

CFT 4 Metrics

Purpose: This section is intended to provide the definitions of each CFT4 metric.

Discussion: In order for Navy Modernization Process (NMP) metrics to be effective, they must meet several attributes. They must be standard across a wide spectrum of organizations, they must be a consistent reflection of the process they measure, they must be understood by many levels within the modernization community and they must be timely in delivery. The following paragraphs will provide the name, definition, calculation, source of data and proposed updates for each CFT 4 metric. It is important for the user to recognize that the usefulness and accuracy of any metric is dependent upon the integrity of the data utilized in the computation of the measurement. CFT 4 metrics utilize data primarily from NDE-NM and NDE-EP. As such they are reflection of the modernization process based upon the data contained in those databases.

CFT4 Metrics Definitions:

Panel 1

Panel Name: ALTs Not Installed within Three Years (Panel 1)

Metric Name: Percent ALTs Not Installed within Three Years

Definition: This is the primary metric for Panel 1. Metrics is the percentage of all active Alts exceeding 3 years from the Alt approval date. If the Alt type is SA, then the Alt Approval date is the date of signature of the Ship Alteration Record (SAR). If the Alt type is AER, then the Alt approval date is the AER Approval date. An active alteration is defined as one, which is not cancelled, not superseded, or not completed on all applicable ships.

Source of Data: NDE-NM

Calculation:

$$\frac{\text{Number of Active Alts Exceeding 3 Years from Approval}}{\text{Total Number of Active Alterations}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Planned improvements include adding DP3 as the SCD approval date.

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Panel 2

Panel Name: Sunk Cost (Panel 2)

Metric Name: Sunk Cost – Roll-up

Definition: For all SCDs that are entered into NDE under the entitled process (Process Map Block 2), identify and measure the total resources (dollars) invested in SCDs that are subsequently voted to be Inactive and Hold (Recommended but not funded) at various process decision points. Metric data will be collected and analyzed monthly, and tallied by type of appropriation on an annual basis.

Source of Data: Unavailable

Calculation:

Total of actual dollars expended in all FY for an SDC with Alt Status = Inactive or Hold less Actual Cost expended for Alts returning from Hold to Active. Sum the following data.

Sunk Cost =

$$\sum \text{CDC_Cost_Act} + \text{PEC_Cost_Act} + \text{DDC_Cost_Act} + \text{Proc_Cost_Act} + \text{Install_Cost_Act} + \text{Shutdown_Cost_Act}$$
 for Alts with Alt_Status_Dt within the reporting period AND (Alt_Status = Hold OR (Alt_Status = Inactive AND Off_Hold_Dt \neq Alt_Status_Dt)) - $\sum \text{CDC_Cost_Act} + \text{PEC_Cost_Act} + \text{DDC_Cost_Act} + \text{Proc_Cost_Act} + \text{Install_Cost_Act}$ for Alts with Off_Hold_Dt within the reporting period AND (Alt_Status = Active)

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD financial data.

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Panel 3

Panel Name: Churn (Panel 3)

Metric Name: Churn (Percent Alterations Added and Deleted vs.Total ALTs in the Availability Package each month)

Definition: This is a Primary metric for Panel 3. Percentage of alterations added to or deleted from the availability package during the reporting month. The initial data point is the total Alterations in the Avail package at A-360. The percentage is calculated for each ship monthly from A -360 through EOA.

Source of Data: All data originates from the planning yards. The basis for the initial and follow-on data will be the “Alterations in Availability” spreadsheets submitted by the planning yards directly into the NMP CFT4 Metrics database. The Planning Yards will submit the data monthly to NSLC via the Data Management System (DMS). All ship availabilities within A-360 and EOA will be reported monthly. Availabilities originate in the Navy Data Environment (NDE) database according to the data queries outlined on pages 4-7 of this document.

Calculation:

$$\frac{\text{Number of Alterations Added Plus Alterations Deleted from Avail Package}}{\text{All Alterations in the Availability Package at EOM}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from Planning Yards; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-NM.

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Panel 4

Panel Name: SCD Estimate Accuracy

Metric Name: SCD Cost Estimate by Phase

Definition: For all SCDs approved at DP3; calculate the average percentage change of all SCD total cost estimates recorded in the CBA from DP1 to DP3.

Source of Data: NDE-EP (CBA Module)

Calculation:

For all SCDs approved at DP3 during the month:

$$\frac{\left(\sum \left(\frac{\text{DP3 estimate} - \text{DP1 estimate}}{\text{DP1 estimate}} \right) * 100\% \right)}{\text{Number of SCDs approved at DP3}}$$

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD financial data. Planned updates include tracking the accuracy of SCD estimates from DP3 through procurement and installation.

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Panel 5

Panel Name: Process dCT (Dynamic) (Entitled Process)

Metric Name: Dynamic Process Cycle Time (dCT)

Definition: The metric is sum of the dynamic CT measured for each of the phases of the SCD. The metric does not include alterations in Hold status. The Dynamic Cycle Time of a phase is defined as the WIP (Alts actively being worked) divided by the Process Speed (Alts Approved or cancelled in the phase per day). WIP is calculated as Alts coming into a phase either through approval from the previous phase or coming out of Hold status from the previous phase less the Alts approved or cancelled in the phase. The dynamic cycle times are multiplied by 30 to change the units from months.

Source of Data: NDE-EP

Calculation:

$$\begin{aligned} \text{dCT} = & \\ & ((\text{Phase I WIP} / \text{Phase I SCD_COMPLETE}) * 30) + \\ & ((\text{Phase II WIP} / \text{Phase II SCD_COMPLETE}) * 30) + \\ & ((\text{Phase IIa WIP} / \text{Phase IIa SCD_COMPLETE}) * 30) + \\ & ((\text{Phase III WIP} / \text{Phase III SCD_COMPLETE}) * 30) \end{aligned}$$

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

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Panel 6

Panel Name: First Pass Yield (FPY)

Metric Name: First Pass Yield (FPY)

Definition: For all Ship Change Documents (SCDs), the percentage of how many are being reviewed for the first time at each major decision point and of these how many are “approved”. “Approved” are those that are not “killed” or sent back for rework. Metric data will be collected and analyzed monthly, and tallied by SYSCOM on an annual basis. Note: FPY is plotted two graphs, Phase I and II on the top graph; Phase IIa and III on the bottom graph.

Source of Data: NDE- EP

Calculation:

Plot 1

$$\frac{\text{Total Number of Phase I SCDs Approved at DP1 without Rework}}{\text{Total Number of Phase I SCDs Approved at DP1}} \times 100\%$$

Plot 2

$$\frac{\text{Total Number of Phase II SCDs Approved at DP2 without Rework}}{\text{Total Number of Phase II SCDs Approved at DP2}} \times 100\%$$

Plot 3

$$\frac{\text{Total Number of Phase IIa SCDs Approved at DP3 without Rework}}{\text{Total Number of Phase IIa SCDs Approved at DP3}} \times 100\%$$

Plot 4

$$\frac{\text{Total Number of Phase III SCDs Approved at DP1 without Rework}}{\text{Total Number of Phase III SCDs Approved at DP1}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

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Panel 7

Panel Name: Milestone Conformance

Metric Name: Percent Milestone Conformance

Definition: This is the primary metric for this panel. Metric is the percentage of Availability Planning Milestones completed on schedule and is recorded for each hull during the month in which the milestone should have occurred. This metric is intended to track process improvements and adherence planning milestones. A positive slope is a result of improving process On-Time Delivery (OTD) through the various key milestone targets.

Planning Milestones count towards the total if they are completed on schedule as outlined in the Availability Planning Guideline (A – timeline).

Alt Approval Date is the SAR Approval Date for Alt type SA, and the AER Approval Date for Alt Type AER. The A-11 milestone does not apply to AER Alts.

Source of Data: NDE-NM

Calculation:

$$\frac{\text{Number of milestones completed on schedule for an availability}}{\text{Total number of milestones reached for an availability}} \times 100\%$$

Status/Planned Updates: Metric is currently active and produced monthly. Planned improvements include adding NMP critical milestones, replacing SAR Approval date with DP3 approval for the SCD and developing a Milestone Conformance Report.

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Panel 8

Panel Name: Process Efficiency (Panel 8 Entitlement Process)

Metric Name: Process Efficiency

Definition: Measure the percentage of Active Alterations that are being worked and the percentage of Active Alterations that are on Hold in each phase. The panel will display a segmented bar graph for each month with segments for the Concept Development, Preliminary Engineering, Detailed Design, Acquisition, and Installation phases. The order of the segments from top to bottom will be Percent HOLDcdc, Percent HOLDpec, Percent HOLDddc, Percent WIPcdc, Percent WIPpec, Percent WIPddc, Percent WIPacq, Percent WIPinstall. The Base line and Entitled line will be compared to the top of the Percent WIPcdc (indicating the total percentage of WIP).

Source of Data: NDE-EP

Calculation:

For each phase I through IV:

$$\frac{\text{Number of Alts in each Phase (WIP)}}{\text{Total number of Alts (WIP)}} \times 100\%$$

The sum of all the percentages will be 100%.

Status/Planned Updates: Metric is currently active and produced monthly. Data is collected manually from NSLC Fairfield; uploaded via the Database Management System (DMS). Planned improvements include automating data collection utilizing NDE-EP.

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Panel 9

Panel Name: Process Effectiveness

Metric Name: Process Effectiveness Priority Value Index (P-Value) Distribution

Definition: The distribution of SHIP Change Documents in Phase IV into four P-Value numerical categories;

1 to 25

26 to 50

51 to 75

75 to 100

Each category expressed as a percentage of the total distribution.

To ensure that all Ship Change Documents (SCDs) are measured on a common scale for merit, each SCD is assigned a Priority Value Index (P-Value) based upon the following factors; Technical Merit, AFOM, Cost Benefit Analysis, and number of hulls modernized by the SCD. P-Value has been established to assist decision makers in prioritizing which SCDs to approve for installation. Over time, especially during periods of diminishing modernization resources, the proportion of SCDs approved for procurement and installation in the higher P-Value numerical categories will increase.

Source of Data: NDE-EP

Calculation:

Number of SCDs with P-Value <26 / total number of SCDs in Phase IV * 100%

Number of SCDs with P-Value $>26 \leq 50$ / total number of SCDs in Phase IV * 100%

Number of SCDs with P-Value $>51 \leq 75$ / total number of SCDs in Phase IV * 100%

Number of SCDs with P-Value $>76 \leq 100$ / total number of SCDs in Phase IV * 100%

The sum of all percentages will be 100%

Status/Planned Updates: Metric is currently inactive; waiting on implementation of the EP module for access to SCD P-value data.