAT IAM programs without significant impact on joint warfighting (i.e., business oriented systems). The Gatekeeper may designate these programs either as Joint Integration, Joint Information, or Independent.

(b) The Joint Integration designation will apply to ACAT II and below programs in which the capabilities and/or systems associated with the document do not significantly affect the joint force and an expanded review is not required. Staffing is required for applicable certifications (IT and NSS interoperability and supportability (references r, s, and t) and/or intelligence), and for a weapon safety endorsement, as appropriate. Once the required certifications and weapon safety endorsement are completed, the document may be reviewed by the FCB. Joint Integration documents are validated and approved by the sponsoring component.

(c) The Joint Information designation will apply to ACAT II and below programs that have interest or potential impact across Services or agencies but do not have significant impact on the joint force and do not reach the threshold for JROC Interest. No certifications or endorsements are required. Once designated Joint Information, staffing is required for informational purposes only and the FCB may review the proposal. Joint Information documents are validated and approved by the sponsoring component.

(d) The Independent designation will apply to ACAT II and below programs in which the capabilities and/or systems associated with the document do not significantly affect the joint force, an expanded review is not required, and no certifications or endorsements are required. Once designated Independent, the FCB may review the document. Independent documents are validated and approved by the sponsoring component.

(3) Using the KM/DS tool, the Joint Staff/J-8 will maintain a database of JCIDS documents processed through the JCIDS process. The database will include the JPD, the FCBs having equity in the proposal, and the lead FCB for the proposal. The database will help the Gatekeeper ensure consistency of staffing as JCIDS proposals progress through the JCIDS process.

(4) Once the JPD has been assigned, the document will move into the staffing and approval process. Table C-1 lists the organizations that will typically be asked to staff and comment on any JCIDS document based on the assigned JPD. Acquisition community review will be included in the staffing of any JROC Interest or Joint Integration proposal.

Table C-1. Staffing Matrix

Office	JROC Interest	Joint Integration	Joint Information	Independent
Army	X	X	X	S
Navy	X	X	X	S
Air Force	X	X	X	S
Marine Corps	X	X	X	S
Joint Staff	X/C/E	C/E	X	
FCB Working Groups	L/S	L/S	L/S	L/S
Combatant Commanders	X	X	X	S
Other DOD Components	X	X	X	X
USD(AT&L)	X	X	X	
USD(I)	X	X	X	
USecAF (DOD EA for Space)	X	X	X	S
ASD(NII)/DOD CIO	X	X	X	
USD(P&R)	X	X	X	
USD(C)	X	X	X	
DOT&E	X	X	X	
Director, PA&E	X	X	X	
DIA	X	X	X	
DISA	X	X	X	S
NGA	X	X	X	S
NSA	X	X	X	S
NRO	X	X	X	S
MRB	X	X	X	

L/S = lead/supporting FCB

S = Sponsor staffing only

X = Required staffing

C = Certification

E = Weapon Safety Endorsement

2. Certifications and Weapon Safety Endorsement. Applicable certifications and the weapon safety endorsement will be processed as part of the staffing

process for each JCIDS document. If a certification/endorsement authority determines the content is insufficient to support a required certification/endorsement, it is the sponsor's responsibility to resolve the issue with the certification/endorsement authority. If resolution cannot be achieved, the sponsor may request review of the issue by higher authority as described below.

a. Threat Validation and Intelligence Certification – (Joint Staff/J-2)

(1) Threat Validation. For all JROC Interest and Joint Integration JCDs, ICDs, CDDs, and CPDs, the DIA will provide validation of threat information appropriate to the proposal through the intelligence certification process in accordance with reference y. DOD components may validate intelligence information for programs designated as Joint Information or Independent proposals using DIA-validated threat data and/or data contained in DOD Service Intelligence Production Program products and data.

(2) Intelligence Certification. Joint Staff/J-2 will provide intelligence certification in accordance with reference y as part of the JCIDS staffing of JCDs, ICDs, CDDs, and CPDs, regardless of ACAT level, unless a waiver has been granted by Joint Staff/J-2. It will assess intelligence support needs for completeness, supportability, and impact on joint intelligence strategy, policy, and architectural planning as outlined in reference y. The Joint Staff/J-2 certification will also evaluate intelligence-related information systems with respect to security and intelligence interoperability standards.

(3) Unresolved Intelligence Issues. Unresolved intelligence issues will be brought to the attention of the appropriate FCB(s) in accordance with reference y procedures.

(4) Information Support Plans. Joint Staff/J-2 will assess the intelligence needs, deficiencies, and solutions documented in the ISPs in accordance with references s, t, and y.

b. IT and NSS Interoperability and Supportability Requirements Certification – (Joint Staff/J-6) The J-6 will:

(1) Certify all CDDs and CPDs designated as JROC Interest or Joint Integration for conformance with joint IT and NSS policy.

(2) Certify compliance with integrated architectures, interoperability standards, and net-centric data sharing in accordance with references r, s, t, and z.

(3) Review and comment on the IT and NSS NR-KPP.

(4) Coordinate IT and NSS issues concerning JCIDS documents with the appropriate agencies, in accordance with reference t and as directed by references r and s.

(5) Certify the IT and NSS interoperability and supportability requirements in the CDD and CPD in accordance with reference t.

(6) Forward the IT and NSS interoperability and supportability certification to the FCB (for programs designated as JROC Interest) or to the sponsoring DOD component (for other programs).

(7) Forward unresolved interoperability issues to the Military Communications Electronics Board (MCEB) for resolution. The MCEB will ensure that issues resulting from unresolved interoperability assessments are delivered to the FCB, reviewed by the DOD Chief Information Officer (CIO), and presented to the JROC for resolution, regardless of the document's JPD.

c. Weapon Safety Endorsement

(1) The J-8/DDFP will provide a weapon safety endorsement coordinated through the Force Protection FCB as part of the JCIDS staffing of JCDs, ICDs, CDDs, CPDs, and DCRs regardless of ACAT level for weapons, as defined herein. A weapon safety endorsement is the means for documenting the extent to which weapon capabilities documents provide for safe integration into joint warfighting environments. Endorsement recommendations will be prepared by the Joint Weapon Safety Technical Advisory Panel (JWSTAP) and submitted to the J-8/DDFP for appropriate staffing and coordination with the FP FCB.

(2) The endorsement will indicate that required joint warfighting environment attributes and performance parameters, from a weapon safety perspective, are judged to be adequately prescribed in the JCD, ICD, CDD, CPD, or DCR. The endorsement may also convey identified limitations in the prescribed attributes or performance parameters that are deemed acceptable from a weapon safety perspective, yet foreseen as potential military utility hindrances or joint operation limitations. If the weapon safety endorsement identifies restrictions/limitations, the sponsor will coordinate with the FP FCB for resolution or acceptance of the restrictions/limitations.

3. Staffing Process. The Joint Staff/J-8 CAD will staff all JROC Interest proposals (Figure C-2) before FCB review and Joint Integration proposals for certification (Figure C-3) to the organizations listed in Table C-1. Concurrent staffing of ICDs, CDDs, and CPDs is not permitted. If an ICD is required, it must complete flag staffing and comment resolution before any CDDs, CPDs, or joint DCRs that refer to that ICD can be submitted for staffing. The same rule applies for CDDs prior to CPD staffing. During the review process, the FCB working groups will evaluate how well the proposed approaches documented in an ICD (and solutions identified in a CDD, CPD, or joint DCR) addressed the

capability gaps identified in the JCIDS analyses. This process will include an O-6 review. The requirement for flag-level reviews will be based on the existence of unresolved critical comments.

a. Document Review Phase 1. Joint Staff/J-8 CAD will review and verify the document's format for accuracy and completeness. For this O-6 level review, J-8 will distribute the draft document using the KM/DS tool after the Gatekeeper assigns a JPD and lead and supporting FCBs. The suspense date will normally be 21 calendar days from the date the Gatekeeper releases the document for staffing. This review will include the Stage I initial threat validation and intelligence, IT, and NSS interoperability and supportability requirements certifications and weapon safety endorsement, as required. Comments should be prioritized as critical, substantive, or administrative (see definitions in the Glossary). Convincing support for critical and substantive comments will be provided in a comment and justification format.

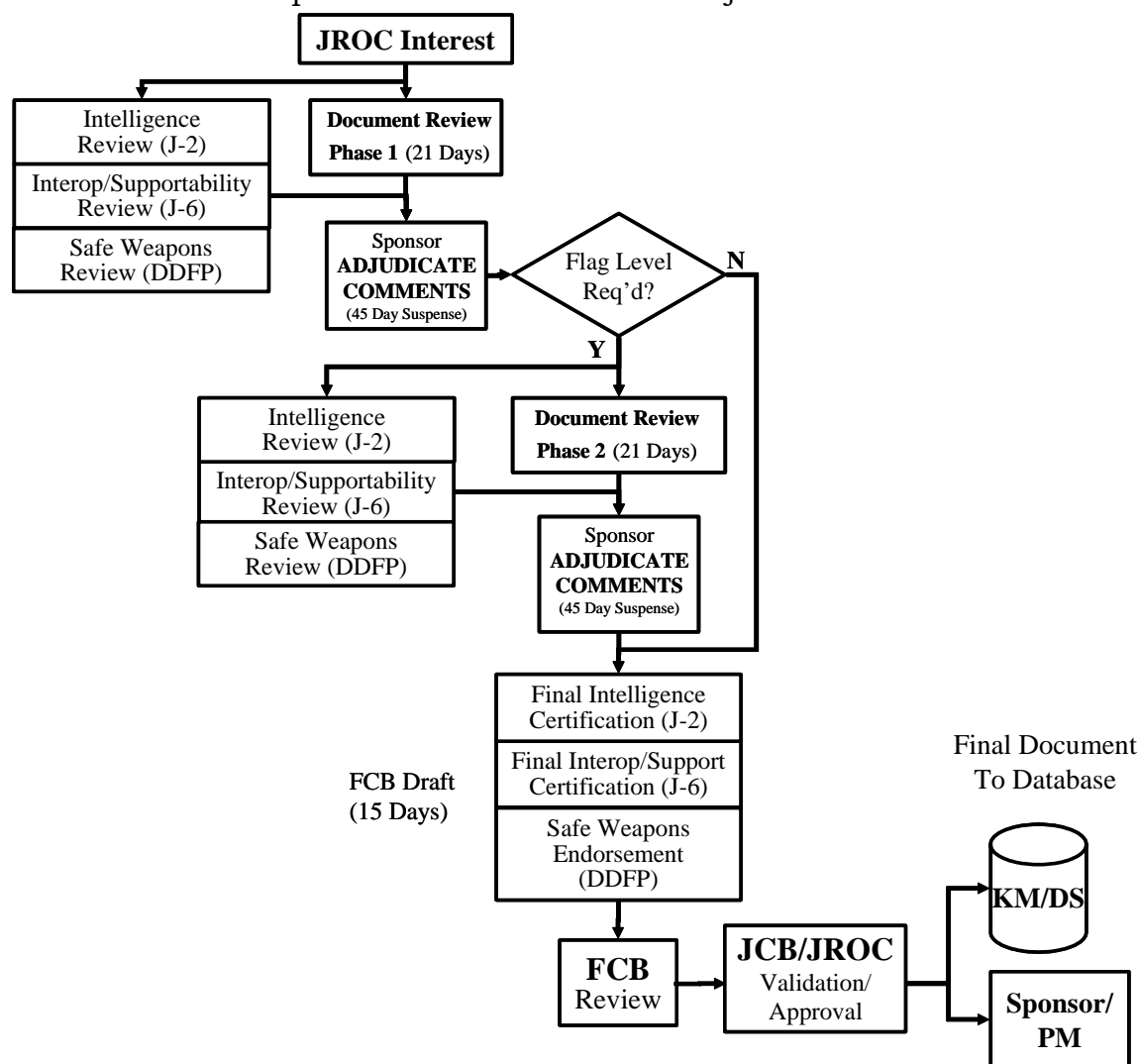


Figure C-2. JROC Interest Staffing Process

b. Adjudication of Document Review Phase 1 Comments. Joint Staff/J-8 CAD will release all comments to the sponsoring DOD component via KM/DS for resolution. The sponsor has 45 days to resolve comments. After revision of the document to reflect comment adjudication, the sponsor will return it to Joint Staff/J-8 CAD via KM/DS. The sponsor will provide a comment resolution matrix delineating the critical and substantive comments, the results of the intelligence, interoperability, and munitions supportability certifications, and the weapon safety endorsement recommendations received and the actions taken. If all comments are successfully resolved, it does not require flag-level staffing, and the document will be submitted as an FCB Draft for validation and approval. If the sponsor requires additional time to resolve comments, a request to extend the suspense is made through the lead FCB. An extension of less than 15 days can be approved by the FCB action office. An extension of 15 days or greater must be approved by the FCB Chair. If there are unresolved critical comments, the document will be submitted for flag-level staffing. For ease of review, all changes to the document should be highlighted. If the document is not resubmitted or an extension to the suspense granted by the FCB, the Joint Staff/J-8 will assume the sponsor intends to pull the document from the approval process and resubmit it at a later date.

c. FCB Working Group Assessment. The lead FCB working group may begin an assessment immediately after the Gatekeeper actions are complete. As a minimum, this review will include a timely review of the assigned JPD. If a change to the JPD is required, the Gatekeeper should be notified as soon as practical to prevent unnecessary delay in validating and approving the document. The sponsor will work with the lead FCB action officer to present the document to the working group as early as possible after comment adjudication to allow a full and rigorous independent assessment of the submitted document and supporting analysis (FAA, FNA, FSA, AoA, etc.). The sponsor and working group will resolve all issues or submit those they cannot resolve to the FCB.

d. Document Review Phase 2. The flag-level review is conducted if critical comments remain unadjudicated from the O-6 review. This review will focus on resolving the open critical comments and on the proposed resolution of critical comments submitted previously. This review will include Stage II threat validation and intelligence supportability, IT, and NSS interoperability certifications and weapon safety endorsement, as required. The suspense date assigned for providing comments and/or concurrence will normally be 21 calendar days from date the Gatekeeper releases the document for staffing.

e. Adjudication of Document Review Phase 2 Comments and Briefing Preparation. Upon completion of this review, Joint Staff/J-8 CAD will release all comments to the sponsor via KM/DS for final resolution. The sponsor has 15 days to resolve comments from flag-level review. Unresolved critical

comments will be brought to the FCB for assistance in resolution. Comments that cannot be resolved with FCB assistance within 15 days will be included in the briefing to the JCB and JROC with a recommendation from the FCB for resolution. Once the sponsor has incorporated necessary changes into its document and developed a briefing in accordance with reference aa, the sponsor will schedule a briefing to the lead FCB and request a JCB and JROC briefing date and time from the JROC Secretariat through KM/DS.

f. Final Certification and Weapon Safety Endorsement. Upon final adjudication of comments and submission of the FCB Draft version of the document to KM/DS, the J-8/DDFP, the Joint Staff/J-6, Joint Staff/J-2, and DIA will review the final document and the adjudicated comment resolution matrix to complete final interoperability and supportability and intelligence certifications and weapon safety endorsement. Upon satisfactory review, the J-6 will issue the interoperability certification (reference t), J-2 will issue intelligence certification (reference y), and J-8/DDFP will issue the final weapon safety endorsement. Certifications and endorsements should be received within 15 days of the FCB Draft document submission into KM/DS.

g. FCB Review. When the staffing process is complete for JROC Interest documents, the lead FCB will review the results and make a recommendation to the JROC regarding validation and/or approval of the document, as shown in Figure C-2.

(1) JROC Interest Documents. The FCB will evaluate and forward the JCIDS documents to the JROC, via the JCB, for validation. A representative from the FCB will set the stage for the JCB and JROC decision briefings by framing the proposal in terms of the functional area, the relevant range of military operations, and the timeframe under consideration. The FCB representative will present the FCB's recommendation and any outstanding issues to the JCB and the JROC and the relative priority of the initiative within the FCB's portfolio. The sponsor will then deliver the decision briefing. The JROC will validate and approve the proposal or return it to the sponsor for additional information, as required.

(2) JROC Briefing Format and Schedule. Briefings delivered to the FCB, the JCB, and the JROC will be prepared in accordance with reference aa. The sponsor will provide the updated draft document and briefing slides 48 hours before the FCB, JCB, or JROC brief. The sponsor should have any required JROC briefing completed at least 30 days prior to each milestone review.

(3) Approved Documents. The sponsor will ensure that the approved document is posted to the KM/DS database for future reference and cross-component harmonization.

h. FPO Review of Joint DCRs. FPOs (J-1: Manpower and Personnel; J-4: Facilities; J-7: Doctrine, Leadership and Education, and Training; J-8: Organization and Materiel) will provide an assessment of their specific functional process during their review of the joint DCRs during Phase 1 and Phase 2 of the document staffing.

i. Sponsor Validation and Approval. If a document is assigned a JPD of Joint Integration, Joint Information, or Independent, it will move into the validation and approval process as shown in Figures C-3 and C-4. The FCB may review the document for JPD accuracy and possible joint implications.

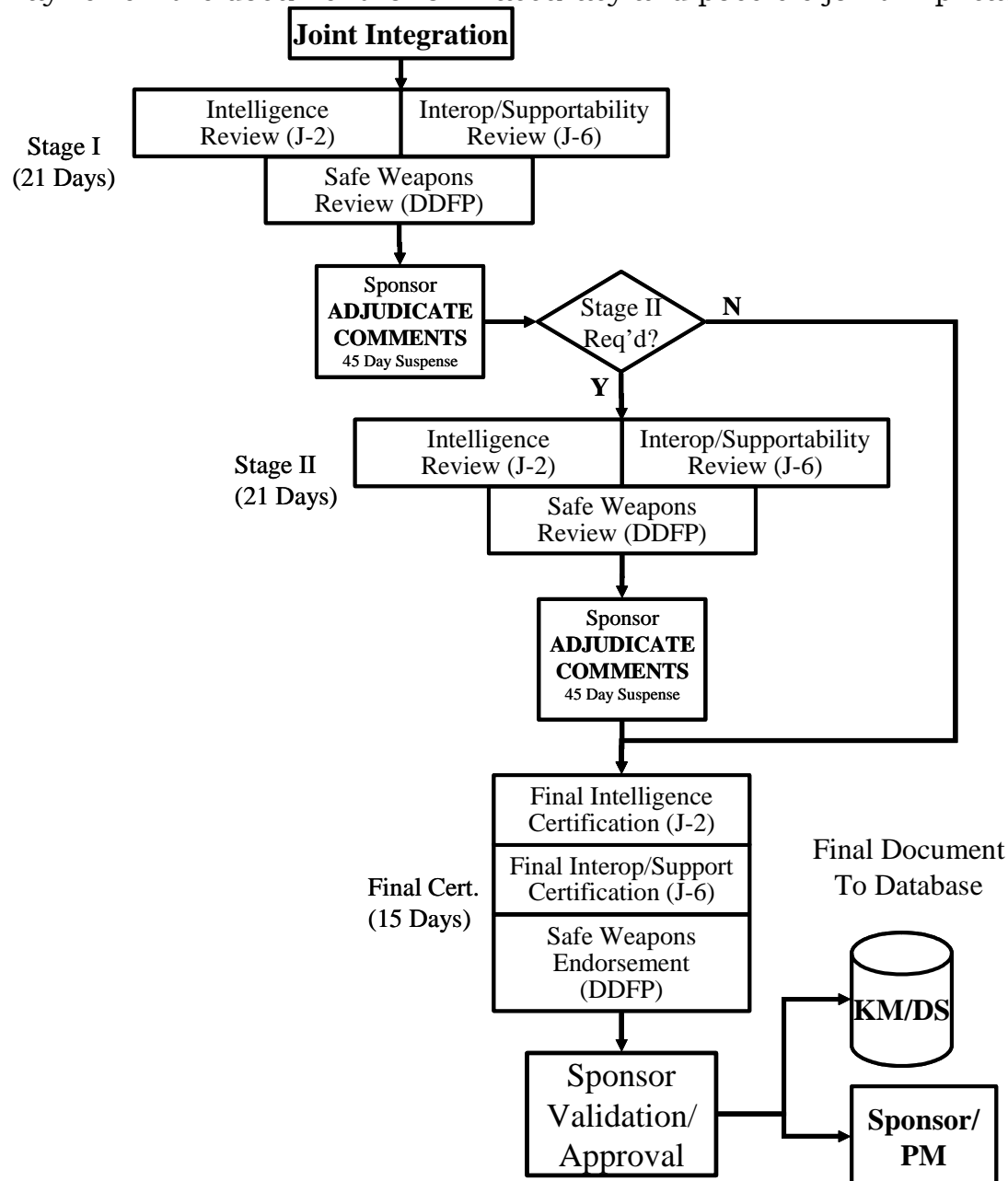


Figure C-3. Joint Integration Staffing Process

Following the review, the FCB may make recommendations to the Gatekeeper for redesignation of the JPD if required. If the JPD change is approved, the staffing process will be changed to reflect the new JPD.

(1) Joint Integration proposals in an ICD, CDD, or CPD will be staffed by Joint Staff/J-8 CAD through Stage I staffing for IT and NSS interoperability and supportability (not applicable for ICDs) and intelligence certifications and weapon safety endorsement. Documents will be resubmitted for Stage II staffing if there are unresolved critical comments from Stage I or if directed by the lead FCB. Both Stage I and Stage II reviews are conducted at the O-6 level for 21 days once the Gatekeeper releases the document for staffing. Upon completion of Stage II staffing, the final document and the adjudicated comment resolution matrix will be submitted to Joint Staff/J-2 and Joint Staff/J-6 for a final review to receive certification. The certifications may be reviewed by the FCB. All final weapons-related documents and their adjudicated comment resolution matrix shall also be submitted to the J-8/DDFP for review and formal endorsement. The document will then be returned to the sponsor for final validation and approval.

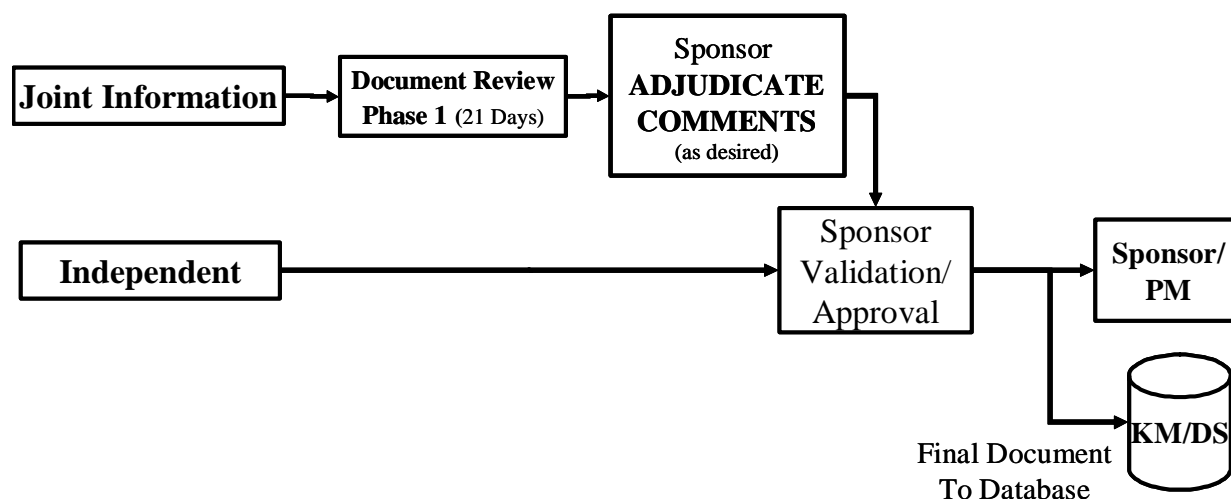


Figure C-4. Joint Information and Independent Staffing Process

(2) Documents designated as Joint Information will be staffed by Joint Staff/J-8 CAD through Document Review Phase 1 staffing (the same as that for JROC Interest) for informational purposes only and may be reviewed by the lead FCB (Figure C-4). Reviewers recommending a change in the document's JPD should notify J-8 as early as possible; the final JPD decision will be made by J-8. Disposition of the comments is at the discretion of the sponsor unless the JPD is changed. Upon completion of staffing, the document and comments will be returned to the sponsor for adjudication of the comments as they desire followed by validation and approval.

(3) Documents designated as Independent may be reviewed by the FCB (Figure C-4). They will be returned to the sponsor for validation and approval.

(4) When Joint Integration, Joint Information, and Independent documents are approved, the sponsor will post them to the KM/DS database for future reference and cross-component harmonization review.

j. JPD Appeal Process. The sponsor, Services, or other members of the FCB may appeal the JPD designation through the FCB. The resulting FCB recommendation will be forwarded to the Gatekeeper for resolution.

k. Document Revisions. When documents are updated, the staffing and approval path will be determined by the type of document, the scope of the change, and the JPD.

(1) JCD changes will be resubmitted for staffing and approval as JROC Interest documents.

(2) ICDs are not normally updated. Changes to an ICD result in a document that must be submitted through the JCIDS staffing and approval process.

(3) CDD and CPD changes will be resubmitted for staffing and approval under three circumstances:

(a) The document has a JPD of JROC Interest and the changes impact the KPPs. JROC Interest documents being updated with minor changes to the KPPs (or other changes if non-KPP approval was not delegated) will be reviewed by the lead FCB to determine if formal staffing is required. If changes are significant enough to require staffing, the standard process will apply. If no staffing is required, the status will be updated to reflect FCB Draft and the document will proceed through the validation and approval process.

(b) The document has a JPD of JROC Interest, the changes do not affect the KPPs, and validation authority for non-KPP changes has not been delegated to the sponsor by the JROC. The document will be reviewed by the lead FCB to determine if formal staffing is required. If changes are significant enough to require staffing, the standard process will apply. If no staffing is required, the status will be updated to reflect FCB Draft and the document will proceed through the validation and approval process.

(c) The document has a JPD of JROC Interest or Joint Integration and the changes only affect the NR-KPP. The document will be staffed to Joint Staff/J-6 for recertification of the NR-KPP via KM/DS. The Joint Staff/J-6 will determine if staffing is required prior to recertification.

CJCSM 3170.01C

1 May 2007

(d) For all other cases, the sponsor has validation and approval authority over changes. The updated document must be submitted to KM/DS for archiving upon completion.

4. Waivers. If the sponsor is requesting a waiver to the JCIDS documentation requirements, the waiver will be submitted in the form of a memorandum addressed to the Joint Staff/J-8. The process is as follows:

a. The waiver request will be submitted into KM/DS as the document type that is being waived (e.g., ICD waiver request will be submitted as an ICD document type) with the staffing stage set to FCB Draft.

b. The Gatekeeper will assign the waiver request to the lead FCB and a Joint Staff/J-8/CAD Action Officer.

c. The lead FCB, in coordination with the CAD Action Officer, will develop a recommendation for approval/disapproval of the waiver. The request will be approved/disapproved by the Gatekeeper.

d. The final approval/disapproval memorandum will be attached to the request in KM/DS.

CJCSM 3170.01C
1 May 2007

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ENCLOSURE D

JOINT CAPABILITIES DOCUMENT

1. General

a. The JCD is the result of the FAA and FNA steps of a CBA that identifies what capabilities are important to the joint warfighter and how to evaluate future systems in their ability to deliver those capabilities. A CBA uses relevant parameters and associated metrics to quantify the key characteristics (attributes) of systems and forces to determine how capable they are of performing those critical tasks needed to accomplish future military objectives. The JCD will in general cover a much broader scope of capabilities than that described in an ICD. The JCD may be the predecessor document for one or more ICDs and/or joint DCRs.

b. The JCD describes capability gaps that exist in joint warfighting functions, as described in the JOpsC or CONOPs. The JCD establishes the linkage between the characteristics of the future joint force identified in the CCJO and the capabilities identified through the FAA. The JCD defines the capability gaps in terms of the functional area, the relevant range of military operations, and the timeframe under consideration. Table D-1 lists the documents that guide or depend on the development of the JCD. The JCD must capture the results of a well-framed CBA (FAA and FNA), as described in Enclosure A.

c. A JCD will be generated, validated, and approved to define and prioritize the capabilities required for joint warfighting. The JCD is used as the basis for one or more FSAs and resulting ICDs or joint DCRs. The JCD is informed by and will also be used as a basis for updating the integrated architectures and the capability roadmaps.

2. JCD Focus

a. The combatant command develops a JCD based on its UCP- and JSCP-assigned missions. This effort should be coordinated with the Joint Staff, Services, agencies, and USJFCOM. The JCD identifies the joint capabilities required to accomplish those missions, and through the CBA identifies gaps in those capabilities.

b. An FCB develops a JCD as directed by the JROC based on the CBA (FAA and FNA) of a JROC-approved JIC. The JCD documents the JCIDS analyses that describe the joint capabilities identified by the FCB and identifies the gaps in those capabilities.

Table D-1. JCD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
JOpsC and CONOPs	Integrated Architectures
DPS	Technology Development Strategy
DIA Validated Threat Documents (Capstone Threat Assessments as available)	Test and Evaluation Strategy
Capability Roadmaps	Clinger-Cohen Certification for Major Automated Information Systems (MAIS)
Integrated Architectures	ICD
	Capability Roadmaps
	Joint DCR

c. CSAs with designated functional manager roles develop JCDs to define the capabilities necessary for their functional area of responsibility.

d. A sponsor may also develop a JCD to define the set of capabilities for a mission after coordination with the appropriate FCBs and combatant commands to ensure no duplication of work.

e. The JCD will identify the relative priority of the capability gaps and identify those areas where risk may be taken. The JROC will task sponsors with performing follow-on FSAs and development of ICDs when appropriate.

3. JCD Development and Documentation

a. The JCD supports the development of joint DCRs to implement non-materiel solutions and the development of ICDs for materiel solutions.

b. The JCD developer will prepare the JCD in coordination and/or collaboration with the appropriate DOD components, agencies, FCB working groups, OUSD(AT&L), Office of Program Analysis and Evaluation (OPA&E) (when appropriate), and integrated architecture leads. The JCD will include a description of the operational capability, capability gap, threat, shortcomings of existing systems, expected joint operating environments, the measures of effectiveness, program support, joint DOTMLPF, and policy impact and constraints for the capabilities.

c. The JCD will capture the results of the FAA and FNA, identifying the required joint capabilities and the current or projected gaps or redundancies. This JCD will identify the attributes and measures of effectiveness (MOE) and measures of performance (MOP) associated with these capabilities and prioritize the gaps based on operational considerations. The JCD will also identify areas where risk may be taken. The JCD will be submitted to the Joint Staff for JROC validation prior to initiation of the FSA. The Director, Operational Test and Evaluation (DOT&E) will advise on the testability of chosen MOEs and MOPs so that the system's performance measured in operational testing can be linked to the CBA. JCDs will be reviewed and updated as changes are made to the JOpsC. The JCD will be used as a baseline for one or more ICDs or joint DCRs.

d. All draft and approved JCDs should display appropriate classification and releasability markings.

e. The JCD format and detailed content instructions of the JCD are provided in Appendix A of this enclosure.

4. JCD Validation and Approval. The JROC validates and approves all JCDs.

5. JCD Publication and Archiving. Approved JCDs (SECRET and below) will be posted to the KM/DS tool so that all approved JCIDS documents are maintained in a single location.

CJCSM 3170.01C
1 May 2007

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APPENDIX A TO ENCLOSURE D
JOINT CAPABILITIES DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED

JOINT CAPABILITIES DOCUMENT
FOR
TITLE

Validation Authority: JROC

Approval Authority: JROC

Designation: JROC Interest

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. JCDs must be submitted in Microsoft Word (6.0 or greater) format. All JCDs must be clearly labeled with draft version number and date and include any caveats regarding releasability, even if unclassified. The intent is to share JCDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Integrated architecture products will be embedded in the Microsoft Word file for ease of review during the staffing process.

1. Concept of Operations Summary. Describe the relevant part of the JOpsC, CONOPs, and/or UCP-assigned mission this JCD addresses; what operational outcomes it provides; what effects it must produce to achieve those outcomes; how it complements the integrated joint warfighting force; and what enabling capabilities are required to achieve its desired operational outcomes. If the JCD is not based on a previously approved CONOPs, the CONOPs will be included as an annex to the JCD.

2. Joint Functional Area. Cite the applicable functional areas, the range of military operations, and the timeframe under consideration. Also identify the relevant DPSs that apply to this JCD.

3. Required Capability. Describe the capabilities required and the timeframe in which they are required, as identified during the FAA. Identify the JCAs (Tier 1 and 2) to which the capabilities identified in this JCD contribute directly. The capabilities must be defined using the common lexicon for capabilities established in the JCAs. These capabilities may require support from one or more functional areas. Describe the tasks and functions that are required for the capability to be successfully employed in accomplishing the

mission. Address the need for the capability to comply with applicable DOD, joint, national, and international policies and regulations.

4. Capability Gaps and Overlaps or Redundancies. This section summarizes the results of the FNA.

a. Describe, in operational terms, the missions, tasks, and functions that cannot be performed or are unacceptably limited, or when and how they will become unacceptably limited. Identify whether the capability gap is due to lack of proficiency in existing capability (cannot accomplish the mission to the level expected), due to lack of sufficient capability (do not have enough of an effective capability) or the capability does not exist. Identify those capabilities for which there exist overlaps or redundancies. This discussion should also provide the linkage between the required capabilities, the key characteristics as defined in the JOpsC.

b. Describe the characteristics of the desired capabilities in terms of desired outcomes. Broad descriptions of desired outcomes help ensure that the required capabilities are addressed without constraining the solution space to a specific, and possibly limited, materiel system. Where multiple characteristics are identified, they should be prioritized based on value to delivering the capability within the context of the CONOPs described earlier. For instance, if delivering cargo, which is more important: speed, range, cargo size, cargo weight, etc.?

c. Where multiple capability gaps are identified, a recommended prioritization of the gaps should be developed. This prioritization should be based on their contribution to future joint operations. In addition, identify those gaps where risk may be taken to ensure resources are applied to high priority gaps.

d. Provide a table (X.X) summarizing all capability gaps, relevant parameters, and associated metrics as shown below. Indicate the minimum value below which the capability will no longer be effective. Also indicate the priority of the capability gaps and which characteristics are key. This will be the basis for creating the linkages between the capabilities and the systems during the development of subsequent ICDs, CDDs, and CPDs.

e. For those capabilities where overlaps or redundancies exist, assess whether the overlap is operationally acceptable, or if excessive overmatch exists and the overlap should be evaluated as part of the tradeoffs to satisfy capability gaps.

f. Descriptions of the identified capabilities should satisfy two rules:

(1) Rule 1. Capability descriptions must contain the required characteristics (attributes) with appropriate qualitative parameters and metrics, e.g., outcomes, time, distance, effect (including scale), obstacles to be overcome, and supportability.

(2) Rule 2. Capability descriptions should be general enough so as not to prejudice decisions in favor of a particular means of implementation but specific enough to evaluate alternative approaches to implement the capability.

Table X.X. Example Capability Description Table

Priority	CCJO character-istics	Description	Tier 1 & Tier 2 JCAs	Parameters	Minimum value
		Capability 1			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value
		Capability 2			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value
		Capability n			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value

5. Threat and Operational Environment

a. Describe in general terms the operational environment, including joint operating environments, in which the capability must be exercised and the manner in which the capability will be employed.

b. Summarize the organizational resources that provided threat support to capability development efforts. Summarize the current and projected threat capabilities (lethal and non-lethal) to be countered. Reference the current DIA-validated threat documents and Service intelligence production center-approved products or data used to support the CBA. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml>; or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).

6. Recommendations. Provide recommendations on which of the capability gaps to pursue and where risk should be taken based on the relative priority

and impact of the capability. If possible, identify a potential sponsor who will complete the capabilities-based assessment process and develop the required ICDs and/or joint DCRs to address the gaps.

Mandatory Appendices

Appendix A. Integrated Architecture Products. Include the required architecture framework view products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference u.

- Mandatory: OV-1
- Others as desired
- Note: Include only those architectural views not presented in the document.

Appendix B. References

Appendix C. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the JCD.

ENCLOSURE E

INITIAL CAPABILITIES DOCUMENT

1. General

a. The ICD documents the requirement to resolve a specific capability gap or a set of capability gaps for a given timeframe identified as the result of a CBA. It identifies possible solutions to the gap(s). A CBA uses relevant parameters and associated metrics to quantify the key characteristics (attributes) of systems and/or forces to determine how capable they are of performing those critical tasks needed to accomplish future military objectives.

b. The ICD describes capability gaps that exist in joint warfighting functions, as described in the JOpsC or CONOPs. The ICD establishes the linkage between the characteristics of the future joint force identified in the CCJO and the capabilities identified through the FAA. The ICD defines the capability gaps in the lexicon established for the JCAs, the relevant range of military operations, and the timeframe under consideration. Table E-1 lists the documents that guide or depend on the development of the ICD. The ICD must capture the results of a well-framed CBA, as described in Enclosure A.

Predecessor Documents and Information	Dependent Documents
JOpsC and CONOPs	AoA Guidance
JCDs (if applicable)	Technology Development Strategy
DPS	Test and Evaluation Strategy
DIA Validated Threat Documents	Clinger-Cohen Certification for MAIS
DIA Initial Threat Warning Assessment	CDD
Integrated Architectures	CPD
Capability Roadmap	Capability Roadmap
	System Engineering Plan
	Joint DCR

Table E-1. ICD Linkage to Program Documents

c. The ICD summarizes the results of DOTMLPF analysis and identifies any changes in US or allied doctrine, operational concepts, organization, training,

and policy that were considered in satisfying the deficiency. The ICD will identify and summarize the DOTMLPF and policy changes (non-materiel approaches) that may address the deficiency in part or in whole as part of the list of approaches addressed in the FSA. These DOTMLPF and policy changes may lead to the development of a joint DCR.

d. The ICD documents the evaluation of balanced and synchronized materiel and non-materiel approaches that are proposed to provide the required capability. It further proposes a prioritized list of materiel and non-materiel approaches based on analysis of the various possible approaches and their DOTMLPF or policy implications. Finally, the ICD describes how the approach(es) provides the desired joint capability and relates the desired capability to the characteristics of the future joint force identified in the CCJO Concepts or CONOPs.

e. For ACAT I programs, an ICD will be generated, validated, and approved to define and review the options for a new capability in a joint context and to ensure that all DOTMLPF and policy alternatives have been adequately considered, even if the program is proceeding directly to Milestone B or C. For those exceptional cases where ACAT II and below programs may be proceeding directly to Milestone B or C, the sponsor may request a waiver to the requirement for an ICD from the Joint Staff/J-8. The waiver request will provide justification for not writing an ICD. Upon approval of the waiver, the sponsor can proceed with submitting CDDs or CPDs for approval.

f. ICDs are not required when the mission need is identified via the ACTD/JCTD, qualified prototype projects, quick reaction technology projects, Lessons Learned, Integrated Priority Lists (IPL), joint IED defeat initiatives, or joint urgent operational need (JUON) processes. Mission-validated prototypes with formal MUAs do not require an ICD.

2. ICD Focus. The ICD documents the JCIDS analyses (described in Enclosure A) that describe one or more capability gaps and identifies potential non-materiel and materiel approaches to addressing those gaps. The approaches identified should cover the joint spectrum of possibilities. The result should not be a sponsor-stovepiped approach to a gap. The ICD supports the follow-on AoA, if required; development of integrated architectures; update of capability roadmaps; the Technology Development Strategy; and the Milestone A acquisition decision (see reference c for DOD space programs).

3. ICD Development and Documentation

a. For materiel approaches, the ICD guides the Concept Refinement and the Technology Development phases of the acquisition process and supports the Concept Decision and Milestone A acquisition decision (see reference c for DOD

space programs). The ICD may also support the development of a joint DCR to implement a non-materiel solution.

b. The ICD sponsor will prepare the ICD in coordination and/or collaboration with the appropriate DOD components, agencies, FCB working groups, OPA&E (when appropriate), OUSD(AT&L), applicable JCD leads, and integrated architecture leads. The DOT&E will advise on the testability of chosen MOEs and MOPs so that the system's performance measured in operational testing can be linked to the CBA. The ICD will include a description of the operational capability, capability gap, threat, expected joint operating environments, shortcomings of existing systems, the MOEs and MOPs, program support, joint DOTMLPF, and policy impact and constraints for the capabilities. The ICD should also address safe storage, handling, transport, and use in joint operating environments for any weapon solution.

c. The ICD may be developed as a single document defining required capabilities and approaches to providing those capabilities. ICDs may also be developed based on the analysis in an approved JCD combined with a completed FSA that addresses one or more of the capability gaps identified in the JCD.

d. All draft and approved ICDs should display appropriate classification and releasability markings.

e. The ICD format and detailed content instructions of the ICD are provided in Appendix A of this enclosure.

4. ICD Validation and Approval. The determination of the validation and approval authorities for the ICD depends on the JPD assigned by the Gatekeeper, as described in Enclosure C.

5. ICD Publication and Archiving. Approved ICDs (SECRET and below), regardless of ACAT or JPD designation, will be posted to the KM/DS tool so that all approved JCIDS documents are maintained in a single location.

CJCSM 3170.01C
1 May 2007

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APPENDIX A TO ENCLOSURE E
INITIAL CAPABILITIES DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED
INITIAL CAPABILITIES DOCUMENT
FOR
TITLE

Potential ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Joint Information/Independent

Prepared for Concept Refinement Decision
(or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. ICDs must be submitted in Microsoft Word (6.0 or greater) format. All ICDs must be clearly labeled with draft version number and date and include any caveats regarding releasability, even if unclassified. The intent is to share ICDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Integrated architecture products will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of the ICD should be no more than 10 pages long.

1. Concept of Operations Summary. Describe the relevant part of the JOpsC, CONOPs, and/or UCP-assigned mission to which this capability contributes; what operational outcomes it provides; what effects it must produce to achieve those outcomes; how it complements the integrated joint warfighting force; and what enabling capabilities are required to achieve its desired operational outcomes. If the ICD is not based on a previously approved CONOPs, the CONOPs will be included as an annex to the ICD.

2. Joint Functional Area. Cite the applicable functional areas, the range of military operations, and the timeframe under consideration. Also identify the relevant DPSs that apply to this ICD.

3. Required Capability. Describe the capabilities required and the timeframe in which they are required as identified during the FAA. Describe the particular aspects of the JOpsC that the ICD addresses and explain why the

required capabilities are essential to the joint force commander to achieve military objectives. Address the need for the capability to comply with applicable DOD, joint, national, and international policies and regulations. Identify the JCAs (Tier 1 and 2) to which the capabilities identified in this ICD contribute directly. Define the capabilities using the common lexicon for capabilities established in the JCAs. Reference any validated JCDs capability gaps for which this ICD is identifying approaches.

4. Capability Gaps and Overlaps or Redundancies

a. Describe, in operational terms, the missions, tasks, and functions that cannot be performed or are unacceptably limited or when and how they will become unacceptably limited. Identify whether the capability gap is due to lack of proficiency in existing capability (cannot accomplish the mission to the level expected), or due to lack of sufficient capability (do not have enough of an effective capability), or the capability does not exist, or the capability needs to be recapitalized. Identify those capabilities for which there exist overlaps or redundancies. This discussion should also provide the linkage between the required capabilities and the characteristics of the future joint force identified in the CCJO and/or CONOPs.

b. Describe the attributes of the desired capabilities in terms of desired outcomes. Broad descriptions of desired outcomes help ensure that the required capabilities are addressed without constraining the solution space to a specific, and possibly limited, materiel system. Where multiple characteristics are identified, they should be prioritized based on value to delivering the capability within the context of the CONOPs described earlier. For instance, if delivering cargo, which is more important: speed, range, cargo size, cargo weight, etc.?

c. Where multiple capability gaps are identified, a recommended prioritization of the gaps should be developed. This prioritization should be based on the prioritized attributes for the capabilities. In addition, identify those gaps where risk may be taken to ensure resources are applied to high priority gaps.

d. Provide a table (X.X) summarizing all capability gaps, relevant parameters, and associated metrics as shown below. Indicate the minimum value below which the capability will no longer be effective. Also indicate the priority of the capability gaps and which characteristics are key. This will be the basis for creating the linkages between the capabilities and the systems during the development of subsequent CDDs and CPDs.

e. For those capabilities where overlaps or redundancies exist, assess whether the overlap is operationally acceptable, or if excessive overmatch exists

and the overlap should be evaluated as part of the tradeoffs to satisfy capability gaps.

f. Definitions of the identified capabilities should satisfy two rules:

(1) Rule 1. Capability definitions must contain the required characteristics (attributes) with appropriate qualitative parameters and metrics, e.g., outcomes, time, distance, effect (including scale), obstacles to be overcome, and supportability.

(2) Rule 2. Capability definitions should be general enough so as not to prejudice decisions in favor of a particular means of implementation but specific enough to evaluate alternative approaches to implement the capability.

Table X.X. Example Capability Description Table

Priority	CCJO characteristics	Description	Tier 1 & Tier 2 JCAs	Parameters	Minimum value
		Capability 1			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value
		Capability 2			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value
		Capability n			
		Characteristic 1		Description	Value
		Characteristic n		Description	Value

g. The discussion above should capture the FAA and FNA described in Enclosure A.

5. Threat and Operational Environment

a. Describe in general terms the operational environment, including joint operating environments, in which the capability must be exercised and the manner in which the capability will be employed. Summarize the organizational resources that provided threat support to capability development efforts.

b. Summarize the current and projected threat capabilities (lethal and non-lethal) to be countered. Reference the current DIA-validated threat documents and Service intelligence production center-approved products or data used to

support the CBA. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).

6. Functional Solution Analysis Summary. The subparagraphs below summarize the results of the FSA as described in Enclosure A.

a. Ideas for Non-Materiel Approaches (DOTMLPF Analysis). Summarize the results of the analysis. Identify any changes in US or allied doctrine, operational concepts, tactics, organization, training, materiel, leadership and education, personnel, facilities, or policy that are considered in satisfying the deficiency in part or in whole. If one or more non-materiel approaches are a possibility, they should be summarized and included in the analysis of materiel and non-materiel approaches.

b. Ideas for Materiel Approaches. If a materiel approach may be required to address a capability gap, list the materiel approaches that should be considered during the analysis. This list should leverage the expertise of the components, laboratories, agencies, and industry to provide a robust set of divergent materiel approaches that includes single- and multi-Service, multi-agency, allied, and other appropriate FoS or SoS approaches. Indicate potential areas of study for concept refinement. These areas may include the use of existing and future US or allied military or commercial systems, including modified commercial systems or product improvements of existing systems and potential international cooperative developments.

c. Analysis of Materiel/Non-Materiel Approaches (AMA). Summarize how the proposed materiel and non-materiel approaches address capability gaps, using wherever possible the JROC-approved key attributes and the metrics of the functional area integrated architecture and applicable US-ratified international standardization agreements (reference e). Address all approaches identified by the analysis body. The analysis will produce a list of approaches that may provide the capabilities required by the user. To produce the list, the AMA will consider the integrated architecture approved metrics, applicable US-ratified international standardization agreements, technological maturity, and the overall impact of the solution on the functional and cross-functional areas. The approaches may be a combination of materiel and non-materiel solutions that deliver the desired capability. For FoS and/or SoS approaches, the analysis will identify the impact of synchronization on the approach. Ensure all aspects of the AMA are addressed as described in Enclosure A.

7. Final Recommendations. Describe the best materiel and/or non-materiel approaches as determined by the FSA. This should include consideration of combinations of non-materiel and materiel approaches that can be used to address the entire capability gap.

a. Describe the non-materiel recommendations that should be considered for implementation through a joint DCR.

b. Describe the non-materiel recommendations that should be considered for implementation through a sponsor's internal DOTMLPF change process.

c. Describe the materiel approach(es) recommended for further analysis during concept refinement and technology development.

(1) If an evolutionary acquisition approach is recommended, also discuss the minimum capability required to fill the gap described in paragraph 2 of the ICD, in the near term and for the long term. If the program is expected to proceed immediately to a Milestone B or C decision, describe the materiel recommendations proposed to be further analyzed during SDD.

(2) Describe the key boundary conditions, including DOTMLPF and policy constraints, within which the AoA should be performed. These constraints must be crafted to allow reasonable compromise between focusing the AoA and ensuring that the AoA considers novel and imaginative alternative solutions. The key boundary conditions must reflect a thorough understanding of the functional and operational areas and the conditions under which the ultimate system(s) must perform.

(3) Discuss the non-materiel and/or DOTMLPF and policy implications and constraints of the recommended materiel approach or approaches.

Mandatory Appendices

Appendix A. Integrated Architecture Products. Include the required architecture framework view products developed, whenever possible, from integrated architectures. Formatting instructions are provided in reference u.

- Mandatory: OV-1
- Others as desired
- Note: Include only those architectural views not presented in the document.

Appendix B. References

Appendix C. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the ICD.

CJCSM 3170.01C
1 May 2007

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ENCLOSURE F

CAPABILITY DEVELOPMENT DOCUMENT

1. General

a. The CDD is the sponsor's primary means of defining authoritative, measurable, and testable capabilities needed by the warfighters to support the SDD phase of an acquisition program. Table F-1 lists the types of documents that precede or depend on the CDD. Integrated architectures, applicable JCDs, the ICD, the AoA (unless waived by the MDA), and the technology development strategy guide development of the CDD. The CDD captures the information necessary to deliver an affordable and supportable capability using mature technology within one or more increments of an acquisition strategy. The CDD must include a description of the DOTMLPF and policy impacts and constraints. The CDD will be validated and approved before Milestone B. The CDD will be validated and approved prior to program initiation for shipbuilding programs.

b. For DOD space programs, reference c will guide the development of the appropriate documentation. The initial CDD will be used to support key decision point (KDP)-A. It is not sufficient to support a KDP-B decision. For the KDP-B, a full CDD will be developed and approved by the JROC. The initial CDD required by reference c for DOD space programs will differ from a full CDD in that the operational view architecture products will be complete, but the systems and technical view products may be incomplete. Because the architecture products are not complete, an NR-KPP certification will not be received on initial CDDs. In addition, the potential KPPs are identified, but the thresholds and objectives may not be finalized.

c. In an evolutionary acquisition program, the capabilities delivered by a specific increment may provide only a part of the ultimate desired capability; therefore, the first increment's CDD must provide information regarding the strategy for achieving the full capability. Subsequent increments leading to the full capability are also described to give an overall understanding of the program preliminary approach. If sufficient information is available to define the attributes and applicable KPPs for subsequent increments, the CDD may describe multiple increments for validation and approval. Updates to the CDD will be required if there are changes to the validated KPPs due to lessons learned from previous increments, changes in the JOpsC, CONOPs, or integrated architectures, and other pertinent information. Additionally, the AoA should be reviewed for its relevance for each program to each CDD increment and, if necessary, should be updated or a new AoA initiated.

d. The CDD provides the operational performance attributes necessary for the acquisition community to design a proposed system(s) and establish a program baseline. It identifies the performance attributes, including KPPs, that will guide the development and demonstration of the proposed increment(s). Guidance for the development of KPPs is provided in Enclosure B. The performance attributes and KPPs will apply only to the designated increment(s). If the plan requires a single step to deliver the full capability, the KPPs will apply to the entire system(s). Each increment must provide a safe, operationally effective, suitable, and useful capability in the intended mission environment that is commensurate with the investment and independent of any subsequent increment.

Table F-1. CDD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
JOpsC and CONOPs	Acquisition Program Baseline (APB) for Milestone B of the Current Increment
JCDs and ICDs	Cost Analysis Requirements Description
Technology Development Strategy	Clinger-Cohen Certification (Updated for Milestone B for MAIS)
System Threat Assessment	Acquisition Strategy
AoA Report	Test and Evaluation Master Plan
Integrated Architectures	DD Form 1494 (Required to Obtain Spectrum Certification)
Complete Automated Standards Profile as Required in reference t	ISP
Capability Roadmap	Capability Roadmap
MUAs/final demonstration report for JCTD/ACTDs and qualified prototype projects	System Engineering Plan
	Manpower Estimate
	CPD

e. The CDD articulates the attributes that may be further refined in the CPD. It states the essential attributes of a program, including affordability and supportability, from the warfighter's perspective. The CDD shall be updated or appended for each Milestone B decision. If the validated CDD specified

multiple increments, revalidation is not required prior to each Milestone B unless there are changes to the validated KPPs.

f. The CDD addresses a single system or SoS only, although it may refer to any related systems needed in an FoS or an SoS approach necessary to provide the required capability. When the ICD recommends a materiel approach consisting of an FoS, each individual system will have its own CDD. An SoS will normally be treated as if it were a single system using a single CDD to describe highly interdependent systems that provide the capability using an SoS. When the CDD is being used to describe an SoS approach, it must address both the SoS KPPs and attributes and any unique KPPs and other attributes for each of the constituent systems. There may be cases where an individual system that is part of an SoS will be part of a separate acquisition. A CDD describing this system with linkages to the complete SoS will be developed. When it is necessary to synchronize development of systems to ensure delivery of a capability, the CDD will identify the source ICDs and the related CDDs and CPDs. For example, a program addressing a capability gap may require two unique or separate systems to provide the required capability (e.g., a bomb and an unmanned aerial vehicle). Conversely, there are also cases where related but different capabilities can be included in one CDD. For example, the development of a multi-mission aircraft could be captured in a single CDD. A CDD may also describe multiple increments of a program to deliver the required capabilities. The CDD will clearly describe the KPPs, KSAs, and other attributes, and their thresholds and objectives that apply to each increment.

g. When the sponsor of a JCTD/ACTD, qualified prototype project, or quick-reaction technology project determines that the demonstration is complete but additional development is required before fielding, a CDD will be developed to guide the development process. The MUA (completed at the end of the JCTD/ACTD, qualified prototype project, or quick-reaction technology project) will be used to support the development of the CDD. The CDD with the supporting MUA will then be submitted for staffing and approval prior to the Milestone B decision.

h. Care must be taken to stabilize and not overspecify attributes. Those attributes that contribute to the characteristics of the future joint force identified in the CCJO will be designated as KPPs. To supply the necessary performance attributes, the program manager (PM) will develop system-level details in technical documentation.

i. For IT systems with a development cost exceeding \$15 million, the sponsor will develop a CDD. The spiral development approach for IT systems requires a variation to the application of the JCIDS documentation. The CDD will be developed describing the objective of up to 5 years of software releases.

The CDD will be validated and approved once for all of the software releases over that time.

2. CDD Focus. The CDD specifies the attributes of a system in development. These will provide or contribute to the operational capabilities that are inserted into the performance section of the acquisition strategy and the APB. All CDD KPPs (and KSAs supporting the sustainment KPP) are inserted verbatim into the APB. MOE and suitability, developed for the initial Test and Evaluation Master Plan (TEMP) at Milestone B, are based on the performance attributes and KPPs identified in the CDD.

3. CDD Development and Documentation

a. The CDD is generated prior to Milestone B of the acquisition process. The CDD is an entrance criteria item that is necessary to proceed to each Milestone B acquisition decision. It describes a technologically mature and affordable increment(s) of a militarily useful capability that was demonstrated in an operationally relevant environment. The CDD will support entry into SDD and refinement of integrated architectures (see reference c for DOD space programs).

b. The CDD sponsor will apply lessons learned during the Technology Development phase, plus any other appropriate risk reduction activities, MUAs, JCTD/ACTDs, qualified prototype projects, quick-reaction technology projects, market research, experimentation, test and evaluation, capability and schedule tradeoffs, and affordability and supportability analysis in the development of the CDD.

c. The CDD sponsor, in coordination and collaboration with the appropriate DOD components (including the MDA-designated developer), agencies, FCB working groups, and applicable ICD and JCD leads, will prepare the CDD. The CDD sponsor also will collaborate with sponsors of other CDDs and CPDs that are required in FoS or SoS solutions, particularly those generated from a common ICD. In some of these cases it may be appropriate to develop annexes for the CDD. The annexes would describe excursions from the CDD to meet other sponsors' specific capability gaps. The annexes do not repeat information already contained in the CDD but only describe the changes. The CDD will include a description of the operational capability; threat; links to all applicable integrated architectures; US-ratified materiel international standardization agreements (reference bb); required capabilities; program support; sustainment; force structure; DOTMLPF and policy impacts and constraints; and schedule and program affordability for the system.

d. CDD development should leverage off related analysis and development with the associated ISP required by reference s. As required capabilities are developed, the output from the information needs discovery process (reference

s) should help update the required architecture products and identify the elements of required program support for inclusion in the CDD.

e. Draft and approved CDDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry, or the public.

f. The CDD format and detailed content instructions are provided at Appendix A of this enclosure.

4. CDD Validation and Approval. The determination of the validation and approval authorities for the CDD depends on the JPD assigned by the Gatekeeper (as described in Enclosure C).

a. The JROC will review, validate, and approve JROC Interest CDDs. In addition, the JROC may, at its discretion, review CDDs at any time deemed appropriate.

(1) The JROC may retain complete approval authority over JROC Interest CDDs (i.e., no changes of any kind allowed without consent of the JROC) or may delegate approval authority for non-KPP changes to a component. JROC approval of JROC Interest CDDs is required any time a recommendation is made to change a KPP.

(2) Delegation of approval authority for JROC Interest CDDs allows the designated lead component, in coordination with other appropriate DOD components, to make non-KPP tradeoffs between acquisition milestones for the specific increment without JROC approval. Delegation of approval authority will not usually be granted beyond the increment(s) described in the CDD in an evolutionary acquisition.

5. Certifications and Weapon Safety Endorsement. JROC Interest CDDs will receive applicable intelligence and IT and NSS interoperability and supportability certifications prior to JROC validation. Joint Integration CDDs also will receive these certifications as required and may be assessed by the FCB working group and reviewed by the FCB before they are returned to the sponsoring component for validation and approval. Joint Information and Independent CDDs do not require certification and may be assessed by the FCB working group, reviewed by the FCB, and returned to the sponsor for validation and approval. All weapon-related CDDs will receive a weapon safety endorsement.

6. Formal CDD Staffing. The first step in obtaining validation and approval is the formal review of the document. The staffing process is described in Enclosure C. Supporting documentation, such as AoA results, ICDs, and any additional previously approved documents, should be made available electronically for inclusion in the package. The CDD should not be submitted

until the AoA or other supporting analysis is completed. If an AoA has not been conducted, an explanation and an electronic copy of whatever alternative analysis has been performed (or planned) will be made available or attached.

7. CDD Review and Revalidation. The CDD is refined and updated when necessary and before the Milestone B decision for each increment. This update will incorporate the results of the activities during the acquisition phase (i.e., cost, schedule and performance tradeoffs, testing, and lessons learned from previous increments). Two options are available for second (and follow-on) increment CDDs. If the follow-on increment is consistent with the description and strategy described in previous CDDs and the only changes are to the capabilities provided by the new increment (described in paragraph 5 of the CDD), an addendum to the previous CDD may be developed for validation and approval, as appropriate. If the increment contains significant revisions to the overall strategy, the capabilities provided by the next or future increments, or changes to the KPPs, an appropriately revised CDD should be submitted. For space programs, an additional update is required to support the KDP-C decision (reference c). If the CDD for a space program has not changed between KDP-B and KDP-C, the JROC does not need to reapprove it, but a new J-6 certification may be required if there are changes to the NR-KPP.

8. CDD Publication and Archiving. Approved CDDs (SECRET and below), regardless of JPD designation, will be posted to the KM/DS tool so that all approved JCIDS documents are maintained in a single location.

9. System Capabilities. The CDD identifies, in threshold-objective format, the attributes that contribute most significantly to the desired operational capability as discussed in Enclosure B. These attributes will be used to guide the acquisition community in making tradeoffs between the threshold and the objective levels of the stated attributes. Tradeoffs must be assessed for their impact on the capability gaps identified in the source ICDs or other JROC validated source documents. When an attribute's values change in follow-on increments, the CDD should include the values for previous increments for reference purposes.

10. Key Performance Parameters. The KPP threshold and objective values are based on results of efforts and studies that occur prior to Milestone B, including the Technology Development phase (if applicable). Each selected KPP should be directly traceable to the most critically needed attributes of capabilities defined in the ICD or other JROC-validated JROC source documents and to the characteristics of the future joint force identified in the CCJO. Guidance for the development of KPPs is provided in Enclosure B. In selecting KPPs and their values, the sponsor will leverage the expertise of the operational users and the acquisition community and consider technology maturity, fiscal constraints, and the timeframe when the capability is required. The CDD will contain all of the KPPs that capture the attributes needed to

achieve the overall desired capabilities for the system(s). Failure to meet a CDD KPP threshold can be cause for re-evaluation of the system selection, reassessment of the program, or modification of the content of production increments.

a. CDD KPPs are inserted verbatim into the performance section of the APB. KPPs will be developed relating to each of the characteristics of the future joint force in the CCJO when the system contributes to those capabilities. A NR-KPP will be a mandatory KPP in every increment for programs that exchange information. Force protection and survivability KPPs are mandatory for any manned system or system designed to enhance personnel survivability when the system may be employed in an asymmetric threat environment. A sustainment KPP is mandatory for all JROC Interest CDDs. System training and energy efficiency should be considered as KPPs if the analysis supports their inclusion. If the analysis does not support the need for these KPPs, the analysis will provide the justification. If the sponsor determines that any of the mandatory KPPs do not apply, the sponsor will provide justification in the CDD.

b. The CDD should document how its KPPs are responsive to applicable JCD capabilities and key characteristics and/or metrics. For JCDs to be effective, it is essential that all JCD sponsors review all related JROC Interest and Joint Integration CDDs and CPDs for applicability to their JCD. This support is important because CDD and CPD authors cannot in all cases be expected to understand the full impact and scope of every JCD.

CJCSM 3170.01C
1 May 2007

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APPENDIX A TO ENCLOSURE F
CAPABILITY DEVELOPMENT DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED
CAPABILITY DEVELOPMENT DOCUMENT
FOR
TITLE

Increment: _____

ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Joint Information/Independent

Prepared for Milestone B Decision (or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. CDDs must be submitted in Microsoft Word (6.0 or greater) format. Provide the SV-6 as a separate file in Microsoft Excel format for ease of importation into analysis tools. All CDDs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share CDDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Integrated architecture products will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of a CDD for complex systems should be no more than 35 pages long.

Executive Summary (2 pages maximum)

Revision History

Table of Contents (with list of tables, figures and appendices)

Points of Contact

1. Capability Discussion. Cite the applicable ICDs and/or applicable MUAs and provide an overview of the capability gap in terms of relevant range of military operations and the timeframe under consideration. Update the ICD description of the expected joint operating environments. Describe the capability that the program delivers and how it relates to the characteristics of the future joint force as identified in the CCJO, CONOPs, and integrated

architectures. The capability must be defined using the common lexicon for capabilities established in the JCAs. Discuss how the increment(s) contributes to the required capability.

a. Discuss the operating environment of the system. Address how the capability will be employed on the battlefield and where it will be employed and/or based.

b. If the CDD is part of an FoS or SoS solution, identify the source JCD or ICD and discuss the related CDDs, CPDs, integrating DOTMLPF, and policy changes and required synchronization.

c. Cite any additional previously approved JCIDS documents pertaining to the proposed system.

d. Identify the JCAs (Tier 1 and 2) in which the capabilities being delivered through this CDD contribute to directly.

2. Analysis Summary. Summarize all analyses (i.e., AoA and/or other support analysis) conducted to determine the system attributes and to identify the KPPs. Include the alternatives, objective, criteria, assumptions, recommendation, and conclusion. A description of the analysis methodology and the analysis results shall be provided in an appendix.

3. Concept of Operations Summary. Describe the relevant part of the JOpsC, CONOPs, and/or UCP-assigned mission to which this capability contributes, what operational outcomes it provides, what effects it must produce to achieve those outcomes, how it complements the integrated joint warfighting force, and what enabling capabilities are required to achieve its desired operational outcomes.

4. Threat Summary. Summarize the projected threat environment and the specific threat capabilities to be countered. Include the nature of the threat, threat tactics, and projected threat capabilities (both lethal and nonlethal) over time. Programs designated as ACAT I/ID (or potential ACAT I/ID) must incorporate DIA-validated threat references. All other programs may use Service intelligence center-approved products and data. Summarize the organizational resources that provided threat support to capability development efforts. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: www.dia.smil.mil/admin/di/dwo/POC.shtml or JWICS: www.dia.ic.gov/admin/di/dwo/Link.shtml).

5. Program Summary. Provide a summary of the overall program strategy for reaching full capability and the relationship between the increment addressed by the current CDD and any other increments of the program. The timing of delivery of each increment is important. Carefully address the considerations

(e.g., technologies to be developed, other systems in an FoS or SoS, inactivation of legacy systems) that are driving the incremental delivery plan. For follow-on increments, discuss any updates to the program strategy to reflect lessons learned from previous increments, changes in JOpsC, CONOPs, or integrated architectures or other pertinent information. Identify known external dependencies and associated risks. In addition, provide an update on the acquisition status of previous increments.

6. System Capabilities Required for the Increment(s)

a. Provide a description of each attribute and list each attribute in a separate numbered subparagraph. Include a supporting rationale for the capability and cite any analytic references. When appropriate, the description should include any unique operating environments for the system. Provide any additional information that the PM should consider. If the CDD is describing an SoS solution, it must describe the attributes for the SoS level of performance and any unique attributes for each of the constituent systems. If the CDD is describing multiple increments, clearly identify which attributes apply to each increment.

b. Present each attribute in output-oriented, measurable and testable terms. For each attribute, provide a threshold and an objective value. When there are multiple increments and the threshold changes between increments, clearly identify the threshold for each increment. The PM will use this information to provide incentives for the developing contractor or to weigh capability tradeoffs between threshold and objective values. Expressing capabilities in this manner enables the systems engineering process to develop an optimal product. If the objective and the threshold values are the same, indicate this by including the statement "Threshold = Objective."

c. For IT systems using a spiral development approach, the CDD will describe the objective of up to 5 years of software releases. The CDD will identify the overall objective thresholds and objectives for the performance attributes of the system to be achieved at the end of the up to 5 years of software releases.

d. Provide tables summarizing specified KPPs, KSAs, and additional performance attributes in threshold/objective format, as depicted below. For each KPP, identify the characteristics of the future joint force identified in the CCJO. Also provide a general discussion of the additional performance attributes.

CCJO characteristics	Key Performance Parameter	Development Threshold	Development Objective
	KPP 1	Value	Value
	KPP 2	Value	Value
	KPP 3	Value	Value

Table X.X. Example Key Performance Parameter Table

CCJO characteristics	Key System Attributes	Development Threshold	Development Objective
	KSA 1	Value	Value
	KSA 2	Value	Value
	KSA 3	Value	Value

Table X.X. Example Key System Attributes Table

Attribute	Development Threshold	Development Objective
Attribute	Value	Value
Attribute	Value	Value

Table X.X. Additional Attributes

e. For weapon programs, the required joint operating environment attributes and performance parameters must be addressed as the basis for the weapon safety endorsement. Identify, as specifically as possible, all projected requirements necessary to provide for safe weapon storage, handling, transportation, or use by joint forces throughout the weapon lifecycle, to include required performance and descriptive, qualitative, or quantitative attributes.

f. In accordance with the procedures described in references r, s, and t, develop the CDD NR-KPP from the integrated architecture. Force protection and survivability KPPs are mandatory for any manned system or system designed to enhance personnel survivability when the system may be employed in an asymmetric threat environment. A sustainment KPP is mandatory for all JROC Interest CDDs.

g. If the sponsor determines that any of the mandatory KPPs do not apply, the sponsor will provide justification.

7. Family of System and System of System Synchronization. In FoS and SoS solutions, the CDD sponsor is responsible for ensuring that related solutions,

specified in other CDDs and CPDs, remain compatible and that the development is synchronized. These related solutions should tie to a common JCD or ICD. The CDD sponsor, in coordination with the FCBs, is also responsible for ensuring that the CDD accurately captures the desired capabilities described in applicable JCDs.

a. Discuss the relationship of the system described in this CDD to other systems contributing to the capability(ies). Discuss any overarching DOTMLPF and policy changes that are required to make the FoS/SoS an effective military capability.

b. Provide a table that briefly describes the contribution this CDD makes to the capabilities described in the applicable JCDs and ICDs and the relationships to other CDDs and CPDs that also support these capabilities. For these interfaces to be effective, it is essential the CDD sponsor review all related JROC Interest and Joint Integration JCDs, ICDs, CDDs, and CPDs for applicability to the FoS or SoS addressed by this CDD. Also identify the primary JCAs (Tier1 & 2) supported by this CDD. If the CDD is not based on JCD or ICD validated capabilities, identify the JROC validated source document.

Table X-X. Supported ICDs/JCDs and Related CDDs/CPDs

Capability	CDD Contribution	Related CDDs	Related CPDs	Tier1& 2 JCAs
ICD Capability Description #1 (Source Doc)	Brief description of the contribution made by this CDD	CDD Title	CPD Title	
ICD Capability Description #2 (Source Doc)	Brief description of the contribution made by this CDD	CDD Title	CPD Title	
JCD Capability (Source Doc)	Brief description of the contribution made by this CDD	CDD Title	CPD Title	

8. Information Technology and National Security Systems Supportability. For systems that receive or transmit information, provide an estimate of the expected bandwidth and quality of service requirements for support of the capability (on either a per-unit or an aggregate basis, as appropriate). For the CDD, this will be a very rough order-of-magnitude estimate derived from the initial ISP (full details will be derived from the associated or updated ISP for Milestone C and included in the CPD). This description must explicitly distinguish the IT and NSS support to be acquired as part of this program from IT and NSS support to be provided to the acquired system through other

systems or programs (reference s). Sponsor will identify the communities of interest (reference z) with which they are working to make the capability's data visible, accessible, and understandable to other users on the GIG.

9. Intelligence Supportability. Identify, as specifically as possible, all projected requirements for intelligence support throughout the expected acquisition life cycle in accordance with the format and content prescribed by reference y, unless a waiver has been granted by J-2. Contact J-2 Intelligence Requirements Certification Office (J2P/IRCO) for assistance (DSN 225-4693/8085, SIPRNET <http://www.dia.smil.mil/intel/j2/j2p/irco/main.html> or JWICS http://j2irco.dia.ic.gov/irco/open_docs.html).

10. Electromagnetic Environmental Effects (E3) and Spectrum Supportability. Define the electromagnetic spectrum requirements that the system must meet to assure spectrum supportability in accordance with reference v. Describe the electromagnetic environment in which the system will operate and coexist with other US, allied, coalition, government, and non-government systems. Identify potential operational issues regarding electromagnetic interference from threat emitters and from other E3 effects such as electromagnetic pulse. For spectrum-dependent systems, equipment spectrum certification is required to assure adequate access to the electromagnetic spectrum and sufficient availability of frequencies from host nations. Specifically address safety issues regarding hazards of electromagnetic radiation to ordnance (HERO), fuels (HERF), and personnel (HERP).

11. Assets Required to Achieve Initial Operational Capability (IOC). Describe the types and initial quantities of assets required to attain IOC. Identify the operational units (including other Services or government agencies, if appropriate) that will employ the capability, and define the initial asset quantities (including initial spares and training and support equipment, if appropriate) needed to achieve IOC.

12. Schedule and IOC and Full Operational Capability (FOC) Definitions. Define what actions, when complete, will constitute attainment of IOC and FOC of the current increment. Specify the target date for IOC attainment.

13. Other DOTMLPF and Policy Considerations. Discuss any additional DOTMLPF and policy implications associated with fielding the system that have not already been addressed in the CDD, to include those approaches that would impact CONOPs or plans within a combatant command's area of responsibility. Highlight the status (timing and funding) of the other DOTMLPF and/or policy considerations. Describe implications for likely changes to any aspect of DOTMLPF or policy. Discuss human systems integration (HSI) considerations that have a major impact on system effectiveness, suitability, and affordability. Describe, at an appropriate level of detail, the key logistics criteria, such as system reliability, maintainability, transportability, and

supportability that will help minimize the system's logistics footprint, enhance mobility, and reduce the total ownership cost. Detail any basing needs (forward and main operating bases, institutional training base, and depot requirements). Specify facility, shelter, supporting infrastructure, anti-tamper and environmental, safety and occupational health (ESOH) asset requirements, and the associated costs and availability milestone schedule that support the capability. Describe how the system(s) will be moved either to or within the theater. Identify any lift constraints.

14. Other System Attributes. As appropriate, address attributes that tend to be design, cost, and risk drivers, including ESOH, HSI, embedded instrumentation, electronic attack (EA), information protection standards and IA and wartime reserve mode (WARM) requirements. In addition, address conventional and initial nuclear weapons effects; nuclear, biological and chemical contamination (NBCC) survivability; natural environmental factors (such as climatic, terrain, and oceanographic factors); and unplanned stimuli (such as fast cook-off, slow cook-off, bullet impact, fragment impact, sympathetic detonation, and shape charge jet). Define the expected mission capability (e.g., full, percent degraded) in the various environments. Include applicable safety parameters, such as those related to system, nuclear, explosive, and flight safety. Identify physical and operational security needs. When appropriate, identify the weather, oceanographic and astrogeophysical support needs throughout the program's expected life cycle. Include data accuracy and forecast needs. For intelligence, surveillance, and reconnaissance (ISR) platforms, address information protection standards. Describe the non-IT/NSS capabilities required for allied and coalition operations, identify the potentially applicable US-ratified international standardization agreements, and provide an initial indication of which ones will be incorporated in the system requirements (references z and bb).

15. Program Affordability. The affordability determination is made as part of the cost assessment in the CBA. Cost will be included in the CDD as life-cycle cost or, if available, total ownership cost. It will include all associated system(s) DOTMLPF and policy costs. Inclusion of cost allows the sponsor to emphasize affordability in the proposed program. In addition, the discussion on affordability should articulate the CDD sponsor funding level estimates for developing, producing, and sustaining the desired capability. The cost figure should be stated in terms of a threshold and objective capability (not necessarily a KPP) to provide flexibility for program evolution and cost as an independent variable (CAIV) tradeoff studies. Cite applicable cost analyses conducted to date.

Mandatory Appendices

Appendix A. Net-Ready KPP Products. Include the required architecture framework view products developed from integrated architectures. Formatting instructions are provided in reference u.

- Mandatory
 - AV-1, OV-1, OV-2, OV-4, OV-5, OV-6C
 - SV-2, SV-4, SV-5, SV-6
 - TV-1 (Draft IT Standards Profile generated by the DOD IT Standards Registry (DISR) online)
 - Net Centric Operations Warfare Reference Model (NCOW-RM) Compliance Statement
 - NR-KPP statement
 - IA Statement of Compliance
 - Key Interface Profile (KIP) Declaration (list of KIPs that apply to system)
- As Applicable: OV-7, TV-2

Note: Include only those architectural views not presented in the document.

Note: The Joint Staff may waive the requirement for certain architecture views on a case-by-case basis based on the proposed JPD and presence or absence of a NR-KPP.

Appendix B. References

Appendix C. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the CDD.

ENCLOSURE G

CAPABILITY PRODUCTION DOCUMENT

1. General

a. The CPD is the sponsor's primary means of providing authoritative, testable capabilities for the Production and Deployment phase of an acquisition program. A CPD is finalized after design readiness review and is validated and approved before the Milestone C acquisition decision (see reference c for DOD space programs). Because a CPD is finalized after design readiness review and after the majority of capability development, it is normally not appropriate to introduce new requirements at this point. New requirements should be included in the next increment in an evolutionary program or in a future modification or upgrade if no additional increments are planned. The development of the CPD is guided by the integrated architectures; applicable JCDs, ICDs, and CDD; AoA and/or supporting analytical results; developmental and operational test results; and the design readiness review. The CPD must include a description of the DOTMLPF and policy impacts and constraints. The key documents associated with the CPD are identified in Table G-1.

b. The CPD captures the information necessary to support production, testing, and deployment of an affordable and supportable increment within an acquisition strategy. The CPD provides the operational performance attributes necessary for the acquisition community to produce a single increment of a specific system. It presents performance attributes, including KPP, to guide the production and deployment of the current increment. If the plan requires a single step to deliver the full capability, the KPPs will apply to the entire system(s). There may be cases where the validation authority decides it is appropriate to use a combined CPD to describe closely interdependent systems that provide the desired capability. Each increment must provide a safe, operationally effective, suitable, and useful capability in the intended environment, commensurate with the investment.

c. The CPD refines the threshold and objective values for performance attributes and KPPs that were validated in the CDD for the production increment. Each production threshold listed in the CPD depicts the minimum performance that the PM is expected to deliver for the increment based on the system design subsequent to the design readiness review. The refinement of performance attributes and KPPs is the most significant difference between the CDD and the CPD and is discussed further in paragraph 9 below.

Table G-1. CPD Linkage to Program Documents

Predecessor Documents and Information	Dependent Documents
JOpsC and CONOPs	Acquisition Strategy (updated for Milestone C)
Design Readiness Review (see reference c for DOD space programs)	APB for Milestone C of the current increment
System Threat Assessment	Clinger-Cohen Certification for MAIS (updated for Milestone C)
ISP (from Milestone B)	DD Form 1494 (required to obtain spectrum certification)
AoA Report	Test and Evaluation Master Plan (updated for Milestone C)
Completed automated standards profile as required in reference t	ISP (Updated for Milestone C)
JCDs and ICDs	Capability roadmap
CDD	System engineering plan
Integrated architectures	Manpower estimate
MUAs/final demonstration report for JCTD/ACTDs and qualified prototype projects	
Capability roadmap	

d. As in the CDD, care must be taken to stabilize and not overspecify attributes in the CPD. Only the most significant items should be designated as performance attributes with threshold and objective values. To provide the needed performance attributes, the PM will develop details in the technical documentation.

e. When the sponsor of a JCTD/ACTD, qualified prototype project, or quick-reaction technology project determines that the demonstration is complete and the capability is ready for immediate fielding for other than limited quantities, a CPD will be developed to support approval for production and fielding. The MUA, which is completed at the end of the JCTD/ACTD, qualified prototype project, or quick reaction technology project, will be used to support the development of the CPD. The CPD with the supporting MUA will then be submitted for staffing and approval prior to the Milestone C decision.

f. Each CPD applies to a single increment of a single system or SoS. When the CPD is part of an FoS approach, the CPD will identify the source ICD or other JROC-approved source document, AoA and/or supporting analyses results, and any related CDDs and/or CPDs that are necessary to deliver the required capability and to allow the required program synchronization.

g. For IT systems, a CPD will only be required with development costs of greater than \$15 million that will be going through an independent operational test acceptance and a Milestone C decision (typically a MAIS program). Final interoperability certification for those systems without a CPD will be accomplished through the ISP approval process.

h. A sponsor may resubmit a CDD to be revalidated as a CPD in those cases where the CDD accurately reflects the performance of the system to be delivered at low-rate initial production. The sponsor will resubmit the CDD as an FCB Draft CPD into KM/DS. The lead FCB will determine if the CDD requires staffing and/or recertification (Joint Staff J-2/J-6) prior to making a recommendation to the JCB/JROC.

2. CPD Focus. The CPD may refine and revise the required operational capabilities that were listed in the CDD. When a CPD is based on a JROC-approved source document other than an ICD or CDD, the KPPs, KSAs, and other performance attributes will be based on analysis of the required capability. CPD KPPs must be inserted verbatim into the performance section of the acquisition strategy and the APB. MOE and suitability criteria developed for the TEMP and refined during the SDD phase are updated as necessary to support Milestone C and initial operational test and evaluation. The MOE and suitability criteria are based on validated performance criteria in the CPD (for DOD space programs, the TEMP is required for Key Decision Point C; see reference c).

3. CPD Development and Documentation

a. The CPD is finalized after completion of the design readiness review. The CPD is an entrance criteria item that is necessary for each Milestone C acquisition decision (see reference c for DOD space programs).

b. The CPD sponsor will apply lessons learned during the SDD phase, lessons learned from previous increments, risk reduction activities, MUAs (for JCTD/ACTDs, qualified prototype projects, and quick-reaction technology projects), experimentation, test and evaluation, modeling and simulation, capability and schedule tradeoffs and affordability analysis in the delivery of the CPD capabilities. The previously defined KPPs may be refined (with a rationale provided) and should be tailored to the proposed system to be procured (e.g., range, probability of kill, platform survivability, timing of the need).

c. The CPD sponsor, in coordination and collaboration with the appropriate DOD components, agencies, FCB, and applicable JCD leads, will prepare the CPD. Continuous collaboration with the systems acquisition PM is essential. The CPD sponsor also will collaborate with sponsors of related CDDs and/or CPDs that are required in FoS and SoS solutions, particularly those generated from a common ICD. The CPD will include a description of the operational capability; threat; IT and NSS supportability; links to all applicable integrated architectures; required capabilities; program support; supportability; force structure; DOTMLPF and policy impact and constraints; and schedule and program affordability for the system (revised from the CDD).

d. CPD development should leverage off related analysis and development with the associated ISP required by reference s. As required capabilities are developed, the output from the information needs discovery process (reference s) should help develop the required architecture products and to identify the elements of required program support for inclusion in the CPD.

e. Draft and approved CPDs, both classified and unclassified, should be carefully marked to indicate whether the document is releasable to allies, industry, or the public. Early collaboration should be encouraged whenever possible.

f. CPD format and detailed content instructions are provided at Appendix A of this enclosure.

4. CPD Validation and Approval. The Gatekeeper, described in Enclosure C, will assign a JPD to each CPD. The JPD determines the validation and approval authorities for the CPD. Delegation of approval authority will not normally be granted beyond a single increment in an evolutionary acquisition.

5. Certifications and Weapon Safety Endorsement. JROC Interest CPDs will receive applicable intelligence and IT and NSS interoperability and supportability certifications (in accordance with Enclosure C) prior to JROC validation. Joint Integration CPDs also will receive the applicable certifications before they are returned to the sponsoring component for validation and approval. All weapon-related CPDs will receive a weapon safety endorsement.

6. Formal CPD Staffing. The first step in obtaining validation and approval is the formal review of the document. The staffing process is described in Enclosure C. Supporting documentation, such as the AoA results, ICD, CDD, and any additional previously approved documents should be made available electronically for inclusion in the package. If an AoA has not been conducted, an explanation and an electronic copy of whatever alternative analysis has been performed (or planned) will be made available or attached.

7. CPD Review and Approval. A CPD is written, validated, and approved after the design readiness review to support the Milestone C decision for each

production increment. Unlike the CDD, the CPD is always specific to a single production increment and is normally not updated.

8. CPD Publication and Archiving. Approved CPDs (SECRET and below), regardless of JPD, will be posted to the KM/DS tool so that all JCIDS documents are maintained in a single location.

9. System Capabilities. The CPD identifies, in threshold/objective format, the specific attributes that contribute most significantly to the desired operational capability. The focus of these attributes is fundamentally different from that of the attributes provided in the CDD. The CDD values were used to guide the acquisition community in making tradeoff decisions between the threshold and objective levels of the stated attributes. After design readiness review, these tradeoff decisions have been made and a more precise determination of acceptable performance can be stated in the CPD. A range of expected performance, provided by the PM, is specified in the production threshold and objective values for each attribute or KPP.

a. The production threshold and objective values specified for the attributes in the CPD may be refinements of the development threshold and objective values documented in the CDD. Each production threshold value listed in the CPD represents the minimum performance that the PM is expected to deliver for the increment based on the post design readiness review.

b. Each production threshold value may be adjusted, as required, to account for post-design readiness review estimates and for manufacturing, technical, and other risks. KPP, KSA, and other performance attribute threshold values in the CPD are generally expected to be equal to or better than the corresponding CDD threshold values. However, there may be cases where CDD KPP, KSA, and/or non-KPP threshold values are reduced in a CPD. When this occurs, the following questions must be answered in the CPD:

(1) Will the capability still provide sufficient operational effectiveness as defined in the source ICD?

(2) If the new capability will replace a fielded capability, will it still provide equal or better overall operational effectiveness than the fielded capability?

(3) Is this proposal still a good way to close the capability gap, or should this approach be abandoned in favor of another materiel or non-materiel alternative?

(4) How will the reduced capability impact on related CDDs and/or CPDs and fielded systems?

c. Additionally, when a CDD KPP threshold is lowered in a CPD, the validation authority must be briefed on the answers to these questions before the CPD is approved. Components will budget sufficient funds to achieve all stated production thresholds, as a minimum.

d. In evolutionary acquisition, it is expected that the overall operational effectiveness of a system will improve between increments. This can be realized by increasing threshold values of some or all of the fielded attributes and/or by adding new attributes to a fielded capability. A decrease in KPP or non-KPP thresholds to accommodate the introduction of an additional capability is not normally desired. However, there can be cases where this is acceptable as long as the overall operational effectiveness is improved.

e. The production objective value is the desired operational goal for an attribute or KPP in the current increment, beyond which any gain in military utility for the increment does not warrant additional expenditure.

10. Key Performance Parameters. The CPD will contain all of the KPPs that capture the attributes needed to achieve the required capabilities and should be consistent with the KPPs specified in the CDD. In modifying the KPPs and their values, the sponsor will leverage the expertise of the operational users and the acquisition community. Guidance on the development of KPPs is provided in Enclosure B.

a. CPD KPPs are inserted verbatim into the performance section of the APB. KPPs will be developed relating to each of the characteristics of the future joint force as identified in the CCJO when the system contributes to those capabilities. A NR-KPP will be developed for all IT and NSS that are used to enter, process, store, display, or transmit DOD information, regardless of classification or sensitivity, except those that do not communicate with external systems, including Automated Information Systems in accordance with references r, s, and t. Force protection and survivability KPPs are mandatory for any manned system or system designed to enhance personnel survivability when the system may be employed in an asymmetric threat environment. A sustainment KPP is mandatory for all JROC Interest CPDs. If the sponsor determines that any of the mandatory KPPs do not apply, the sponsor will provide justification in the CPD.

b. The CPD should document how the CPD's KPPs are responsive to applicable JCD capabilities and key metrics. For JCDs to be effective, it is essential that all JCD sponsors review all related JROC Interest and Joint Integration CDDs and CPDs for applicability to their JCD. This support is important because CDD and CPD authors cannot in all cases be expected to understand the full impact and scope of every JCD.

APPENDIX A TO ENCLOSURE G
CAPABILITY PRODUCTION DOCUMENT FORMAT

CLASSIFICATION OR UNCLASSIFIED
CAPABILITY PRODUCTION DOCUMENT
FOR
TITLE

Increment: _____

ACAT: _____

Validation Authority: _____

Approval Authority: _____

Milestone Decision Authority: _____

Designation: JROC Interest/Joint Integration/Joint Information/Independent

Prepared for Milestone C Decision (or specify other acquisition decision point)

Date

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. CPDs must be submitted in Microsoft Word (6.0 or greater) format. Provide the SV-6 as a separate file in Microsoft Excel format for ease of importation into analysis tools. All CPDs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share CPDs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Integrated architecture products will be embedded in the Microsoft Word file for ease of review during the staffing process. Ideally, the body of the CPD should be no more than 30 pages long.

Executive Summary (2 pages maximum)

Table of Contents (with list of tables, figures and appendices)

Points of Contact

1. Capability Discussion. Cite the applicable ICD and CDD (if applicable) and/or MUAs and provide an overview of the capability gap in terms of relevant range of military operations and timeframe under consideration. Describe the capability that the program delivers and how it relates to the characteristics of the future joint force identified in the CCJO, CONOPs, and integrated architectures. Discuss how the current increment contributes to the required capability. The capability must be defined using the common lexicon for capabilities established in the JCAs.

a. Discuss the operating environment of the system. Address how the capability will be employed on the battlefield and where it will be employed and/or based.

b. If the CPD is part of an FoS or SoS solution, discuss the source JCD or ICD and the related CDDs, CPDs, integrating DOTMLPF and policy changes and required synchronization.

c. Cite any additional previously approved JCIDS documents pertaining to the proposed system.

d. Identify the JCAs (Tier 1 and 2) in which the capabilities being delivered through this CDD contribute to directly.

2. Analysis Summary. Summarize all analyses (i.e., AoA and/or other support analysis) conducted to determine the system attributes and to identify the KPPs. Include the alternatives, objective, the criteria, assumptions, recommendation, and conclusion. A description of the analysis methodology and the analysis results shall be included in an appendix.

3. CONOPs Summary. Describe the relevant part of the JOpsC, CONOPs, and/or UCP-assigned mission this capability contributes to, what operational outcomes it provides, what affects it must produce to achieve those outcomes, how it complements the integrated joint warfighting force, and what enabling capabilities are required to achieve its desired operational outcomes.

4. Threat Summary. Summarize the projected threat environment and the specific threat capabilities to be countered. Include the nature of the threat, threat tactics, and projected threat capabilities (lethal and nonlethal) over time. Programs designated as ACAT ID (or potential ACAT ID) must incorporate DIA-validated threat references. All other programs may use Service intelligence center-approved products and data. Summarize the organizational resources that provided threat support to capability development efforts. Contact the DIA's Defense Warning Office, Acquisition Support Division for assistance (DSN: 428-4521; SIPRNET: <http://www.dia.smil.mil/admin/di/dwo/POC.shtml> or JWICS: <http://www.dia.ic.gov/admin/di/dwo/Link.shtml>).

5. Program Summary. Provide a summary of the overall program strategy for reaching full capability and the relationship between the production increment addressed by the current CPD and any other increments of the program.

6. System Capabilities Required for the Current Increment

a. Provide a description for each attribute and list each attribute in a separately numbered subparagraph. Include a supporting rationale for the requirement and cite any analytic references. When appropriate, the description should include any unique operating environments for the system.

If the CPD is part of an SoS solution, it must describe the attributes for the SoS level of performance and any unique attributes for each of the constituent systems.

b. Present each attribute in output-oriented, measurable, and testable terms. For each attribute, provide production threshold and objective values. The PM can use this information to provide incentives for the production contractor to enhance performance through production improvements.

c. Provide tables summarizing specified KPPs and additional performance attributes in threshold-objective format, as depicted below. For each KPP, identify the characteristics of the future joint force as identified in the CCJO. Also provide a general discussion of the additional performance attributes.

CCJO characteristics	Key Performance Parameter	Production Threshold	Production Objective
	KPP 1	Value	Value
	KPP 2	Value	Value
	KPP 3	Value	Value

Table X.X. Example Key Performance Parameter Table

CCJO characteristics	Key System Attributes	Production Threshold	Production Objective
	KSA 1	Value	Value
	KSA 2	Value	Value
	KSA 3	Value	Value

Table X.X. Example Key System Attributes Table

Attribute	Production Threshold	Production Objective
Attribute	Value	Value
Attribute	Value	Value
Attribute	Value	Value

Table X.X. Additional Attributes

d. For weapon programs, the joint operating environment attributes and performance parameters must be addressed as the basis for the weapon safety endorsement. Identify, as specifically as possible, all projected requirements necessary to provide for safe weapon storage, handling, transportation, or use by joint forces throughout the weapon life cycle, to include required performance and descriptive, qualitative, or quantitative attributes.

e. Develop the CPD NR-KPP, in accordance with the procedures described in references r, s, and t, from the integrated architecture. Force protection and survivability KPPs are mandatory for any manned system or system designed to enhance personnel survivability when the system may be employed in an asymmetric threat environment. A sustainment KPP is mandatory for all JROC Interest CPDs.

f. If the sponsor determines that any of the mandatory KPPs do not apply, the sponsor will provide justification.

7. FoS and SoS Synchronization. In FoS and SoS solutions, the CPD sponsor is responsible for ensuring that related solutions, specified in other CDDs and CPDs, remain compatible and that the development is synchronized. These related solutions should tie to a common ICD. The CPD sponsor is also responsible for ensuring that the CPD accurately captures the desired capabilities described in applicable JCDs.

a. Discuss the relationship of the system described in this CPD to other systems contributing to the capability(ies). Discuss any overarching DOTMLPF and policy changes that are required to make the FoS and/or SoS an effective military capability.

b. Provide a table that briefly describes the contribution this CPD makes to the capabilities described in the applicable ICDs and the relationships to CDDs and CPDs that also support these capabilities. For these interfaces to be effective, it is essential the CPD sponsor review all related JROC Interest and Joint Integration ICDs, CDDs, and CPDs for applicability to the FoS or SoS addressed by this CPD. Also identify the primary JCAs (Tier 1 and 2) supported by this CPD. If the CPD is not based on JCD or ICD validated capabilities, identify the JROC validated source document.

Table X-X. Supported ICDs or JCDs and Related CDDs or CPDs

Capability	CPD Contribution	Related CDDs	Related CPDs	Tier 1&2 JCAs
ICD Capability Description #1 (Source Doc)	Brief Description of the Contribution Made by this CPD	CDD Title	CPD Title	
ICD Capability Description #2 (Source Doc)	Brief Description of the Contribution Made by this CPD	CDD Title	CPD Title	
JCD Capability (Source Doc)	Brief Description of the Contribution Made by this CPD	CDD Title	CPD Title	

8. IT and NSS Supportability. For systems that receive or transmit information, provide an estimate of the expected bandwidth and quality of service requirements for support of the system(s) (on either a per-unit or an aggregate basis, as appropriate). The estimate provided in the CPD should be derived from the ISP updated for Milestone C and a significant improvement over the rough-order-of-magnitude estimate provided in the CDD. This description must explicitly distinguish IT and NSS support to be acquired as part of this program from the IT and NSS support to be provided to the acquired system through other systems or programs (reference s). The sponsor will identify the communities of interest (reference z) with which he or she is working to make the capability's data visible, accessible, and understandable to other users on the GIG.

9. Intelligence Supportability. Identify, as specifically as possible, all projected requirements for intelligence support throughout the expected acquisition life cycle in accordance with the format and content prescribed by reference y unless a waiver has been granted by J-2. Contact J-2 Intelligence Requirements Certification Office (J2P/IRCO) for assistance (DSN 225-4693/8085, SIPRNET <http://www.dia.smil.mil/intel/j2/j2p/irco/main.html> or JWICS http://j2irco.dia.ic.gov/irco/open_docs.html).

10. E3 and Spectrum Supportability. Define the electromagnetic spectrum requirements that the system must meet to assure spectrum supportability in accordance with reference v. Describe the electromagnetic environment in which the system will operate and coexist with other US, allied, coalition, and non-government systems. Identify potential operational issues regarding electromagnetic interference from threat emitters and from other E3 effects such as electromagnetic pulse. For spectrum-dependent systems, equipment spectrum certification is required to assure adequate access to the electromagnetic spectrum and sufficient availability of frequencies from host nations. Specifically address safety issues regarding HERO, HERF, and HERP.

11. Assets Required to Achieve FOC. Describe the types and quantities of assets required to attain FOC. Identify the operational units (including other Services or government agencies, if appropriate) that will employ the capability and define the asset quantities (including spares, training, and support equipment, if appropriate) required to achieve FOC.

12. Schedule and IOC and FOC Definitions. Define the actions that, when complete, will constitute attainment of IOC and FOC for the current increment. Specify the target date for IOC attainment.

13. Other DOTMLPF and Policy Considerations. Discuss any additional DOTMLPF and policy implications associated with fielding the system that have not already been addressed in the CPD, to include those approaches that would impact CONOPs or plans within a combatant command's area of

responsibility. Discuss HSI considerations that have a major impact on system effectiveness, suitability, and affordability. Describe, at an appropriate level of detail, the key logistics criteria, such as system reliability, maintainability, operational availability, and supportability, that will help minimize the system's logistics footprint, enhance its mobility, and reduce the total ownership cost. Detail any basing needs (forward and main operating bases, institutional training base, and depot requirements). Specify facility, shelter, supporting infrastructure, ESOH asset requirements, and the associated costs and availability milestone schedule that support the capability or system. Describe how the system will be moved either to or within the theater. Identify any lift constraints.

14. Other System Attributes. As appropriate, address attributes that tend to be design, cost, and risk drivers, including ESOH, HSI, embedded instrumentation, EA, IA, and WARM requirements. In addition, address conventional and initial nuclear weapons effects; NBCC survivability; natural environmental conditions (such as climatic, terrain, and oceanographic factors); and unplanned stimuli (such as fast cook-off, slow cook-off, bullet impact, fragment impact, sympathetic detonation, and shaped-charge jet). Define the expected mission capability (e.g., full, percent degraded) in the various environments. Include applicable safety parameters, such as those related to system, nuclear, explosive, and flight safety. Identify physical and operational security needs. When appropriate, identify the weather, oceanographic, and astrophysical support needs throughout the program's expected lifecycle. Include data accuracy and forecast needs. For ISR platforms, address information protection standards.

15. Program Affordability. The affordability determination is made as part of the cost assessment in the CBA. Cost will be included in the CPD as life-cycle cost. The cost will include all associated DOTMLPF and policy costs. Inclusion of cost allows the DOD component sponsor to emphasize affordability in the proposed program. In addition, the discussion on affordability should articulate the CPD sponsor's estimates of the appropriate funding level for developing, producing, and sustaining the desired capability. The cost figure should be stated in terms of a threshold and objective capability (not necessarily a KPP) to provide flexibility for program evolution and CAIV tradeoff studies. Cite applicable cost analyses conducted to date.

Mandatory Appendices

Appendix A. Net-Ready KPP Products. Include the required architecture framework view products developed from integrated architectures. Formatting instructions are provided in reference u.

- Mandatory:
 - AV-1, OV-1, OV-2, OV-4, OV-5, OV-6C

- SV-2, SV-4, SV-5, SV-6
- TV-1 (Final IT Standards Profile generated by the DISRonline), TV-2
- NCOW-RM Compliance Statement
- NR-KPP statement
- IA Statement of Compliance
- KIP Declaration (list of KIPs that apply to the system)
- When applicable: OV-7 and SV-11

Note: Include only those architectural views not presented in the document.

Note: The Joint Staff may waive the requirement for certain architecture views on a case-by-case basis based on the proposed JPD and presence or absence of a NR-KPP.

Appendix B. References

Appendix C. Acronym List

Other Appendices or Annexes. As required to provide supporting information not included in the body of the CPD.

CJCSM 3170.01C
1 May 2007

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ENCLOSURE H

JOINT DOTMLPF CHANGE RECOMMENDATION

1. Purpose. This enclosure describes the procedures and responsibilities for organizations involved in bringing joint DCRs to the JROC for consideration.

a. This guidance applies to DOTMLPF changes that are outside the scope or oversight of a new defense acquisition program.

b. The procedures outlined in this enclosure may also be used for processing DCRs that require additional numbers of commercial or nondevelopmental items produced or deployed via the Defense Acquisition System. Additionally, these procedures may be used to support increasing quantities of existing items or commodities (e.g., increases to manpower, operational tempo, spare parts, fuel supply, recruiting) to meet an established operational need.

c. Joint DCRs may be submitted to:

(1) Change, institutionalize, or introduce new joint DOTMLPF and policy resulting as an output of joint experimentation, lessons learned, or other assessments to meet operational needs.

(2) Change, institutionalize, or introduce new joint DOTMLPF and policy resulting from the FSA but outside the scope or oversight of a new defense acquisition program.

(3) Request additional numbers of existing commercial or non-development items previously produced or deployed in addition to other considerations of DOTMLPF.

(4) Introduce existing non-materiel solutions available from other DOD, US interagency, or foreign sources.

d. Joint DCRs may not be submitted to justify out-of-cycle budget requests.

2. Procedures -- Integrating Joint DCRs Into the JROC Process

a. Generating Joint DCRs. Recommendations for joint DOTMLPF and policy changes may be received from a variety of sources including, but not limited to:

(1) Joint and Service experimentation;

(2) Assessments by FCBs, battle laboratories, JROC-directed special study groups, combatant commanders, Services, Joint Staff, OSD, and Defense agencies;

(3) Review of existing JCDs, ICDs, CDDs, and CPDs;

(4) An FSA; or

(5) Combatant commanders' issues collection and prioritization, technology demonstrations, warfighting lessons learned, and exercises.

b. Joint DOTMLPF Definitions. Joint DCRs should categorize their recommendations using the following definitions of the elements of DOTMLPF:

(1) Joint Doctrine. Fundamental principles that guide the employment of US military forces in coordinated action toward a common objective. Though neither policy nor strategy, joint doctrine serves to make US policy and strategy effective in the application of US military power. Joint doctrine is based on extant capabilities. Joint doctrine is authoritative guidance and will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise (reference gg).

(2) Joint Organization. A joint unit or element with varied functions enabled by a structure through which individuals cooperate systematically to accomplish a common mission and directly provide or support joint warfighting capabilities. Subordinate units and elements coordinate with other units and elements and, as a whole, enable the higher-level joint unit or element to accomplish its mission. This includes the joint staffing (military, civilian, and contractor support) required to operate, sustain, and reconstitute joint warfighting capabilities.

(3) Joint Training. Military training based on joint doctrine or joint tactics, techniques, and procedures to prepare joint forces and/or joint staffs to respond to strategic and operational requirements deemed necessary by combatant commanders to execute their assigned missions. Joint training involves forces of two or more Military Departments interacting with a combatant commander or subordinate joint force commander; involves joint forces and/or joint staffs; and is conducted using joint doctrine or joint tactics, techniques, and procedures.

(4) Joint Materiel. All items (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support joint military activities without distinction as to its application for administrative or combat purposes.

(5) Joint Leadership and Education. Professional development of the joint leader is the product of a learning continuum that comprises training, experience, education, and self-improvement. The role of joint professional military education is to provide the education needed to complement training, experience, and self-improvement to produce the most professionally competent individual possible.

(6) Joint Personnel. The personnel component primarily ensures that qualified personnel exist to support joint capabilities. This is accomplished through synchronized efforts of joint force commanders and Service components to optimize personnel support to the joint force to ensure success of ongoing peacetime, contingency, and wartime operations.

(7) Joint Facilities. Real property consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land. Key facilities are selected command installations and industrial facilities of primary importance to the support of military operations or military production programs. A key facilities list is prepared under the policy direction of the Joint Chiefs of Staff.

c. Format Standards. Joint DCR documents will be uniform across all DOD organizations. A sample template to assist in preparing recommendations is found in Appendix A to this enclosure.

d. Submitting Recommendations. Recommendations for joint DOTMLPF and policy changes are prepared in accordance with the above paragraph and submitted to the Joint Staff through KM/DS in accordance with the procedures in Enclosure C. The document will be the DOD component flag-level coordinated position and will be forwarded with a cover letter identifying the document, date, any schedule drivers, and a working-level point of contact. All documents entering the review process are considered draft and do not require a formal signature until after JROC consideration.

3. Formal Change Recommendation Review Process. Once a document enters the formal JROC review process, it will be staffed to all combatant commanders, Services, Joint Staff, OSD, and Defense agencies for review, endorsement, and comment.

a. Flag Review and FPO Assessment

(1) Joint Staff/J-8 JCD will review and verify the format for accuracy and completeness. J-8 will staff the draft document via KM/DS for combatant commanders, Services, Joint Staff, OSD, and appropriate Defense agency flag review.

(2) FPOs will provide an assessment of their specific functional process during their review of proposed joint DCRs during document staffing.

b. JROC Briefing and Schedule. Briefings for the FCB, JCB, and JROC will be prepared in accordance with reference aa.

c. JROC Recommendation to the Chairman. The JROC Secretary will consolidate the JROC's recommendations (including the recommended lead Military Department, combatant command, or Defense agency) and forward a JROCM endorsing the joint DCR along with the sponsor's change recommendation to the Chairman for approval.

4. Implementation of Joint DCRs. The progress of the implementation of joint DCRs will be tracked through a process supported by the Joint Transformation Integration System (JTIS). JTIS will be used to track all actions associated with the implementation of joint DCRs and their current status. A quarterly JTIS Review meeting will be scheduled with the JCB to review the status of outstanding joint DCRs within JTIS and serve as the executive oversight committee for their implementation. Issues that cannot be resolved by the JCB may be elevated to the JROC for resolution.

a. Implementation Overview. Joint DCRs that have been approved for implementation by the JROC will be assigned to the JCB, chaired by the Joint Staff Director, J-8 (DJ-8) for oversight and monitoring of co-evolution and implementation. The JCB provides substantive oversight of DOTMLPF actions to ensure that implementation activities within each of the seven critical considerations remain focused on achieving the integrated result described in the recommendation. The DJ-8 and the Joint Staff DOTMLPF FPOs share in the implementation of an approved recommendation. In cases where the JROC appoints a sponsor, the FPOs and DJ-8 would support this sponsor in its effort to co-evolve the joint DCRs. The DJ-8, the respective joint DOTMLPF FPOs, and the sponsor will work together to create an implementation plan and timeline. The key implementation tasks identified in the approved recommendation serve as a starting point for this plan and timeline. The DJ-8, in coordination with the joint DOTMLPF FPOs, will ensure that each task is completed in accordance with the timeline and provide status and visibility into the process to senior leaders. The DJ-8, in coordination with the FPOs, also makes recommendations to the JCB for modifications to existing timelines based on the synchronization of tasks. The Joint Staff DOTMLPF FPOs are responsible for coordinating assigned tasks via their existing processes and for providing periodic updates on their progress to the DJ-8 and the JCB. These recommendations, along with the status of all ongoing implementation activities, are provided to the JCB at regularly scheduled sessions. If unresolved issues occur, the JCB will seek JROC guidance for resolution.

b. Implementation Management(1) Management Architecture

(a) Director, Joint Staff/J-8. The DJ-8 is the CJCS Executive Agent and primary Joint Staff proponent for implementation and system integration. This role includes responsibility for implementation policy and overall program management as well as monitoring the implementation of recommendations for the JCB.

(b) USJFCOM. The Secretary of Defense has designated USJFCOM as the “Executive Agent for Joint Warfighting Experimentation within the CJCS program to implement future warfighting visions.” USJFCOM “is responsible to the Chairman of the Joint Chiefs of Staff for creating and refining future joint warfighting concepts and integration of Service efforts in support of future CJCS joint warfighting visions.”

(c) Joint Requirements Oversight Council. The JROC charts and oversees the work of FCBs in developing overarching joint operational, functional and integrating concepts for the joint mission areas during the joint concept development component of this process. Joint DCRs resulting from joint concept development, joint experimentation, and assessment are integrated into the JROC’s deliberations on identifying, developing, validating, and prioritizing joint capabilities.

(d) Joint DOTMLPF FPOs. Directors so designated are responsible for the execution of their respective joint functional process to meet the implementation of the recommended changes to joint DOTMLPF. FPOs will provide assessment of their specific functional process during their review of proposed joint DCRs. They will support the JCB and the DJ-8 in executing their integration and implementation responsibilities of approved joint DOTMLPF changes. The CJCS-designated joint DOTMLPF FPOs are listed in Figure H-1.

Critical Consideration	DOTMLPF Functional Process Owners
Joint Doctrine	Joint Staff/J-7
Joint Organizations	Joint Staff/J-8 (with J-1 & J-5 support)
Joint Training	Joint Staff/J-7
Joint Materiel	Joint Staff/J-8
Joint Leadership and Education	Joint Staff/J-7
Joint Personnel	Joint Staff/J-1
Joint Facilities	Joint Staff/J-4

Figure H-1. Joint Staff DOTMLPF FPOs

(e) DOTMLPF Action Review. Review of DOTMLPF actions will be conducted at the JCB. CSAs and combatant commands will be invited to address appropriate DOTMLPF and policy actions and implementation concerns. The JCB accepts the approved recommendations and assigns action for implementation for the Chairman. The JCB is a forum to monitor and coordinate the activities and events associated with implementing the approved joint DOTMLPF and policy actions.

(2) Joint DOTMLPF Implementation Rhythm. To successfully direct the joint DCR implementation process, a series of coordination meetings and briefings will be conducted periodically to ensure senior leadership is kept informed about the status of joint DCR implementation. This flow of information, through significant meetings and events, is considered the joint DOTMLPF implementation rhythm. Captured below are the events defined in terms of purpose and sponsorship.

(a) DOTMLPF Action Review. Quarterly update will be provided to the DJ-8, Service G/FO representatives, the USJFCOM G/FO representative and joint DOTMLPF FPOs. The purpose is to inform the DJ-8 and JCB of ongoing joint DOTMLPF activities and a forum to monitor and coordinate the activities and events associated with implementing the joint DCRs. It will provide status of approved joint DCR implementation and receive guidance and direction for future activities. DJ-8 is the sponsor.

(b) Roles and Responsibilities. Outlined below are the roles and responsibilities to support the implementation of joint DCRs.

1. Responsibilities Common to All Joint Staff J-Directorates. As a member of the Joint Staff, review all joint DCRs submitted to the Joint Staff/J-8. Participate in the joint DOTMLPF implementation events as required.

2. Specific Roles and Responsibilities for Joint Staff Directorates

a. Joint Staff Director, J-1 (DJ-1). Acts as the joint DOTMLPF FPO for the implementation of the joint DOTMLPF critical consideration-personnel ("P") and the critical consideration-organization ("O") where joint manpower changes are being recommended. Supports the JROC and the DJ-8 in executing their integration and implementation responsibilities. Provide comments for the JROC of the "P" functional process during their review of proposed joint DCRs. Supports the J-8 in the evaluation of proposed joint manpower changes.

b. Joint Staff Director, J-4. Acts as the joint DOTMLPF FPO for the implementation of the joint DOTMLPF critical consideration joint facilities ("F"). Support the JROC and the DJ-8 in executing their integration and implementation responsibilities. Provide comments for the JROC of the "F" functional process during their review of proposed joint DCRs.

c. Joint Staff Director, J-5 (DJ-5). Supports the DJ-8 in the DOTMLPF FPO for the implementation of the joint DOTMLPF “O.”

d. Joint Staff Director, J-7. Acts as the joint DOTMLPF FPO for the implementation of the joint DOTMLPF critical considerations of joint Doctrine (“D”), joint Training (“T”), and Leadership and Education (“L”). Provide comments for the JROC of “D,” “T” and “L” functional processes during their review of proposed joint DCRs.

e. Joint Staff, Director, J-8

(1) Sponsors the DOTMLPF action review at the JCB.

(2) Acts as the CJCS representative to effect implementation and integration of all approved joint DCRs resulting from joint experimentation and assessments.

(3) Synchronizes joint DCR actions, establishes timelines, and tasks appropriate agencies to ensure co-evolution of joint DOTMLPF and policy.

(4) Serves as the coordinator with the joint DOTMLPF FPOs in the implementation of approved recommendations.

(5) Engages and informs senior leadership on current status of joint DOTMLPF and policy implementation activities and supporting efforts across the DOD.

(6) Acts as the joint DOTMLPF FPO for the implementation of the joint DOTMLPF critical consideration-materiel (“M”) and “O” (with support from the DJ-1 and DJ-5). Provide comments for the JROC of the “M” and “O” functional process during their review of proposed joint DCRs.

(7) The J-8/DDFP will provide a safe weapons endorsement for weapons-related DCRs to ensure that safety attributes are understood in applying an existing weapon to a potentially new use or environment.

f. Joint Staff Roles and Responsibilities of Joint DOTMLPF FPOs

(1) Provide comments for the JROC of their specific functional process during the review of proposed joint DCRs.

(2) Work with the DJ-8 to construct an implementation plan and timeline for approved recommended joint DCRs.

(3) Execute assigned tasks to implement approved recommended changes to joint DOTMLPF and policy within their assigned areas of responsibility via the existing functional processes and data systems.

(4) Provide periodic status updates to the DJ-8, through the JCB, on the status of implementing approved changes to joint DOTMLPF and policy.

(5) Inform the DJ-8 promptly if any problems arise that may interfere with completion of assigned tasks.

g. Roles and Responsibilities of the FCBs

(1) Evaluate all joint DCRs assigned to their FCB as either lead or supporting, and incorporate the endorsements of the FPOs into their evaluation.

(2) Provide an endorsement recommendation to the JROC.

h. Roles and Responsibilities of Combatant Commands

(1) Participate in joint DOTMLPF implementation process.

(2) Evaluate proposed joint DCRs and provide recommendations on changes and approval.

(3) (USJFCOM) Submit the necessary joint DCR packages documentation and the results of joint experiments to the JROC.

i. Roles and Responsibilities of the Services

(1) Support the JCB with a permanent flag officer and working group representative. Designate a Service office of primary responsibility for joint DOTMLPF implementation.

(2) Participate in joint DOTMLPF implementation process.

j. Roles and Responsibilities of Defense Agencies. Participate in joint DOTMLPF implementation process.

k. Roles and Responsibilities of Office of the Secretary of Defense. Participate in joint DOTMLPF implementation process.

c. Resourcing Implementation. The Planning, Programming, Budgeting, and Execution System will be used to resource the approved joint DCRs. There are a variety of avenues available to combatant commands and the Joint Staff to influence the budget to resource those joint warfighting capabilities needed to achieve the joint force of the future.

APPENDIX A TO ENCLOSURE H

JOINT DOTMLPF CHANGE RECOMMENDATION FORMAT

Joint DOTMLPF Change
Recommendation for _____ (title)

Proposed Lead Agency is _____

Submitted by _____ (sponsor)

Date _____

Note: Each subparagraph should be numbered to facilitate correlation and traceability and for ease of identifying issues during staffing. DCRs must be submitted in Microsoft Word (6.0 or greater) format. All DCRs must be clearly labeled with draft version number, increment, and date and must include any caveats regarding releasability, even if unclassified. The intent is to share DCRs with allies and industry wherever possible at an appropriate time in the acquisition process. Draft documents will be submitted with line numbers displayed. Integrated architecture products will be embedded in the Microsoft Word file for ease of review during the staffing process.

Executive Summary (2 pages maximum)

Table of Contents (with list of tables, figures, and appendices)

Points of Contact

1. Purpose. Provide a brief statement regarding the concept(s) addressed in this document.

2. Background. Frame the discussion by providing context. Briefly discuss the existing concepts, technologies, procedures, etc., to be influenced by the proposal in terms of opportunities to enhance or improve joint and/or multinational warfighting capabilities. Within the discussion, include the following (as applicable):

- a. References to latest DOD strategic guidance or plans.
- b. National Military Strategy, Joint Programming Guidance, Strategic Planning Guidance, Joint Intelligence Guidance, Service investment plans, etc.
- c. The military task from the UJTL (reference cc) associated with the proposal.
- d. Published JROCMs relevant to the proposal, including linkage to JROC-approved operational concept(s) and architectures.

e. Combatant commander's integrated priorities list, joint monthly readiness reviews, quarterly reports to the Secretary of Defense, approved capabilities documents, etc., that validate the requirement to change joint DOTMLPF.

f. Other key decisions or events.

3. Description. Describe specifics of the proposal; address "who," "what," "when," "how," and "why." Clearly state, in terms of major objectives, what the recommendation is intended to accomplish and how it could widen the qualitative superiority of joint forces over potential adversaries, close a capability gap (existing or projected) or otherwise enhance joint warfighting capabilities. Also include discussion of the following, as applicable:

a. Changes to tactics, techniques, and procedures and/or implications on the safe use of the proposed solution in the proposed operating environment.

b. Forces and systems affected and impact on interoperability.

c. Projected threat environment based on a DIA-validated threat.

d. If recommendation includes incorporating future technology (materiel component), include brief discussion of the maturity of the science and technology area(s) or future systems involved and a risk assessment of the approach.

4. Analysis Process. Provide an executive summary of the analysis methodology that led to these recommendations, including:

a. Research, experimentation, and/or analysis plan.

b. Brief summary of the analytic techniques employed (i.e., modeling and simulation, statistical sampling, experimentation, real-world event lessons learned) to produce findings.

c. Discussion of facts and circumstances relating to adjustments made during execution of the approved research, experimentation, and/or analysis plan (if applicable).

d. Identify which Tier 1 and Tier 2 JCAs are supported by this DCR.

NOTE: Include full description of analysis methodology as an attachment to the change recommendation.

5. Joint DCR Findings and Proposed Implementation Plan. Use this section to describe research, experimentation, and analysis findings, and the recommended implementation plan. List recommendations and implementation plans in terms of each applicable joint DOTMLPF element.

a. List recommendations in priority order.

b. For each recommendation, include:

(1) Discussion of improvement and/or benefit to joint warfighting and joint interoperability.

(2) Whether or how DCR would advance CCJO-desired operational capabilities.

c. Proposed implementation timeframe:

(1) Discussion of relationships between recommendations and associated implementation timing (i.e., a joint organizational change has implications for a personnel change, which influences training plans).

(2) Resources required to implement (total resources, including additional research, hardware, DOD manpower, test range time, contractor support, etc.).

(3) Rough-order-of-magnitude total cost using template below, including cost by FY and type of funding (RDT&E, O&M, procurement) required (also, note paragraph 6, "Constraints," below).

DOTMLPF Change Recommendation	FY xx (e.g. 08)	FY xx (e.g. 09)	FY xx (e.g. 10)	FY xx (e.g. 11)	FY xx (e.g. 12)	FY xx (e.g. 13)	FYDP Total
<i>Resources (\$K)</i>							
<i>O&M</i>							
<i>RDT&E</i>							
<i>Procurement</i>							
<i>Manpower</i>							
Total Funding							

Figure H-A-1. Summary of Resources Required to Implement (e.g., Doctrine) Change Recommendation Proposal

6. Constraints. Identify current or projected resource constraints with respect to implementing any element of the recommended findings in paragraph 5 above.

a. Highlight any proposed concept not currently addressed within the DOD program.

b. If specific recommendation is, for example, a change to joint training, and sufficient resources are already programmed to cover the total cost of implementing the proposal including course development, instructor staffing and/or billets, instructor education, training facilities, reading materials, hardware, and mock-ups, etc., then do not include in paragraph 6.

c. If there are additional unprogrammed costs associated with implementing any of the recommendations, include in paragraph 6.

d. For each joint DCR included in this paragraph, provide the following:

(1) Rough order of magnitude cost (total over the FYDP and by FY);

(2) Proposed resources required (RDT&E, O&M, procurement, billets, and/or manpower, etc.);

(3) Potential sources for funding.

7. Policy

a. Identify any DOD policy issues that would prevent the effective implementation of the recommended changes.

b. Identify the specific policy and the reason the proposed changes cannot comply with it.

c. Provide proposed changes to the policy.

d. Identify other potential implications from the changes in policy.

8. Issues

a. Identify any issues (DOD treaties, protocols, agreements, legal issues, DOD roles, missions and functions, interagency, multinational, etc.) associated with implementing any element of the recommended findings in paragraph 5.

b. Provide proposed resolution.

c. Identify interoperability implications.

d. Identify any unresolved combatant command, Service, Joint Staff, OSD, and/or Defense agency issues resulting from staffing and/or coordinating the recommendation document.

e. Critical and substantive comments must be addressed.

9. Recommendation Summary

a. Recap the major findings and proposed implementation recommendations to advance future joint warfighting capabilities.

b. List alternative approaches and/or options to implement and resource recommendations, in relative order of priority. (Options are particularly appropriate when comprehensive DCRs are submitted with significant resource implications. However, DCRs without alternatives may be submitted when only one option is appropriate or practical.) As appropriate, alternatives will be tailored to the specific DCRs and focused on maximizing, for example:

(1) Scope

(a) All forces and/or systems.

(b) All forces and/or systems within a particular specialty.

(c) Specific performance of a subset of forces within a specialty or system.

(2) Implementation schedule

(a) Maximum impact achieved at earliest practical date.

(b) Impact achieved in phases.

(3) Additional level of resources required (combined scope and schedule)

(a) Comprehensive approach.

(b) Moderate.

(c) Limited.

(4) Recommended changes to DOD policy to effect the changes

c. Include a brief discussion of advantages and risks and/or disadvantages of each alternative.

CJCSM 3170.01C
1 May 2007

10. Package Disposition

- a. Provide the JROC an overall recommended option or way ahead.
- b. Identify proposed lead combatant command, Service and/or Defense agency as required.

ENCLOSURE I

REFERENCES

- a. CJCSI 3170.01 series, "Joint Capabilities Integration and Development System"
- b. DODI 5000.2, 12 May 2003, "Operation of the Defense Acquisition System"
- c. National Security Space Acquisition Policy 03-01, 6 October 2003, "Guidance for DOD Space System Acquisition Process"
- d. JROCM 100-05, 16 May 2005, "Modifications to the Operation of the Joint Capabilities Integration and Development System (JCIDS)"
- e. JROCM 102-05, 20 May 2005, "Safe Weapons in Joint Warfighting Environments"
- f. JROCM 120-05, 13 June 2005, "Policy for Updating Capabilities Documents to Incorporate Force Protection and Survivability KPP(s)"
- g. JROCM 062-06, 17 April 2006, "Modifications to the Operation of the Joint Capabilities Integration and Development System"
- h. JROCM 161-06, 17 August 2006, "JROC Way Ahead: KPP Study Recommendations and Implementation"
- i. JROCM 163-06, 17 August 2006, "Modifications to the Comment Resolution Process of the Joint Capabilities Integration and Development System"
- j. CJCSI 3010.02 series, "Joint Operations Concepts Development Process (JOPSC-DP)"
- k. "White Paper on Conducting a Capabilities-Based Assessment (CBA) Under the Joint Capabilities Integration and Development System (JCIDS)," JCS J-8/Force Application Assessment Division, January 2006
- l. "Joint Capabilities Integration and Development Systems (JCIDS) Analysis Code of Best Practice (COBP)," TRAC-TD-05-012, June 2005
- m. "Analysis Handbook: A Guide for Performing Analysis Studies for Analyses of Alternatives or Functional Solution Analyses," Office of Aerospace Studies, Air Force Materiel Command, July 2004
- n. DODI 8260.2, 21 January 2003, "Implementation of Data Collection, Development, and Management for Strategic Analyses"
- o. DODI 4120.24M, 18 June 1998, "Defense Standardization Program (DSP)"

CJCSM 3170.01C

1 May 2007

- p. "Risk Management Guide for DOD Acquisition," Sixth Edition (v1.0), August 2006
- q. DODD 2000.19E, 14 February, 2006, "Joint Improvised Explosive Device Defeat Organization"
- r. DODD 4630.5, 5 May 2004, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)"
- s. DODI 4630.8, 30 June 2004, "Procedures for Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)"
- t. CJCSI 6212.01 series, "Interoperability and Supportability of Information Technology and National Security Systems"
- u. "DOD Architecture Framework, Version 1.0," 9 February 2004
- v. DODD 4650.1, 8 June 2004, "Policy for the Management and Use of the Electromagnetic Spectrum"
- w. DODD 8100.1, 19 September 2002, "Global Information Grid (GIG) Overarching Policy"
- x. DOD 5200.1-PH, April 1997, "DOD Guide to Marking Classified Documents"
- y. CJCSI 3312.01 series, "Joint Military Intelligence Requirements Certification"
- z. DODD 8320.2, 2 December 2004, "Data Sharing in a Net-Centric Department of Defense"
- aa. JROCM 011-06, January 2006, "JROC Administrative Guide"
- bb. DODD 2010.6, 10 November 2004, "Materiel Interoperability with Allies and Coalition Partners"
- cc. CJCSM 3500.04 series, "Universal Joint Task List (UJTL)"
- dd. "Capstone Concept for Joint Operations," Secretary of Defense, August 2005
- ee. DODD 5000.1, 12 May 2003, "The Defense Acquisition System"
- ff. "Net Centric Operations Warfare Reference Model (NCOW-RM)", v 1.0, December 2003
- gg. CJCSI 5120.02 series, "Joint Doctrine Development System"

GLOSSARY

PART I – ACRONYMS

ACAT	acquisition category
ACTD	Advanced Concept Technology Demonstration
AMA	analysis of materiel/non-materiel approaches
AoA	analysis of alternatives
APB	acquisition program baseline
ASD(NII)	Assistant Secretary of Defense (Networks and Information Integration)
AT&L	acquisition, technology and logistics
AV	all views
CAD	Capabilities and Acquisition Division (Joint Staff/J-8)
CAIV	cost as an independent variable
CBA	capabilities-based assessment
CCJO	Capstone Concept for Joint Operations
CDD	capability development document
CIO	Chief Information Officer
CJCS	Chairman of the Joint Chiefs of Staff
CJCSI	Chairman of the Joint Chiefs of Staff Instruction
CJCSM	Chairman of the Joint Chiefs of Staff Manual
CONOPs	concept of operations
CPD	capability production document
CSA	combat support agency
DCR	doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) change recommendation
DDFP	Deputy Director for Force Protection
DIA	Defense Intelligence Agency
DISA	Defense Information Systems Agency
DJ-1	Joint Staff Director, J-1 (Manpower and Personnel Directorate)
DJ-5	Joint Staff Director, J-5 (Strategic Plans and Policy Directorate)
DJ-7	Joint Staff Director, J-7 (Operational Plans and Joint Force Development Directorate)
DJ-8	Joint Staff Director, J-8 (Force Structure, Resources, and Assessment Directorate)

DOD	Department of Defense
DODD	Department of Defense directive
DODI	Department of Defense instruction
DOT&E	Director of Operational Test and Evaluation
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
DPS	Defense Planning Scenarios
E3	electromagnetic environmental effects
EA	electronic attack
ESOH	environment, safety, and occupational health
FAA	functional area analysis
FCB	Functional Capabilities Board
FNA	functional needs analysis
FOC	full operational capability
FoS	family of systems
FPO	functional process owner
FSA	functional solution analysis
G/FO	general/flag officer
GIG	Global Information Grid
HERF	hazards of electromagnetic radiation to fuel
HERO	hazards of electromagnetic radiation to ordinance
HERP	hazards of electromagnetic radiation to personnel
HSI	human systems integration
IA	information assurance
ICD	initial capabilities document
IOC	initial operational capability
IPL	Integrated Priority List
ISP	Information Support Plan
ISR	intelligence, surveillance, and reconnaissance
IT	information technology
ITWA	Initial Threat Warning Assessment
J-8	Force Structure, Resources, and Assessment Directorate, Joint Staff
JCA	joint capability area
JCB	Joint Capabilities Board
JCD	joint capabilities document
JCIDS	Joint Capabilities Integration and Development System
JCTD	Joint Capability Technology Demonstration
JIC	Joint Integrating Concept

JIEDDO	Joint Improvised Explosive Device Defeat Organization
JOpsC	Joint Operations Concepts
JPD	joint potential designator
JROC	Joint Requirements Oversight Council
JROCM	Joint Requirements Oversight Council memorandum
JSIMTP	Joint Staff Insensitive Munitions Technical Panel
JSCP	Joint Strategic Capabilities Plan
JTIS	Joint Transformation Integration System
JUON	joint urgent operational need
JWSTAP	Joint Weapon Safety Technical Advisory Panel
KDP	key decision point
KIP	Key Interface Profiles
KM/DS	Knowledge Management/Decision Support
KPP	key performance parameter
KSA	key system attribute
MAIS	Major Automated Information System
MCEB	Military Communications Electronics Board
MDA	milestone decision authority
MOE	measure of effectiveness
MRB	Mission Requirements Board
MUA	military utility assessment
NBCC	nuclear, biological, and chemical contamination
NGA	National Geospatial-Intelligence Agency
NR-KPP	Net-Ready Key Performance Parameter
NRO	National Reconnaissance Office
NSA	National Security Agency
NSS	National Security Strategy
O&M	operations and maintenance
O&S	operations and support
OV	operational view
OPA&E	Office of Program Analysis and Evaluation
OUSD(AT&L)	Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics
PM	program manager
RDT&E	research, development, test, and evaluation
SDD	system development and demonstration
SoS	system of systems
SV	systems view

CJCSM 3170.01C
1 May 2007

SWarF	Senior Warfighter Forum
TEMP	Test and Evaluation Master Plan
TV	technical view
UCP	Unified Command Plan
UJTL	Universal Joint Task List
USecAF	Under Secretary of the Air Force
USD(AT&L)	Under Secretary of Defense for Acquisition, Technology, and Logistics
USD(I)	Under Secretary of Defense for Intelligence
USJFCOM	United States Joint Forces Command
WARM	wartime reserve mode

PART II — DEFINITIONS

acquisition category (ACAT) - Categories established to facilitate decentralized decision-making and execution and compliance with statutorily imposed requirements. The ACAT determines the level of review, validation authority, and applicable procedures. Reference b provides the specific definition for each ACAT.

acquisition program baseline (APB) - Each program's APB is developed and updated by the program manager and will govern the activity by prescribing the cost, schedule, and performance constraints in the phase succeeding the milestone for which it was developed. The APB captures the user capability needs, including the key performance parameters, which are copied verbatim from the capability development document.

Advanced Concept Technology Demonstration - A demonstration of the military utility of a significant new technology and an assessment to clearly establish operational utility and system integrity.

all views - An architecture view that provides a summary and overview information. It describes the scope, purpose, intended users, environment depicted, and analytical findings associated with the architecture.

analysis of alternatives (AoA) - The evaluation of the performance, operational effectiveness, operational suitability, and estimated costs of alternative systems to meet a mission capability. The AoA assesses the advantages and disadvantages of alternatives being considered to satisfy capabilities, including the sensitivity of each alternative to possible changes in key assumptions or variables. The AoA is one of the key inputs to defining the system capabilities in the capability development document.

analysis of materiel/non-materiel approaches (AMA) - The Joint Capabilities Integration and Development System analysis to determine the best approach or combination of approaches to provide the desired capability or capabilities. Though the AMA is similar to an analysis of alternatives (AoA), it occurs earlier in the analytical process. Subsequent to approval of an initial capabilities document, which may lead to a potential acquisition category I/IA program, program analysis, and evaluation provides specific guidance to refine this initial AMA into an AoA.

approval - The formal or official sanction of the identified capability described in the capability documentation. Approval also certifies that the documentation has been subject to the uniform process established by the DOD 5000 series.

architecture - The structure of components, their relationships, and the principles and guidelines governing their design and evolution over time.

attribute - A quantitative or qualitative characteristic of an element or its actions.

capabilities-based assessment (CBA) - The CBA is the Joint Capabilities Integration and Development System analysis process. It includes three phases: the functional area analysis (FAA), the functional needs analysis (FNA), and the functional solution analysis. The results of the CBA are used to develop a joint capabilities document (based on the FAA and FNA) or initial capabilities document (based on the full analysis).

capability - The ability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks. It is defined by an operational user and expressed in broad operational terms in the format of a joint or initial capabilities document or a joint doctrine, organization, training, materiel, leadership and education, personnel, and facilities (DOTMLPF) change recommendation. In the case of materiel proposals and documents, the definition will progressively evolve to DOTMLPF performance attributes identified in the capability development document and the capability production document.

capability-based planning (CBP) - The process for planning under uncertainty to provide capabilities suitable for a wide range of modern-day challenges and circumstances while working within an economic framework that necessitates choice.

capability development document (CDD) - A document that captures the information necessary to develop a proposed program(s), normally using an evolutionary acquisition strategy. The CDD outlines an affordable increment of militarily useful, logistically supportable, and technically mature capability. The CDD may define multiple increments if there is sufficient definition of the performance attributes (key performance parameters, key system attributes, and other attributes) to allow approval of multiple increments.

capability gaps - The inability to achieve a desired effect under specified standards and conditions through combinations of means and ways to perform a set of tasks. The gap may be the result of no existing capability, lack of proficiency or sufficiency in existing capability, or the need to recapitalize an existing capability.

capability need - A capability identified through the FAA, required to be able to perform a task within specified conditions to a required level of performance.

capability production document - A document that addresses the production elements specific to a single increment of an acquisition program.

Capstone Concept for Joint Operations (CCJO) - The CCJO is the overarching concept that guides the development of future joint force capabilities. It broadly describes how the joint force is expected to operate 10-20 years in the future in all domains across the range of military operations within a multilateral environment and in collaboration with interagency and multinational partners. The CCJO describes the proposed end states derived from strategy as military problems and the characteristics of the future joint force (reference dd).

certification - A statement of adequacy provided by a responsible agency for a specific area of concern in support of the validation process.

comment priorities -

a. critical - Indicates nonconcurrence in the document, for both the O-6 and flag review, until the comment is satisfactorily resolved.

b. substantive - Provided because a section in the document appears to be or is potentially unnecessary, incorrect, misleading, confusing, or inconsistent with other sections.

c. administrative - Corrects what appears to be a typographical, format, or grammatical error.

concept of operations (CONOPs) - A verbal or graphic statement, in broad outline, of a commander's assumptions or intent in regard to an operation or series of operations. The CONOPs frequently is embodied in campaign plans and operation plans; in the latter case, particularly when the plans cover a series of connected operations to be carried out simultaneously or in succession. The concept is designed to give an overall picture of the operation. It is included primarily for additional clarity of purpose. Also called commander's concept.

critical considerations - The seven domains of DOTMLPF: joint doctrine, agile organizations, joint training, enhanced materiel, innovative leadership and education, and high quality people; plus the additional element of facilities and the policies that affect them.

DOD 5000 Series - DOD 5000 series refers collectively to DODD 5000.1 and DODI 5000.2, references ee and b, respectively.

DOD component - The DOD components consist of the Office of the Secretary of Defense, the Military Departments, the Chairman of the Joint Chiefs of Staff, the combatant commands, the Office of the Inspector General of the

Department of Defense, the Defense agencies, DOD field activities, and all other organizational entities within the Department of Defense.

electromagnetic environmental effects (E3) - The impact of the electromagnetic environment upon the operational capability of military forces, equipment, systems, and platforms. It encompasses all electromagnetic disciplines, including electromagnetic compatibility and electromagnetic interferences; electromagnetic vulnerability; electromagnetic pulse, electronic protection, hazards of electromagnetic radiation to personnel, ordnance and volatile materials, and natural phenomena effects of lightning and precipitation static.

embedded instrumentation - Data collection and processing capabilities, integrated into the design of a system for one or more of the following uses: diagnostics, prognostics, testing, or training.

endorsement - A statement of adequacy, and any limitations, provided by a responsible agency for a specific area of concern in support of the validation process.

environment - Air, water, land, living things, built infrastructure, cultural resources, and the interrelationships that exist among them.

environment, safety and occupational health (ESOH) assets - The workforce and natural infrastructure. A subset of the installation assets necessary to support operational capability over perpetual useful life.

environment, safety and occupational health (ESOH) management - Sustaining the readiness of the US Armed Forces by cost effectively managing all installation assets through promotion of safety, protection of human health, and protection and restoration of the environment.

evolutionary acquisition - Preferred DOD strategy for rapid acquisition of mature technology for the user. An evolutionary approach delivers capability in increments, recognizing up front the need for future capability improvements.

family of systems (FoS) - A set of systems that provide similar capabilities through different approaches to achieve similar or complementary effects. For instance, the warfighter may need the capability to track moving targets. The FoS that provides this capability could include unmanned or manned aerial vehicles with appropriate sensors, a space-based sensor platform or a special operations capability. Each can provide the ability to track moving targets but with differing characteristics of persistence, accuracy, timeliness, etc.

functional area - A broad scope of related joint warfighting skills and attributes that may span the range of military operations. Specific skill groupings that

make up the functional areas are approved by the Joint Requirements Oversight Council.

Functional Capabilities Board (FCB) - A permanently established body that is responsible for the organization, analysis, and prioritization of joint warfighting capabilities within an assigned functional area.

functional process owner (FPO) – Joint Staff directorates that have the responsibility for the DOTMLPF-selected “joint processes,” as shown in the table below.

Critical Consideration DOTMLPF FPO

Joint Doctrine	Joint Staff/J-7
Joint Organizations	Joint Staff/J-8 (with J-1 & J-5 support)
Joint Training	Joint Staff/J-7
Joint Materiel	Joint Staff/J-8
Joint Leadership and Education	Joint Staff/J-7
Joint Personnel	Joint Staff/J-1
Joint Facilities	Joint Staff/J-4

Gatekeeper - That individual who makes the initial joint potential designation of Joint Capabilities Integration and Development System documents. This individual will also make a determination of the lead and supporting Functional Capabilities Boards (FCBs) for capability documents. The Gatekeeper is supported in these functions by the FCB working group leads and the Joint Staff/J-6. The Joint Staff Vice Director, J-8, serves as the Gatekeeper.

human systems integration - Defined in reference b, includes the integrated and comprehensive analysis, design and assessment of requirements, concepts and resources for system manpower, personnel, training, safety and occupational health, habitability, personnel survivability, and human factors engineering.

increment - A militarily useful and supportable operational capability that can be effectively developed, produced or acquired, deployed, and sustained. Each increment of capability will have its own set of threshold and objective values

set by the user. Spiral development is an instance of an incremental development strategy where the end state is unknown. Technology is developed to a desired maturity and injected into the delivery of an increment of capability.

information assurance - Information operations that protect and defend information and information systems by ensuring their availability, integrity, authentication, confidentiality, and non-repudiation. This includes providing for restoration of information systems by incorporating protection, detection, and reaction capabilities.

Information Support Plan (ISP) - The ISP shall describe system dependencies and interface requirements in sufficient detail to enable testing and verification of information technology (IT) and National Security Systems (NSS) interoperability and supportability requirements. The ISP shall also include IT and NSS systems interface descriptions, infrastructure and support requirements, standards profiles, measures of performance, and interoperability shortfalls.

information technology (IT) - Any equipment, or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the executive agency. This includes equipment used by a component directly, or used by a contractor under a contract with the component, which (i) requires the use of such equipment, or (ii) requires the use, to a significant extent, of such equipment in the performance of a service or the furnishing of a product. The term "IT" also includes computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. Notwithstanding the above, the term "IT" does not include any equipment that is acquired by a federal contractor incidental to a federal contract. The term "IT" includes National Security Systems.

initial capabilities document (ICD) - Documents the requirement for a materiel or non-materiel approach or an approach that is a combination of materiel and non-materiel to satisfy a specific capability gap(s). It defines the capability gap(s) in terms of the functional area, the relevant range of military operations, desired effects, time, and DOTMLPF and policy implications and constraints. The ICD summarizes the results of the DOTMLPF analysis and the DOTMLPF approaches (materiel and non-materiel) that may deliver the required capability. The outcome of an ICD could be one or more joint DOTMLPF change recommendations or capability development documents.

integrated architectures - An architecture consisting of multiple views or perspectives (operational view, systems view, and technical standards view)

that facilitates integration and promotes interoperability across capabilities and among related integrated architectures.

interoperability - The ability of systems, units, or forces to provide data, information, materiel, and services to and accept the same from other systems, units, or forces, and to use the data, information, materiel, and services so exchanged to enable them to operate effectively together. Information Technology and National Security Systems interoperability includes both the technical exchange of information and the end-to-end operational effectiveness of that exchanged information as required for mission accomplishment.

joint capability area (JCA) - JCAs are collections of similar capabilities logically grouped to support strategic investment decision-making, capability portfolio management, capability delegation, capability analysis (gap, excess, and major trades), and capabilities-based and operational planning. JCAs are intended to provide a common capabilities language for use across many related DOD activities and processes and are an integral part of the evolving CBP process.

a. Tier 1 JCA - A Tier 1 JCA is a high-level capability category that facilitates capabilities-based planning, major trade analysis, and decision-making. Tier 1 JCAs are comprised of functional-, operational-, domain-, and institutional-based joint capabilities. All DOD capabilities can be mapped to a Tier 1 JCA.

b. Tier 2 JCA - A Tier 2 JCA is a comprehensive capability area logically placed within a Tier 1 JCA. Tier 2 JCAs are capability areas with sufficient detail to help identify operationally required military capabilities, or to help identify joint force generation and management capabilities. A Tier 2 JCA scopes, bounds, clarifies, and better defines the intended capability area of its 'parent' Tier 1 JCA. Tier 2 JCAs are intended to reduce duplication between Tier 1 JCAs, and are not Service, mission, or platform specific.

c. JCA Taxonomy. The structure or framework of joint capabilities, used in conjunction with the JCA Lexicon, to facilitate capabilities-based planning, analysis, and decision-making.

d. JCA Lexicon. A collection of joint capability definitions that provide a common capabilities language for DOD to facilitate capabilities-based planning, analysis, and decision-making.

Joint Capabilities Board (JCB) - The JCB functions to assist the Joint Requirements Oversight Council (JROC) in carrying out its duties and responsibilities. The JCB reviews and, if appropriate, endorses all Joint Capabilities Integration and Development System and joint DOTMLPF change recommendation documents prior to their submission to the JROC. The JCB is chaired by the Joint Staff Director of Force Structure, Resources and

Assessment (J-8). It is comprised of general and flag officer representatives of the Services.

joint capabilities document (JCD) – The JCD identifies a set of capabilities that support a defined mission area utilizing associated Joint Operations Concepts (JOpsC), CONOPs, Unified Command Plan, or other assigned missions. The capabilities are identified by analyzing what is required across all functional areas to accomplish the mission. The gaps or redundancies are then identified by comparing the capability needs to the capabilities provided by existing or planned systems. The JCD will be used as a baseline for one or more functional solution analyses leading to the appropriate initial capabilities documents or joint DOTMLPF change recommendation, but cannot be used for the development of capability development or capability production documents. The JCD will be updated as changes are made to the JOpsC, CONOPs, or assigned missions.

Joint Capability Technology Demonstration (JCTD) - A demonstration of the military utility of a significant new technology and an assessment to clearly establish operational utility and system integrity.

joint doctrine, organization, training, materiel, leadership and education, personnel and facilities change recommendation – A recommendation for changes to existing joint resources when such changes are not associated with a new defense acquisition program.

a. joint doctrine – Fundamental principles that guide the employment of US military forces in coordinated action toward a common objective. Though neither policy nor strategy, joint doctrine serves to make US policy and strategy effective in the application of US military power. Joint doctrine is based on extant capabilities. Joint doctrine is authoritative guidance and will be followed except when, in the judgment of the commander, exceptional circumstances dictate otherwise.

b. joint organization - A joint unit or element with varied functions enabled by a structure through which individuals cooperate systematically to accomplish a common mission and directly provide or support joint warfighting capabilities. Subordinate units and elements coordinate with other units and elements and, as a whole, enable the higher-level joint unit or element to accomplish its mission. This includes the joint staffing (military, civilian and contractor support) required to operate, sustain and reconstitute joint warfighting capabilities.

c. joint training – Training, including mission rehearsals, of individuals, units, and staffs using joint doctrine or joint tactics, techniques, and procedures to prepare joint forces or joint staffs to respond to strategic,

operational, or tactical requirements considered necessary by the combatant commanders to execute their assigned or anticipated missions.

d. joint materiel – All items (including ships, tanks, self-propelled weapons, aircraft, etc., and related spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support joint military activities without distinction as to its application for administrative or combat purposes.

e. joint leadership and education – Professional development of the joint commander is the product of a learning continuum that comprises training, experience, education, and self-improvement. The role of professional military education and joint professional military education is to provide the education needed to complement training, experience, and self-improvement to produce the most professionally competent individual possible.

f. joint personnel – The personnel component primarily ensures that qualified personnel exist to support joint capabilities. This is accomplished through synchronized efforts of joint force commanders and Service components to optimize personnel support to the joint force to ensure success of ongoing peacetime, contingency, and wartime operations.

g. joint facilities – Real property consisting of one or more of the following: a building, a structure, a utility system, pavement, and underlying land. Key facilities are selected command installations and industrial facilities of primary importance to the support of military operations or military production programs. A key facilities list is prepared under the policy direction of the Joint Chiefs of Staff.

joint experimentation - An iterative process for developing and assessing concept-based hypotheses to identify and recommend the best value-added solutions for changes in doctrine, organization, training, materiel, leadership and education, personnel and facilities and policy required to achieve significant advances in future joint operational capabilities.

joint force - A general term applied to a force composed of significant elements, assigned or attached, of two or more Military Departments operating under a single joint force commander.

joint operating environment - The environment of land, sea, and/or airspace within which a joint force commander employs capabilities to execute assigned missions.

Joint Operations Concepts (JOpsC) – JOpsC is a family of joint future concepts consisting of a Capstone Concept for Joint Operations, Joint Operating Concepts (JOCs), Joint Functional Concepts (JFCs) and Joint Integrating

Concepts (JICs). They are a visualization of future operations and describe how a commander, using military art and science, might employ capabilities necessary to successfully meet challenges 8 to 20 years in the future. Ideally, they will produce military capabilities that render previous ways of warfighting obsolete and may significantly change the measures of success in military operations overall. JOpsC presents a detailed description of “how” future operations may be conducted and provides the conceptual basis for joint experimentation and capabilities-based assessments (CBAs). The outcomes of experimentation and CBA will underpin investment decisions leading to the development of new military capabilities beyond the Future Years Defense Program.

joint potential designator (JPD) - A designation assigned by the Gatekeeper to determine the Joint Capabilities Integration and Development System validation and approval process and the potential requirement for certifications and/or endorsements.

a. “JROC Interest” designation will apply to all acquisition category (ACAT) I/information assurance programs and ACAT II and below programs where these capabilities have a significant impact on joint warfighting or have a potentially significant impact across Services or interoperability in allied and coalition operations. All JCDs and joint doctrine, organization, training, materiel, leadership and education, personnel and facilities change recommendations will be designated JROC Interest. This designation may also apply to intelligence capabilities that support DOD and national intelligence requirements. These documents will receive all applicable certifications, including a weapon safety endorsement, when appropriate, and be staffed through the JROC for validation and approval. An exception may be made for ACAT IAM programs without significant impact on joint warfighting (i.e., business-oriented systems). These programs may be designated either Joint Integration, Joint Information, or Independent.

b. “Joint Integration” designation will apply to ACAT II and below programs where the capabilities and/or systems associated with the document do not significantly affect the joint force and an expanded review is not required. Staffing is required for applicable certifications (IT and NSS interoperability and supportability and/or intelligence) and for a weapon safety endorsement when appropriate. Once the required certification(s)/weapon safety endorsement are completed, the document may be reviewed by the Functional Capabilities Board (FCB). Joint Integration documents are validated and approved by the sponsoring component.

c. “Joint Information” designation applies to ACAT II and below programs that have interest or potential impact across Services or agencies but do not have significant impact on the joint force and do not reach the threshold for JROC Interest. No certifications or endorsements are required. Once

designated Joint Information, staffing is required for informational purposes only and the FCB may review the document. Joint Information documents are validated and approved by the sponsoring component.

d. "Independent" designation will apply to ACAT II and below programs where the capabilities and/or systems associated with the document do not significantly affect the joint force, an expanded review is not required, and no certifications or endorsements are required. Once designated Independent, the FCB may review the document. Independent documents are validated and approved by the sponsoring component.

Joint Requirements Oversight Council memorandum (JROCM) - Official JROC correspondence generally directed to audiences external to the JROC. JROCMs are usually decisional in nature.

Joint Transformation Integration System (JTIS) - A Joint Staff-supported database focused on transformation decisions and information dissemination. The mission of the JTIS is to support CJCS decision-making by providing a single-point comprehensive database of related and linked initiatives associated with joint DOTMLPF implementation. Using the latest information technology, the JTIS will integrate diverse and rapidly changing transformation data and make it available to senior leadership in a unified and comprehensible manner. The leadership will use this information to assess and guide the transformation process.

joint urgent operational need (JUON) - An urgent operational need identified by a combatant commander involved in an ongoing named operation. A JUON's main purpose is to identify and subsequently gain Joint Staff validation and resourcing solution, usually within days or weeks, to meet a specific high-priority combatant commander need. The scope of a combatant commander JUON will be limited to addressing urgent operational needs that: (1) fall outside of the established Service processes; and (2) most importantly, if not addressed immediately, will seriously endanger personnel or pose a major threat to ongoing operations. They should not involve the development of a new technology or capability; however, the acceleration of a JCTD/ACTD or minor modification of an existing system to adapt to a new or similar mission is within the scope of the JUON validation and resourcing process.

Joint Weapon Safety Technical Advisory Panel (JWSTAP) - The JWSTAP provides subject matter expertise review and constructive comments to the Deputy Director for Force Protection (DDFP) regarding the safe employment, storage, and transport of munitions and weapons in joint operating environments. Pre-existing requirement or capability documents are not within the scope of the JWSTAP. The JWSTAP review is focused on the capability attributes and metrics of a given weapon to identify potential safety issues resulting from interaction between the proposed weapon and other capabilities

existing within the same joint operating environment. Safety concerns identified by the JWSTAP are presented to the DDFP with recommended revisions to the capability document to reduce or eliminate the identified safety concern while maintaining the desired operational effectiveness.

key decision points - Major decision points that separate the phases of a DOD space program.

key interface profiles (KIPs) - KIPs provide a net-centric oriented approach for managing interoperability across the Global Information Grid (GIG) based on the configuration control of key interfaces. The KIP is the set of documentation produced as a result of interface analysis which: designates an interface as key; analyzes it to understand its architectural, interoperability, test, and configuration management characteristics; and documents those characteristics in conjunction with solution sets for issues identified during the analysis. GIG KIPs provide a description of required operational functionality, systems functionality, and technical specifications for the interface. The profile consists of refined operational and systems view products, interface control document and/or specifications, engineering management plan, configuration management plan, technical view with systems view-TV bridge, and procedures for standards conformance and interoperability testing.

key performance parameters (KPP) - Those attributes or characteristics of a system that are considered critical or essential to the development of an effective military capability and those attributes that make a significant contribution to the characteristics of the future joint force as defined in the Capstone Concept for Joint Operations. KPPs must be testable to enable feedback from test and evaluation efforts to the requirements process. KPPs are validated by the Joint Requirements Oversight Council (JROC) for JROC Interest documents, and by the DOD component for Joint Integration, Joint Information, or Independent documents. Capability development and capability production document KPPs are included verbatim in the acquisition program baseline.

key system attribute (KSA) - An attribute or characteristic considered crucial in support of achieving a balanced solution/approach to a key performance parameter (KPP) or some other key performance attribute deemed necessary by the sponsor. KSAs provide decision makers with an additional level of capability performance characteristics below the KPP level and require a sponsor 4-star, Defense agency commander, or Principal Staff Assistant to change.

lead DOD component - The Service or agency that has been formally designated as lead for a joint program by the Milestone Decision Authority. The lead component is responsible for common documentation, periodic reporting, and funding actions.

logistic support - Logistic support encompasses the logistic services, materiel, and transportation required to support continental US-based and worldwide-deployed forces.

materiel solution - Correction of a deficiency, satisfaction of a capability gap, or incorporation of new technology that results in the development, acquisition, procurement, or fielding of a new item (including ships, tanks, self-propelled weapons, aircraft, etc., and related software, spares, repair parts, and support equipment, but excluding real property, installations, and utilities) necessary to equip, operate, maintain, and support military activities without disruption as to its application for administrative or combat purposes. In the case of family of systems and system of systems approaches, an individual materiel solution may not fully satisfy a necessary capability gap on its own.

measures of effectiveness - Measures designed to correspond to accomplishment of mission objectives and achievement of desired effects.

milestones - Major decision points that separate the phases of an acquisition program.

Milestone Decision Authority (MDA) - The individual designated, in accordance with criteria established by the Under Secretary of Defense for Acquisition, Technology and Logistics, the Assistant Secretary of Defense (Networks and Information Integration), for Automated Information System acquisition programs, or by the Under Secretary of the Air Force, as the DOD Space MDA, to approve entry of an acquisition program into the next phase.

Military Department - One of the departments within the Department of Defense created by the National Security Act of 1947, as amended.

militarily useful capability - A capability that achieves military objectives through operational effectiveness, suitability, and availability, which is interoperable with related systems and processes, transportable and sustainable when and where needed, and at costs known to be affordable over the long term.

Mission Requirements Board (MRB) - The MRB manages the national requirements process that reviews, validates, and approves national requirements for future intelligence capabilities and systems. It is the senior validation and approval authority for future intelligence requirements funded within the National Foreign Intelligence Program and provides advice and council on future requirements funded outside that body.

National Security Systems - Telecommunications and information systems, operated by the Department of Defense, the functions, operation, or use of which involves: (1) intelligence activities; (2) cryptologic activities related to

national security; (3) the command and control of military forces; (4) equipment that is an integral part of a weapon or weapons systems; or (5) is critical to the direct fulfillment of military or intelligence missions. Subsection (5) in the preceding sentence does not include procurement of automatic data processing equipment or services to be used for routine administrative and business applications (including payroll, finance, logistics, and personnel management applications).

net-centric - Relating to or representing the attributes of a net-centric environment. A net-centric environment is a robust, globally interconnected network environment (including infrastructure, systems, processes, and people) in which data is shared timely and seamlessly among users, applications, and platforms. A net-centric environment enables substantially improved military situational awareness and significantly shortened decision-making cycles.

net-ready key performance parameter (NR-KPP) - The NR-KPP assesses information needs, information timeliness, information assurance, and net-ready attributes required for both the technical exchange of information and the end-to-end operational effectiveness of that exchange. The NR-KPP consists of measurable and testable characteristics and/or performance metrics required for the timely, accurate, and complete exchange and use of information to satisfy information needs for a given capability. The NR-KPP is comprised of the following elements:

- a. Compliance with the Net-Centric Operations and Warfare Reference Model (reference ff).
- b. Compliance with applicable Global Information Grid key interface profiles.
- c. Verification of compliance with DOD information assurance requirements.
- d. Supporting integrated architecture products required to assess information exchange and use for a given capability.

nondevelopmental item - Any previously developed item used exclusively for governmental purposes by a federal agency, a state or local government, or a foreign government with which the United States has a mutual defense cooperation agreement.

non-materiel solution - Changes in doctrine, organization, training, materiel, leadership and education, personnel, facilities, or policy (including all human systems integration domains) to satisfy identified functional capabilities. The materiel portion is restricted to commercial or nondevelopmental items that

may be purchased commercially or by purchasing more systems from an existing materiel program.

objective value - The desired operational goal associated with a performance attribute beyond which any gain in utility does not warrant additional expenditure. The objective value is an operationally significant increment above the threshold. An objective value may be the same as the threshold when an operationally significant increment above the threshold is not significant or useful.

occupational health - Activities directed toward anticipation, recognition, evaluation, and control of potential occupational and environmental health hazards; preventing injuries and illness of personnel during operations; and accomplishment of mission at acceptable levels of risk.

operational effectiveness - Measure of the overall ability to accomplish a mission when used by representative personnel in the environment planned or expected for operational employment of the system considering organization, doctrine, supportability, survivability, vulnerability, and threat.

operational suitability - The degree to which a system can be placed and sustained satisfactorily in field use with consideration given to availability, compatibility, transportability, interoperability, reliability, wartime usage rates, maintainability, environmental, safety and occupational health, human factors, habitability, manpower, logistics, supportability, logistics supportability, natural environment effects and impacts, documentation, and training requirements.

operational view (OV) - An architecture view that describes the joint capabilities that the user seeks and how to employ them. The OVs also identify the operational nodes, the critical information needed to support the piece of the process associated with the nodes, and the organizational relationships.

operator - An operational command or agency that employs the acquired system for the benefit of users. Operators may also be users.

qualified prototype project - A unique materiel system developed for demonstration under field conditions to confirm adequacy as a solution for a validated mission gap. To be a qualified project, a prototype must have Joint Capabilities Integration and Development System validation of mission gap and include an independent military utility assessment and/or final report including those relevant elements of an initial capabilities document.

quick reaction technology project - A research project transitioning products directly into demonstrations under field conditions and intended for immediate warfighting end users. To be a qualified project, a prototype must have Joint

Capabilities Integration and Development System validation of mission gap and include an independent military utility assessment and/or final report including those relevant elements of an initial capabilities document.

safety - The programs, risk management activities, and organizational and cultural values dedicated to preventing injuries and accidental loss of human and materiel resources and to protecting the environment from the damaging effects of DOD mishaps.

Senior Warfighter Forum (SWarF) - The SWarF is a mechanism by which a combatant commander can engage with his senior warfighting counterparts to identify the issues and capabilities associated with a particular mission or function of one or more combatant commands. The scope of a SWarF is defined by the combatant commander leading the effort. The results of the SWarF may be used to support the development of a joint capabilities document to identify joint warfighting capabilities and gaps in those capabilities.

sponsor - The DOD component, principal staff assistant, or domain owner responsible for all common documentation, periodic reporting, and funding actions required to support the capabilities development and acquisition process for a specific capability proposal. The only exception is for the sponsor of a joint capabilities document (JCD). A combatant command or Functional Capability Board may be the sponsor for the JCD. In this usage, the responsibilities of the sponsor are limited to performing the capabilities-based assessment and developing the JCD for Joint Requirements Oversight Council validation and approval.

standard - Quantitative or qualitative measures for specifying the levels of performance of a task.

supportability - Supportability is a key component of system availability. It includes design, technical support data, and maintenance procedures to facilitate detection, isolation, and timely repair and/or replacement of system anomalies. This includes factors such as diagnostics, prognostics, real-time maintenance data collection, and human systems integration considerations.

sustainability - The ability to maintain the necessary level and duration of operational activity to achieve military objectives. Sustainability is a function of providing for and maintaining those levels of ready forces, infrastructure assets, materiel, and consumables necessary to support military effort.

sustainment - The provision of personnel, training, logistic, environment, safety and occupational health management, and other support required to maintain and prolong operations or combat until successful accomplishment or revision of the mission or of the national objective.

synchronization - The process of coordinating the timing of the delivery of capabilities, often involving different initiatives, to ensure the evolutionary nature of these deliveries satisfies the capabilities needed at the specified time that they are needed. Synchronization is particularly critical when the method of achieving these capabilities involves a family of systems or system of systems approach.

system of systems (SoS) - A set or arrangement of interdependent systems that are related or connected to provide a given capability. The loss of any part of the system will significantly degrade the performance or capabilities of the whole. The development of an SoS solution will involve trade space between the systems as well as within an individual system performance.

system training - All training methodologies (embedded, institutional, Mobile Training Team, computer, and Web-based) that can be used to train and educate operator and maintainer personnel in the proper technical employment and repair of the equipment and components of a system and to educate and train the commanders and staffs in the doctrinal tactics, techniques, and procedures for employing the system in operations and missions.

systems view - An architecture view that identifies the kinds of systems, how to organize them, and the integration needed to achieve the desired operational capability. It will also characterize available technology and systems functionality.

task - An action or activity (derived from an analysis of the mission and concept of operations) assigned to an individual or organization to provide a capability.

technical view - An architecture view that describes how to tie the systems together in engineering terms. It consists of standards that define and clarify the individual systems technology and integration requirements.

threshold value - A minimum acceptable operational value below which the utility of the system becomes questionable.

user - An operational command or agency that receives or will receive benefit from the acquired system. Combatant commanders and their Service component commands and Defense agencies are the users. There may be more than one user for a system. Because the Service component commands are required to organize, equip, and train forces for the combatant commanders, they are seen as users for systems. The Chiefs of the Services and heads of other DOD components are validation and approval authorities and are not viewed as users.

user representative - A command or agency that has been formally designated by proper authority to represent single or multiple users in the capabilities and acquisition process. The Services and the Service components of the combatant commanders are normally the user representatives. There should only be one user representative for a system.

validation - The review of documentation by an operational authority other than the user to confirm the operational capability. Validation is a precursor to approval.

validation authority - The individual within the DOD components charged with overall capability definition and validation. In his role as Chairman of the Joint Requirements Oversight Council (JROC), the Vice Chairman of the Joint Chiefs of Staff is the validation authority for all potential major defense acquisition programs. The validation authority for Joint Capabilities Integration and Development System documents is dependent upon the joint potential designator of the program or initiative as specified below:

- a. JROC Interest – JROC or as delegated.
- b. Joint Integration - Sponsor
- c. Joint Information - Sponsor
- d. Independent – Sponsor

weapon – Military munitions, directed energy weapons, electromagnetic rail guns together with firing, launching, and controlling systems including safety critical software. Nuclear weapons and their components; small arms, and associated ammunition (.50 caliber or 8 gauge or smaller); intercontinental ballistic missiles, space launch vehicles, and the non-weapon related aspects of vehicles or platforms from which military munitions or directed energy weapons are fired or launched are excluded.

weapon safety endorsement – Endorsement is the means for documenting, in support of the Joint Capabilities Integration and Development System process, the extent to which weapon capabilities documents provide for safe integration into joint operating environments. Endorsement recommendations will be prepared by the Joint Weapon Safety Technical Advisory Panel and submitted to the J-8/Deputy Director for Force Protection for appropriate staffing and endorsement by the Force Protection Functional Capabilities Board.

CJCSM 3170.01C
1 May 2007

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