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ALIGNING VISION TO CAPABILITY: FUNDAMENTALS OF REQUIREMENTS DETERMINATION

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My interest is in the future because I am going to spend the rest of my life there.

-Charles Kettering

The United States faces a rapidly changing global security environment that is volatile, unstable and increasingly threatening to U.S. interests. It is time now for the Army to examine how to adapt to face future challenges within this dynamic environment.”²

-Secretary John McHugh and GEN Raymond Odierno

Strategic leaders and the organizations they lead across the defense enterprise identify, develop, resource or apply joint capabilities. The Joint Capabilities Integration and Development System (JCIDS) is designed to ensure consistency in the identification, assessment, validation and prioritization of joint military requirements³ (military services and combatant commands, primarily). The Joint Requirements Oversight Council (JROC) provides the framework and guidance that drive that consistency. The output of these two systems is prioritized, validated requirements that are appropriate for the needs of the joint force and ensure integration of all capabilities as they are developed and fielded. Although the Secretary of Defense has responsibility for the provision of military force to support the National Security Strategy, validation of military requirements is generally considered the purview of the Joint Staff and the Service staffs, not the senior civilians in the

military departments and OSD. Participants in JCIDS, and the JROC process, find these systems confusing, frustratingly bureaucratic, and difficult to understand. They easily get lost in the myriad of acronyms, categories of requirements, documents (and formats), staffing procedures, and databases that are part of the system as it currently exists.

This paper will describe the fundamentals of capability requirements determination through the various JCIDS processes by which capability gaps and their supporting solutions are derived, assessed, and validated. Its purpose is to use the insights of an experienced senior action officer to help other action officers and leaders understand these systems and processes.

JCIDS IN BRIEF

JCIDS is designed to provide the force with Joint capabilities needed across the full range of military operations, and supports the JROC in its

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² Secretary of the Army John McHugh and General Ray Odierno, *FORCE 2025 and Beyond - SETTING THE COURSE*, (Washington DC: Department of the Army, July 2014)

http://www.arcic.army.mil/app_Documents/TRADOC_Memo_For ce-2025-and-Beyond-Setting-the-Course_06AUG2014.pdf

³ CJCS Instruction, 5123.01H, *Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS)*

Title X responsibilities. It does this by comparing current capabilities and strategic guidance documents (National Security Strategy, National Defense Strategy, National Military Strategy, Guidance for the Employment of the Force (GEF), and the Joint Strategic Capabilities Plan (JSCP) with the future strategic environment, identifying gaps in capability needs, and developing solutions for the future force⁴. Current capability can be described by current force structure, doctrine, training, and equipment, or by efforts under development (like new organizational design or an approved Program of Record). Joint and Service concepts describe how the force will be employed and the capabilities required by that force. Analysis of the environment and capability needs is continuous and deliberate, traditionally taking the form of Capabilities-Based Assessments (CBA) that identify capability gaps and risks to the effective execution of current and projected future missions. This comparison takes place in any organization that has responsibility for development of capabilities within a military service⁵. Informed by concepts, strategic guidance, and current capability, CBAs produce requirements documents for both materiel and non-materiel requirements that undergo scrutiny at the Service level before being validated and sent forward for joint validation. Once a requirement is validated, it can compete for resources and eventually result in a change in doctrine, organization, training, or materiel. We will focus on the most typical path of concepts, learning, analysis, and development within JCIDS.

IN THE BEGINNING... DEFINING AND ALIGNING FUTURE REQUIREMENTS

Defense capability requirements, and ultimately their doctrine, organization, training, materiel, leadership and education, personnel,

facilities and policy (DOTMLPF-P) solutions, originate from the missions and capabilities given to the Department of Defense (DoD) by the National Security Strategy and other strategic documents. To meet these requirements, the Joint Staff and the Services continually assess and forecast the future operating environment. Emerging trends in socio-economic and political conditions, peer competitors, hybrid and emerging threats, disruptive technologies, and other indicators frame the central ideas and conditions of future needs of the Department of Defense.

Aligning future capability to national strategy begins with a concept. Approved concepts are problem-centric documents that describe the strategic and operational conditions in which Joint forces will be employed. They provide the foundational context for future force development by identifying a military problem, proposing solution ideas, and describing the capabilities required to employ them. By forecasting how the force may be employed in a future environment, they identify alternative ways to understanding current, emerging, and future military problems and their potential solutions⁶. Key DoD documents supporting these efforts are the *Capstone Concept for Joint Operations (CCJO)*, see Figure 1) and the *Joint Operating Environment (JOE)*.⁷ The Services also produce more focused concepts for their air, sea, land, cyber, and space capabilities. As an example, the Army's primary land domain concept documents are the *Army Capstone Concept (ACC)* and the *Army Operating Concept (AOC)*. In 2018, the Army adopted the Multi-Domain Operations Concept as the de facto ACC and AOC for current force design activities pending future updates to the formal ACC and AOC documents.⁸ Lower-level concept documents at the Joint and Service level further describe key capability areas and clarify relevant

⁴ CJCS Instruction, 5123.01H, *Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS)*

⁵ In the Army, this typically occurs in the Training and Doctrine Command (TRADOC) proponent Centers of Excellence (Aviation, Cyber, Special Operations, Fires, Intelligence, Maneuver, Maneuver Support, Mission Command, Medical, and Sustainment). The collective effort is managed and integrated by the Futures and Concepts Center (FCC), Army Futures Command.

⁶ CJCS Instruction, 5120.02E, *Joint Doctrine Development System*, 6 November 2020. See Enclosure A of this document for discussion on

concepts and their interaction with doctrine development.

https://www.jcs.mil/Portals/36/Documents/Library/Instructions/CJCSI%205120.02E.pdf?ver=17dd_h4MNeLd3_NvBjWYaQ%3d%3d

⁷ For more information on Joint Concepts, see

<https://jdeis.js.mil/jdeis/index.jsp?pindeX=124&catindex=94>

⁸ For additional information on the Multi-Domain Operations Concept, see the US Army Combined Armed Center's *Multi-Domain Operations Catalog*:

<https://usacac.army.mil/organizations/mccoe/call/news/19-19>.

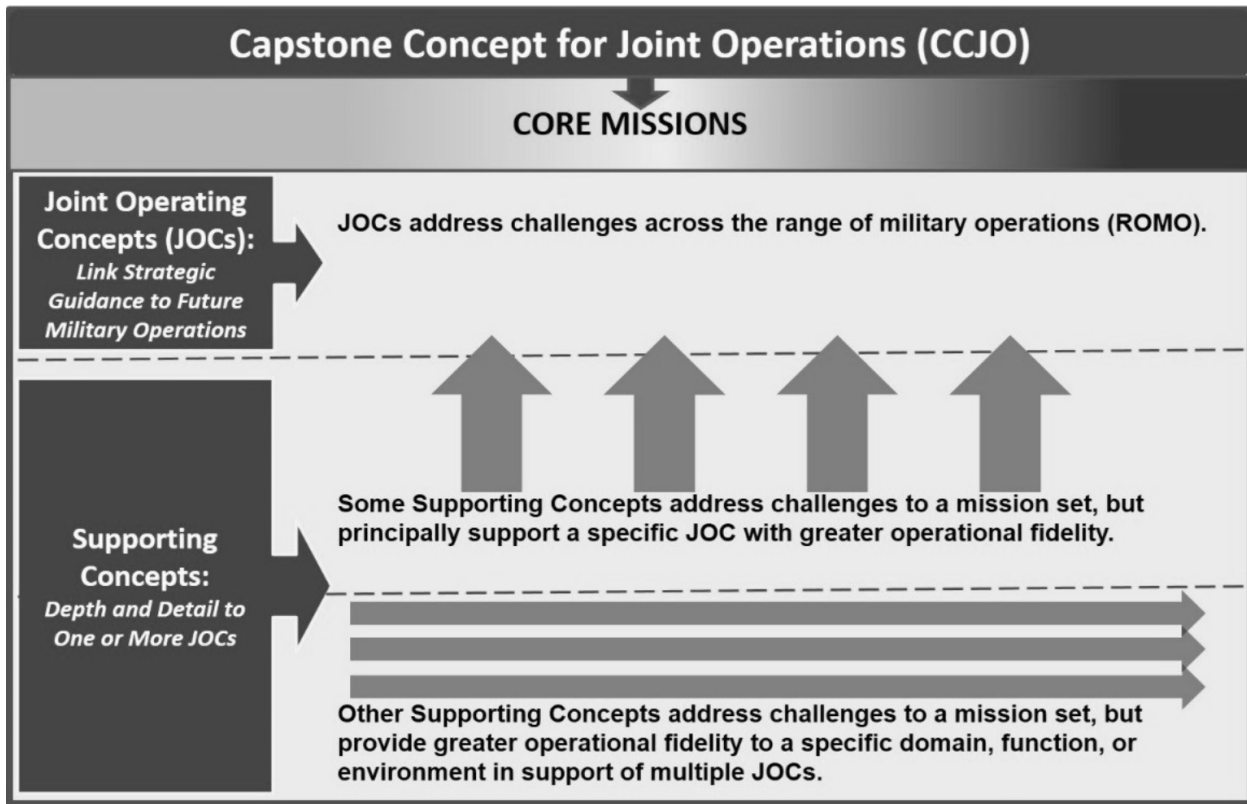


Figure 1. Key Joint Concept Documents, CJCSI 3010.02E, 17 August 2016

considerations. Examples include the *Joint Operational Access Concept (JOAC)* and the Army's seven functional concepts⁹ for each of its warfighting functions (nested with the MDO Concept). In all cases, these concept documents intend to describe conditions, identify emerging threats and trends, and frame the context by which the future force is defined and employed. They provide the conceptual basis and the required capabilities by which the Joint Staff and Services formulate and evaluate the future environment.

Concepts are informed, explored and tested through the use of wargames, simulations, operational exercises, capability technology demonstrations, and other forms of experimentation. By providing operational context to the hypotheses of the concept documents, experiments seek to identify

problems, examine their effects on both the US and an opponent, and through structured, rigorous examination provide the analytic underpinning for subsequent decisions.¹⁰ Ideally, these events involve a holistic community of interest represented by defense and industry science and technology (S&T), academia, defense acquisition, the requirements proponent, Joint and Service staffs, and military operational stakeholders. This important confluence of concepts, S&T development and other solution ideas, and the observations and recommendations from experimentation provide the baseline for capability-based assessment.

Finally, Capability-Based Assessments (CBAs) incorporate these outputs into scenario driven analysis of an approved concept. CBAs initiate detailed analysis of the missions, tasks, capability requirements and gaps, and the

⁹ The Army uses functional concepts to provide the foundation for a continued campaign of learning across each of its Warfighting Functions. Working in concert with stakeholders and activities across the Joint modernization enterprise, they act as a roadmap to drive further discussion, experimentation, and requirements development for the future force.

¹⁰ Deputy Secretary of Defense Bob Work and General Paul Selva, *Revitalizing Wargaming is Necessary to be Prepared for Future Wars* (War on the Rocks, December 2015) <https://warontherocks.com/2015/12/revitalizing-wargaming-is-necessary-to-be-prepared-for-future-wars/> (accessed 15 January, 2015)

potential solutions for a specific military problem. They provide the analytic basis that supports the development and prioritization for a future requirement. Key components of the CBA include:

- The mission and tasks a capability should support
- Capabilities required, characteristics and attributes
- Recommended and prioritized capability gaps, including operational risk
- Recommendations for DOTMLPF-P materiel and nonmateriel solution considerations

This final step in the initial alignment of strategic guidance to capability development identifies the needs of a required capability and the potential solutions across DOTMLPF-P. CBAs drive the development of key JCIDS documents that will refine these solution ideas and inform subsequent milestone decisions to ultimately deliver them.

JCIDS DOCUMENTS

The outputs of a CBA may result in several requirements documents that are managed

through JCIDS. By using a CBA, the Services necessarily align future capability requirements to strategic guidance and initiate the cumbersome business of requirements determination, validation and prioritization, and resourcing. As proposed solutions progress through each decision milestone of the JCIDS process, some will never be implemented while others will arrive to the force with great success. In all cases, these ideas must be codified in an appropriate document to begin the process of negotiating the requirements oversight process. Figure 2 shows the traditional flow of capability document generation and approval. Let's briefly discuss each type of JCIDS document:

Initial Capabilities Document (ICD)

This short document provides a broad description of capability gaps, relevant operational performance attributes, and justification for the need for a materiel solution. Additional non-materiel changes may be generated by the described materiel need.

DOTmLPP-P Change Recommendation (DCR)

This document describes the need for non-materiel changes in doctrine, policy,

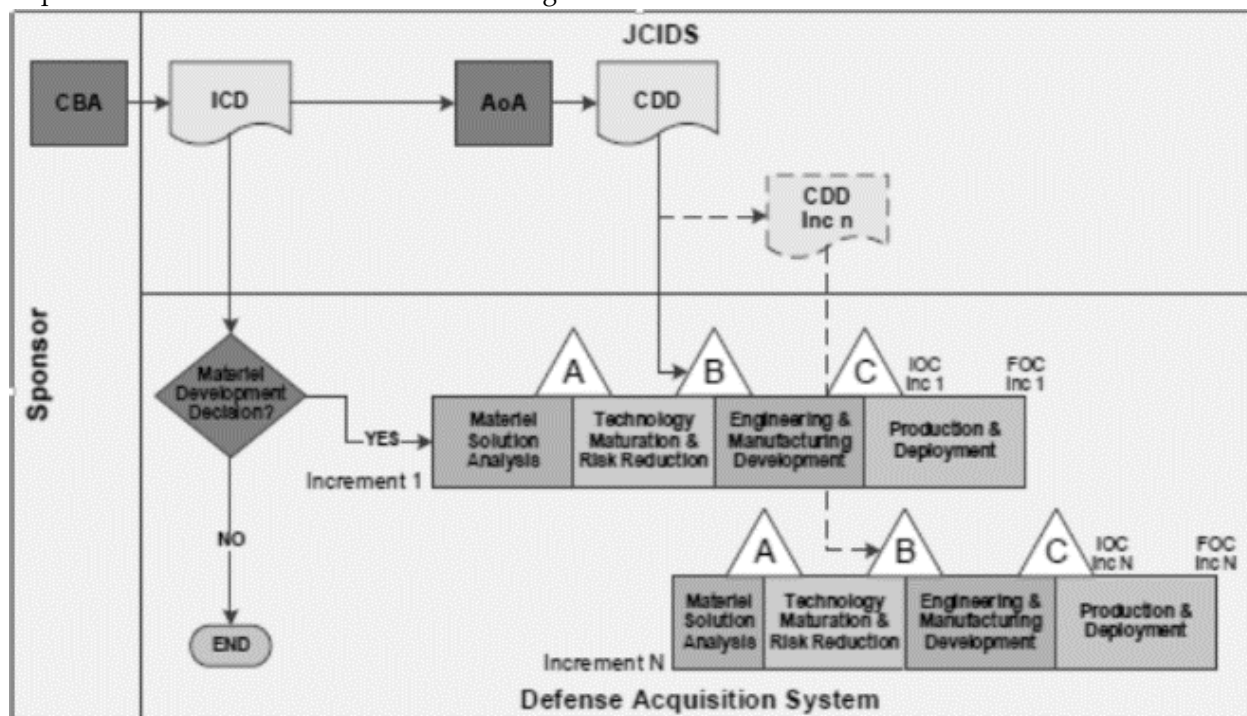


Figure 2. JCIDS Incremental Path and Defense Acquisition System

organization, training, leader development, personnel, or facilities. In this case, the small letter “m” denotes supporting solutions associated with equipment training, system simulators, and other devices.

Capability Development Document (CDD)

This document defines specific performance requirements needed to achieve a capability. These come in the form of Key Performance Parameters (KPPs) and Key System Attributes (KSAs) that are measurable and testable. Once the CDD is approved, KPPs may not be modified without JROC approval. Additionally, the CDD describes constraints and possible incremental development.

Capability Production Document (CPD)

In recent revision to the CJCSI, this document is now provided as an annex to the CDD and is no longer a stand-alone JCIDS document. It provides the details needed to support development and production of the required capability. As with the CDD, the requirements must be measurable and testable. No new requirements can be included in the CPD.

Capability Development Document (CDD) Update

A Sponsor may update a CDD based on knowledge gained during engineering, manufacturing, and development by submitting the updated CDD for review and revalidation IAW the deliberate staffing process. Only updated parts of the CDD are reviewed by stakeholders.

Joint and Service oversight councils validate requirements described in ICD and CDDs. Validated JCIDS documents guide the development and fielding of the capabilities they describe. They are the vehicle that transition validated requirements to the Defense Acquisition System for materiel development, procurement, and fielding. They also assist in the programming of fiscal resources within the Planning, Programming, Budgeting, and Execution system (PPBE) since they provide

enough detail of capability requirements to allow cost and schedule program estimates.

RAPID FIELDING AND OTHER ACCELERATED SOLUTION PROCESSES

By necessity, an expedited acquisition process brings urgently needed capability solutions into the Joint Force. Changes in emerging threats and operating environments often outpace the timelines JCIDS requires to produce program of record solutions to these emergent gaps. These urgent requirements are typically identified through validated Joint Urgent Operational Need (JUON), Joint Emergent Operational Need (JEON) or Service equivalent Urgent Operational Need (UON) statements. JCIDS allows for this rapid fielding by using “all available authorities to expeditiously fund, develop, assess, produce, deploy and sustain these capabilities.”¹¹ These processes are designed to capture current and emerging technologies that meet immediate operational needs. Sources for materiel solutions often include commercial off-the-shelf (COTS) systems or solutions developed by industry, U.S. Army Combat Capabilities Development Command (DEVCOM)¹², or other Joint and Service equivalent S&T efforts. They serve three primary purposes:

- Equip operational forces with urgently needed capability solutions.
- Insert and evaluate future force technologies or threshold capabilities by providing an operational environment to validate concepts or accelerate development.
- Assess capabilities in an operational environment to inform capability decisions.

Capabilities are typically fielded directly to deployed units or tested in Combatant Command (CCMD) or Service sponsored exercises and experiments. Because they have not been developed within the deliberate JCIDS process, and do not have a supporting

¹¹ CJCS Instruction, 5123.01H, Charter of the Joint Requirements Oversight Council (JROC and Implementation of the Joint Capabilities Integration and Development System (JCIDS))

¹² For more information on US Army Combat Capabilities Development Command, DEVCOM, see <https://www.army.mil/devcom>

requirements document (DCR/CDD), they are typically funded through contingency or other resources outside of the normal PPBE equipping program within the appropriate Service Program Objective Memorandum (POM). Long term operational use of COTS and other non-military systems often presents maintenance, sustainment, training and other system challenges that must be considered during fielding. After a capability has been employed, an assessment of operational utility determines whether it is inadequate, has limited utility (only for the situation or environment requested in the JUONS), or is recommended as an enduring capability requirement for the entire Joint Force.

Some rapid acquisition solutions are candidates as enduring solutions to identified gaps identified through JCIDS. Senior leaders may identify rapid acquisition solutions for retention through their Service requirements oversight process-- several base defense, sniper detection, and counter-IED systems from Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF) are good Army examples. Due to the necessity of rapid fielding, in some cases these solutions are required to meet minimum operational safety requirements versus the safety testing standards required of systems fielded through normal acquisition. As they transition to Programs of Record (POR) they must retroactively meet these standards. For some COTS systems, this can be a significant barrier to acquisition as an enduring solution. In all cases, these "directed requirements" must be aligned against a documented gap, have an approved CDD that they support as a solution, become a program of record, compete for resourcing in the PPBE process, and enter into the JCIDS and Defense Acquisition System (DAS) processes at the appropriate milestone.

THE JROC: REQUIREMENTS OVERSIGHT AND THE PRIORITIZATION CHALLENGE

The CJCS executes 10 USC 181 statutory responsibilities to identify, assess, validate, and prioritize Joint military requirements through the authorities of the Joint Requirements Oversight Council (JROC) and its subordinate boards and processes (see figure 3). CJCSI 5123.01H, Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint

Capabilities Integration and Development System (JCIDS), establishes the JROC roles, responsibilities, and subordinate processes. The JROC's capability oversight function is aligned into six Functional Capabilities Boards (FCB): Force Integration, Battlespace Awareness, Force Application, Logistics, C4/Cyber, and Protection. These FCBs serve to propagate capability decisions through four levels of review and oversight. From lowest to highest level, these boards are the Functional Capabilities Board Working Group (FCB WG), Functional Capabilities Board (FCB), Joint Capabilities Board (JCB), and finally the JROC itself. As capability requirements are validated, each DOTMLPF-P solution domain has its unique process for approving and resourcing requirements. This section will focus on how the JROC functions by examining how a JCIDS document is typically initiated, navigates the requirements oversight process, and validated.

As with any process there are variations tailored to the needs of specific cases. JROC topics may vary widely, with no two issues having the same considerations or following exactly the same timeline. Similarly, assigned authorities for each board allow for decisions at appropriate levels-- not all issues must go through all four boards to the JROC for a decision. In many cases, the Services will validate requirements specific to their capability needs without formal Joint oversight. These authorities are applied through the assignment of Joint Staffing Designators (JSD) that assign staffing requirements and the validation authority for each. For those with experience in this process, reducing a cumbersome process of assessment, analysis and coordination across a broad community of interest into a few pages will seem overly simplistic. For those who are not, the process may seem unnecessarily complex. In either case, the intent is to frame the process within a context that allows for useful dialogue in seminar.

To illustrate the purpose of each functional level, let's follow a capability decision through the JROC process and its many stops and turns toward validation. We begin with a policy issue within the (National Command Authority) NCA, international treaty compliance, and one of its many considerations. As the Administration

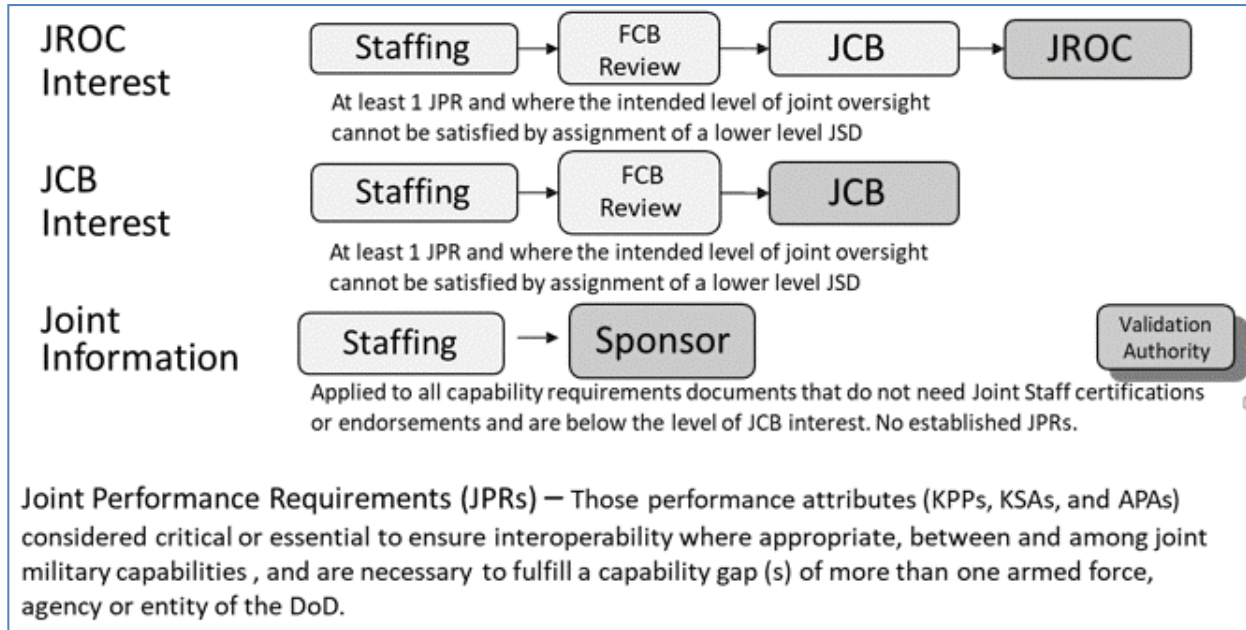


Figure 3. JROC Joint Staffing Designators

considered a change in US policy regarding the Ottawa Conference on the use of landmines, decisions regarding policy compliance could adversely affect the use of a military capability and have a subsequent strategic impact to CCMD capability options. In this case, treaty compliance implies the potential loss of the systems (JCIDS enduring materiel solutions) that provide a capability that is of particular concern to several CCDRs. One of them assesses the risk to be very high, and submits a Joint Urgent Operational Needs (JUON) statement to the Joint staff for an alternate solution to provide a similar capability effect.

The capability in question falls within the JROC's Force Application portfolio, and the FCB Chair forms a FCB WG to coordinate issues, gather SME assessment from stakeholder organizations, and recommend alternatives to the FCB. The FCB WG works across the Joint and Service staffs, coordinates with stakeholders, and invites SMEs for input to investigate alternatives. Relevant questions may include, can the current systems be modified to meet policy compliance? What capabilities exist in other FCB and Service portfolios that provide a similar operational effect? What relevant non-POR systems, or changes to doctrine, training, or other non-materiel attributes of the current systems (captured in a new DCR document) result in

policy compliance? What are the impacts to the current POM? During this review and assessment, the sponsoring Service provides a draft ICD describing a future alternative solution. The gatekeeper assigns a JSD of "JROC Interest", and the FCB WG invites the ICD sponsor to brief the FCB on the ICD, describe its intended capability, and discuss application to the current gap. With this invitation, the document enters the JROC process.

FCBs oversee all capability aspects, materiel and non-materiel, for capabilities assigned to their functional areas. For JROC Interest and JCB Interest capability documents, each of the FCBs represent DoD throughout the JCIDS and acquisition processes, ensuring capability solutions meet the capability needs of the Joint force. Each FCB seeks to serve the best interest of Joint Force throughout the JCIDS and acquisition process. For documents with JROC or JCB oversight, the FCB will identify issues across the Services and other stakeholders, provide analysis, and recommend prioritization to the JCB. In our example, the FCB will address several issues across a diverse staffing process to inform the JCB and JROC. These actions include the need to capture Service issues and concerns with the new capability, identify S&T technology and funding timeline challenges, work with the sponsor on a capability development strategy

(CDD timeline), and accurately assess the risk and prioritization of this process against the timeline of the JUONS. The FCB may go through several rounds of briefings and staffing before developing a recommendation for the JCB.

The Joint Capabilities Board (JCB) assists the JROC in carrying out its duties and responsibilities by reviewing and endorsing all JCIDS documents that are submitted to the JROC. The JCB is comprised of Flag Officer and General Officer representatives of the Services. It reviews and validates requirements or endorses (depending on the JSD) all JCIDS and DOTMLPF-P proposals prior to their submission to the JROC. This is a validation panel, and it reviews the issues and recommendations from the FCBs, allows for a Service representative vote or other agency input, and elects to validate or require further analysis. In the case of our capability, the JCB validates the ICD for review by the JROC. However, several questions will be answered and staffed prior to the formal brief. Questions include the status of S&T development efforts for technology critical to the capability's employment, clarification on Service responsibility for certain capability requirements in the concept, and a timeline estimate to produce the requirement CDD(s). When these answers are resolved and appropriately staffed, the ICD goes before the JROC for a validation decision.

Finally, the JROC is the highest oversight board in the JCIDS requirements validation process. Chaired by the Vice Chairman of the Joint Chiefs of Staff (VCJCS), with Service representation at the General or Admiral level (normally the Service Vice Chiefs), this panel validates JROC Interest requirements within the FCB portfolios, prioritizes across portfolios, and serves to provide final adjudication for other issues. Attendance is limited, and CCDRs are also invited to attend as voting members. In this example, the ICD was presented to the JROC describing a capability with applicability to the gap created by a potential policy change, and to the JUONS for an alternate solution. Service discussion echoed earlier concern in the JCB

about Service responsibilities in the delivery of the eventual solutions. The CCDR expressed concern over the JCIDS development timeline and gaps created while awaiting approved production document, system acquisition, and other acquisition timeline issues. The VCJCS questioned the availability of developing technologies critical to the employment of the new capability.

JROC decisions are captured in memorandum format, known as a JROCM (JROC Memorandum). These documents record the decisions of the board, any subsequent guidance, and document tasks for additional information or other requirements. Ultimately, the JROC Secretariat published a JROCM that validated the ICD as the Joint Staff solution to the JUONS, assigned the Army as the Service sponsor, and directed further analysis on key issues. The ICD would go back to the JROC to clarify S&T development and resourcing strategies, CDD development strategies and timelines, and the acquisition lead would provide an initial estimate on potential system program timelines and costs. The result is a validated ICD that navigated the Joint requirements oversight process. It will go back to the sponsor to begin the hard work of developing the system attributes that will form the basis of the CDD and support the acquisition process.¹³

For two of the JSD designations in JROC staffing, the Service sponsor is the validating authority. The Services, as capability sponsors, necessarily operate independent requirements oversight and validation processes for this purpose. Each of these processes varies slightly to meet Service specific needs. In all cases, each Service process intends to assess, validate, and prioritize requirements that will provide solutions to specific capability gaps.

CONCLUDING THOUGHTS

The need to change will ever be with us. We may have analyzed the process, framed in its essential parameters, and made some considerable progress toward arming ourselves with systemic

¹³ For detailed discussion and guidance on the JROC and how it operates, see CJCSI 5123.02H, Charter of the Joint Requirements Oversight Council (JROC) and Implementation of the Joint Capabilities Integration and Development System (JCIDS), 31 August

2018, <https://www.jcs.mil/Portals/36/Documents/Library/Instructions/CJCSI%205123.01H.pdf?ver=2018-10-26-163922-137>

mechanisms to permit change to take place. But that in no way ensures either that change will occur or that it will be an easy, orderly process. And so the intellectual search, the exchange of ideas and the conceptual maturation must continue and be ever in motion.”¹⁴

- General Donn A. Starry (1983)

Whether through deliberate JCIDS capability analysis or by urgent operational needs requests, the oversight for development, validation, and resourcing of gap solutions requires the collective effort of capability stakeholders across the entire Defense enterprise. General Starry’s counsel from 1983 is as relevant to requirements determination today as it was to those who developed the Fight Outnumbered and Win¹⁵ concept supporting FM 100-5, AirLand Battle, and its many subsequent DOTMLPF-P capability solutions in his time.

Requirements determination, analysis, validation, and prioritization is a complex undertaking that requires a combination of many processes, proponents, authorities, and stakeholders. Understanding the basic principles for both strategic leaders and their advisors across the enterprise is critically important-- the stakes are high. Accordingly, the JCIDS process and the JROC have evolved to help manage its many complexities, accommodate many stakeholders, and help our senior leaders make risk and resource informed decisions concerning military capability needs. While it may not be perfect, it has demonstrated its value in producing highly effective capabilities for the joint force.

The communities of practice that support these efforts tend to be large, diverse, and often tumultuous. In many cases, they represent a complex collection of interests and desired outcomes. Following graduation, many students will find themselves participating and leading efforts to define and align military capability requirements to the strategic objectives of our Nation. However, one should never forget that the processes involved are less important than

the participants and leaders across these communities who exercise professional judgment and inform or influence decisions that affect force development. Defense management decisions are often complex, difficult events with outcomes that will reside in the force for many years into the future.

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¹⁴ General Donn A. Starry, “*To Change and Army*,” Military Review, July 1983

¹⁵ FM 100-5, *Operations* (Washington DC: Department of the Army, May 1986). Available electronically at <http://cgsc.cdmhost.com/cdm/ref/collection/p4013coll9/id/893>