TRADOC

Capability Production Document (CPD) Writer's Guide

Version 1.5

16 June 2009

The proponent for this guide is the ARCIC Operations, Plans and Policy Division, Army Capabilities Integration Center (ATFC-O), TRADOC. This guide is one of a series of web-based publications available at https://www.us.army.mil/suite/kc/5232873 and the ARCIC Portal at https://cac.arcicportal.army.mil/ext/jcids/default.aspx. Users are encouraged to send comments using MS Word Track Changes approved by a COL or equivalent to Monr.arcicgatekeeper@us.army.mil. Updates will be uploaded as changes become necessary.

Summary of Changes

Version 1.4

- Added subparagraph 14.i (6) Corrosion Prevention and Control (CPC).

- Added subparagraph 14.i (7) Item Unique Identification (IUID).

Version 1.5

- Revised paragraph 14, Other DOTMLPF and Policy Considerations, in response to an Army Audit Agency preliminary recommendation in an ongoing JCIDS audit that "CDDs/CPDs don't contain all the necessary DOTMLPF requirements to support acquisition for a Milestone C decision. The information contained in the documents is inconsistent, generalized and incomplete."

CPD Instructions and Template

NOTE: This version of the CPD Writer's Guide is based upon the instructions outlined in the CJCSI 3170.01G, Joint Capabilities Integration and Development System,1 Mar 09, the online [Manual for the Operation of the Joint Capabilities Integration and Development System, 1 Mar 09](), and applicable Army and TRADOC regulations. This is supplemental information and not intended to replace or replicate the JCIDS Manual in its entirety.

1. **CPD Format and template**. The CPD format described below and included on the attached template is mandatory for all Army-developed CPDs. The information in this guide complies with instructions provided by the Office of the Secretary of Defense (OSD), Chairman of the Joint Chiefs of Staff (CJCS), and Headquarters, Department of the Army (HQDA) and leads the user through each paragraph of the CPD format. Annotations for each paragraph and entry describe the information that it must contain, the source of that information, and how that information is developed in analyses. Use the template below to develop the CPD.

CPD Template (16
Jun 09).doc

   a. Each subparagraph should be numbered to facilitate requirements correlation and traceability, and for ease of identifying issues during staffing. Use conventional alpha-numeric numbering of paragraphs. **The use of scientific numbering is unacceptable**.

   b. CPDs must be submitted in MS-Word (6.0 or greater) format. Use Times New Roman, 12 pitch font. **Do not submit document in Microsoft 2007 format, use 97-2003 compatible documents with the extension ".doc"** HQDA is not postured to accept them and the G3 automated staffing tool, Capabilities and AROC Management System (CAMS), does not recognize them as valid files.

   c. Architecture products should be embedded into the MS-Word file for ease of review during the staffing process except the SV-6 which is provided as a separate MS Excel file or an embedded Excel file in Appendix A – Net-Ready KPP Products.

   d. All CPDs must be clearly labeled with draft version number, date, classification, and include any caveats regarding releasability, even if UNCLASSIFIED. Paragraphs that contain non-releasable information (allies or industry) will be marked appropriately.

   e. Draft documents must be submitted with continuous line numbers displayed.

   f. The Manual for the Operation of the Joint Capabilities Integration and Development System contains the format to be used for the body of the CPD. The CPD should be no more than 35 pages in length. ARCIC's internal "goal" is to keep the body of the CPD to 10 pages or less.

   g. The Executive Summary must be no more than two (2) pages.

h. Do not use photos, symbols, or logos on the front page as part of the title page, or in other locations throughout the document.

i. There are 3 mandatory Appendices listed for all CPDs. *Ensure the appendix names conform exactly to what is prescribed. Innovation is this area is not appropriate. The only exception is supporting analysis, it should be added as appendix D.*

    (1) Appendix A. Net-Ready KPP Products.

    (2) Appendix B. References.

    (3) Appendix C. Acronym List.

    (4) Appendix D. Analysis.

j. Supporting Documents are not mandatory, but provide supporting information relevant to the CPD. *Supporting documents should be submitted with the draft CPD forwarded to ARCIC for validation. Submit them as a separate file labeled as "Supporting Documents for XXX CPD."* Examples of supporting documents are:

    (1) Operational Mode Summary/Mission Profile (OMS/MP). *The OMS/MP should be updated from the CDD submission. If the capability is a CDRT initiative or a COTS/NDI solution, this may be an initial OMS/MP developed as required.*

    (2) Basis of Issue Guidance (BOIG). *The BOIG should be updated from the CDD submission as more clarity is gained in the development process and decisions are made as to units that will be fielded with the capability.*

    (3) System Training Plan (STRAP). *Update the STRAP developed for the CDD. Submit early in the CPD development process to give ATSC sufficient time to review and approve the STRAP.*

    (4) Template for Supporting Documents.

Supporting
Documents xxxx CPD

2. **Considerations.**

a. **Resource Informed**. Determine if adequate resources are available to execute the program as envisioned in the CPD prior to writing the document. There is no mythical pot of "new money" waiting for a claimant. If there are not sufficient resources to execute the program or at least a viable strategy to get resourcing, then it will not be approved. Be prepared to discuss

resource trades within your capability portfolio and leverage the APRB through the ARCIC Gatekeeper, to get a feel for resourcing.

b. **Considering and Conducting Trades.**

(1) The most difficult thing for the capability developer to do is to understand all the things they should consider when making effective trades (refer to the CPD Trades Considerations Checklist for examples of some of those considerations). The magnitude of effort required to accomplish beneficial and sound trades must not be minimized. Trades should be evaluated across the DOTMLPF domains to determine the tactical, operational, and strategic impacts of any trades in a holistic fashion. The effect of a change in one domain must be considered, as well as the second and third order effects on other domains, other interdependent systems, and other warfighting organizations, both Army and Joint. Trades provide a means in which we can propose alternative paths to close or mitigate gaps. Those trades must be analytically based, analytically sound and risk informed. Additionally, they must consider the integration of joint and other service capabilities.

(2) By the time you reach the CPD phase, most trades outside cost, schedule, and performance parameters have already been made. However, it's still a good exercise to consider all the ramifications of new APB trades. Please consider: Organizational Impacts, Functional Impacts, Operational Risk (Internal – that is, Army dependence on its own Service capabilities; External – that is, Joint Integration and dependence on external (Joint, Intergovernmental, Interagency and Multinational) capabilities), Level of Integrated Capability, Resource Availability (dollars, personnel, etc.), and Technical Feasibility (technical readiness), when trading Performance, Cost, and Schedule.

(3) CPD Trades Considerations Checklist. This checklist is not intended to be a step by step guide for developing and documenting trades, there are too many variables to adequately cover all possible situations. The purpose of this checklist is to provide capability developers an illustrative list of things they should consider during the JCIDS process.

CPD Trades
Considerations Check

3. **CPD Preparation Instructions.**

a. **Cover Page**. Determine the most likely JPD as the first step in preparing the cover page.

(1) **Title** – Type "CAPABILITY PRODUCTION DOCUMENT"
FOR
Title for the Capability

(2) **Increment** – "Increment: 1" is the correct entry unless you are working on a follow-on increment of a previously developed capability.

(3) **ACAT** – Insert the likely Acquisition Category (ACAT) based on the forecast cost of the system or previous milestone decisions. For a description of each category see AR 70-1, Army Acquisition Policy, table 3-1.

(4) **Validation Authority** – The Validation Authority is dependent upon the Joint Potential Designator (JPD) assigned by the Joint Staff Gatekeeper during staffing. For a description of each designation see CJCSI 3170.01G, Joint Capabilities Integration and Development System. Appropriate validation authority entries correlate to JPD entries as shown below:

(a) JROC Interest - The JROC is the validation authority.

(b) JCB Interest – The JCB is the validation authority.

(c) Joint Integration - HQDA is the validation authority.

(d) Joint Information - HQDA is the validation authority.

(e) Independent - HQDA is the validation authority.

(5) **Approval Authority** – Fill in based on the JPD assigned. For additional information on approval authority see CJCSI 3170.01G. Once the approval authority has been determined, insert one of the following in the space provided:

(a) JROC – for ACAT I and programs designated as JROC Interest.

(b) JCB – for ACAT II and below programs designated as JCB Interest.

(c) HQDA – for ACAT II and below programs that are not JROC or JCB Interest Programs.

(6) **Milestone Decision Authority (MDA).** The MDA is dependent upon the ACAT. For additional information on MDA designation see DODI 5000.02, *Operation of the Defense Acquisition System*, Enclosure 3, table 1 or AR 70-1, *Army Acquisition Policy*, Chapter 3, Table 3-1. Generally accepted guidance follows:

(a) ACAT I - The MDA is either the Defense Acquisition Executive (DAE) who is dual-hatted as the Under Secretary of Defense for Acquisition, Technology and Logistics (USD

AT&L) or the Army Acquisition Executive (AAE), also referred to as the Assistant Secretary of the Army for Acquisition, Technology and Logistics (ASAALT).

(b) <u>ACAT II & III</u> – Generally, MDA is delegated by the AAE to the managing Program Executive Officer (PEO) unless the program has been designated "special interest". The AAE may delegate milestone decision authority to any of the PEOs listed below:

- PEO Ammunition.
- PEO Aviation.
- Joint PEO Chemical and Biological Defense.
- PEO Combat Support & Combat Service Support.
- PEO Command Control and Communications (Tactical).
- PEO Enterprise Information Systems.
- PEO Ground Combat Systems.
- PEO Intelligence, Electronic Warfare and Sensors.
- PEO Missiles and Space.
- PEO Simulation, Training, and Instrumentation.
- PEO Soldier.

(7) **Designation.** Use the designation assigned during the ICD or CDD approval process unless this is the first capability document prepared for this system. If this is the first document, use the information on designation in the *Manual for the Operation of the Joint Capabilities Integration and Development System, Enclosure D, paragraph 1.c*.

(a) "JROC Interest" designation will apply to all ACAT I/IA programs and capabilities that have a potentially significant impact on interoperability in allied and coalition operations.

(b) "JCB Interest" designation will apply to ACAT II and below programs where the capabilities and/or systems associated with the document affect the joint force and an expanded joint view is required.

(c) "Joint Integration" designation will apply to ACAT II and below programs where the concepts and/or systems associated with the document do not significantly affect the joint force and an expanded review is not required, but staffing is required for applicable certifications (information technology and National Security Systems interoperability, intelligence and/or insensitive munitions), and for a weapon safety endorsement when appropriate.

(d) "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.

(e) "Independent" designation applies 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.

(8) **Prepared for Milestone C Decision**. *Unless there is another specified acquisition decision point identified, use the statement "Prepared for Milestone C Decision."*

(9) **Draft Version Number**. Use draft version numbers to maintain good configuration management of the CPD. Each time the document undergoes a significant revision, the draft version number will be updated, i.e. 1.0, 1.1, 1.2.

(10) **Date**. Enter the date the CPD was signed out by the last Headquarters. ***DO NOT BEGIN THE LINE WITH THE WORD "DATE" AS IT IS REDUNDANT.*** For the proponent, enter the date their Headquarters approved the CPD as the proponent position and approved forwarding to ARCIC for validation. Similarly, ARCIC will date the CPD with the date validated by the appropriate ARCIC Director.

(11) **Releasability**. A CPD defines system level parameters for the current increment of production. The use of one of the following releasability statements is mandatory for CPDs that contain no classified or FOUO Information:

(a) **Releasability:** Approved for public release; distribution unlimited.

(b) **Releasability:** Distribution authorized to U.S. Government Agencies and their contractors to protect information and technical data that advance current technology or describe new technology in an area of significant or potentially significant military application or that relate to a specific military deficiency of a potential adversary. Information of this type may be classified or unclassified, when unclassified, it is export-controlled and subject to the provisions of [Department of Defense (DOD) Directive 5230.25](#) (reference c), date of determination: XX Month XXXX. Other requests for this document should be referred to: List your Organization's Mailing Address here."

(c) Other appropriate releasability instructions can be found in *[AR 380-5, Department of the Army Information Security Program](#)*, 29 Sep 00, in paragraph 4-12.h Warning available at: http://www.army.mil/usapa/epubs/pdf/r380_5.pdf.

(12) **Classification**. Mark the CPD, header and footer, with the appropriate security classification of the document.

b. **Instructions by Document Section.**

(1) **Executive Summary.** Limited to a maximum of two pages, one is preferred. Do not duplicate information that is required in the body of the CPD. Use the Executive Summary to set the stage and explain the importance of the capability the Army should "acquire/produce."

(2) **Table of Contents (TOC).** Adjust as required and ensure it's accurate.

a. The paragraph numbers and names are "fixed." DO NOT ADJUST THEM!

b. **Use the CPD template provided in paragraph 1 of this guide with the Microsoft Word Table of Contents feature embedded in the template**. . **Do not delete any of the embedded formatting, i.e.** {TC "1. Capability Discussion" \f c\1 "1"}, **or the TOC will not**

function properly. Once the draft CPD is complete and you are finalizing the version, right click on the TOC and select "update field." Then, select "update page numbers only." That will refresh the TOC and ensure all page and paragraphs correlate properly. Add a list of figures, if used, to complete the TOC. *If you manually create a TOC or have added a list of tables and figures, check this for accuracy as your last editorial review of the CPD.*

(3) **Revision History**. Use the revision history table below for configuration management of the Draft CPD. *Ensure the information is consistent with the revision history table and the cover entries for the Draft Version and Date*.

Draft Version	Date	Purpose
0.1	Day-Mon-Yr	Initial Draft
		Developmental (Worldwide) Staffing
		ARCIC Staffing/Validation

(4) **Points of Contact (POCs).** POCs should cover the primary writer/editor at the proponent and a Program Manager Representative if available/appropriate. **Ensure at least two Proponent level POCs are listed, to include valid SIPRNET (.smil) e-mail addresses.** *All staffing post-ARCIC Validation (ARSTAF & JSTAF) takes place on SIPRNET and staffing comments will be returned to the proponent/document sponsor on SIPRNET. It is imperative that the proponent/document sponsor be prepared to operate in a SIPRNET environment.*

Name	Agency/Organization	Phone Number & DSN	Email Address
			NIPR: SIPR:
			NIPR: SIPR:

Note: Standard paragraph numbering was restarted at this point to allow for consistency between the guide and the CPD Template in paragraph 1.

1. Capability Discussion. Limit this paragraph to one page. Cover the four areas outlined as subparagraphs in the attached template.

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 a FoS or SoS solution, discuss the source ICD and the related CDDs, CPDs, integrating DOTMLPF and policy changes and required synchronization.

c. It is critical to "list" direct predecessor documents that support the CPD. If the capability development effort preceded the implementation of JCIDS, list the requirements document that supports and underpins the CPD, i.e. the Operational Requirements Document (ORD).

d. Identify the JCAs (Tier 1 and 2) in which the capabilities being delivered through the CPD directly contribute. "List" only the applicable JCAs, there is no requirement to provide rationale for their inclusion. However, there should be a high correlation to the capability advocated for production and the JCA Lexicon at http://jcams.penbaymedia.com/. Ensure all JCAs listed in paragraph 1.d appear and should be consistent with the KPPs and KSAs in paragraph 6 and Table 7.1 – Supported ICDs and Related CDDs/CPDs in Paragraph 7.

2. Analysis Summary. Summarize all analyses (AoA or other support analysis) conducted to determine system performance attributes and KPPs. Include the alternatives, objective, the criteria, assumptions, recommendation, and conclusion. If the discussion consumes more than two pages, move the Summaries to Appendix D. If you can get it in the body of the CPD, delete Appendix D from the TOC and final page of the template (Appendix D listing).

3. CONOPs Summary. The information is this paragraph should serve as the basis for OMS/MP development. Cover these five areas in the attached template:

 a. Relevance to Joint Operations Concepts (JOpsC).

 b. Operational Outcomes.

 c. Effects it must produce.

 d. How it complements the integrated Joint Warfighting Force.

 e. Enabling capabilities required to achieve its desired operational outcomes.

4. Threat Summary. Cover these three areas in the attached template:

 a. Projected threat Environment.

 b. Specific threat capabilities to be countered. Include the nature of the threat, threat tactics, and projected threat capabilities (lethal and non lethal) over time.

 c. Include Defense Intelligence Agency (DIA) validated threat references when appropriate.

Note: For assistance in framing the Threat against a specific capability, contact your local threat office or the TRADOC G-2 for assistance or you can contact the DIA Defense Warning Office, Acquisition Support Division for assistance at DSN 428-0788; SIPRNET: http://www.dia/smil/mil/admin/di/dwo/dwo3.html.

5. Program Summary. Provide a "summary" of the overall program strategy for reaching full capability and the relationship between the production increment described in the CPD and any other increments planned for the program.

6. System Capabilities Required for the Current Increment. All systems capabilities described in this paragraph must be achievable, measurable, testable, and operationally relevant.

Statutory KPPs derived from public law (Force Protection and Survivability) and compliance KPPs derived from policy (Net-Ready and Sustainment) **must be addressed** regardless of the sponsor's determination of applicability. Selectively applied KPPs (Energy Efficiency and System Training) should be considered, but are not required to be addressed if the sponsor determines they are not appropriate. If the document sponsor determines one or more of these KPPs are not applicable, they must provide the rationale for non-inclusion based on solid analysis. The rationale and analysis will be reviewed by higher level authorities to determine the validity of the claim.

   a. Traceability to Tier 1 & 2 JCAs. Correlate the KPPs to the Tier 1 & 2 JCAs the capability supports directly and ensure consistency with the JCA discussion in paragraph 1.

   b. Force Protection. Is the capability "designed to prevent or mitigate hostile actions against personnel, resources, facilities, and critical information?" If that is the focus, then the KPP should be developed. (Reference *Manual for the Operation of the JCIDS, 1 Mar 09, Enclosure B, paragraph 2.a*)

   c. Survivability. Determination of whether the capability you are producing is a "manned system" is the central focus for the Survivability KPP. Is the equipment designed to enhance personnel survivability? Has the system entered low rate initial production (LRIP)? If you are at or beyond LRIP, this KPP is not applicable. If you answered yes to a manned system and have not entered LRIP, then the KPP should be developed. (Reference *Manual for the Operation of the JCIDS, 1 Mar 09, Enclosure B, paragraph 2.a*)

   d. Sustainment (Availability). This KPP is mandatory for all **ACAT I** programs involving materiel solutions. The KPP has 2 metrics: Materiel Availability (A_m) a fleet measurement of the total inventory of system's operationally capable (ready for tasking) and Operational Availability (A_o) that measures a group of systems within a unit that are operationally available. Additionally, there are the two mandatory Key System Attributes (KSAs) of Materiel Reliability and Ownership Cost. For ACAT II and below programs, the sponsor will determine applicability. (Reference: *Manual for the Operation of the Joint Capabilities Integration and Development System, Appendix B, Enclosure B*)

   e. Net-Ready. The capability will be developed for all information technology (IT) and national security systems (NSS) used in the automation acquisition, storage, manipulation, management, movement, control, display, switching, interchange, or transmission or reception of DOD data or information regardless of classification or sensitivity." There is an exception for those systems that are "closed loops" and do not communicate with external sources. Another way to approach it is to determine whether the capability has a C4I interface capable of any communication through the Global Information Grid (GIG). If yes, then the NR-KPP is required with all the mandated architecture, compliance statements, and Key Interface Profiles (KIPs) Declaration in Appendix A. (Reference is *CJCSI 6216.01E, Interoperability and Supportability of Information Technology and National Security Systems, Enclosure E*)

   f. Selectively applied KPPs: System Training and Energy Efficiency. The sponsor will perform an analysis to determine the applicability of Selectively Applied KPPs. *Selectively*

applied KPPs are not required to be addressed by the document sponsor if your analysis determines they are not appropriate.

(1) System Training. A System Training KPP is required where the sponsor has determined that "training" is a significant part of total life cycle costs. Review Appendix C to Enclosure B of the JCIDS manual at: https://www.intelink.gov/wiki/JCIDS_Manual_Enclosure_B_Appendix_C for applicability.

(2) Energy Efficiency. If you have a program that involves a "fleet of vehicles" or a "fleet of equipment that consumes energy" (i.e. generators or heaters that use fuel), use the guide below to develop the Energy Efficiency KPP.

Energy Efficiency
KPP Development.pdf

g. If the document sponsor determines one or more KPPs (Force Protection, Survivability, Net-Ready, and Sustainment) are not applicable, you must provide the rationale for excluding it.

h. If there are Statutory or Compliance KPPs that are not appropriate for the capability you are developing, restructure paragraph 6 as shown below in Figure 6-1:

- Revise the subparagraphs in the template.
- Add a new subparagraph "a" titled "Statutory and Compliance KPPs not appropriate for XXXXXXXX Capability."
- The revised paragraph should mirror the box shown below where subparagraphs b-d are already in the template and only require revising the alphabetic designator that precedes the description.

Figure 6-1 Alternate Paragraph 6 Structure

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a. Statutory and Compliance KPPs not appropriate for XXXXXXXX Capability.

(1) Net-Ready (NR). This capability does not have a C4I interface with any other system or capability. As a result, there is no NR-KPP and only the OV-1 has been developed.

(2) Force Protection. This capability is not designed to prevent or mitigate hostile actions against personnel, resources, facilities, and critical information.

(3) Survivability. This capability is an unmanned system and does not contribute to survivability. Therefore, the Survivability KPP is not appropriate.

(4) Sustainment. XXXXXXXX Capability is not a JROC Interest program. Furthermore, the sponsor has determined that this KPP and its two mandated KSAs are not appropriate for this capability for the following reason(s)….

b. Key Performance Parameters (KPPs).

c. Key System Attributes (KSAs).

d. Additional Performance Attributes.

7. Family of Systems and System of Systems Synchronization. Use of the table in the template is mandatory per HQDA G-3/5/7. Ensure all JCAs listed in paragraph 1.d appear and are correlated to Table 7.1–Supported ICDs and Related CDDs/CPDs *(Joint Capability Documents (JCDs) are no longer created but you should still reference any applicable ones).* No capability stands alone on the battlefield. Consider the relationship of the system described in the CPD to other systems contributing to the capability.

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 system(s) (on either a per-unit or an aggregate basis, as appropriate). The 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. Use ARCIC Policy Letter 19 for assistance in determining the content of paragraph 8.

ARCIC Policy Ltr 19
Capability Developme

9. Intelligence Supportability. Identify all requirements for intelligence support throughout the projected life-cycle of the capability. Requirements for consideration are outlined in CJCSI 3312.01A, *Joint Military Intelligence Requirements Certification*, 23 Feb 07 at URL: http://www.dtic.mil/cjcs_directives/cdata/unlimit/3312_01.pdf. Assistance is also available from J-2 Intelligence Requirements Certification Office (J2P/IRCO) for assistance at DSN 225-8085 or 671-9539; SIPRNET: http://j2sid.js.smil.mil/IntelCertification/j2sid.html

10. Electromagnetic Environmental Effects (E^3) and Spectrum Supportability. Define the electromagnetic spectrum requirements that the system must meet to assure spectrum supportability. Describe the electromagnetic environment in which the system will operate and coexist with other US, allied, coalition, and non-government systems.

   a. Identify potential operational issues regarding electromagnetic interference from threat emitters and from other E3 effects such as electromagnetic pulse. (Reference DODD 3222.3, *DOD Electromagnetic Environmental Effects (E3) Program.*

   b. Define the electromagnetic spectrum requirements that the system must meet to assure spectrum supportability in accordance with *DODD 4650.1, Policy for the Management and Use of the Electromagnetic Spectrum.*

   c. For spectrum dependent systems, equipment spectrum certification is required and sufficient availability of frequencies from host nations.

d. Describe the electromagnetic environment in which the system will operate and coexist with other US, allied, coalition, and non-government systems.

e. Specifically address safety issues regarding Hazards of Electromagnetic Radiation to Ordnance (HERO), Hazard of Electromagnetic Radiation to Fuel (HERF), and Hazard of Electromagnetic Radiation to Personnel (HERP).

11. Technology and Manufacturing Readiness Assessment. Discuss the program's critical technology elements in accordance with the *DOD Technology Readiness Assessment Deskbook*.

a. Identify any critical technology elements linked to the program's KPPs.

b. Identify who performed the technology readiness assessment, when it was accomplished, whether an independent technology readiness assessment is planned, and, if applicable, when the Deputy Under Secretary of Defense, Science and Technology (DUSD(S&T)) review of the program technology readiness assessment is planned.

c. Identify any manufacturing readiness challenges linked to the program's KPPs.

d. Identify who performed the manufacturing readiness assessment, when it was accomplished, whether an independent manufacturing readiness assessment is planned, and, if applicable, when the DUSD(S&T) review of the program manufacturing readiness assessment is planned.

12. Assets Required to Achieve Full Operational Capability (FOC).

a. Describe the types and quantities of assets required to attain FOC.

b. 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.

c. If the discussion consumes more than 1 page, move the discussion to the "Supporting Documents" file and leave summary level detail in the paragraph that describes the types and quantities of assets required to attain FOC.

d. The USAFMSA documentation team and ARCIC's Force Design Division (FDD) must be included during the development of BOI guidance and attend any other meetings where BOI concerns arise.

13. Schedule and Initial Operating Capability (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.

14. Other DOTMLPF and Policy Considerations. Consider the following areas. *This should not be considered an "a la carte" menu. Each DOTMLPF domain must be addressed.* The

JCIDS manual states "DOTMLPF and policy changes should be considered from two perspectives: 1) DOTMLPF that supports the implementation, operations and support of the specific system; 2) DOTMLPF that must be changed to support integration of this system with existing capabilities. 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." Use the question sets below as examples or "guides" to help you identify potential issues to consider, create a write-up for each DOTMLPF domain and Policy Considerations. You do not have to answer each question, but you must include a subparagraph for each domain and for policy. If other information comes to mind that has impact on the various DOTMLPF areas, discuss those issues under the appropriate subparagraph. *If you have more than one domain where no changes are necessary, you may address them collectively in one subparagraph.*

    a. Doctrine.

1	Is there an existing concept of the operation to leverage or will this require the development of a new concept of the operation?
2	What doctrinal development work will have to be done to support the institutionalization of this capability?
3	Which proponent(s) should take the lead to develop this doctrine/TTP?
4	When is the earliest that the doctrine can be developed (projected timelines)?
5	Does this new capability require a new TTP, or can existing TTP be modified to support its introduction into the force? When is the earliest that the TTP for its use can be developed?
6	Can the TTP/doctrine work be done within existing resources? What additional resource is required?
7	Are there any joint doctrine/TTP implications?

    b. Organization.

1	What organization will operate this equipment? Does it require a new organization or a modification to a current organization? What changes are required for the TOE?
2	Does the proposed change warrant a Force Development Update (FDU)? If so, who will coordinate with ARCIC FDD?
3	Can an existing organizational task be changed to provide resource to execute this mission and what is the impact on the organization, if any?
4	What units will provide logistic support to these organizations? Will this require new units, or can existing maintenance/logistics organizations support this capability? Does the support organization require augmentation? Will this require Contractor Logistics Support (CLS)?
5	What is the total potential requirement for new organizations?
6	Which organization is responsible to implement these changes?
7	Are there joint organizational considerations for employing this capability, e.g., would the combatant commander be better served by a joint-manned capability?

c. Training.

1	Will training be executed by a contactor support team, by a mobile training team, by a unit training system or by a school? If conducted by some combination of these approaches, what will the schedule be for transitioning between the options?
2	What school(s) will take the lead to implement this training?
3	How many courses will be added to the curriculum?
4	Is there a joint training requirement (e.g., training for other Services)?
5	Does this capability suggest creation of a new Military Occupation Specialty (MOS) or Special Skill Identifier (SSI)? If so, what "describes" that new MOS or SSI? And, what are the most critical training support requirements, timelines, and resources?
6	If a new MOS or SSI is not required, what MOS/SSI has the appropriate competencies to best employ this capability?
7	What resources will be needed by the school to support training?
8	How many additional instructors are required to support the training?
9	What additional resources are required to support course development?
10	What Training Aids, Devices, Simulators, and Simulations (TADSS) will be required to support training? What modifications to existing TADSS are required?
11	Will training be required for support or maintenance personnel? Where will this training be conducted?
12	What is the projected total cost and timelines for the training support required to field this capability in the Army?
13	What is the projected total cost and timelines to support training for other Services?

d. Materiel.

1	Does this system require new (or modifications to current) materiel systems in order to enable the total capability, e.g., new C2 software for Army Battle Command System (ABCS) to accompany new sensor platform?
2	Will the acquisition of this capability result in other materiel impacts or special Package, Handling, and Storage (PHS) requirements (e.g., additional lines of ammunition, fuel, batteries, power sources, etc.)?
3	Are there ecological or hazardous waste issues that will result from this acquisition?
4	Can it be deployed within existing transportation assets, or does it require outsized/oversized lift capability?
5	Will other systems or subsystems have to be developed or modified to support this equipment (e.g., radio mounts/night vision equipment/crew served weapons mounts)?
6	Does this system operate on a network or frequency that will potentially interfere with other systems in the Army? Does it potentially interfere with systems in other Services?
7	Does the C2 for this system require an interface with existing C2 systems? What systems? What are the architecture requirements?
8	What is the cost associated with the materiel impacts of this system?
9	Should there be a formal review of the potential legal implications of using this technology? Who will coordinate for that review and on what timeline?

10	Do supporting organizations have proper and adequate numbers of support equipment, tools, TMDE, etc.?
11	Does the system transmit or receive information/data with other than ancillary C4ISR systems, i.e. SINCGARS, EPLRS, FBCB2, etc?
12	Which organization should take the lead to resolve these issues?

e. Leadership & Education.

1	What new leadership training is required (if any)?
2	What changes to existing leader courses are required?
3	Are unit level professional development (PD) courses required? If so, what are they?
4	Are there cultural barriers or drivers to overcome?
5	What resources are required to enable leadership to use this capability?
6	Which school/organization will be responsible for implementing these changes?
7	What is the timeline required to develop leaders to use the capability?

f. Personnel.

1	Will there be a requirement for additional personnel to operate this equipment or can it be fielded within existing personnel limits?
2	Do the Soldiers have the necessary skills to operate the equipment (and support equipment)?
3	What are the likely personnel implications (MOS/SSI designations) for: 　　　Primary Users 　　　Maintenance Personnel 　　　Support Personnel
4	Will contract personnel support this equipment? How many are required per unit? What is the anticipated yearly cost of this support across the Army?
5	Are there any Training, Transient, Hospital, and School (TTHS) implications?
6	Which office/agency is responsible to resolve the issues and what is the timeline to resolve the personnel challenges associated with delivering this capability to the Army?

g. Facilities.

1	What changes to the facilities in the supporting schools will have to be made to support training?
2	Does this require any new, modified, or special facilities at either the unit or support levels?
3	Are current range capabilities adequate to support training requirements associated with this capability?
4	Will current motor pool, storage facilities, and other facilities support this equipment?
5	Which organization will take the lead to coordinate these changes?
6	Are there facilities considerations for Joint manned/operated capabilities?

h. Policy.

1	Will fielding the capability require any changes to existing policy articulated in Army Regulations or other authoritative sources, i.e. Joint Instructions, DOD Directives, NATO STANAGs, etc?
2	Are there any changes in public law required?

   i. <u>Logistics</u>. Use the guide below in crafting Logistics considerations. ***This should be considered an "a la carte" menu. Only choose those areas where you have something to say. Do not use the subparagraph heading followed by NA.***

logistics
supportability guide R

   (1) Maintenance.

     (a) Maintenance/Support Concept.

- The maintenance concept. (Logistics Supportability Guide (LSG), see page 3, paragraph 1a)

- If CLS or ICS is initial source of system support. (LSG, see page 4, paragraph 1b)

- Level of Repair Analysis. (LSG, see paragraph 4, paragraph 1c)

- Provisioning Plan. (LSG, see page 4, paragraph 1d)

- Supportability Test & Evaluation Program. (LSG, see page 4-5, paragraph 1e)

- Performance Based Logistics (PBL) and Performance Based Agreements (PBA) Requirements. (LSG, see page 5, paragraph 1f)

     (b) Maintenance Manpower Support.

- Current vs. New MOS Requirements. (LSG, see page 6, paragraph 2a)

- Force Structure Implications. (LSG, see page 6, paragraph 2b)

- Table of Organization and Equipment (TO&E)/Modified TO&E (MTO&E) Changes. (LSG, see page 6, paragraph 2c)

- Supply, Ammunition, POL support requirements: (LSG, see page 6, paragraph 2d)

- Human Factors Engineering: (LSG, see page 6, paragraph 2e)

(c) Supply Support: (LSG, see page 7, paragraph 3a)

(d) Support Equipment.

- Test, Measurement and Diagnostic Equipment (TMDE): (LSG, see page 8, paragraph 4a)

- Calibration requirements: (LSG, see page 8, paragraph 4b)

- Material Handling Equipment (MHE) or Container Handling Equipment (CHE) Requirements. (LSG, see page 8, paragraph 4c)

- Specialized or Standard Shelters: (LSG, see page 8, paragraph 4d)

- Vehicle Recovery: (LSG, see page 8, paragraph 4e)

- Standard or Unique Support Requirements (When Applicable). (LSG, see page 9 , paragraph 4g)

(e) Technical Data. (Logistics Supportability Guide, see page 9, paragraph 5 a)

(f) Training and Training Support

- Weapon System Family of Vehicles (FoV) Training: (LSG, see page 10, paragraph 6a)

- Training Structure: (LSG, see page 10, paragraph 6b)

- Training Support: (LSG, see page 11, paragraph 6c)

- New Equipment Training: (LSG, see page 11, paragraph 6d)

- Institutional Training: (LSG, see page 11, paragraph 6e)

- Unit (Sustainment) Training: (LSG, see page 11, paragraph 6f)

- Weapon System FoV Simulators: (LSG, see page 12, paragraph 6g)

(g) Computer Resource Support: (LSG, see page 12, paragraph 7)

(h) Facilities: (LSG, see pages 12-13, paragraph 8)

(i) Packaging, Handling, Storage and Transportability

- Storage and Preservation: (LSG, see page 13, paragraph 9a)

- Containerization Requirements: (LSG, see page 13, paragraph 9b)

- Transportability Modes Analysis: (LSG, see page 14, paragraph 9c)

- Hazardous Materials Requirements: (LSG, see page 14, paragraph 9d)

- Other Special Handling Requirements: (LSG, see page 14, paragraph 9e)

(j) Design Interface.

- Safety & Health Issues for Use and Maintenance: (LSG, see pages 14-15, paragraph 10a)

- Built in Test (BIT)/ Built In Test Equipment (BITE) Requirements: (LSG, see page 15, paragraph 10b)

- Standardization and Interoperability (LSG, see page 15, paragraph 10c)

(2) Conditions Based Maintenance Plus (CBM+): (LSG, see pages 15-18, paragraph a-f)

(3) Common Logistics Operating Environment (CLOE): (LSG, see pages 18-20, paragraph g)

(4) Life Cycle Sustainment (LCS) Metrics: (LSG, see page 20)

(5) Reliability, Availability and Maintainability (RAM)

(a) Materiel Availability Key Performance Parameter (KPP): (LSG, see page 21, paragraph a)

(b) Materiel Reliability: (LSG, see page 21 , paragraph b)

(c) Maintainability (Field Level): (LSG, see page 22, paragraph c)

(d) Maintenance Ratio: (LSG, see page 22, paragraph d)

(e) Maintainability (Sustainment Level): (LSG, see page 22, paragraph e)

(f) Platform Re-Generation (PRG): (LSG, see page 23, paragraph f)

(g) Platform Re-Generation-Maximum (PRG-M): (LSG, see page 23, paragraph g)

(6) Corrosion Prevention and Control (CPC). CPC is a critical consideration in assuring the sustained performance, readiness, economical operation and service life of Army systems and equipment. It requires active consideration in the materiel development, acquisition, fielding,

operation, and storage processes. CPC requires life cycle management planning and action in design, development, testing, fielding, training, and maintenance. The Product Manager for XXXXXXXX capability is responsible for ensuring that a suitable corrosion prevention strategy is in place for the XXXXXXXX capability in accordance with AR 750-59, Army Corrosion Prevention and Control Program.

(7) Item Unique Identification (IUID). IUID is a DOD initiative that will enable easy access to information about DOD possessions that will make acquisition, repair, inventory, and deployment of items faster and more efficient. The implementation of IUID requirements means that qualifying items must be marked with a Unique Item Identifier (UII) in accordance with the DOD Guide to Uniquely Identifying Items. Specifically, MIL STD 130 http://www.uidsolutions.com/milstd130.aspx requires that all XXXXXXXX capability qualifying components, to include legacy components that transition through organic depots, must be marked with a UII in the form of a machine readable 2D Data Matrix, the contents of which will be encoded in the syntax of ISO/IEC 15434 and the semantics of ISO/IEC 15418 or the Air Transport Association (ATA) Common Support Data Dictionary (CSDD). All 2D Data Matrix bar codes must meet the verification standards for mark quality as established in ISO 15415 and SAE AS9132.

15. Other System Attributes. *This should be considered an "a la carte" menu. Only choose those areas where you have something to say. Do not use the subparagraph heading followed by NA.*

   a. Address attributes that tend to be design, cost, and risk drivers, including environment, safety and occupational health, human systems integration, embedded instrumentation, electronic attack, information protection standards, information assurance, and wartime reserve mode requirements.

   b. Address 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).

   c. 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.

   d. Identify physical and operational security needs.

   e. When appropriate, identify the weather, oceanographic and astro-geophysical support needs throughout the program's expected life cycle.

   f. Include data accuracy and forecast needs.

   g. For intelligence, surveillance, and reconnaissance platforms, address information protection standards.

h. Describe the non-information technology/national security system 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 DODD 8320.2, *Data Sharing in a Net-Centric Department of Defense* available at: http://www.dtic.mil/whs/directives/corres/pdf/832002p.pdf and DODD 2010.6, *Material Interoperability with Allies and Coalition Partners* available at: http://www.dtic.mil/whs/directives/corres/pdf/201006p.pdf.)

i. Address conventional and initial nuclear weapons effects and CBRN survivability In the event the mission requires CBRN survivability, consider elevating this attribute to be a KPP.

j. The following statements are examples only and information provided should reflect the attributes of the specific system addressed in the CPD. Consider the following areas:

(1) Storage Environment. The appropriate storage temperature and air quality should be specified. This should include length of time to remain in storage, frequency and duration of maintenance actions, etc.

(2) Embedded Instrumentation. The XXXXXXXX capability will have embedded diagnostics that can identify errors or faults down to the Line Replaceable Units/Line Replaceable Module (LRU/LRM) level.

(3) Conventional Weapons Effects and Initial Nuclear Weapons Effects. *Include the assessment of whether the capability is mission critical.*

(4) Nuclear, Biological, and Chemical Contamination (NBCC) Survivability. The XXXXXXXX capability is (or is not) mission critical, however, it will be Chemical, Biological, Radiological, and Nuclear (CBRN) contamination and decontamination survivable against the effects of CBRN agents and decontaminates so that it remains operational in all CBRN environments, with the exception of rubber and canvas field replaceable items, and is compatible with personnel operating and maintaining while in MOPP IV.

(5) Expected Mission Capability. *Environmental operating conditions (percentage of use in Hot, Basic, Cold, etc.) along with dust, smoke, rain, etc. will be included here.*

(6) Physical and Operational Security Needs. XXXXXXXX capability will be physically secured in the same way as other property book items (i.e. Arms Room, Supply Room, Platoon Equipment Room, or on Vehicles).

(7) Human System Integration/MANPRINT.

    (a) Manpower. *State manpower constraints (if any).*

    (b) Personnel. *State MOS constraints (if any).*

(c) Training. *State training requirements for host station, NET, and field refresher training as required including resources required to meet training levels.*

(d) Human Factors Engineering – The XXXXXXXX capability design shall promote effective Soldier-machine integration for optimal total system performance. Design principles taking into account human capabilities and limitations shall be incorporated into system definition, design, development, and evaluation. This includes concepts of human-computer interface (e.g., ease of perception and comprehension of displays, ease of use of controls) and compatibility of XXXXXXXX capability with other mission-essential equipment (including but not limited to use with standard combat gear, CBRN, and environmental clothing). The XXXXXXXX capability should not interfere with the performance of common Soldier tasks. Equipment design must consider mission-dependent tasks and demands through consultation with SMEs, in order to maximize ease of use, minimize workload and enhance mission performance.

(e) System Safety. *State appropriate System Safety requirements to include any regulatory requirements the system must meet.* For example "The XXXXXXXX capability design and operational characteristics shall minimize the possibilities for accidents or mishaps caused by human error or system failure. Safety, health, environmental, fire, and ergonomic hazards associated with the use, maintenance, transportation, storage, handling, and demilitarization of the XXXXXXXX capability will be identified, evaluated/assessed, and mitigated or controlled to an acceptable level. The resolution of all hazards will be formally documented through a hazard tracking system and the risk associated with the residual hazard, if any, will be accepted by the designated approving authority IAW AR 385-10, *The Army Safety Program* (available at: http://www.apd.army.mil/pdffiles/r385_10.pdf) and DA Pam 385-16, *System Safety Management Guide* (available at: http://www.apd.army.mil/pdffiles/p385_16.pdf).

(f) Health Hazards. Insert the following statement "A Health Hazard Assessment (HHA) will be requested from the Center for Health Promotion & Preventive Medicine (CHPPM) early in the development or procurement process. This HHA will be updated at each Milestone Decision Review (MDR) as required by AR 40-10."

(g) Soldier Survivability. *State other survivability requirements applicable to the system which are different than those which may be included as a KPP.*

16. Program Affordability.

   a. Describe life-cycle cost (include all associated DOTMLPF and policy costs).

   b. Describe sponsor's estimates of the appropriate funding level for developing, producing, and sustaining the desired capability.

   c. State cost in terms of a threshold and objective capability (not necessarily a KPP) to provide flexibility for program evolution and cost as an independent variable tradeoff studies.

   d. Describe applicable cost analyses conducted to date.

e. The structure of the paragraph and the two tables are mandated by HQDA G8 as promulgated in the HQDA G3 memo, 18 Oct 07, *Approval of Army Warfighting Capabilities* DCS G-3/5/7, Interim Implementation Guidance.. The full version of the memo is located in the ARCIC AKO Policy Site at URL: https://www.us.army.mil/suite/kc/5232873. An excerpt of the G8 section is enclosed below in the PDF file. An information paper put out by the Director, Capabilities Developments is also enclosed to help document sponsors properly frame resource requirements. The PM provides this information to the capability developer.

Part VI, G8
Affordability Requirer

Applying Resource
Informed to Capabiliti

Mandatory Appendices

Appendix A - Net-Ready KPP Products. At a minimum, you should have a High-Level Operational Concept Graphic (OV-1), even if the capability does not have a NR-KPP and doesn't require all architecture views.

a. **CJCSI 6212.01E***, Interoperability & Supportability of Information Technology and National Security Systems*, 15 Dec 08 (available at: http://www.dtic.mil/cjcs_directives/cdata/unlimit/6212_01.pdf) **significantly changed the content of Appendix A**, but many of the changes advocated are not available and the CJCSI 6212.01D has been grandfathered for 6 months continued use through 15 Jun 09.

b. All views included should have accompanying text to highlight the salient point of the architecture view as mandated by the *DOD Architecture Framework (DODAF)* available at: http://www.defenselink.mil/cio-nii/docs/DoDAF_Volume_II.pdf.

c. If the OV-1 is the only view included in the appendix, add the following statement "This capability has no C4I interface with any other system or capability. The NR-KPP is not applicable. The architecture enclosed supports and underpins the CONOPS discussion in paragraph 3."

d. If you are developing the full NR-KPP, the following products are mandatory and should appear in appendix A in the order shown below for ease of review and evaluation:
- NR-KPP statement, copy and paste the KPP description, production threshold, and production objective from the KPP table in paragraph 6. Do not paste the Tier 1 & 2 JCA column.
- NCOW-RM Compliance Statement (Net-Centric Operations & Warfare Reference Model).
- Information Assurance (IA) Statement of Compliance. **Verbiage for a CPD must state that the "Program is in compliance" with appropriate regulations and directives. The distinction between verbiage appropriate for a CDD and that of a CPD is not captured in CJCSI 6212.01D.**

- KIP Declaration. Use the table below. Only fill out the rows that apply to the capability you are producing.

KIP Declaration Table
DISR (29 Jun 07).doc

- All Views & Operational Architecture: AV-1, OV-1, OV-2, OV-3 *(new requirement, previously submitted only SV-6 that captures critical information from the OV-3)*, OV-4, OV-5, OV-6C.
- Systems Architecture: SV-2, SV-4, SV-5, SV-6. The SV-5 is either an Excel file or a Word table at the discretion of the System's Architect. **The SV-6 must be submitted as a separate Excel file**. A blank SV-6 template is enclosed below based on DODAF V1.5, April 2007. Systems Architecture is the PM's responsibility. Close coordination is required to ensure products are developed to support staffing of the capability document.

SV-6 Template
DODAF 1.5.xls

- Technical Architecture. TV-1 & TV-2 (Draft IT Standards Profile generate by the DOD IT Standards Registry (DISR) Online. Note: This view must be developed on DISR Online (NIPRNET), exported to disk, and published on DISR Online SIPRNET Registry. The PM is responsible for developing this product.
- OV-7, SV-11, & TV-2 are included as appropriate and relate to shared data and data warehousing and future data standards. Review the DODAF for more fidelity and their use.
- Architecture products (except TV's) must be stored in CADIE and metadata tagged to meet the requirements of ARCIC Policy Letter # 12 and CJCSI 6212.01D.

ARCIC Policy Ltr 12
Operational Architect

Appendix B – References. The attached template lists six standard references. Add other references that are germane to the CPD. This is not a library listing.

Appendix B
References - Minimun

Appendix C – Acronym List. Add only acronyms and definitions used in the CPD. *This is not a glossary of JCIDS terms and definitions. If an acronym or definition is not used in the CPD, do not include it in this appendix.*

<u>Other Appendices</u>

Appendix D – Analysis (As required). If unable to complete the analysis discussion in the main CPD document (e.g., > two pages or less), then summarize the analyses here. Describe the analysis (AoA or other supporting analysis) conducted to determine system attributes and identify KPPs. Include the alternatives, objective, the criteria, assumptions, recommendation, and conclusion. If you don't use this appendix, delete it from the TOC and final page of the template (Appendix D listing).

<u>Standard Comment Matrix</u>
The comment matrix below is the recommended matrix for both worldwide (proponent level developmental staffing) and ARCIC validation staffing.

Recommended
comment matrix for A