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# **Net-Enabled Command Capability COST CONTROL PLAN (CCP)**

**Version 1.0**

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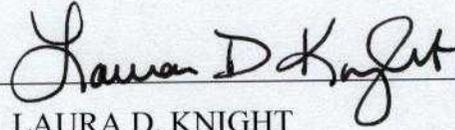
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APPROVAL PAGE

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## EXECUTIVE SUMMARY

Net-Enabled Command Capability (NECC) is an Acquisition Category (ACAT) ID pre-Major Defense Acquisition Program (MDAP) as well as a pre-Major Automated Information System program under the leadership of the Defense Information Systems Agency (DISA), in partnership with Department of Defense (DoD) Services. NECC is envisioned to become DoD's principal Command and Control Capability (C2C).

The purpose of the NECC Cost Control Plan (CCP) is to document the approach to maintaining cost, schedule, and performance as the Joint Program Executive Office (JPEO), Joint Program Management Office (JPMO), and Component Program Management Offices (CPMOs) execute the NECC program. This CCP addresses the entire program lifecycle: system development and demonstration, production and deployment, and operations and support. Information gathered by executing the processes documented in this plan will be used by the DoD for future estimating purposes.

The NECC program develops net-centric capabilities as loosely-coupled services using a Service Oriented Architecture (SOA). NECC is developing software and has no hardware development activity. The JPMO acts as the system integrator for the developed software, as opposed to a traditional Lead System Integrator (LSI) contractor. Given these tenets, the CCP has been adapted to provide an innovative approach to meet the management needs of the NECC program.

The CCP describes a metrics-oriented approach to cost control. These metrics measure the deliverable product, amount of effort, time (milestones), and defects or changes in the major elements of the NECC program. These elements are separated into two major layers: (1) those engineering and acquisition related tasks managed and led by the JPMO, and (2) the software development related tasks managed and led by the various CPMOs. The metrics collected in the two layers provide, in total, a tailored set of cost control activities that meet the intent of Office of the Secretary of Defense (OSD) guidelines for cost control and earned value reporting, as well as providing a set of predictive indicators for use by the various stakeholders within NECC.



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## 1 PURPOSE

The Net-Enabled Command Capability (NECC) program rapidly delivers continuous Command and Control (C2) enhancements to the Warfighter using an innovative strategy to acquire and implement leading edge C2 technologies and capabilities. The program's cost control plan provides the methodology by which the NECC Joint Program Manager (JPM), supported by the Component Program Managers, reviews and manages cost, schedule, and performance in order to bring the program to a successful conclusion within its established baselines. This document describes the cost control methodology.

## 2 PROGRAM OVERVIEW

In order to understand the cost control process, it is necessary to understand the NECC program and Acquisition Strategy (AS). The NECC program seeks to tailor the Department of Defense (DoD) acquisition process, which will allow the program to acquire state of the art net-centric software technology more rapidly and economically. There are numerous distinct aspects of the NECC Acquisition Strategy that take advantage of the flexibility provided in the DoD 5000 guidelines; one of which is this tailored Cost Control Plan (CCP).

Program Organization: The Defense Information Systems Agency (DISA) is the lead component with overall responsibility for NECC execution. DISA established the Program Executive Office (PEO) Command and Control Capability (C2C) as the NECC Joint PEO (JPEO) to provide program oversight. DISA concurrently established the Joint Program Management Office (JPMO) to manage acquisition requirements, implement the architecture, perform systems engineering, and sustain the capability on the Global Information Grid (GIG). Each Service branch and DISA established a Component Program Management Office (CPMO) that reports directly to the JPEO. They are responsible for Capability Module (CM) development and for implementing NECC services within their Component or Agency. CPMOs produce CMs for the entire program, resulting in centralized management of the program with decentralized execution through the Components. The organizations work in concert as a Joint program to produce capabilities rapidly as outlined in this document.

Operational Concept: NECC uses a Service Oriented Architecture (SOA), which is a single, net-centric services based architecture providing capability to the Warfighter through the GIG. Capabilities developed on this SOA provide the decision support infrastructure to access, display, and understand information necessary for the Warfighter to make efficient, timely, and effective decisions. The C2 capabilities in NECC provide DoD the means to achieve decision superiority in engagements, a key tenet of Joint Vision 2020.

Capability Module: The NECC program builds net-centric services as CMs, not as a large, completely integrated software system. CMs are small, loosely coupled, militarily useful pieces of software that reside on the GIG. The individual nature of CMs and the planned responsiveness to the Warfighter require agility and flexibility in NECC's development, contracting, testing, funding, and acquisition processes.

Systems Engineering: The NECC Increment 1 Capability Development Document (CDD) [7 June 2007] lays out the C2 needs for the Warfighter. Over the course of the program, requirements developers, through the Joint Combat Capability Development (JCCD) process, generate Capability Definition Packages (CDPs). Over time, NECC engineers perform standard

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Systems Engineering (SE) on these CDPs to produce a baseline set of CMs. The program then allocates CM development to the CPMOs via work packages. Work packages describe the development, integration, test, certification requirements, and implementation, including operations and sustainment, for the CM. Work packages address cost, schedule, performance requirements, shared resource coordination, and other agreements and dependencies required to produce and sustain the CM.

Work Packages: NECC's development process defines work packages over time. All work packages are not defined prior to Milestone B, but are developed over the course of the program's System Development and Demonstration (SDD) phase. This ongoing systems engineering analysis of each work package is different from a typical software development program.

Business Strategy/Contracting: Work packages define specifications, cost, and schedule agreements for CPMO's building CMs. The centralized management of the program allocates the work packages among the components, who then execute development on their contracts to produce a CM, which will be used by all partners in this Joint program. The NECC program does not use a single contract vehicle to develop CM software, but rather employs a modular approach to contracting. The CPMOs determine the appropriate contract vehicle to develop their allocated CMs. These contracting vehicles are typically multiple-award, Indefinite Delivery/Indefinite Quantity (IDIQ) contracts with a number of prime contract vendors. In general, they are available for use by any CPMO for NECC CM development. For an individual CM, a CPMO usually completes a task order under an IDIQ vehicle using the CM's work package. To monitor progress, NECC uses processes defined in this CCP, which have been tailored to the reporting needs associated with small development contract task orders.

Development: The JPMO manages the software development process and software production activities for the program. The developmental process includes Capability Provisioning Activities (CPAS), which are net-centric processes for maturing CMs from initial conception to operational support of the Warfighter on the GIG. The process makes use of the Federated Development and Certification Environment (FDCE), which is a virtual environment that exists on the GIG and addresses the challenges associated with developing and certifying net-centric capabilities in support of CPAS. As with any developmental activity, developmental and operational Test and Evaluation (T&E) is conducted. NECC T&E uses the FDCE, which also supports CM certification and accreditation activities. Once a CM passes the required tests and is certified and accredited, the Milestone Decision Authority (MDA) will make the decision to field the capability via the GIG.

Implementation and Sustainment: With a successful fielding decision, the JPMO makes Increment 1 capabilities available at all Enterprise GIG Computing Nodes (GCNs), and services/components make these selected capabilities available at local nodes through the implementation process. Once fielded, various providers sustain the CMs. A centralized NECC enterprise strategy for managing sustainment organizations was developed from lessons learned during the Technology Development (TD) phase. The Integrated Logistic Support (ILS) activities for NECC are spread across many materiel providers managed by their assigned CPMOs. These organizations are responsible for CM core sustainment while the NECC JPMO is responsible for sustaining NECC infrastructure activities, such as the FDCE and the Operations Center.

### 3 COST CONTROL PLAN OVERVIEW

NECC creates a set of loosely coupled services in software CMs integrated into an SOA accessible through the GIG. The program uses IDIQ contract Task Orders (TO) to procure CMs. None of these TOs are large enough in scope to meet the threshold for using DoD standard Earned Value Management Systems (EVMS), and to do so would be cost-prohibitive and likely ineffective. The NECC program does not employ the DoD mandated EVMS for contracts greater than \$20M in then-year dollars since it is not applicable; however, the program does collect a tailored set of earned value metrics within the CCP.

The NECC program is using a system of cost controls developed in conjunction with the Cost Analysis Improvement Group (CAIG). The NECC cost control system provides for program management control at the lowest possible level where the CPMO or JPMO use appropriately tailored metrics and applicable earned value collection and reporting on cost, schedule, and performance. Under the NECC CCP, the JPMO/CPMOs are responsible for cost, schedule, and performance surveillance, and reporting of the CM software development process to evaluate module development performance. Performance data (metrics) captured by the CPMOs for all CMs under development are reviewed by the NECC Program Control Branch. In addition to metrics on CM development, the CCP includes metrics for the entire JPMO-led SE process from CDP through FDCE operational piloting. The NECC Program Control Branch is responsible for collecting and analyzing a broader set of surveillance metrics to evaluate performance of the end-to-end NECC process.

#### 3.1 Objectives

The overarching objective of the CCP is to outline a predictive system providing PMs the tools to manage cost, schedule, and performance baselines proactively and to mitigate risk to the program. It also outlines a methodology for data collection and analysis that allows the PM, JPEO, and other interested parties to predict future increment costs more effectively.

Another objective of the CCP is to create a set of metrics that capture cost, schedule, and performance data (“metrics” include Earned Value computations). The metrics, which recognize the NECC business model, will provide feedback to improve performance over time.

Specifically, cost, schedule, and performance metrics collected for JPMO/CPMO-led engineering and development efforts provide predictive measures, which will assist the program in avoiding major shifts in the critical path and enhance future cost estimating practices. The metrics are to be inexpensive to set up, collect, maintain, and analyze, and understandable.

The finalized metrics are to recognize the NECC business model. NECC development will be extremely agile and the development process is highly iterative and interactive; metrics must provide rapid feedback in order to be effective. In addition, the CCP must account for the dynamic CDP to CM maturation process and the many processes that run concurrently within the program, with current plans for 25 CDPs and up to 61 CMs expected in Increment 1.

#### 3.2 Cost Control Plan Layout

Cost control for NECC is based on DoD and industry best practices, tailored to meet the needs of the NECC acquisition process. The NECC cost control system provides for program management control at the lowest possible level, where tailored metrics (as defined by JPMO

and CPMO stakeholders) allow data collection and reporting on cost, schedule, and performance. Performance measurement data collected over the course of the NECC lifecycle phases provide essential criteria for validating the NECC business strategy. NECC maintains a Layered Cost Control Tracking and metric reporting construct in order to manage cost, schedule, and performance associated with the development process.

A Metrics Analysis Working Group will be formed in order to analyze, on a monthly basis, the various metrics that are provided by the CPMO to the JPMO and within the JPMO as well. This working group will be led by the JPMO PM and the JPMO Chief Engineer (CE) with additional mandatory attendees to include designated JPMO and CPMO activity leads, as well as support personnel (i.e., PEO and Program Analysis and Evaluation (PA&E)). External feeds of this working group will be used for input into risk management for the program, Defense Acquisition Executive Summary (DAES) and Selected Acquisition Report (SAR) reporting, and program Integrated Baseline Reviews (IBRs).

### **3.2.1 Layer 1: JPMO Cost Control Area**

JPMO cost controls have two components: engineering and other cost controls. Engineering cost controls track program requirements and associated costs to the NECC CDD [7 June 2007]. Cost control metrics are collected by a CDP that translates into Capability Module levels, which depict high-level programmatic changes. The CCP also includes overarching metrics for the entire JPMO-led SE process from CDP through FDCE operational piloting as documented in the NECC Systems Engineering Plan (SEP) and the Global Command and Control System Family of Systems GCCS FoS to NECC Functionality Transition Plan (FTP).

Other cost controls provide resource tracking for peripherals not related to engineering or development. Peripherals include tracking for level of effort and fee for service efforts, intended to provide objective measurements that assist in estimating and predicting future impacts to baseline changes.

#### **3.2.1.1 Executive Metrics**

Executive metrics (as listed throughout section 6.2) represent those reported to the JPMO on a monthly basis and used as leading indicators to avoid major shifts in the critical path and to analyze trends within current processes and standard estimates.

The majority of executive metrics will be compiled and tracked by activity leads, designated by the JPMO. The remaining metrics will be provided to the JPMO by each CPMO on a monthly basis. A subset of metrics will be provided to PA&E for outside analysis and all metrics will be examined by the Metrics Analysis Working Group. Findings from the Metrics Analysis Working Group will be presented monthly at a Program Management Direction Team (PMDT) and bi-annual to the Overarching Integrated Product Team (OIPT).

#### **3.2.1.2 Working-Level Metrics**

Working-level metrics are maintained by activity leads and used as leading indicators to assist in the management of specific activities and provide anomaly analysis. Working-level metrics will be included at the executive level only when those metrics exceed acceptable tolerances.

### 3.2.2 Layer 2: CPMO Cost Control Area

CPMO cost controls focus on the developmental effort to include collecting, tracking, and reporting technical performance metrics and Earned Value (EV) metrics via defined work packages, which are linked to the program Integrated Master Schedule (IMS). Top-level EV data and metrics will be rolled up and reported to the JPMO, while detailed EV data and metrics will be managed internally by the CPMOs. Work packages are rolled-up to the detailed CM level. Therefore, they are tied to Engineering cost controls as defined in Layer 1.

#### 3.2.2.1 Executive Metrics

At a minimum, each CPMO is expected to deliver specific metrics to the JPMO Program Control, as specified within each work package. The JPMO required metrics are a combination of development metrics (listed below in section 6.3 and within each individual work package) and EV data summaries (specified below in section 7.3.2 and within each individual work package).

#### 3.2.2.2 Working-Level Metrics

In addition to the executive metrics required of the CPMOs, the JPMO anticipates that each CPMO will also implement additional performance management processes in order to manage their work more effectively and to provide additional insight into the performance of their efforts.

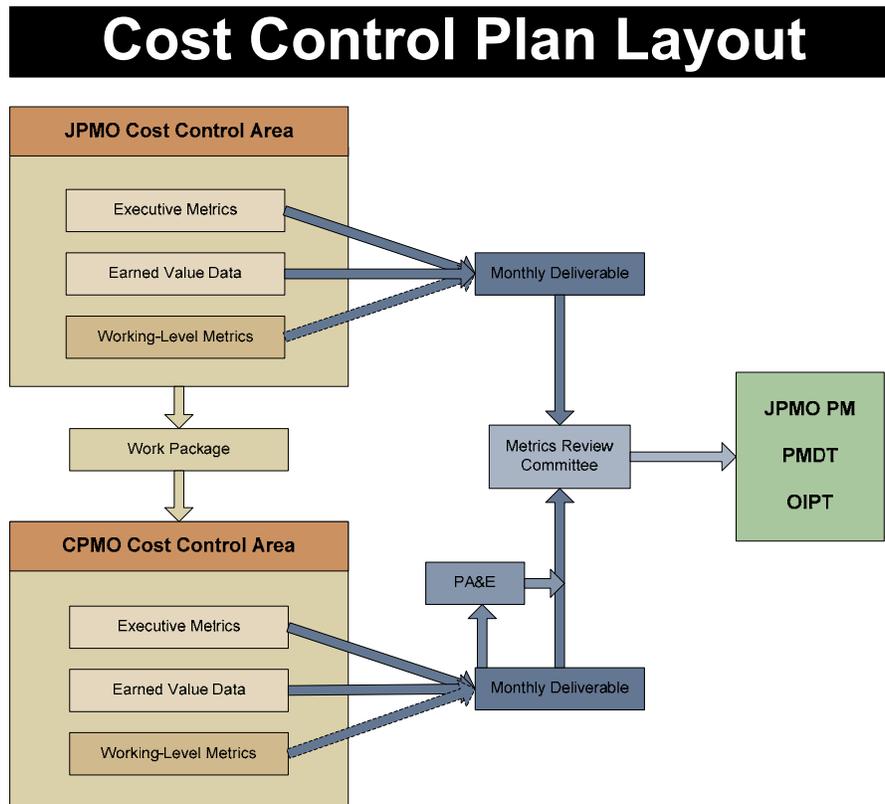


Figure 1: CCP Layout

## 4 CCP IMPLEMENTATION

NECC uses a tailored DoD 5000 acquisition/lifecycle approach to systems development as documented in the NECC SEP. This approach uses a spiral development methodology as opposed to the traditional waterfall development methodology.

The CCP will be implemented immediately after Milestone B. Implementation will begin with the assignment of metrics owners, reporting formats, and frequencies. Cost control will be integrated into the NECC management and decision processes through the establishment of a monthly metrics review meeting led by the JPMO. The metrics will be implemented in two layers. Layer 1 corresponds to the JPMO-managed items, grouped into three areas: (1) JFCOM CDPs, (2) Preliminary Engineering, and (3) Detailed Engineering. Layer 2 corresponds to the CPMO-managed items, grouped into two areas: (1) CM production schedule, and (2) delivered operational user requirements.

### 4.1 CCP Implementation by the JPMO

The JPMO will implement the infrastructure required to enable the CCP and establish the Layer 1 metrics. This includes standardizing a program Work Breakdown Structure (WBS) and an IMS. The JPMO will also institutionalize the review and governance mechanisms for the management of the metrics. A lead will be designated for each metric to develop the formats, objectives, and variance tolerance. Once the metrics are established, management will follow the four-step process outlined in section 4.3 below.

### 4.2 CCP Implementation by the CPMOs

CPMOs will be responsible for producing the layer 2 metrics reported to the JPMO. In addition, the CPMOs are expected to use their own performance monitoring and control systems to ensure their efforts stay within acceptable tolerance as defined by the JPMO.

### 4.3 Monitoring Methodology:

NECC uses a cost control monitoring system tailored to the reporting needs associated with developmental task orders. The system employs the following four-step tracking and control methodology:

**Step 1:** NECC Program Control will identify the metrics to be reported for each reporting period and will properly communicate those requirements to the metrics owners.

**Step 2:** NECC Program Control will establish the baseline execution plan and appropriate control limits, and compare/analyze against the program estimate. Program Control will work with the metrics owners to establish traceability and calibration of metrics against the overall program baselines, WBS, and IMS. Metrics templates and data call spreadsheets will be developed for metrics owners to populate and send to Program Control analysts. The metrics will be compiled and analyzed by the Metrics Analysis Working Group on a monthly basis and reported to the JPMO PM.

**Step 3:** Program performance will be compared with the execution plans and allowable variation. Program Control will analyze the metrics and identify where variances have exceeded tolerances, as defined by the Metrics Analysis Working Group. In these cases, a variance analysis report will be required of the metrics owner detailing the cause and corrective actions. These variance

analysis reports will be compiled and included in both the risk mitigation plans (if a risk is associated with the variance) as well as in the monthly metrics review. Program Control will provide additional analysis, if required, to identify programmatic impacts of compound variance issues.

**Step 4:** CM completion forecasts will be analyzed and necessary adjustments will be made if performance varies significantly from the plan and/or if major changes in the program content occur.

Metrics with significant variances (exceeding tolerances) will be presented to the PMDT and at the monthly metrics review for information and decisions as required. Program Control will ensure decisions are identified where metrics are out of tolerance and corrective actions require executive action. The metrics will be integrated with the risk management system as a means of determining event probability or when the metrics directly monitor the progress of the mitigation efforts. Program Control will be responsible for ensuring corrective actions are implemented.

#### **4.4 Work Breakdown Structure**

The WBS is used in cost control as a means to account consistently for resources and effort that are the basis for many of the metrics. The WBS encompasses the NECC program down to the fourth level of program activity, including the Contract Work Breakdown Structure (CBS) and other program elements (e.g., Program Management Office (PMO)). It provides a framework for specifying program objectives. The WBS defines the program in terms of hierarchically related, product-oriented elements and includes other program elements (i.e., program management, concept development, piloting, and integration support). Each element provides logical summary levels for assessing technical accomplishments, supporting the required event-based technical reviews, and for measuring cost and schedule performance.

This WBS shows the technical objectives and the end items of the work to be performed by both the government and contract entities. The goal is to define the relationship among all program elements to a level that does not constrain the contractor's (CPMO) ability to define or manage program resources. A secondary goal is to provide a standardized method for gathering costs data across all program elements.

#### **4.5 WBS Dictionary**

The WBS dictionary lists and defines the elements based on MIL-HDBK-881A, with program specifics. The dictionary shows the hierarchical relationship of the elements and describes each WBS element and the resources and process required to procure it.

#### **4.6 Integrated Master Schedule (IMS)**

The IMS will be used by Program Control and the Metrics Analysis Working Group as the primary means for measuring and assessing schedule variance. The IMS is a time-phased schedule that serves as a tool for time phasing work and assessing technical performance. Schedule activities in the IMS are traceable to the WBS elements used in the CCP, allowing commonality for integrated program assessment of cost, schedule, technical performance, and associated risks.

## 5 RISK IDENTIFICATION AND MITIGATION

The JPMO has a risk management plan, which monitors and mitigates risk on the program and is documented in the NECC Risk Management Plan. NECC's risk management is a continuous process inherent within the development cycle. Identifying potential risks early as well as mitigation plans for these risks help to: reduce program costs, maintain accurate schedules, and achieve expected performance objectives. Metrics are related to risks as a means to proactively identify risk and quantify the probability of an adverse event occurrence, which are combined with the consequences of the event to assess risk. Metrics are also used in risk management as a means to monitor the mitigation activities to ensure risks are satisfactorily addressed.

The NECC risk management review process uses the JPEO management structure. The NECC PMDT, chaired by the NECC PM, is responsible for implementing the program's risk management process. This forum provides the mechanism for proposing new risk areas for tracking and mitigation. Appendix C of the Risk Management Plan identifies the program manager's assessment of the program and the measures being taken or planned to reduce those risks.

## 6 METRICS

### 6.1 Overview

All major activities (as defined by JPMO and CPMO stakeholders) within the NECC program shall use a prescribed set of tailored project management metrics to meet NECC's requirement to provide information to support the planning, controlling, and reporting of effort. This information is organized by major activity to insure that technical, cost, and schedule aspects of the efforts are truly integrated. As a result, the program's tailored project management metrics shall support objective measurement of the work against the plan at levels where work is being performed, identification, and analysis of significant variances, and the implementation of management actions to mitigate risk and manage cost and schedule performance.

Metrics will be tracked at executive and working levels. Executive metrics, as defined as the key indicators of program health and performance, are monitored and managed by the JPMO. Working level metrics are those used by the activity leads on an on-going basis (daily/weekly) to manage their particular activities and highlight anomalies.

### 6.2 Engineering Metrics

This section provides a description of the measures of performance, schedule, and resources to track the technical activities of the NECC JPMO. Each of the measure includes a brief description of the metric, an indicator of the owner or "keeper" of the metric (usually the branch manager or leader of an engineering activity area), an indicator of who reports the metric, a description of the format of actual measure, an indicator of where the measure will be tracked, and an identification of the type or category of metric. There are two levels of metrics:

1. Those designated as Executive level metrics, which will be reported to the JPM on a monthly basis at the Metrics Analysis Working Group (identified in the metric tables as "Executive").
2. Those designated as Working-level metrics (identified in the metric tables as "Working"), which will be collected and used by the leader of the activity measure to internal

performance of the activity for which they are responsible (and are used to support analysis of variance of executive measures).

### **6.2.1 Systems Engineering**

The Cost Control Systems Engineering metrics map to Steps 1-4 and Step 6 of the NECC SE process. Refer to the NECC SEP and associated annexes consisting of the Standard Operating Procedures (SOP) for the SE Steps for additional detail on the SE products and processes. The metrics for SE Steps 1-4 and 6 are listed below in Table 1 with brief description of the relevant SE steps is shown below:

**SE Step 1:** This Step is performed by the JFCOM/JCCD and is focused development of CDPs. While the development of CDPs is external to the NECC JPMO, the tracking of their development is critical to success of the JPMO, as the CDPs are generally the starting point for the subsequent Systems Engineering and materiel development activities. The metrics in this area will track the key attributes that have direct impact on the ability of the NECC SE CDP Engineering Team's ability to execute their activities. These metrics must be reported by JFCOM/JCCD (either explicitly by report or implicitly by the NECC SE tracking of JCCD product deliveries). This metric area will track overall JFCOM/JCCD decomposition of CDD and assessment of variances to NECC program schedule.

**SE Step 2:** This step is focused on the NECC SE CDP Engineering activity that decomposes the CDPs into user functional specifications in the form of Engineered Mission Threads (EMT) and Use Cases. Metrics for this area include tracking of development of the CDP Engineering artifacts.

**Step 3:** Stability of domain designs as more CDPs are analyzed, quality of domain designs, and sufficiency of a Service Performance Specification (SPS) to support CM developers.

**Step 4:** Tracking of the capability selection CM definition process. The measures for FoS Component migration are discussed further in the NECC FTP.

**Step 5:** Measures the ability to negotiate a final work package with a CPMO and get to the point of a contractor starting work on a CM spiral.

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**Table 1: Systems Engineering Metrics**

Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
FoS Component Migration Status - Total number of GCCS FoS components	SE	SE /FoS Migration Tiger Team	Integer Number	C2 Catalog	Executive
FoS Component Migration Status - Number of GCCS FoS components considered	SE	Allocated Baseline Eng Team Lead	Integer Number	C2 Catalog	Executive
FoS Component Migration Status - Number of GCCS FoS components adopted into NECC	SE	Allocated Baseline Eng Team Lead	Integer Number	C2 Catalog	Executive
FoS Component Migration Status - Number of capabilities in the CDD needed to complete the CM	SE	Allocated Baseline Eng Team Lead	Integer Number	C2 Catalog	Working
FoS Component Migration Status - Date projected of final completion of CM	SE	Allocated Baseline Eng Team Lead	Calendar Date	C2 Catalog	Working
FoS Component Migration Status - Number of CDD capabilities currently completed in a CM	SE	Allocated Baseline Eng Team Lead	Integer Number	C2 Catalog	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
FoS Component Migration Status - Estimated adaptation costs	SE	Allocated Baseline Eng Team Lead	Dollars	C2 Catalog	Executive
FoS Component Migration Status - Number of GCCS FoS components retired	SE	Allocated Baseline Eng Team Lead	Integer Number	C2 Catalog	Executive
FoS Component Migration Status - Components replaced by COTS (Buy)	SE	Allocated Baseline Eng Team Lead	Integer	C2 Catalog	Executive
FoS Component Migration Status - Components replaced by newly developed code (Create)	SE	Allocated Baseline Eng Team Lead	Integer	C2 Catalog	Executive
FoS Component Migration Status - Components replaced by non-GCCS FoS code	SE	Allocated Baseline Eng Team Lead	Integer	C2 Catalog	Executive
FoS Component Migration Status - Number of CM Capabilities not found in C2 Catalog (requiring development)	SE	SE Lead/FoS Migration Tiger Team	Integer	C2 Catalog	Executive

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
FoS Component Migration Status – Components Selected for Migration	SE	Allocated Baseline Eng Team Lead	List of Components with Yes/No selection status	C2 Catalog	Executive
FoS Component Migration Status - Which CM the migrated components will be part of	SE	Allocated Baseline Eng Team Lead	List of components mapped to CMs.	C2 Catalog	Working
CM Development - Planned development start date	SE	SE /Work Package Manager	Calendar Date	IMS	Working
CM Development - Planned development completion date	SE	SE /Work Package Manager	Calendar Date	IMS	Working
CM Development - Planned date of transition to operations	SE	SE /Work Package Manager	Calendar Date	IMS	Working
CM Development - Schedule Status	SE	SE /Work Package Manager	Schedule Status: Green = On Schedule; Yellow = up to 3 months behind schedule; Red = more than 3 months behind schedule	IMS	Executive
Draft CDP Received from JFCOM	SE/CDP Eng Team	JCCD NECC Liaisons	Days early or late (+/-) from published schedule	IMS	Executive

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Final Signed CDP Received from JFCOM	SE/CDP Eng Team	JCCD NECC Liaison	Days early or late (+/-) from published schedule	IMS	Working
Cumulative number of final CDPs received from JFCOM/JCCD	SE/CDP Eng Team	JCCD NECC Liaison	Integer Number	Spreadsheet	Working
Changes Required to EMT based upon Signed CDP received from JFCOM/JCCD (yes/no)	SE/CDP Eng Team	SE/CDP Eng Team Lead	Yes/No	Spreadsheet	Working
Changes Required to SPS based upon Signed CDP (yes/no)	SE/CDP Eng Team	SE/CDP Eng Team Lead	Yes/No	Spreadsheet	Working
Qualitative/text changes to product based upon Signed CDP	SE/CDP Eng Team	SE/CDP Eng Team Lead	Integer # Qualitative Changes	Spreadsheet	Executive
Number of additional staff/labor rework days required for CDP engineering artifacts if final CDP from JFCOM/JCCD requires changes	SE/CDP Eng Team	SE/CDP Eng Team Lead	Staff Days	Spreadsheet	Working
Amount of IMS schedule slippage (CM specs) if Signed CDP from JFCOM/JCCD required changes	SE/CDP Eng Team	SE/CDP Eng Team Lead	Calendar Days	IMS	Executive

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Amount of IMS schedule slippage (CM work packages) if Signed CDP from JFCOM/JCCD required changes	SE/CDP Eng Team	SE/CDP Eng Team Lead	Calendar Days	IMS	Executive
Amount of IMS schedule slippage (CM spiral) if Signed CDP from JFCOM/JCCD required changes	SE/CDP Eng Team	SE/CDP Eng Team Lead	Calendar Days	IMS	Executive
Number of Additional CDPs, that are beyond the current number of defined CDPs, received from JFCOM/JCCD	SE/CDP Eng Team	JCCD NECC Liaison	Integer Number	IMS	Executive
Wait Time for EMT team start	SE/CDP Eng Team	SE/CDP Eng Team Lead	Calendar Days	IMS	Working
Time to complete an EMT	SE/CDP Eng Team	CDP Eng Team Lead	Calendar Days	IMS	Working
Early/Late/On time days for completion of EMTs for a CDP	SE/CDP Eng Team	CDP Eng Team Lead	Calendar Days	IMS	Executive
Number of staff days required to complete a Candidate Service Model.	SE/CDP Eng Team	CDP Eng Team Lead	Staff Days	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Early/Late/On time days for completion of Candidate Service Models for a CDP	SE/CDP Eng Team	CDP Eng Team Lead	Calendar Days	IMS	Working
Number of new EMT's	SE/CDP Eng Team	CDP Eng Team Lead	Integer Number per CDP	Spreadsheet	Working
Number of EMT's modified (re-use) from previous CDP	SE/CDP Eng Team	CDP Eng Team Lead	Integer Number per CDP	Spreadsheet	Working
Early/Late/On time days for SPS delivery	SE/CDP Eng Team	CDP Eng Team Lead	Calendar Days	IMS	Executive
Number of changes/updates to SPSs based on Step 4 analysis activities	SE/CDP Eng Team	CDP Eng Team Lead	Integer Number of changes/updates	Spreadsheet	Working
Number of changes/updates to SPSs based on CPMO proposals (Step 6)	SE/CDP Eng Team	CDP Eng Team Lead	Integer Number of changes/updates	Spreadsheet	Working
Number of changes/updates to SPSs based on CM CDR (Step 6)	SE/CDP Eng Team	CDP Eng Team Lead	Integer Number of changes/updates	Spreadsheet	Working
Early/late/on time Domain design artifacts (TBD).	SE Domain Design Team	Domain Design Team Lead	Calendar Days	IMS	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Cumulative number of CDPs that have been fully analyzed by the NECC SE before Allocated Baseline Engineering begins	SE/CDP Eng Team	Doman Design Team Lead	Integer Number per CDP	Spreadsheet	Working
Time to Validate CM Definition	SE/CDP Eng Team	CDP Eng Team Lead	Calendar Days	IMS	Executive
CPMO Draft Work Package Proposal response time per CM	SE/Allocated Baseline Eng Team	CDP Eng Team Lead	Total Calendar Days; Variance from plan	IMS	Executive
Average CM response time for CPMO Refined Work Package/Proposal	SE/Allocated Baseline Eng Team	CDP Eng Team Lead	Average Calendar Days	Spreadsheet	Working
JPMO/SE Evaluation Time for CM draft Work Package	SE/Allocated Baseline Eng Team	CDP Eng Team Lead	Calendar Days; Days variance from IMS;	IMS	Working
Number of changes by CPMO to draft WP	SE/Allocated Baseline Eng Team	CDP Eng Team Lead	Integer Number of Changes	Spreadsheet	Working
SE time to prepare recommendation brief for JPMO	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Calendar Days	IMS	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Estimated amount of "Rework" to CMs caused by new CDPs or modifications to existing CDPs.	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Staff Days /Weeks/Months	Spreadsheet	Working
Draft WP Proposals negotiation:	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Calendar Days	Spreadsheet	Working
Time for JPEO decision on final CM Work Package	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Calendar Days	IMS	Executive
Cumulative number of CMs that have been defined and specified in either CM Specs or Work Packages	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Integer Number of CMs	Spreadsheet	Working
Time duration for JPMO-CPMO Negotiation	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Total Calendar Days; Variance from plan	IMS	Working
Time duration from final (CMPO-JPMO agreed upon) WP draft to signed WP.	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Total Calendar Days; Variance from plan	IMS	Executive

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Time duration from time that DISA/JP MO finalizes the funding execution to commencement of CM development work	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Total Calendar Days; Variance from plan	IMS	Executive
Schedule variance from JP MO estimated CM spiral schedule to CPMO proposed/estimated CM spiral schedule	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Variance from plan in Calendar Days	IMS	Working
Performance variance from JP MO requested software performance specifications in draft WP to CPMO agreed-upon specifications in final WP.	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Integer number of rejected, deferred, and modified performance requirements or parameters	Spreadsheet	Working
Number of changes to draft Work Package	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Integer number of changes to Draft WP Spec	Spreadsheet	Working
Number of operational requirements fully satisfied in a CM Spiral.	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Integer Number of requirements per specific CMs	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Percentage of total Increment 1 capabilities (per the CDD) partially satisfied in a given fiscal year	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Percentage	Spreadsheet	Working
Number of operational requirements "addressed" in a CM Spiral	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Integer Number of requirements per specific CMs	Spreadsheet	Working
Percentage of total Increment 1 capabilities (per the CDD) Fully satisfied in a given fiscal year	SE/Allocated Baseline Eng Team	Allocated Baseline Eng Team Lead	Percentage	Spreadsheet	Working

**6.2.2 Integration and Tech Piloting**

**Table 2: Integration and Tech Piloting Metrics**

Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Planning time for UFP events	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	Spreadsheet	Working
Execution time for UFP events	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Assessment time for UFP events	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Integer Days	Spreadsheet	Working
# of feedback surveys submitted per UFP event	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Number of Surveys	Spreadsheet	Working
# of UFP events on SIPRNET	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer Events	Spreadsheet	Working
# of UFP events on NIPRNET	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer Events	Spreadsheet	Working
# of UFP events on Internet	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer Events	Spreadsheet	Working
Planning time for CPEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Integer Days	IMS	Working
Execution time for CPEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	IMS	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
Variance of CPE schedules	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Calendar Days	Spreadsheet	Executive
Assessment time for CPEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	IMS	Working
# of lessons learned per CPE	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Integer	Spreadsheet	Working
# of CPEs on SIPRNET	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working
# of CPEs on NIPRNET	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working
# of CPEs on Internet	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working
# of Multi-CM CPEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
# of Single CM CPEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working
Planning time for OCEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	Spreadsheet	Working
Execution time for OCEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	Spreadsheet	Working
Assessment time for OCEs	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Median Calendar Days	Spreadsheet	Working
# of Lessons Learned per OCE	I&T Piloting Branch	I&T Piloting Branch Deputy Chief	Integer	Spreadsheet	Working
Time to develop Concept Paper within the FDCE	I&T Piloting Branch	I&T Piloting Branch Chief	Calendar Days	IMS	Working
Time to develop R&P matrix in the FDCE	I&T Piloting Branch	I&T Piloting Branch Chief	Calendar Days	IMS	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Level
# Developmental CPAS events conducted simultaneously within the FDCE	I&T Piloting Branch	I&T Piloting Branch Chief	Integer Number of Events	Spreadsheet	Working
# Developmental Piloting CPAS events conducted simultaneously within the FDCE	I&T Piloting Branch	I&T Piloting Branch Chief	Integer Number of Events	Spreadsheet	Working
# Operational Piloting CPAS events conducted simultaneously within the FDCE	I&T Piloting Branch	I&T Piloting Branch Chief	Integer Number of Events	Spreadsheet	Working
Schedule variance for the start of the Operational piloting leading to MS C decision	I&T Piloting Branch	I&T Piloting Branch Chief	Calendar days	IMS	Executive
Schedule Variance for the completion of Operational Piloting leading to MS C decision	I&T Piloting Branch	I&T Piloting Branch Chief	Calendar days	IMS	Executive

**6.2.3 Test and Evaluation****Table 3: Test and Evaluation Metrics**

Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metrics Level
CM Risk Level assigned by the CMTT	T&E Management Branch	T&E Management Branch Chief	Integer Number of CMs in each risk category. Categories are: "Level I Test" through "Level IV Test"	Spreadsheet	Executive
Number of TEC matrix Technical items per CM	T&E Management Branch	T&E Management Branch Chief	Average Integer Number of criteria	Spreadsheet	Working
Number of TEC Criteria IA items per CM	T&E Management Branch	T&E Management Branch Chief	Average Integer Number of criteria	Spreadsheet	Working
Number of TEC matrix Operations items per CM	T&E Management Branch	T&E Management Branch Chief	Average Integer Number of criteria	Spreadsheet	Working
Number of TEC Criteria T&E items per CM	T&E Management Branch	T&E Management Branch Chief	Average Integer Number of criteria	Spreadsheet	Working
Number of CM dependencies (as documented in the CDP)	T&E Management Branch	T&E Management Branch Chief	Average Integer Number of dependencies	Spreadsheet	Working
Number of events for T&E per CM.	T&E Management Branch	T&E Management Branch Chief	Integer number of events?	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metrics Level
Type of CM (Data CM or Application CM)	T&E Management Branch	T&E Management Branch Chief	Integer Number of CMs per category. Categories are: "Data CM" or "Application CM"	Spreadsheet	Executive

**6.2.4 Technical Operations and Support**

**Table 4: Technical Operations & Support Metrics**

Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Type
Product Support Plan Status	TD Phase Support Branch	TD Phase Support Branch	Total Calendar Days; Variance from plan	IMS	Exec
Enterprise Training Node Status	TD Phase Support Branch	TD Phase Support Branch	Total Calendar Days; Variance from plan	IMS	Exec
Electronic Performance Support System Node Status	TD Phase Support Branch	TD Phase Support Branch (Training)	Total Calendar Days; Variance from plan	IMS	Exec
FDCE Operation Status	TD Phase Support Branch	TBD (FDCE CTR)	Total Calendar Days; Variance from plan	Spreadsheet	Working
JTOCC Service Desk Staff Ready for Ops Support	TD Phase Support Branch	SSC CHSN Help Desk Manager	JST OTRR Assessment (Negative or positive)	OTRR	Exec

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Type
JTOCC Service Desk Support Tools Installed and Configured (TMS)	TD Phase Support Branch	SSC CHSN NECC Project Lead	Total Calendar Days; Variance from plan	IMS	Working
Virtual Service Desk (Portal)	TD Phase Support Branch	SSC CHSN NECC Project Lead	Total Calendar Days; Variance from plan	IMS	Working
JTOCC Ops Service Provisioning Tools Installed and Configured (DSL & CMDB)	TD Phase Support Branch	SSC CHSN NECC Project Lead	Total Calendar Days; Variance from plan	IMS	Working
JTOCC Ops Monitoring Tools Installed and Configured (ESM)	TD Phase Support Branch	SSC CHSN NECC Project Lead	Total Calendar Days; Variance from plan	IMS	Working
DECC Hosting Agreements in place	TD Phase Support Branch	SSC CHSN NECC Project Lead	Total Calendar Days; Variance from plan	IMS (must be added)	Working
DECC Hosting Capacity Op Ready	TD Phase Support Branch	DISA CSD	Total Calendar Days; Variance from plan	IMS (must be added)	Working
CM Ops & Sustainment WP (1 per CM)	TD Phase Support Branch	TD Phase Support Branch	Total Calendar Days; Variance from plan	IMS	Exec
Number of open help desk customer problems	TD Phase Support Branch	TD Phase Support Branch Deputy Chief	Integer	Spreadsheet	Working

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Type
Average time help desk problems remain open	TD Phase Support Branch	TD Phase Support Branch Deputy Chief	Integer Days	Spreadsheet	Working
Mean age of open help desk problems.	TD Phase Support Branch	TD Phase Support Branch Deputy Chief	Integer Days	Spreadsheet	Working
Average response time for each virtual service desk support request	TD Phase Support Branch	TD Phase Support Branch Deputy Chief	Integer Hours	Spreadsheet	Working
Customer satisfaction with service support	TD Phase Support Branch	TD Phase Support Branch Deputy Chief	TBD	Spreadsheet	Working

**6.3 Development Metrics**

**Table 5: Development Metrics**

Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Type
Software Size - A measure of volume of software to be developed	JPMO Program Control	CPMO	ESLOC, Objects, Configuration Items, Cumulative amount of code constructed	Spreadsheet	Executive

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Metric	Branch Owner of Metric	Specific Reporter of Metric	Format for Metric	Where Reported	Metric Type
Total Schedule and how long it took to complete the task or major milestone event. Dates Milestones were completed.	JPMO Program Control	CPMO	Calendar Days	IMS	Executive
Effort - Labor hours expended over reporting period.	JPMO Program Control	CPMO	Staff Days	Spreadsheet	Executive
Defects - Total new defects discovered in testing during the period.	JPMO Program Control	CPMO	Number of Defects per CM	Spreadsheet	Executive

**6.4 Non-Deliverable Cost Control Metrics**

**Table 6: Non Deliverable Cost Control Metrics**

Metric	Description	Metric Owner	Where Reported	Frequency	Metric Level
- Budget Execution	Percentage of Obligations against Agency/OSD goals	JPMO Program Control	Metrics Analysis Working Group	Monthly	Executive
- Budget Execution	Percentage of Disbursements against Agency/OSD goals	JPMO Program Control	Metrics Analysis Working Group	Monthly	Executive

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Metric	Description	Metric Owner	Where Reported	Frequency	Metric Level
- WP Execution	Number of days from Chief Engineering signature to release of final CM WP	JPMO Program Control	Metrics Analysis Working Group	Monthly	Executive
- WP Execution	Number of days to process final WP	JPMO Program Control	Metrics Analysis Working Group	Monthly	Executive
- WP Execution	Number of change orders against final CM WPs  Number of days to process the mods to the approved CM WP	JPMO Program Control	Metrics Analysis Working Group	Monthly	Working-Level
Program Execution	Number of days to process procurement package/modifications from CFE MIPR signature to award.  Number of days to process funding document/package from PM signature to commitment.	JPMO Program Control	Metrics Analysis Working Group	Monthly	Working-Level
Program/Milestone Document Staffing	# of Days variance - Planned Start date vs. Actual Start date	JPMO Program Control	Metrics Analysis Working Group	Monthly	Working-Level
Program/Milestone Document Staffing	# of Days variance - Planned End date vs. Actual End date	JPMO Program Control	Metrics Analysis Working Group	Monthly	Working-Level

## **7 MONITORING AND CONTROL PROCESS**

### **7.1 Configuration Management**

Maintaining the integrity of the Performance Measurement Baseline (PMB) is accomplished through change control for authority to make changes and discipline to control retroactive change. The aggregation of data obtained from NECC end-to-end process surveillance and CM development metrics is used to define a baseline of repeatable performance for all stages of the acquisition process. This baseline is used by the JPMO, JPEO, and other stakeholders to determine the effectiveness of NECC processes. Change control will be exercised throughout the program's development lifecycle to provide an orderly process to manage proposed changes.

The CPMOs, in their role as materiel providers, will be responsible for implementing configuration management policies and procedures that support the lifecycle of the NECC services that they provide. While the JPMO will not dictate how this will be accomplished, it is responsible for providing a minimum set of guidelines that will support the NECC goals.

The NECC JPMO has established the PMDT to manage and direct the cost, schedule, performance, issue resolution, and risk mitigation activities of the NECC as chartered by the C2C PEO. Additional details regarding NECC's Configuration Management process are documented in the NECC Configuration Management Plan.

### **7.2 Re-baseline Procedures**

Quarterly IBRs will serve as a consistent forum for JPMO and CPMO stakeholders to discuss any required changes to current and future schedules. Generally, work that has yet to begin (i.e., planned work) can be re-baselined; work that has begun cannot.

### **7.3 Metrics Reporting**

All metrics will be reported to the NECC JPMO Program Control Branch in the predetermined format, provided by the JPMO. Metric submissions will ultimately be the responsibility of the NECC Branch Chiefs and CPMO Program Managers.

When the steps described above for the CPMO and JPMO layers are complete, all data is combined into the CCP and is briefed monthly to the PMDT as well as the bi-annual OIPT.

The NECC Cost Control lead will provide monthly reports to management on project status. Program and Project Management staff will regularly review project status and take appropriate actions to develop corrective actions, as required. Management review may include review of any or all of the following:

- Variance reports and suggested corrective actions
- Critical Path activity performance
- Project personnel and staffing
- Project baseline change performance

Management will address variances that are outside of defined threshold ranges. The PMDT will implement corrective actions based on any variance reports identifying activities that fall outside established tolerances.

### **7.3.1 Basic Methods**

Standard engineering metrics will be collected throughout various areas of the NECC program. Specific to EV, Level-of-Effort (LOE), Discrete Milestones, and Apportioned Work are the methods that are expected to be used. In LOE situations, EV is reported based on the number of hours worked within a particular task. Discrete Milestones receive their value when the task is complete, and receive 100% credit at that time. Apportioned Work tasks EV based on percentage complete at the close of each reporting period (objectivity in determining percentage complete is crucial).

### **7.3.2 Earned Value**

Resources will be allocated and tracked at JPMO level control accounts based on LOE estimates, which are examined by the Metrics Analysis Working Group on a monthly basis. Throughout the program, all efforts that are resourced at less than \$25,000 within a given Fiscal Year will be reported using the LOE method of EV.

CM Status reports shall be used for tracking expenditures of resources on each work package and be CM specific. As part of this work package, each CPMO shall submit planned, actual, and earned figures on a monthly basis summarized at each of the following areas:

- Project Management
- Requirements Analysis
- Design
- Engineering Documentation
- Development
- Test & Certification
- Piloting & CM Integration
- Piloting Hosting & Ongoing Support

Upon execution of the work package, the CPMO shall explain any deviations of actual expenditures/schedule from planned costs/schedule in a monthly performance review presentation. In cases where multiple CPMOs are assigned work on a particular CM, the assigned Lead CPMO will be responsible for collecting and delivering a consolidated report to the JPMO.

### **7.3.3 JPMO Metric Reporting Process Flow**

The following steps describe the process flow for reporting and data analyses at the JPMO layer:

1. NECC Program Control collects metrics via spreadsheets from each NECC Branch.
2. JPMO Program Control compiles EV in database tracking application and produces various reports.

3. JPMO Program Control creates EV reports for presentation to the Metrics Analysis Working Group.
4. Conclusions from the Metrics Analysis Working Group will be presented in each monthly PMDT and bi-annual OIPT meetings. Specific reports will be created for each meeting based on the level of detail required for each meeting.

#### **7.3.4 CPMO Metric Reporting Process Flow**

The following steps describe the process flow for reporting and data analyses at the CPMO layer:

1. NECC Program Control collects EV data via the CM Status reports and metrics spreadsheets from each CPMO.
2. A subset of the metrics is sent to PA&E for outside detailed analysis.
3. JPMO Program Control compiles CPMO EV in database tracking application and produces various reports.
4. PA&E transmits complete metric reports back to NECC Program Control.
5. JPMO Program Control combines PA&E metric analysis and EV analysis into reports for presentation to the Metrics Analysis Working Group.
6. Conclusions from the Metrics Analysis Working Group will be presented in each monthly PMDT and bi-annual OIPT meetings. Specific reports will be created for each meeting based on the level of detail required for each meeting.

#### **7.3.5 Frequency**

Metric information shall be submitted to the JPMO (Program Control Branch) by each JPMO branch and each CPMO no later than the 15<sup>th</sup> of each month (or closest workday). Metrics analysis (to include EV) shall be delivered to the Metrics Analysis Working Group no later than one week after all data has been collected.

#### **7.3.6 Level of Detail**

The level of metric detail is consistent with the CCP goals and objectives to be inexpensive to set up and maintain, easily understandable, and provide predictive information to manage cost, schedule, and performance baselines proactively.



**8 WORK PACKAGE REQUIREMENTS**

The program allocates CM development to the CPMOs via work packages. The initial work package describes the development, integration, test, and certification requirements for the CM. The second iteration of the work package describes implementation details, which includes operations and sustainment. All work packages address cost, schedule, performance requirements, shared resource coordination, and other agreements and dependencies required to produce and sustain the CM. The NECC program refines the work package and merges them when combining multiple CMs or decomposing higher order (complex) solutions to produce multiple capabilities, where appropriate, to reduce redundant efforts.

The table below defines the mandatory and optional products and events that will be required by the CM developers in execution of a work package. As historical data is collected, trending is analyzed for future forecasting improvements and risk avoidance. Most of these products and events are used as primary indicators of EV. One exception is the "Hosting and (Ongoing) Support" activity. These events and products are LOE to provide hosting service for the CM and technical support during piloting on an "as needed" basis. The products and events listed below are specifically those elements that would be supplied or performed by the CM developer. Events and products performed by organizations external to the CM developer will not be included in the work package (e.g., T&E).

**Table 7: EV Indicators for the CM Development and Piloting**

CM Phase	Mandatory Events	Optional Events	Mandatory Products	Optional Products
Project Management	Captures all costs related to each CM.			
Requirements Analysis		- CM PDR	- Monthly Status Reports (the same report applies to all activities)  - Updated /refined Service Performance Specifications  -CM TRL Statement	- CM Technology Maturation Plan

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CM Phase	Mandatory Events	Optional Events	Mandatory Products	Optional Products
Design	<ul style="list-style-type: none"> <li>- CM CDR</li> <li>- FDCE Registration</li> <li>- Metadata submitted to DoD Registry</li> </ul>	<ul style="list-style-type: none"> <li>- UI Specification Review</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly Status Reports</li> <li>- WSDL/Data Model and/or SDF</li> <li>- NRAT Inputs</li> </ul>	<ul style="list-style-type: none"> <li>- UI Design Specification</li> <li>- Tech Matrix Assertions</li> </ul>
Engineering Documentation		<ul style="list-style-type: none"> <li>- Eng Doc Review</li> </ul>	<ul style="list-style-type: none"> <li>- Logical Arch</li> <li>- Physical Arch</li> <li>- Hosting Strategy</li> <li>- Initial Host SLA Spec</li> </ul>	<ul style="list-style-type: none"> <li>- Training Plan</li> <li>- Supportability Assessment</li> </ul>
Development	<ul style="list-style-type: none"> <li>- CM/CP software submission to FDCE/CM Repository</li> </ul>	<ul style="list-style-type: none"> <li>- IPR or CDR Updates</li> <li>- Software code and/or interface walk through</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly Status Reports</li> <li>- CM/CP software delivery</li> <li>- Statement of NECC SOA Arch Compliance Stmt</li> <li>- IATO/ATO for ops on SIPR/NIPRNet</li> </ul>	<ul style="list-style-type: none"> <li>- Demonstration of Online Help or User/Admin Docs</li> </ul>
Test & Certification	<ul style="list-style-type: none"> <li>- OTRR</li> </ul>	<ul style="list-style-type: none"> <li>- DTRR</li> </ul>	<ul style="list-style-type: none"> <li>- Monthly Status Reports</li> <li>- DIACAP Scorecard</li> <li>- Receipt of NR-KPP Cert</li> <li>- JFCOM Approval</li> </ul>	<ul style="list-style-type: none"> <li>- Developer Test Report and/or Test results (input to CMAR)</li> </ul>

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CM Phase	Mandatory Events	Optional Events	Mandatory Products	Optional Products
Piloting & CM Integration	- Event Readiness Review	- CM Training package posted to CM Repository	- Monthly Status Reports - Pilot Concept Paper - Rqts & Planning (R&P) Matrix - Final Host SLA Spec	- CM Lessons Learned Rpt - External Event Artifacts (e.g., req'd for participation in a Military Exercise ) - Updated CM SPSs
Piloting Hosting & Support	- CM Host Available	- CM Support Available	- Monthly Status Reports - Piloting Infrastructure Plan	- GCN Performance Assessment - Updated Host SLA Spec.

**8.1 Work Package Reporting Exemptions**

Work packages less than \$25,000 in value will not require monthly reports. Those work packages will be input into the cost control tracking tool using a LOE methodology.

**9 COST CONTROL TOOL**

The PEO C2C Financial Database tool will be a centralized data storage system used to support the NECC Cost Control processes. The tool will provide the necessary capabilities for reporting EV metrics, budget execution plans, historical information, and detailed requirement information. As of October 2007, the PEO C2C Financial Database was installed for use by the NECC JPMO.

**APPENDIX B – ACRONYMS**

<b>Acronym</b>	<b>Definition</b>
ACAT	Acquisition Category
Acronym	Definition
ACWP	Actual Cost of Work Performed
AS	Acquisition Strategy
BAC	Budget at Completion
BCWP	Budgeted Cost of Work Performed
BCWS	Budgeted Cost of Work Schedule
C2	Command and Control
C2C	Command and Control Capability
CAIG	Cost Analysis Improvement Group
CWBS	Contract Work Breakdown Structure
CCP	Cost Control Plan
CDD	Capability Development Document
CDP	Capability Definition Package
CE	Chief Engineer
CM	Capability Modules
CPAS	Capability Provisioning Activities
CPMO	Component Program Management Office
DAES	Defense Acquisition Executive Summary
DISA	Defense Information Systems Agency
DoD	Department of Defense
EAC	Estimate at Completion
EMT	Engineered Mission Thread

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<b>Acronym</b>	<b>Definition</b>
EV	Earned Value
EVMS	Earned Value Management Systems
FDCE	Federated Development and Certification Environment
GCCS FoS	Global Command and Control System Family of Systems
GCN	GIG Computing Node
GIG	Global Information Grid
IDIQ	Indefinite Delivery/Indefinite Quantity
ILS	Integrated Logistic Support
IMS	Integrated Master Schedule
JCCD	Joint Combat Capability Development
JMOS	Joint Management Oversight System
JPEO	Joint Program Executive Office
JPMO	Joint Program Management Office
LOE	Level-of-Effort
LSI	Lead System Integrator
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
NECC	Net-Enabled Command Capability
OIPT	Overarching Integrated Product Team
OSD	Office of the Secretary of Defense
PEO	Program Executive Office
PM	Program Manager
PMB	Performance Measurement Baseline
PMDT	Program Management Direction Team
PMO	Program Management Office

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<b>Acronym</b>	<b>Definition</b>
SAR	Selected Acquisition Report
SDD	System Development and Demonstration
SEP	Systems Engineering Plan
SOA	Service Oriented Architecture
SOP	Standard Operating Procedures
SOW	Statement of Work
TD	Technology Development
WBS	Work Breakdown Structure

**APPENDIX C – REFERENCED DOCUMENTS**

- Net-Enabled Command Capability (NECC) Configuration Management Plan, version 1.1
- Net-Enabled Command Capability (NECC) Risk Management Plan (RMP), version 1.0.0
- Net-Enabled Command Capability (NECC) Systems Engineering Plan (SEP), version 0.7

**APPENDIX D – REPORTING PROCESS SUMMARY****Table 8: Earned Value Reporting Process**

Deliverable	From	To	Due	Reporting Format
Vendor EV Data	Vendor	CPMO Program Control	10 <sup>th</sup> of each month	
CPMO EV Report	CPMO Program Control	JPMO Program Control	15 <sup>th</sup> of each month	

**Table 9: Metric Reporting Process**

Deliverable	From	To	Due	Reporting Format
Engineering Metric Report	Engineering Community	CPMO Program Control	10 <sup>th</sup> of each month	
CPMO Metric Report	CPMO Program Control	JPMO Program Control	15 <sup>th</sup> of each month	

**Table 10: Cost Control Report Process**

Deliverable	From	To	Due	Reporting Format
Cost Control Report	JPMO Program Control	JPMO PM	20 <sup>th</sup> of each month	

IBRs will be held on a quarterly basis (estimated dates: 12/3/2007; 3/3/2008; 6/2/2008; 9/8/2008).

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**APPENDIX E – WORK BREAKDOWN STRUCTURE**

NECC Increment 1					
1.	1.				Program Management (JPMO/CPMO)
1.	1.	1.			JPMO
1.	1.	1.	1.		Program Control
1.	1.	1.	2.		Systems Engineering
1.	1.	1.	3.		Test and Evaluation
1.	1.	1.	4.		Technical Operations and Support
1.	1.	2.			Army CPMO
1.	1.	2.	1.		Program Control
1.	1.	2.	2.		Systems Engineering
1.	1.	2.	3.		Test and Evaluation
1.	1.	2.	4.		Technical Operations and Support
1.	1.	3.			Navy CPMO
1.	1.	3.	1.		Program Control
1.	1.	3.	2.		Systems Engineering
1.	1.	3.	3.		Test and Evaluation
1.	1.	3.	4.		Technical Operations and Support
1.	1.	4.			Air Force CPMO
1.	1.	4.	1.		Program Control
1.	1.	4.	2.		Systems Engineering
1.	1.	4.	3.		Test and Evaluation
1.	1.	4.	4.		Technical Operations and Support
1.	1.	5.			USMC CPMO
1.	1.	5.	1.		Program Control
1.	1.	5.	2.		Systems Engineering
1.	1.	5.	3.		Test and Evaluation
1.	1.	5.	4.		Technical Operations and Support
1.	1.	6.			DISA CPMO
1.	1.	6.	1.		Program Control
1.	1.	6.	2.		Systems Engineering
1.	1.	6.	3.		Test and Evaluation
1.	1.	6.	4.		Technical Operations and Support
1.	2.				Increment Architecture Products
1.	2.	1.			Architecture Framework
1.	2.	2.			Increment Architecture
1.	3.				Capability Definition Packages
1.	3.	N			CDP # N
1.	3.	N	1.		Engineered Mission Threads
1.	3.	N	2.		Candidate Service Model Development
1.	3.	N	3.		Allocated Baseline Engineering
1.	4.				Capability Module Production (PMP)
1.	4.	N			CM #N
1.	4.	N	1.		Development
1.	4.	N	1.	1.	Army CPMO
1.	4.	N	1.	2.	Navy CPMO
1.	4.	N	1.	3.	Air Force CPMO
1.	4.	N	1.	4.	USMC CPMO
1.	4.	N	1.	5.	DISA CPMO
1.	4.	N	1.	6.	Developing Contractor
1.	4.	N	2.		Systems Engineering
1.	4.	N	2.	1.	Army CPMO
1.	4.	N	2.	2.	Navy CPMO

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1.	4.	N	2.	3.	Air Force CPMO
1.	4.	N	2.	4.	USMC CPMO
1.	4.	N	2.	5.	DISA CPMO
1.	4.	N	2.	6.	Developing Contractor
1.	4.	N	3.		I&TP
1.	4.	N	3.	1.	Army CPMO
1.	4.	N	3.	2.	Navy CPMO
1.	4.	N	3.	3.	Air Force CPMO
1.	4.	N	3.	4.	USMC CPMO
1.	4.	N	3.	5.	DISA CPMO
1.	4.	N	3.	6.	Developing Contractor
1.	4.	N	4.		Information Assurance Certification & Accreditation
1.	4.	N	4.	1.	Army CPMO
1.	4.	N	4.	2.	Navy CPMO
1.	4.	N	4.	3.	Air Force CPMO
1.	4.	N	4.	4.	USMC CPMO
1.	4.	N	4.	5.	DISA CPMO
1.	4.	N	4.	6.	Developing Contractor
1.	4.	N	5.		Training Development
1.	4.	N	5.	1.	Army CPMO
1.	4.	N	5.	2.	Navy CPMO
1.	4.	N	5.	3.	Air Force CPMO
1.	4.	N	5.	4.	USMC CPMO
1.	4.	N	5.	5.	DISA CPMO
1.	4.	N	5.	6.	Developing Contractor
1.	4.	N	6.		DT/OT Testing
1.	4.	N	6.	1.	Army CPMO
1.	4.	N	6.	2.	Navy CPMO
1.	4.	N	6.	3.	Air Force CPMO
1.	4.	N	6.	4.	USMC CPMO
1.	4.	N	6.	5.	DISA CPMO
1.	4.	N	6.	6.	Developing Contractor
1.	4.	N	7.		Hosting
1.	4.	N	7.	1.	Army CPMO
1.	4.	N	7.	2.	Navy CPMO
1.	4.	N	7.	3.	Air Force CPMO
1.	4.	N	7.	4.	USMC CPMO
1.	4.	N	7.	5.	DISA CPMO
1.	4.	N	7.	6.	Developing Contractor
1.	4.	N	8.		Program Management
1.	4.	N	8.	1.	Army CPMO
1.	4.	N	8.	2.	Navy CPMO
1.	4.	N	8.	3.	Air Force CPMO
1.	4.	N	8.	4.	USMC CPMO
1.	4.	N	8.	5.	DISA CPMO
1.	4.	N	8.	6.	Developing Contractor
1.	5.				Piloting, Test and Evaluation (Overhead Support)
1.	5.	1.			Definition
1.	5.	2.			Planning
1.	5.	3.			CPAS Implementation
1.	5.	4.			Other Piloting Events

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1.	6.				Procurement, Implementation and Fielding
1.	6.	1.			Procurement
1.	6.	1.	1.		Deployment Hardware
1.	6.	1.	1.	1.	Army CPMO
1.	6.	1.	1.	2.	Navy CPMO
1.	6.	1.	1.	3.	Air Force CPMO
1.	6.	1.	1.	4.	USMC CPMO
1.	6.	1.	1.	5.	DISA CPMO
1.	6.	1.	2.		System Deployment Software
1.	6.	1.	2.	1.	Army CPMO
1.	6.	1.	2.	2.	Navy CPMO
1.	6.	1.	2.	3.	Air Force CPMO
1.	6.	1.	2.	4.	USMC CPMO
1.	6.	1.	2.	5.	DISA CPMO
1.	6.	1.	3.		Initial Documentation Requirements
1.	6.	1.	3.	1.	Army CPMO
1.	6.	1.	3.	2.	Navy CPMO
1.	6.	1.	3.	3.	Air Force CPMO
1.	6.	1.	3.	4.	USMC CPMO
1.	6.	1.	3.	5.	DISA CPMO
1.	6.	1.	4.		Logistics Support Equipment
1.	6.	1.	4.	1.	Army CPMO
1.	6.	1.	4.	2.	Navy CPMO
1.	6.	1.	4.	3.	Air Force CPMO
1.	6.	1.	4.	4.	USMC CPMO
1.	6.	1.	4.	5.	DISA CPMO
1.	6.	1.	5.		Initial Spares
1.	6.	1.	5.	1.	Army CPMO
1.	6.	1.	5.	2.	Navy CPMO
1.	6.	1.	5.	3.	Air Force CPMO
1.	6.	1.	5.	4.	USMC CPMO
1.	6.	1.	5.	5.	DISA CPMO
1.	6.	2.			Implementation
1.	6.	2.	1.		System Integration/Site Test Acceptance
1.	6.	2.	2.		Site Activation
1.	6.	2.	3.		Initial Training
1.	6.	3.			Fielding
1.	6.	3.	1.		Initial Logistics Support
1.	6.	3.	2.		Unit Site Operation
1.	7.				Operations and Support
1.	7.	1.			Infrastructure Operations and Support
1.	7.	1.	1.		Management Activities
1.	7.	1.	1.	1.	JTOCC Operations
1.	7.	1.	1.	2.	Lab Management & Piloting Framework
1.	7.	1.	1.	3.	Configuration Management
1.	7.	1.	2.		Sustaining Engineering
1.	7.	1.	3.		Annual Operations Investment
1.	7.	1.	4.		Software Licenses
1.	7.	1.	5.		Tech Refresh
1.	7.	1.	6.		Hardware Maintenance
1.	7.	1.	7.		Help Desk Support (Tier II)
1.	7.	2.			Training
1.	7.	2.	2.		Recurring Training
1.	7.	2.	3.		MTTs

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1.	7.	3.			Logistics
1.	7.	4.			CM Operations and Support
1.	7.	4.	1.		CM #N
1.	7.	4.	2.		Configuration Management
1.	7.	4.	3.		Sustaining Engineering
1.	7.	4.	4.		Software Maintenance
1.	7.	4.	5.		Annual Operations Investment
1.	7.	4.	6.		Software Licenses
1.	7.	4.	7.		Tech Refresh
1.	7.	4.	8.		Hardware Maintenance
1.	7.	4.	9.		Help Desk Support (Tier III)