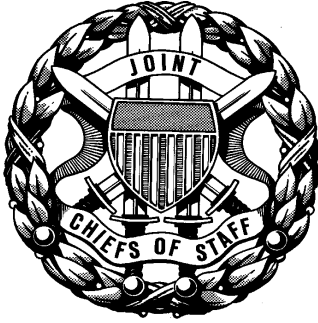# GLOBAL COMMAND AND CONTROL SYSTEM (GCCS) FUNCTIONAL REQUIREMENTS EVALUATION PROCEDURES

**JOINT STAFF
WASHINGTON, D.C. 20318-0300**

CHAIRMAN OF THE JOINT CHIEFS OF STAFF
MANUAL

J-3   CJCSM 6721.01
DISTRIBUTION: A,B,C,J, and S   15 March 1997
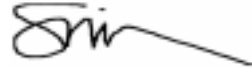
GLOBAL COMMAND AND CONTROL SYSTEM (GCCS) FUNCTIONAL
REQUIREMENTS EVALUATION PROCEDURES

References: See Enclosure F.

1. <u>Purpose</u>. This manual describes the process for submitting joint functional requirements for the Global Command and Control System (GCCS). If approved, new joint requirements become GCCS applications. It also defines responsibilities and describes specific coordination procedures to take a requirement through the validation, assessment, and approval process.

2. <u>Cancellation</u>. J-6A 00485-95, 21 April 1995, "Global Command and Control System Functional Requirements Evaluation Procedures," is canceled.

3. <u>Applicability</u>. This manual applies to combatant commands, Services, Defense agencies (C/S/A) and the Joint Staff. The procedures in this manual only apply to joint requirements.

4. <u>Procedures</u>. Specific procedures for inputting new joint requirements into the GCCS requirements process are in Enclosure C. Enclosure D is a flow chart of the actual process.

5. <u>Additional Copies of This Manual</u>. Joint Staff directorates may obtain a limited number of additional copies of this manual from the Records Management and Automation Support Branch, Room 2B917. The Services, combatant commands, Defense agencies, and all other holders are authorized to reproduce, print, and stock copies of this manual to meet their internal distribution requirements.

6. <u>Effective Date</u>. This manual is effective upon receipt.

For the Chariman of the Joint Chiefs of Staff:

STEPHEN T. RIPPE
Major General, USA
Vice Director, Joint Staff

Enclosures:
A--General Information
B--Responsibilities
C--New Requirements Approval Process
D--Functional Requirements Procedures Flow Chart
E--GCCS Requirements Database (GRiD)
F--References

DISTRIBUTION

Distribution A, B, C, and J plus the following:

(INTENTIONALLY BLANK)

ENCLOSURE A

GENERAL INFORMATION

1. Background. The Global Command and Control System (GCCS) supports users from the NCA through the Joint Task Force, through its component commands, as well as Service components and agencies. Joint user requirements are met in GCCS by finding and integrating the best of existing C/S/A systems and other C2 systems, or by showing the need to find or make an application or support system in response to a functional user requirement. The key elements of the GCCS requirements process are as follows:

    a. Requirements Process Goal. The goal of this process is to provide the smartest, most responsive method of integrating applications best meeting our warfighter's needs at the best dollar value of the life-cycle of the product. The chief consideration is to accurately define what the warfighter needs, find the best solutions government or industry has to offer, and make a decision using select judgment criteria to implement the most cost-effective solution. Necessary to develop smart solutions and integrate new joint requirements is a strong partnership of the program manager, the warfighter-user, and the Global Command and Control (GCC) management structure.

    b. Acquisition Methods and Oversight. In accordance with reference f, and described in detail in reference d, this requirements process can use innovative practices and new approaches to streamline the acquisition process, reduce infrastructure, and enhance customer service. The process in this manual uses an evolutionary acquisition strategy, under the management and oversight of Integrated Product Teams (IPTs). The resulting IPTs fall under the auspices of the Major Automated Information System Review Council (MAISRC) and ASD(C3I).

    c. Requirements Determination. Users must first assess mission needs to determine if they can be satisfied by nonmateriel solutions, such as changes in doctrine, operational concepts, tactics, training, or organization. If users can not satisfy mission needs by nonmaterial solutions, they can try a new requirements definition.

    d. Inputting Joint GCCS Requirements. GCCS users send new joint requirements to the Joint Staff through their appropriate CINC, Service, or agency office of primary responsibility (OPR), or GCCS

working group. The description of the requirement, including candidate applications, is then submitted via the GCCS Requirements Data Base (GRiD) for processing. If a GCCS working group identifies a new requirement, the working group is responsible for inputting the requirement into GRiD and performing initial validation before the Assessment I stage. The GCC management structure validates, assesses, approves, ranks, and selects the best capability to satisfy user requirements for submission into the applicable Evolutionary Phase Implementation Plan (EPIP). The EPIP is a contract to set up a performance baseline among the entire user community, or stakeholders, which includes the Joint Staff, DISA, developers, and C/S/A. The EPIP summarizes how to satisfy requirements and by whom, the associated costs of development, risk of implementation, economic analysis associated with implementation of the GCCS phase, testing of the technical solutions, and the schedule for completing the phase. Also, the EPIP gives developers the opportunity to take advantage of emerging technologies, keeping GCCS functions fresh. Validation of requirements and integration of the resulting applications to GCCS will be consistent with GCCS development and implementation plans approved by the GCC OPR, the Joint Staff J-3, in accordance with reference a. At a minimum, requirements should support the GCCS goals in this manual.

e. <u>Service- or Agency-Specific Requirements.</u> Only joint requirements need to go through the process described in this manual. Services and agencies are encouraged to have a similar process of working Service- or agency-specific requirements as described in this manual. New requirements should strive to improve these areas:

   (1) Improve the timeliness and accuracy of information to decision makers and the means to send out resulting decisions.

   (2) Enhance and speed the decision cycle to operate within the adversary's decision cycle.

   (3) Improve interoperability among forces (CINCs, components, national organizations, coalition, and allied).

   (4) Meet the C2 requirements of the NCA and joint command levels down through the Joint Task Force component commanders. Improve the common situation awareness to enhance national and military leaders' ability to perceive, convey, and share ideas and knowledge.

(5) Supply a fused, real time, true representation of the warrior's battles pace (integrated RED/BLUE/GRAY picture) to establish a dominant battlefield awareness.

(6) Improve the ability to coordinate, order, and respond vertically and horizontally to the degree necessary to prosecute the mission in the battlespace.

(7) Improve the mobility and agility of the deployable C2 force.

(8) Reduce life-cycle costs such as future maintenance or training.

(9) Improve C2 infrastructure support ability and flexibility in any environment.

f. <u>Application Evaluation</u>. Guidance, evaluation criteria, and various checklists are provided to assist GCC Working Groups and IPTs to evaluate and set priorities on requirements and associated or proposed new applications. After an initial validation, two assessment phases examine the suitability of candidate applications in terms of functional effectiveness, cost to implement and support, and technical feasibility.

g. <u>Application Selection</u>. In the assessment phases, a selection process will occur to select the application or multiple applications that best satisfy any requirement. To find the best fit of application to requirement, working groups or appointed lead elements (see definitions) should search government and commercial sources to find applications that may meet requirements under evaluation. Working groups should make objective and meaningful selection criteria and/or decision tools to select the application best meeting user and joint community requirements. It is important to the requirements process for working groups to work off the same base of facts. Decisions must be based, at a minimum, on criteria that consider the ability to fulfill requirements defined by the customer, cost to implement, and risk analysis. Working groups may choose to modify candidate applications under evaluation to meet other validated requirements in the system, as long as customers agree modifications meet all requirements.

h. <u>Configuration Management</u>. New candidate applications must meet all configuration management items developed by the DII COE Configuration Control Board, the GCC management structure, and be at least level 5 DII COE compliant. If a Service-unique application has joint utility, other C/S/A may use this requirements process to

possibly adapt or modify the Service application for joint use. The GCC management structure may, in turn, appoint the Service as the lead element for implementation. Configuration management will provide the appropriate process to handle configuration control of all source documentation.

i. New Developmental Efforts. A major goal in the initial implementation strategy is to determine if modification of existing applications satisfy requirements to lessen new developmental efforts. Working on new developmental efforts will only be done when they are the most prudent, appropriate, cost-effective, and efficient method to satisfy new requirements.

j. Changes to GCCS. Generally, there are three categories of changes that will prompt a revision to the GCCS operational environment, many of which may be included in a new run version:

   (1) Approval of new joint requirements.

   (2) Implementation of Change Requests (CRs) and Problem Reports (PRs) (Note: send PRs and CRs to the DISA GCCS Management Center (GMC).

   (3) Approved technical or functional modifications.

Being able to identify the correct category for a change is important, because each is handled differently in the process. Refer to Enclosure C and paragraph 2 below for the meaning of each category and how to handle them.

2. Definitions.

   a. Acquisition Category (ACAT). Categories for acquisition programs are based upon size and complexity. GCCS is designated an ACAT 1M for which the Milestone Decision Authority (MDA) is ASD(C3I). The "M" refers to Major Automated Information Systems Review Council (MAISRC).

   b. Change Requests and Problem Reports. CRs are updates, modifications, or enhancements to existing applications made to meet current requirements. PRs are changes necessary for resolution of existing modules. Such changes normally do not significantly change the GCCS baseline or require an evolutionary build. CRs are normally not generated to fulfill new requirements if they change the baseline of

the GCCS data base, or are technically difficult, costly, and time consuming.

c. Common Operational Environment (COE). COE establishes an integrated software infrastructure that facilitates the migration and implementation of functional mission applications and integrated databases across information systems throughout the Defense Information Infrastructure (DII). The DII COE provides architectural principles, guidelines, and methodologies that assist in the development of mission applications software by capitalizing on a through and cohesive set of infrastructure support services. The DII COE architecture is made up of a kernel application that supplies the basic operating system services and two principle components: (1) Common Support Applications, and (2) Infrastructure Services.

d. Configuration Item (CI). CI is an aggregation of hardware, software, processed materials, services, or any discrete portions designed for configuration management and treated as a single entity for configuration management process.

e. Configuration Management (CM). CM is a management discipline applied to technical and administrative direction to the development, production, and life-cycle support of a configuration item. The discipline is applicable to hardware, software, processed materials, services, and related technical documentation. The application of CM for GCCS is a method to make changes to the operational GCCS in the field without detriment to the operational state of the baseline.

f. Commercial off-the-Shelf (COTS) Applications. COTS applications are purchased from and licensed by their manufacturers. Changes to COTS software baselines, other than those required by the DII COE Integration and Runtime Specification (I&RTS) segmentation process, will consist of vendor version upgrading or problem fixes by the vendor. DISA will be the sole authority responsible for coordinating resolution of CRs or PRs with the COTS products vendor.

g. Defense Information Infrastructure. DII is a DISA and OSD(C3I) approach for building interoperable systems with a collection of segmented software components. It includes a software infrastructure for supporting mission applications and a set of guidelines and standards. The guidelines and standards specify how to integrate existing software and how to properly build new software to make integration seamless and, if at all possible, automated. During the

assessment phases, new GCCS requirements will receive a rating of one of eight levels of DII COE compliance.

h. Evolutionary Acquisition Strategy . This strategy is a streamlined, flexible, and evolutionary acquisition framework using an acquisition strategy under the management and oversight of an IPT. This process takes advantage of emerging technology to enhance functionality. The evolutionary approach is characterized by the design, development, and deployment of a preliminary capability using current technology. This approach includes provisions for the evolutionary addition of future capabilities as requirements are further defined and technologies mature. This strategy maximizes the use of proven state-of-the-art technology.

i. Evolutionary Phase Implementation Plan (EPIP). EPIP is a contract, with the customers, OSD, DISA, and the Joint Staff as stakeholders, that identifies cost, performance, schedule, test, risk, and budgetary information for implementation of new requirements. The EPIP is specific in nature and provides a plan that identifies all necessary criteria for successful completion of a particular implementation phase. EPIPs are phased actions geared toward meeting the requirements outlined in the Requirements Implementation Document (RID).

j. Integrated Product Team . The Secretary of Defense has directed the Department of Defense to perform as many acquisition functions as possible, including oversight and review, using IPTs. IPTs will function in a spirit of teamwork, with participants empowered and authorized, to the maximum extent possible, to make commitments for the organization or the functional area they represent. IPTs consist of representatives from all appropriate functional disciplines working together to build successful programs and enabling decision-makers to make the right decisions at the right time. Reference d contains specific procedures on how IPTs operate. The three types of IPTs are:

   (1) Overarching IPTs (OIPTs). OIPTs focus on strategic guidance, program assessment, and issue resolution. The OIPT is chaired by ASD (C3I). The OIPT is the decision making body and approval authority for the RID and EPIP.

   (2) Working-Level IPTs (WIPTs). WIPTs find and resolve program issues, determine program status, and seek opportunities for acquisition reform.

(3) <u>Program IPTs.</u> Program IPTs focus on program execution, and may include representatives from both government, and, after contract award, industry.

IPTs are an integral part of the defense acquisition oversight and review process. For programs designated as ACAT lAM, such as GCCS, there are generally two levels of IPTs: OIPTs and WIPTs. For each program, there will be an OIPT and at least one WIPT. WIPTs focus on a particular topics, such as cost, performance, risk analysis, test, and economic analysis.

k. <u>GCCS Application</u>. Any software module or modules that provide functionality to fulfill a GCCS requirement.

l. <u>GCCS Approval Authorities</u>. The responsible authority in each C/S/A that can submit new requirements into GRiD. Each C/S/A appoints an approval authority to validate and approve new GCCS requirements for submission into GRID. Each organization may delegate this function as needed—approval authorities must be at least the 0-6 level. The preferred method is to appoint one section in each C/S/A to act as a clearing house in submitting joint requirements.

m. <u>GCCS Joint Requirement</u>. A joint requirement demands a change to the GCCS baseline or starts a new evolutionary build. New joint requirements are submitted to J-33/CSOD through the GRiD described in Enclosure E and according to the procedures in this manual.

n. <u>Government off-the-Shelf (GOTS) Applications</u>. GOTS are government owned and developed applications.

o. <u>Lead Element</u>. A CINC, Service, or agency designated the responsibilities by a GCCS working group to carry out assessment or other assigned functions.

p. <u>Migration</u>. Migration is a process of making an application DII COE compliant.

q. <u>Major Automated Information System Acquisition Program Review Council (MAISRC)</u>. MAISRC is the senior DOD automated information systems acquisition review board chaired by ASD (C3I). MAISRC advises ASD (C3I) on major decisions on individual automated

information system programs, specifically, and AIS acquisition policies and procedures.

r. <u>Modification of Existing Requirement or Technical Implementation</u>. A modification to an existing requirement is a change in functionality that may require more than minor alterations to an application. Modifications are different from CRs because of the technical difficulty of implementation, associated funding, and possible impact on other functions. Modifications require an assessment from the GCC management structure to determine the best implementation.

s. <u>Requirements Implementation Document</u>. RID is a living document providing broad overarching requirements for GCCS. It describes future warfighter requirements validated and ranked by the Joint Staff J-3, and agreed to by the stakeholders. The approval authority for the RID is ASD (C3I). To complete objectives in the RID, many phases or EPIP documents may be necessary.

t. <u>Users</u>. Users are any organizations or individuals that use GCCS to oversee, conduct, and support C2 activities. In the context of this manual, principal users are the NCA, C/S/A, and the Joint Staff. User participation in requirements definition, throughout evaluation, development, and fielding of applications, is critical to the successful implementation of GCCS requirements.

ENCLOSURE B

RESPONSIBILITIES

1. GCCS Functional Requirements Responsibilities. This manual identifies responsibilities regarding the definition, submission, validation, assessment, prioritization, funding, and development of new GCCS requirements. The GCCS management structure, including specific management responsibilities as it pertains to GCCS, can be found in reference a.

   a. Requirements Submission. All C/S/A and GCCS working groups may input requirements for GCCS. The submission must be endorsed at the O-6 level (GCCS Review Board Member or Working Group Chair) or above, to the Joint Staff, J-33, Command Systems Operations Division (CSOD). The preferred method is to establish an approval authority as the OPR in each C/S/A to act as a clearing house for joint GCCS requirements submission. Once approved for submission, it must be entered into GRiD to start the requirements process. Management reports in the GRiD will be used to keep the cycle time for the requirements process down. Information on GRiD and how to input requests is at Enclosure E.

   b. Funding. Funding responsibilities are according to the guidance contained in reference b.

      (1) Services and agencies supporting GCCS will establish GCCS program management offices (PMOs) to implement GCCS. The PMOs will manage all Service- and agency-sponsored commands and organizations, including support to combatant commands and combined joint task force commands to the lowest level requiring GCCS capabilities. GCCS PMOs within the Services and agencies will meet on a periodic basis and report efforts to ASD (C3I).

      (2) Each Service will consolidate all funding in support of GCCS to the Service GCCS Program Element (PE). The PEs will include all resources required to support life cycle management of the GCCS, to include all appropriations necessary for the continued support and evolution of GCCS. The PE will include all resources assigned to life cycle support of Defense agency-sponsored C2 programs, that support GCCS and the former WWMCCS ADP programs.

(3) DISA will program funds for implementation of its responsibilities within the DISA GCCS spending plan. DISA is responsible for systems management life-cycle support of Joint applications, assessment of CINC and Service applications, architectural and standards definitions, management of the COE, data standards, configuration control, systems engineering, interoperability testing, software testing, and release. DISA has the responsibility to ensure the certification and compliance of Service and agency systems to GCCS standards, to build joint GCCS applications.

(4) Service and CINC requests for GCCS upgrades or replacements to any Service-unique C2 requirements will be assigned to the corresponding MILDEP. Joint Staff and CINC sponsored changes will be assigned to a lead MILDEP by ASD(C3I).

(5) Organizations selected as executive agencies to field applications on GCCS must program funds for operations, maintenance, and modification of the applications. Funding from Services and Defense Agencies (other than DISA) is not controlled by the GCC management structure. Normally, CINCs will not be assigned the role as an executive agent.

(6) Organizations nominating applications to GCCS must ensure compliance with applicable Service acquisition and operations activities consistent with title 10, United States Code, Armed Forces responsibilities.

c. OPR Responsibilities. The J-3 executive agent for GCCS is J-33, CSOD. That office is responsible for the oversight of the requirements process. J-33 will:

(1) Review the requirements data base weekly, ensuring all new requirements are assigned to an appropriate working group.

(2) Consolidate and aggregate like requirements entered into the GRiD for action by the appropriate working group.

(3) Advise the chair of the GCC Review Board for possible formation of an ad-hoc working group for requirements not fitting into one of the existing working groups.

(4) Provide quarterly reports via GRiD to the Chair of the GCC Review Board and other working group chairpersons on new requirements and forward them to the appropriate working group chairperson for action.

(5) Track the status of all requirements from identification through fielding and advise users quarterly of the status of all requirements submissions via GRiD. The tracking system must be integrated with the master configuration management data base maintained by DISA.

(6) Provide an update on status of migration, modification, and development efforts for each GCCS Review Board meeting.

(7) Provide final resolution on coordinated requirements within the GCCS OIPT.

d. Customer Involvement and Responsibilities. Organizations submitting requirements must provide a point of contact (POC) who can participate through the validation and assessment process. POC's or requesting organizations must:

(1) Focus the requirements definition on the needed warfighter capability. Ensure requirements definitions are complete and accurate.

(2) Monitor the assessment process, ensuring the final validated requirement satisfies user requirements as the function migrates into GCCS.

(3) Submit any information on known applications satisfying the requirement. If known COTS, GOTS, or other existing applications in other CINCs or Services best satisfy the requirement, recommend one of those. Applications must meet current DII COE compliance standards for consideration.

(4) Budget funds for travel to participate in the validation process.

(5) Provide functional expertise on functions not familiar to GCC working groups.

(6) Coordinate with the GCCS Operational Testing Authority (OTA) to define testable criteria associated with the requirement.

e. <u>GCC Working Group Responsibilities</u>. Various GCC working groups exist as part of the GCCS management structure, as either functional or ad hoc. Each working group has an Assigned Working Group Chair (AWGC) or is co-chaired. Each AWGC or co-chaired will:

(1) Input new requirements upon appropriate definition into GRiD.

(2) Establish liaison with other working groups that may have an overlapping interest in the requirement.

(3) Update status changes to GRiD as they occur.

(4)   Advise other interested working groups of the progress and schedule of validation efforts.

(5) Coordinate with CINCs, Services, GCCS OTA, and other agencies, as necessary, during the validation process.

(6) Convene their respective working groups to recommend validation of requirements submitted for GCCS.

(7) Perform a search for existing COTS, GOTS, or other applications that may better satisfy a requirement under consideration. Develop criteria to select the best application among a group of possible candidates for integration into GCCS.

(8) Determine if the requirement or proposed enhancement is valid by using the criteria in Enclosure A, and by asking the community most affected by the requirement for inputs. Working groups may choose to have the originator of the requirement demonstrate the utility of proposed applications to the warfighter.

(9) Inform the chair of the GCC Review Board and J-33, CSOD, of requirements or enhancements, that are not valid or need clarification.

(10) Input valid requirements to the GCC Review Board for signature.

(11) Coordinate with the GCCS OTA and customers to establish valid testing schemes for Operational Testing and Evaluation (OT&E).

f. Systems Integration Working Group (SIWG). The SIWG is responsible for all areas and issues relating to C4 systems integration. The SIWG coordinates its oversight efforts with the GCCS Project Manager (PM) to avoid duplication of effort, focusing its work on providing GCCS development requirements to the GCCS PM as outlined in reference a. DISA provides the GCCS PM. In addition to the oversight responsibilities of C4 systems integration, the SIWG will:

(1) Monitor the requirements process for requirements that require a technical modification to an existing application that may not be assigned to a functional working group. Technical assessment and cost analysis for requirements such as these will be the responsibility of DISA. Functional assessment will be assigned to a lead element or the submittor of the requirement.

(2) Monitor Advanced Concept Technology Demonstrations (ACTDs) and Leading Edge Services (LES) that enter into the GCCS requirements process.

g. Review Board Responsibilities. The GCC Review Board, as defined in reference a, is the final step in the validation process. The GCC Review Board will:

(1) Approve by signature validated requirements recommended for approval by working groups and the review board.

(2) Coordinate with the appropriate Joint Staff directorates concerning requirements that the GCC Review Board determines are not valid or need clarification. If necessary, return the submission to the sponsoring organization requesting further clarification.

(3) Return submissions to the sponsoring organizations the Joint Staff and the GCC Review Board determine are not valid for inclusion in GCCS, explaining the reasons why.

(4) Update GRiD, as necessary, for requirements approval.

(5) Establish a prioritized ranking of all requirements and update the list with each new approved requirement.

(a) Establishing Final Priorities. The GCC Review Board will use all previous recommendations of priorities as a starting point for developing a priority implementation list.

(b) Criteria for Determining Priorities. Using funding information, C/S/A inputs, recommended technical implementation, risk analysis, and other criteria, as needed, the GCC Review Board will make a rank order list of candidate applications for implementation in GCCS. The preferred method is to use quantitative decision tools, such as matrices, or any other decision tool, at the discretion of the working group chair to make a logical, fact-based rank order list. This list will provide key information for the development of the next GCCS EPIP.

(c) Annual Review. The GCC Review Board will annually audit the priority list, ensuring items low in the list are not overcome by technology or mission changes.

h. Executive Agents. Executive agents are responsible for developing and maintaining GCCS CIs. They will establish internal GCCS requirements validation, approval, and CM processes consistent with CM policies. They will fund for the operations, maintenance, and modification of applications chosen for inclusion into GCCS. Once an application integrates into GCCS funding, responsibility falls back to each the respective Service's PE, as outlined in Enclosure B, paragraph 1.b.(2).

i. GCCS Centralized Management Responsibilities. DISA is responsible for centralized migration management of joint applications for GCCS. DISA will:

(1) Perform technical assessments of all new requirements under evaluation in the review process. This assessment will include an analysis of the testing of technical solutions and the feasibility of implementing technical solutions.

(2) Provide cost benefit analysis of technical solutions, recommend the best technical solutions for overall GCCS implementation, and provide input to the GCCS review board on prioritization of requirements and associated technical solutions.

(3) Provide alternative solutions and recommendation of known applications for requirements under evaluation that may satisfy the requirement better, be more cost effective, or be more feasible to implement.

(4) Provide management of the EPIP process. Together, with the J-33, CSOD, provide appropriate coordination with ASD (C3I) for acquisition-related issues.

ENCLOSURE C

NEW REQUIREMENTS APPROVAL PROCESS

1. General

   a. Acquisition Oversight. Acquisition oversight for the GCCS program resides with the ASD (C3I), as detailed in references e and f. The oversight process is a streamlined approach, allowing joint requirements definition to go on in an evolutionary fashion. As GCCS progresses, the program will move toward a more streamlined MAISRC process with IPTs working major issues.

   b. Streamlined Acquisition Process. The design of the GCCS functional requirements process takes full advantage of the rapid change in technology and the streamlined MAISRC process and keeps pace with ever changing and expanding mission requirements. This design is a result of an Evolutionary Acquisition Strategy (EAS). EAS provides flexibility and responsiveness by integrating an infrastructure of area experts to provide swift and agile assessment, validation, and fielding of new requirements. This process consists of several phases, which new requirements can access at different levels depending upon the priority, risk, or level of difficulty of change. The phases are; requirements definition, validation, Assessment I, prioritization, Assessment II, and development (which includes operational test and evaluation and fielding). To enhance this entire process, customers are encouraged to field test new requirements, suggest COTS or GOTS software, or provide suggestions for technical solutions. However, requirements submission must include a good description of the required function addressed in terms of mission need or capability, rather than merely citing hardware or software technical solutions.

2. Requirements Definition. This is one of the most important phases and is key to review and validation of the requirement. The scale of new requirements range from completely new functions requiring full-scale development or acquisition to modifications or enhancements to existing functions. Some modifications or enhancements may fall into the realm of CM and will follow the processes that will be outlined in CM policy. PRs and CRs need to be worked through the DISA GCCS Management Center (GMC), they are generally not new requirements. PRs address problems with existing functions that do not meet the

requirements, for whatever reason, for which they were designed. CRs address changes to existing functions to enhance or provide additional capability. For CRs that arise that provide new functionality, may satisfy any part of a new requirement, and are significantly costly in technical and monetary terms, DISA and the Joint Staff will decide jointly how best to handle the CR. New requirement submissions should meet the intent of GCCS program goals and address mission needs or capabilities. The following checklist contains key elements to include in any new requirements submission and must be a part of the submission. Include these elements in the detailed description field of the GRiD program outlined in Enclosure E.

a. Describe and define the deficiency with respect to mission performance.

b. Describe the requirement in terms of functional capability.

c. Define the possible customer base that could or would use the new function.

d. If applicable, identify the requirement as either location specific, coalition, or combined.

e. List possible interfaces with other GCCS functions.

f. Exit criteria. Describe the new capabilities that will result upon implementation.

g. Name appropriate performance standards, associated measures, and minimum acceptable threshold levels of the resulting application.

h. Integration environment. Name any unique application required to perform the mission. Justify why existing similar systems do not satisfy requirement.

i. If the requirement is a modification to an existing system, ensure migration will be DII COE compliant. Provide the level of DII COE compliance.

j. Required interfaces beyond GCCS.

k. If the requirement will result in a Service-specific or site unique application to become a joint application, provide the specifics of the application's functions relative to the new joint requirement. Also, if available, cite source documents that may exist that provide reasons for this application to be a joint application.

l. Determining Priority. The next step is to determine the operational priority of the requirement. Use the following categories to determine priorities for new joint requirements submission:

(1) Category 1. Mission critical requirement essential to readiness, has a direct impact on warfighting capability. Requirement is proximate: needed immediately. Requirements are driven by the JSCP or are found in the CINC's Integrated Priority List (IPL), noted in the CINC's Preparedness Assessment Reports (CSPARS), or the CINC's Critical Item List (CIL).

  (a) 1.A. The present function does not exist on GCCS.

  (b) 1.B. The present function partially exists but all or most of the key elements of the new requirement are not satisfied.

  (c) 1.C. The present function exists but at least one key element of the new requirement is not satisfied.

(2) Category 2. Mission essential requirement, indispensable for maintaining sufficient military capability for mission performance. Requirement is pressing: needed no later than a future specified date. Some requirements that may be found in the POMs, tied to a Joint Strategic Review (JSR) issue paper, or top priority in the Joint Planning Document.

  (a) 2.A. The present function does not exist on GCCS.

  (b) 2.B. The present function partially exists, but all or most of the key elements of the new requirement are not satisfied.

  (c) 2.C. The present function exists, but at least one key element of the new requirement is not satisfied.

(3) <u>Category 3.</u> Significant enhancement. Necessary requirement to keep step with master plans, migrations, and POM initiatives. New requirement will represent a significant increase in mission capability or command and control.

    (a) 3.A. The present function does not exist on GCCS.

    (b) 3.B. The present function partially exists, but all or most of the key elements of the new requirement are not satisfied.

    (c) 3.C. The present function exists, but at least one key element of the new requirement is not satisfied.

k. <u>Technical Change Categories</u>. The final step of requirements definition is to determine the type of technical change necessary to achieve the requirement. This determination must parallel the priority category determination of existing functions on GCCS. Select one of the categories below and provide supporting information as to why the respective technical change applies in the Detailed Description field of GRiD outlined in Enclosure E. There are generally four types of technical changes that will determine which phase of the process the requirement will start.

(1) <u>New Requirement No Precedent</u>. In this case, the requirement is a totally new requirement--there are no existing applications on GCCS that can perform the necessary functions. The requirement will require totally new software or functions. This is a new requirement that will start with validation, but will require a good description of the required function(s) or capabilities.

(2) <u>Modification of Existing Function</u>. In this case, an existing function can be modified to perform the new requirement. To fall into this classification, a major change in the existing software or data bases will effect a change in the GCCS baseline. This requirement will enter the Assessment I phase. This case will require a technical and cost analysis from DISA before proceeding to prioritization.

(3) <u>Modification of Technical Implementation</u>. In this case, existing COTS, GOTS, or minor software changes that alter the GCCS baseline satisfy the requirement. This may be a requirement that was successfully tested in a Joint Warfighting

Capabilities Assessment (JWCA) or an Advanced Concept Technology Demonstration (ACTD) with a C/S/A sponsor and shows great promise. In many cases, some of these functions may already be field tested by the customer and this represents final validation and approval for the entire system. This requirement can be evaluated, tested, and implemented easily and may preclude prioritization. This requirement will enter a shortened Assessment I phase in which DISA, in conjunction with a lead element or working group, will quickly review requirements, costs, technical feasibility, and CM.

(4) Hardware or Software Upgradings. In this final case, necessary hardware and software changes to existing GCCS elements are needed to enhance or provide new functionality. This excludes CRs and PRs. In some cases, the next version of COTS or GOTS software provides enhancements necessary to provide increased capability. Some enhancements could be upgrading hardware to increase speed or capacity. This requirement will be scheduled for development and fielding. This type of change will demand a change to the existing GCCS baseline.

3. Validation. The validation phase confirms requirements definition is complete, the priority assigned in GRiD by the user is correctly applied, and initial technical evaluation assigned by the customer is correct. This initial validation is really a confirmation that the requirement is ready to begin the process. This step is the responsibility of the J-33, CSOD, or the respective working group, if the requirement is submitted by a working group. If the requirement submission did not come from a working group, depending upon the functionality of the requirement, CSOD may assign the requirement to an existing or ad-hoc working group, if necessary. The working groups will then perform an initial review and assessment of the requirement.

(a) Assignment of an Executive Agent or Lead Element. Throughout the requirements process, but as early as validation, working groups may assign an executive agent or lead element to perform some or all of the functions of assessment, testing, and development, as necessary. Lead element responsibilities usually will entail searching, evaluating, and testing of candidate applications or lead development actions of technical solutions. Executive agents will normally perform more actions than a lead element, including development of technical solutions, technical analysis, and on-line performance testing. The decision to assign

executive agent responsibility to a Service may have to be made at the GCC review board level. Executive agents or lead elements will work under the supervision of working groups and perform functions tailored to the situation. For instance, a Service element may take on the role of an executive agent or lead element when requesting a Service-unique application be made a joint application.

(b) <u>Exit Criteria for Validation</u>. To move on to Assessment 1, the following must be complete:

(1) Requirements definition is complete.

(2) The priority is correctly applied.

(3) Initial technical evaluation is complete and correct.

(4) Assignment to a working group.

3. <u>Assessment I</u>. This phase is a quick verification that certain conditions exist in order to warrant more serious analysis and assessment. Also, in this phase, a preliminary technical solution is made. In this stage, GCCS working groups:

a. Determine the extent to which existing applications provide the necessary functions of the new requirement.

b. Verify the customer applied the correct priority criteria.

c. Identify CRs and PRs mistakenly submitted as requirements and route them to DISA for action.

d. Solicit other C/S/A for similar new requirements to compare with for selection of the best technical solution or application for implementation.

e. Route the requirement to the following organizations or teams for each respective function listed:

(1) DISA for analysis of the feasibility of development and initial determination of the OT&E strategy. For smaller, well-developed COTS and GOTS applications, perform initial testing, if practical.

(a) Early testing may be appropriate at this time if applications on hand look promising, time and costs permit, and there is an urgency to fill the requirement. The fundamental purpose of test and evaluation (T&E) in this stage is to show the areas of risk to be reduced or cut early in the process.

(b) Assessment I early testing is conducted to demonstrate the feasibility of conceptual approaches, evaluate design risk, find design alternatives, compare and analyze tradeoffs, and estimate satisfaction of operational requirements.

(2) DISA for configuration management in accordance with current CM policy.

(3) Appropriate IPTs for preliminary cost, schedule, economic analysis and other issues, as necessary. For example, the Risk Working-level IPT (RWIPT) will provide a quick risk analysis (an in-depth analysis will occur in Assessment II, if necessary). Final outcome of WIPTs work, in conjunction with DISA, will provide a risk profile of either low, medium, or high for implementation that considers:

   (a) Cost of implementation and affordability.

   (b) Degree of difficulty of change to GCCS baseline.

   (c) Timelines of implementation.

   (d) Technical feasibility of implementation.

   (e) Comparison of all resource expenditures versus expected mission payoff.

   (f) Life cycle support and affordability.

(4) RWIPT for risk analysis. In conducting risk analysis, a decision matrix is an effective methodology for managing program risks, and is a good tool for streamlining the process. The matrix can serve to quickly focus the team on selecting a specific set of evaluation criteria to address the program risks. The final result, combined with the priority assigned by the customer, will become key decision elements in determining priority. Teams working risk analysis should use decision matrices or another fact based

decision tool as a primary method to conduct analysis and provide a risk profile.

7. <u>Exit Criteria for Assessment I</u>. The final outcome of Assessment I is a preliminary technical solution, a simple risk profile that includes verification that the technical solution is, or can be made, DII COE compliant, is cost effective to implement, is economically and technically feasible, and can be implemented in a reasonable time. The assigned working group, in conjunction with the originator of the requirement, makes the decision that all elements of Assessment I are complete.

8. <u>Prioritize Requirements</u>. In this phase, working groups provide the GCC Review Board priority recommendations of new requirements. In making ranking recommendations, working groups will use the risk profile as one of the major factors of consideration. The validated customer-assigned priority should provide a good starting point for this process. To move on to Assessment II, the application of the associated requirement must be high enough in the prioritization list to warrant integration into GCCS.

9. <u>Assessment II</u>.   This phase is a detailed shakedown of the candidate application or proposed technical solution, with the assumption that it is headed for final development. In other words, the technical solutions are technically and economically feasible to implement at this time and will provide the warfighter the necessary functions described in the requirements. In this phase, DISA, the Joint Staff J-6, and any lead elements or executive agents will confirm architectural direction, select system hardware and software design, and build and test the architecture. DISA will determine architecture requirements before designing. The preferred method is on-line testing in an active environment by one Service or agency. Use of real data will provide the best possible test of the new application. If all or part of the new application does not exist for testing but needs full scale development, the assessment may begin with testing of a mock-up configuration. Two other actions will occur during the Assessment II phase:

   a. <u>Operational Testing and Evaluation (OT&E)</u>. The degree of OT&E of each new requirement is determined by the associated level of risk and the degree of compliance of the application under assessment. Assessment II should provide all the information necessary to develop a detailed risk analysis and degree of compliance of the candidate application. If more information is needed before testing, DISA will work with the appropriate IPT to complete the necessary

study. Consideration should be given to combining developmental testing (DT) and operational testing (OT) to streamline the process.

b. <u>Training.</u> A training concept of operations (CONOPs) is prepared in Assessment II, with heavy consideration given to providing some training during DT and OT.

10. <u>Exit Criteria for Assessment II</u>. The final outcome of Assessment II is a staffed and approved EPIP.

11. <u>Development</u>. This phase includes resolving any user design issues and developing the technical detailed design for each application. Once the design is complete, either DISA or an appointed lead Service or agency will produce user procedures and training materials, plan and implement any final system testing, and file conversions. Upon development, the system is prepared for implementation and system performance measures are applied, ensuring the application meets customer requirements. Implementation may include integration of existing GOTS or COTS software into GCCS and preparation of the environment (space, power, etc.).to ensure it is fully ready for the new system operation.

APPENDIX A TO ENCLOSURE C

SELECTION OF THE BEST FIT APPLICATION

1. <u>Selection Process</u>. To ensure only the best possible known applications reside on GCCS, working groups will use a selection process that strives to select leading applications or technical solutions to fill requirements. Working groups may assign a lead element or executive agent to work the actual process. The lead element could be the customer, a Service component, a panel of the working group, or any other appropriate agency that can best perform the process tailored to the requirement. A validated requirement should lead to the search of candidate applications or technical solutions best meeting the requirement. Even if the requirement's sponsor provided a candidate application, a search should take place to ensure there are no other applications that might better fill the requirement in terms of functionality, cost, time to deliver, and ability to support. In striving for the goal of C4I For the Warrior, working groups will coordinate with other DOD organizations, where possible, to reduce, and eventually eliminate, duplication of effort, stovepiped systems, and conflicting standards. The final recommendation of the best fit to the GCC Review Board is determined by the stakeholders.

2. <u>Goal of the Selection Process</u>. The goal of the selection process is to make the smartest, most responsive selection of the best goods meeting the warfighter's needs at the best dollar value of the life cycle of the product. In short, to find the best fit of an application to fill the needs of the warfighter.

3. <u>Selection Criteria</u>. All candidate applications must be DII COE compliant to the current acceptable level before integration into GCCS. Each requirement will have its own unique parameters that will drive the selection process. Along with the requirement's parameters, key selection criteria should include at least these factors:

   (a) Implementation factors of cost, technical feasibility, and time.

   (b) Utility to the joint community.

   (c) Perceived endurance of the application (e.g., will this application last a long time or need frequent updates?).

   (d) Flexibility of the application.

(e) Ease of use (is it intuitive or will it require extensive training?).

(f) Compatibility with other applications (is it stand-alone, or can outputs be used in other applications?).

(g) Scaleability.

(h) Supportability.

4) <u>Searching for the Best</u>. The cycle time from requirements submission to approval needs to be as short as possible to make GCCS a viable system. Therefore, searches for possible candidates need not be exhaustive, but sufficient enough to ensure we do not to overlook more cost-effective and robust applications. The best fit search process and cycle time should be tailored to the urgency and importance of the requirement. Also, to ensure broad and robust GCCS evolution and prevent parallel development of similar applications, searches need to occur across the Department of Defense. Working groups should ask for inputs for candidate applications for new requirements across the user community. In addition to the user community, working groups or lead elements can search for possible candidates from these sources:

(a) Organizations such as the Defense Advanced Research Projects Agency (DARPA) or any federally funded research organization.

(b) Government software development agencies.

(c) Advanced Concept Technology Demonstrations (ACTDs). ACTDs provide the opportunity to streamline the development process. The ACTD process permits early and inexpensive evaluation of mature advanced technology to meet the needs of the warfighter. Working groups must ensure, however, when using ACTDs as a source that the requirement drives the process and not the technology. If an ACTD looks promising, it may be appropriate to encourage the customer to sign up as the sponsor if the program does not already have one. CINCs may act as the sponsor of an ACTD project. The ACTD program usually will leave up to 2 years worth of additional funding after program acceptance, before that funding runs out the Service Program Elements will need to begin the POM process for life cycle support. The entry point for ACTDs is the GRiD, providing there is a sponsor for the ACTD. The Systems Integration Working Group (SIWG) will assist J-33, CSOD, in assigning a functional working group the task of taking the ACTD through the GCCS requirements process. The SIWG will monitor the progress of the requirements
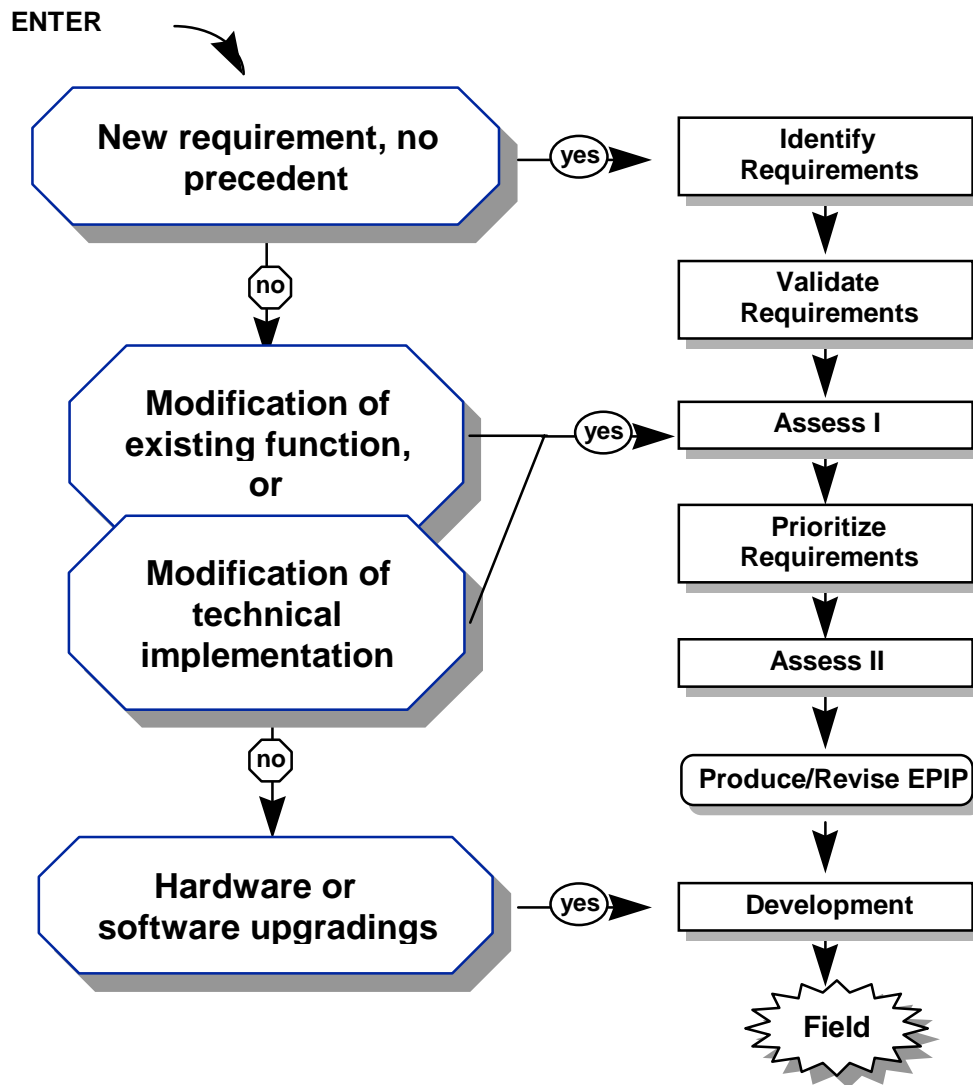
process to ensure that the ACTD process and the GCCS requirements process are cohesive and that assessment information is shared.

(d) Commercial software firms. Commercial software can provide a wealth of functionality, however, care must be taken to ensure that the software is DII COE compliant to the appropriate level, that future mission changes won't result in expensive modifications to the applications, and that proprietary laws (e.g., exercise caution with COTs products that use proprietary protocols embedded in the software) are closely followed. It may be appropriate to engage legal checks on commercial software licensing early in the process.

ENCLOSURE D

FUNCTIONAL REQUIREMENTS PROCESS FLOW CHART

1. The GCCS requirements process shown here was taken from reference c. This flow chart shows a graphic representation of the process GCCS requirements follow from identification to fielding.

ENTER

| New requirement, no precedent | —yes→ | Identify Requirements |

no

| Modification of existing function, or | —yes→ | |

| Modification of technical implementation | | |

Validate Requirements

Assess I

Prioritize Requirements

Assess II

Produce/Revise EPIP

no

| Hardware or software upgradings | —yes→ | Development |

Field

Enclosure D

(INTENTIONALLY BLANK)

ENCLOSURE E

GCCS REQUIREMENTS DATA BASE (GRiD)

1. <u>General</u>. GRiD is a data base management system supporting the submission, validation, and oversight of GCCS functional requirements. GRiD is an application on the SECRET internet protocol (SIPRNET) accessed through the NMCC GCCS homepage on a GCCS workstation. GRiD allows several functions that do not require a User ID or a Login ID: input new requirements, open saved requirements, search database, and management reports. Staffing and most management functions are only accessible to GCCS working groups, J-33, CSOD, or system administrators. J-33, CSOD, will manage the GRiD database, fusing like requirements together and combining them into broader categories for action.

2. <u>Approval Procedures</u>. Generally, inputs into GRiD can only come from established approval authorities from each working group or C/S/A. Each C/S/A will need to appoint an approval authority to handle inputs into the GRiD at the planner level. While anyone may use GRiD to draft requirements, only established approval authorities may submit the request to begin the process. Report the name or names of the GRiD approval authorities for each C/S/A to J-33, CSOD, for assignment of a password for access to special GRiD functions. Once requirements finish all steps in the GCCS requirements process, and are recommended for approval by the review board, the recommendations are briefed to the GCC Advisory Board for inclusion into the most appropriate EPIP. The EPIP is the implementation vehicle for all requirements into GCCS. Once an EPIP is built and fully coordinated, it is sent to ASD(C3I) for approval and signature.

3. <u>Input New Requirement</u>. Before inputting a new requirement, ensure all necessary information is on hand to complete the request, if at all possible. The more complete the information, the quicker validation can begin. While GRiD allows for saving of incomplete requirements, they cannot be worked until all required information is put into the data base. The following information is required information on mandatory fields, that must be complete before validation of requirements can begin:

    a. Command or organization.

    b. First name.

    c. Last name.

d. Address.

e. Title or name.

f. Functional name.

g. Short description.

h. Detailed description.

3. <u>Entering Information</u>. GRiD provides prompts making data entry easy. However, there are a few areas, if defined up front, that will ease the process. Other than assigning a priority as defined in Enclosure C, determining the functional area is critical to the assignment of a working group for assessment. Selecting the field "Functional Area" in GRiD will provide the most current list of functional areas corresponding to working groups. If no functional area applies, select the field "other" and provide a suggested functional area in the detailed description.

(INTENTIONALLY BLANK)

ENCLOSURE F

REFERENCES

a. CJCSI 6721.01 Series, "Global Command and Control Management Structure."

b. ASD (C3I) memorandum, 26 June 1995, "Management and Life-Cycle Support for the Global Command and Control System."

c. Document: GCCS OIPT Briefing by J-33, CSOD, to ASD (C3I), 17 September 1996, "GCCS Evolutionary Acquisition Strategy."

d. ASD (C3I) Document, November 1995, "Rules of the Road, A Guide for Leading Successful Integrated Product Teams."

e. DODD 5000.1 15 March 1996, "Defense Acquisition."

f. DODD 5000.2-R,1996, "Mandatory Procedures for Major Defense Acquisition Programs and Major Automated Information Systems."