NAVSEA
NAVAL SEA SYSTEMS COMMAND
THE FORCE BEHIND THE FLEET

Perform to Plan (P2P) Surface

07 August 2019

Presented to:

Industry/Navy Discussion Panel

Presented by:

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Perform to Plan – P2P Surface

- OPNAV directed project to the Air, Undersea, and Surface Warfare Enterprises (SWE) to improve performance
- SWE Strategic Objective: Improve maintenance availability execution to support OFRP
- First phase is focused on DDG 51 class, lessons learned will be applied to all classes
- Process:
  - SWE determines outcome metrics P2P seeks to improve ((1) schedule adherence and (2) material condition were selected)
  - SWE then selects tier 1, 2, 3, and 4 (in some cases) metrics that drive the outcome metrics. Each metric has a plan and goal
    - Assumption is if the correct drivers with performance goals are chosen and the the goals are achieved then ultimately the outcome metric will be improved
    - Center for Naval Analysis is building several models (Artificial Intelligence, machined learning, neural networks) to model the drivers to validate the correct drivers have been chosen and better predict future performance
    - Actions to achieve goals are aligned to 10 Lines of Effort (LOE)

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Perform to Plan - Visibility

- Updates will be briefed to VCNO and Assistant SECNAV RDA quarterly with monthly updates to Fleet Commanders
- Aligns the surface ship maintenance community's efforts to improve on-time delivery from Echelon 1 to Echelon 4 (strategic to tactical)
- Provides senior level leadership visibility to surface ship maintenance challenges
- Will be an enduring project, constantly driving to refine the 'plan' and measure performance in meeting the plan

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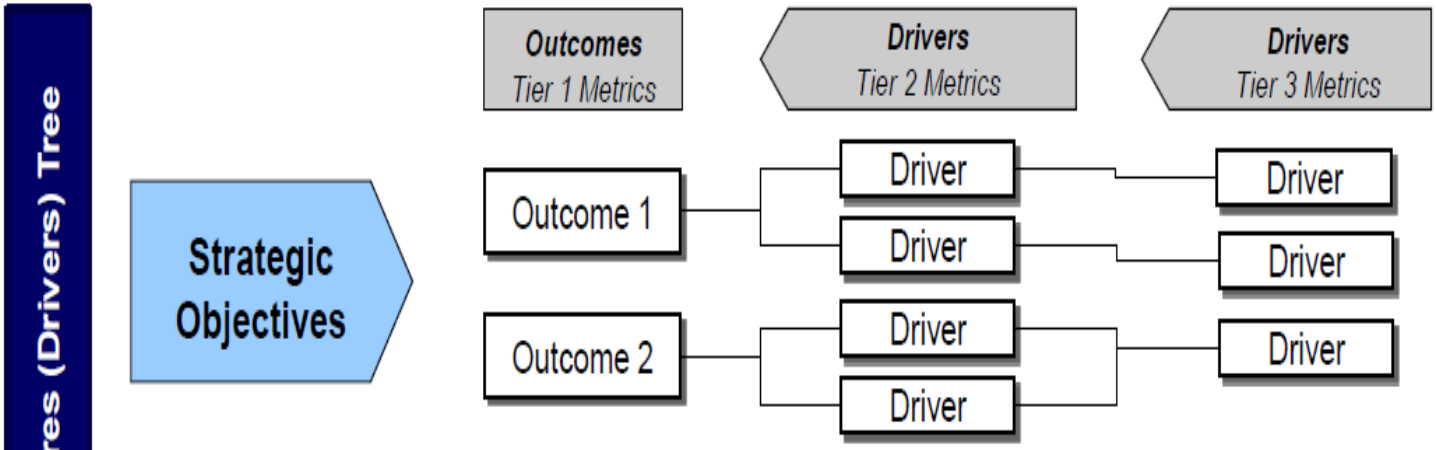
Methodology



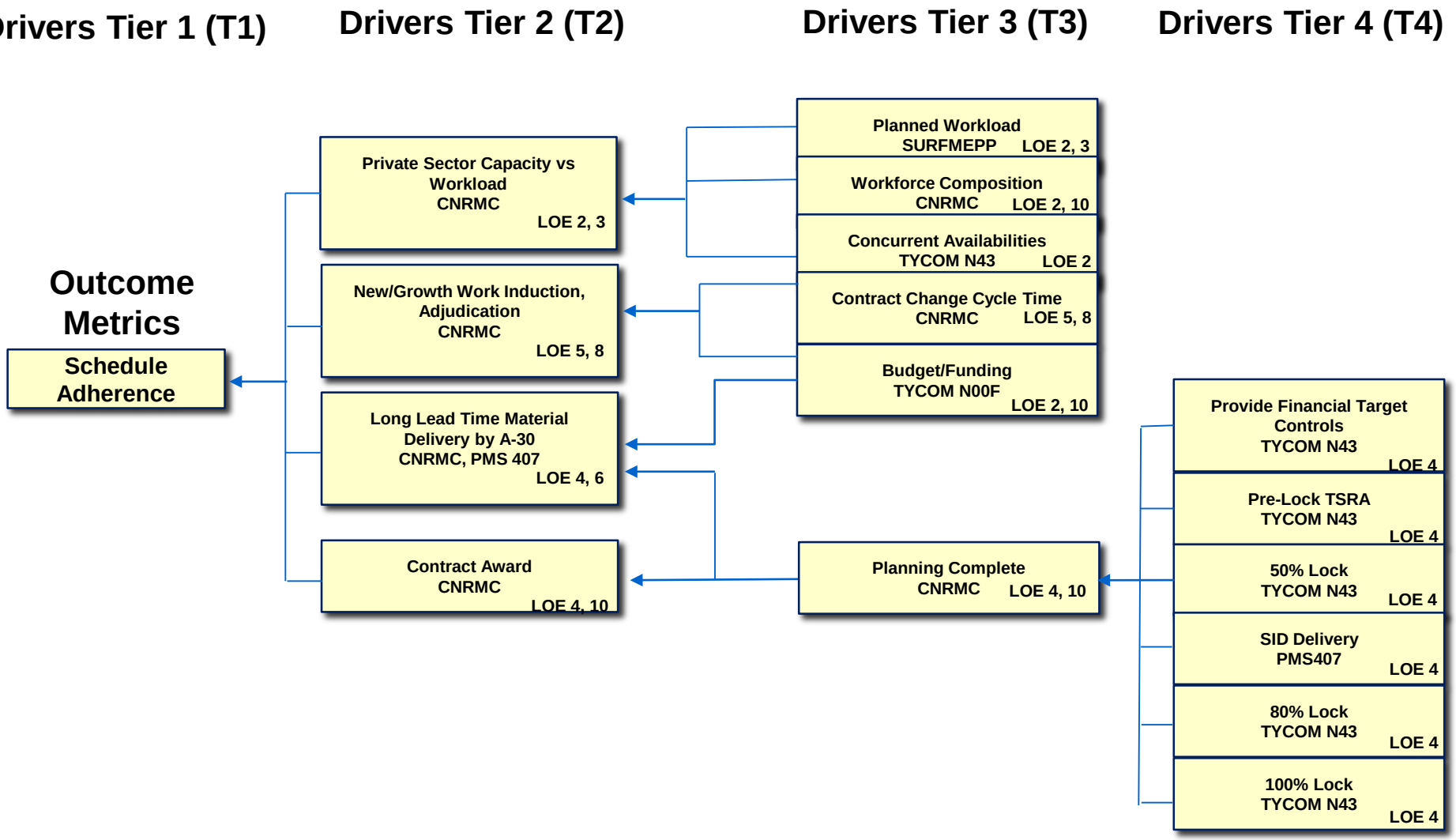
- Clear articulation of what the organization wants to achieve
- Define the problem space

- The key measures of success
- **"If we improve these metrics, we will achieve our strategic objectives"**

- Internal and external factors with significant cause-and-effect relationship to the key outcome metrics, modeled and quantified over time
- Drivers can be initiated at a high level, then cascade deeper over time as insight improves
- Drivers need to be precisely defined and derived from an authoritative data source

Strategic Objective: Improve Maintenance Availability Execution To Support OFRP

Driver Tree – Schedule Adherence



Schedule Adherence Definitons

	NAME	TIER	METRIC DEFINITION
OUTCOME METRIC	SCHEDULE ADHERENCE	T1	Total number CNO availabilities currently on track to meet their original EOA completion date (defined at A-30), over the total number of availabilities with FY19 start dates.
DRIVERS	PRIVATE SECTOR CAPACITY VS WORKLOAD	T2	Private industry surface ship repair capacity measured against required workload per Naval Supervising Activity (Actual vs Planned Man-days for CONUS & HRMC RMCs).
	NEW/GROWTH WORK INDUCTION, ADJUDICATION	T2	Growth and New Work as a percentage of base package funding ($).
	LONG LEAD TIME MATERIAL DELIVERY BY A-30	T2	Long Lead Time Material (LLTM) definition: EDD > 30 days or identified to have an impact on the critical path. Metric: number of avails that met all LLTM received at A-30.
	PLANNING MILESTONE ADHERENCE	T2	Accurate and complete requirements package turnover to contracts.
	PLANNED WORKLOAD	T3	The Ratio of Man-Days for POM (W) versus WLA (X) for the availability.
	WORKFORCE COMPOSITION	T3	Break down of private sector workforce by trade and numbers against workload requirements.
	CONCURRENT AVAILABILITIES	T3	TYCOM review of availability schedules and region capacity. Avails planned over port capacity.
	CONTRACT CHANGE CYCLE TIME	T3	Measure in days of time required to settle a Request for Contract Change (RCC) from initiation to finally settle.
	BUDGET/ FUNDING	T3	Fund authorizations for LLTM and Growth/New Work cycle time within 48hrs.
	PROVIDE FINANCIAL TARGET CONTROLS	T3	TYCOM issues financial target that establishes planned cost of each availability for RMCs. Numbers indicate numbers of ships meeting goal.
	PRE-LOCK TSRA	T3	TYCOM-led total ship readiness assessment event that is conducted in pre-deployment. Values indicate numbers of ship assessments, actual and planned.
	50% LOCK	T3	Only 50% of the work, measured by 50% of the budgeted funds for repair work during the availability being committed, be “locked” at the 50% lock. Numbers indicate numbers of ships meeting goal.
	SID DELIVERY	T3	Percentage of availabilities meeting Ship Installation Drawings (SIDs) delivery milestones over total percentage of availabilities planned for that period.
	80% LOCK:	T3	80% of depot level work package be committed at 80%, and 100% of the Ship’s Force and I-Level work that is planned to be executed.
	100% LOCK	T3	100% package lock is the official milestone to mark identification of 100% of the work requirements for an availability based on the Maintenance and Modernization Budget Plan budget.
	CONTRACT AWARD:	T3	On Time Award (OTA) measured in days of contract award past milestone.

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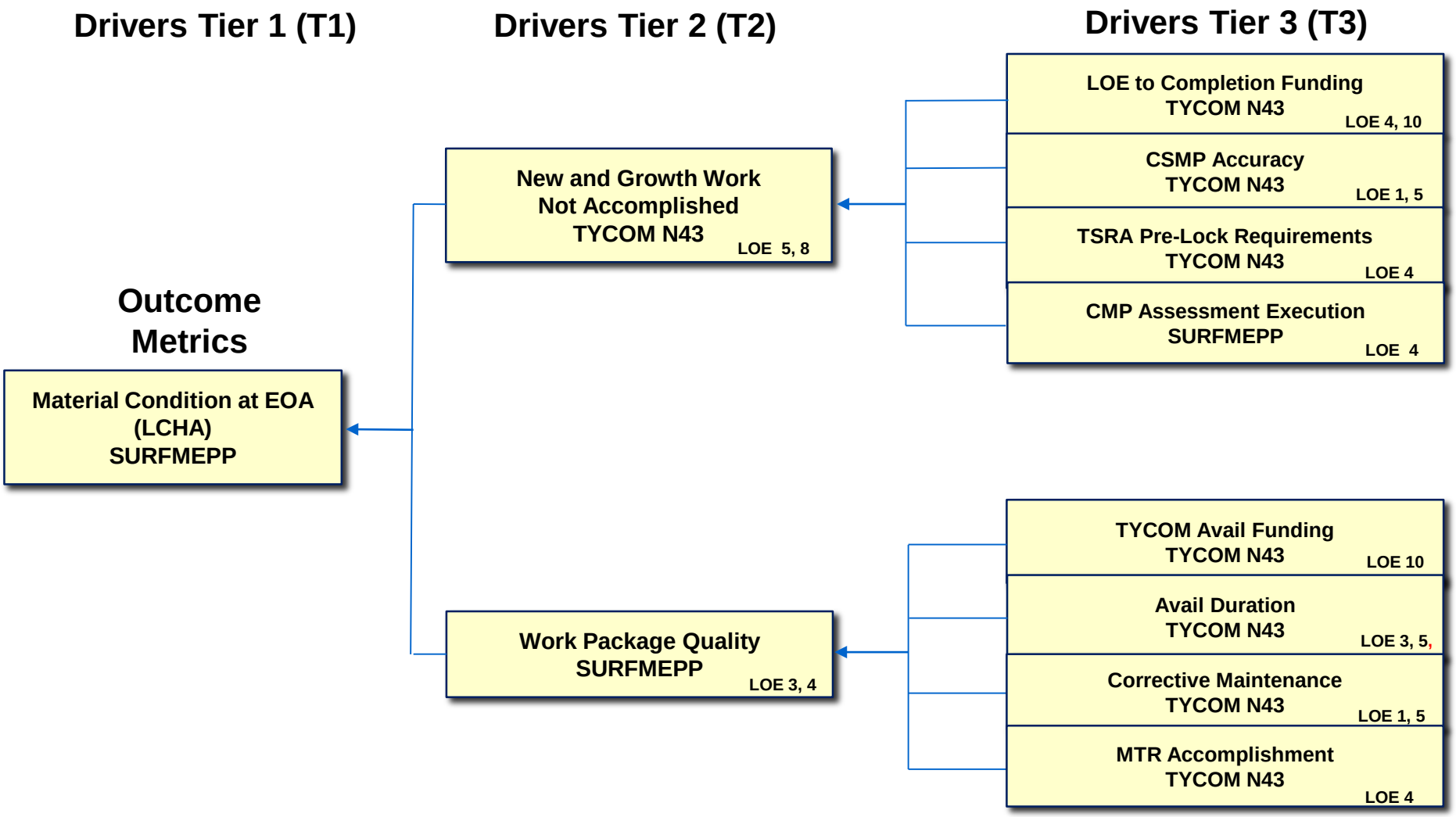
Strategic Objective: Improve Maintenance Availability Execution To Support OFRP

Driver Tree – Material Condition



Material Definitons

	NAME	TIER	METRIC DEFINITION
OUTCOME METRIC	MATERIAL CONDITION AT EOA	T1	Life Cycle Health Assessment (LCHA) condition criteria completed SAT
DRIVERS	NEW AND GROWTH WORK NOT ACCOMPLISHED	T2	Number of Major Departure From Specifications (DFS) generated between start and end of avails and not corrected at end of avail is less than 5. (FY DDG51 avail class avg) Source of data is eDFS.
	WORK PACKAGE QUALITY	T2	Amount of Mandatory Technical Requirements (man-days) not included in the package does not exceed 5% as compared to the man-days in the Work Load Agreement
	LOE TO COMPLETION FUNDING	T3	Level of Effort (LOE) to Completion CLIN fully funded at Start of Avail (SOA). Note: LOE to Completion CLIN funding includes Small Dollar Value Growth Funding.
	CSMP ACCURACY	T3	Current Ship Maintenance Package (CSMP) accuracy as indicated by the percentage of valid 2 Kilos identified during the Pre-Deployment Total Ship Readiness Assessment (TSRA) exceeding 20% (based on 2018 DDG51 class average). Metric is measured dividing the number of valid 2-Kilos identified during the Pre-Deployment TSRA by the number of valid 2 Kilos identified plus the number of discrepancy 2 Kilos written during the Pre-Deployment TSRA visit as reported in the TSRA completion message.
	TSRA PRE-LOCK REQUIREMENTS	T3	Pre-Lock TSRA requirements executed prior to package lock with >80% of required system assessments completed during Pre-deployment TSRA.
	CMP ASSESSMENT EXECUTION	T3	100% of Class Maintenance Plan (CMP) required pre-availability assessments completed by 80% package lock to support work package development.
	TYCOM AVAIL FUNDING	T3	95% of solicited work package funded at A-20 (Base, Option, and True Option). Measured by total KTR contract bid for TYCOM CLINs/total funding
	AVAIL DURATION	T3	Amount of WN/JCNs removed as measured by a reduction to the 100% Package Lock Letter from 80% lock including mandatory technical requirements does not exceed 5% of total amount of availability work package cost
	CORRECTIVE MAINTENANCE	T3	85% of all CASREPs and DFSs identified at 100% lock are planned for correction prior to end of availability as measured at 100% lock.
	MTR ACCOMPLISHMENT	T3	95% of Mandatory Technical Requirements (MTR) identified at A-510 are scheduled for completion prior to end of availability as identified in deferral letter(s) prior to contract solicitation.

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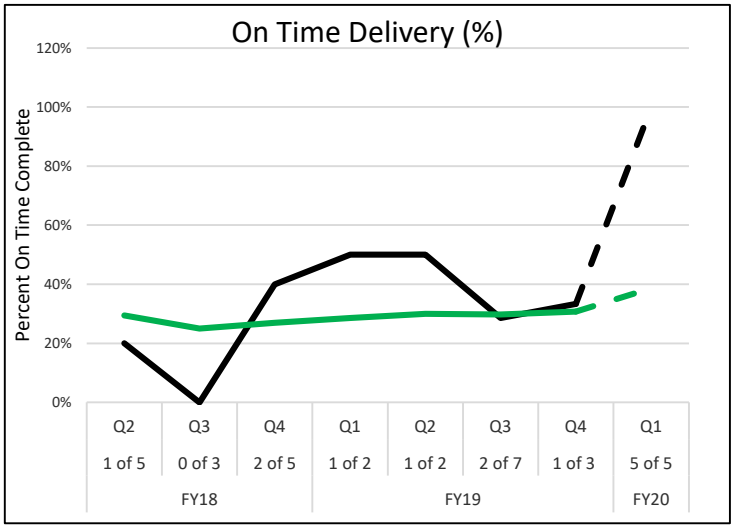
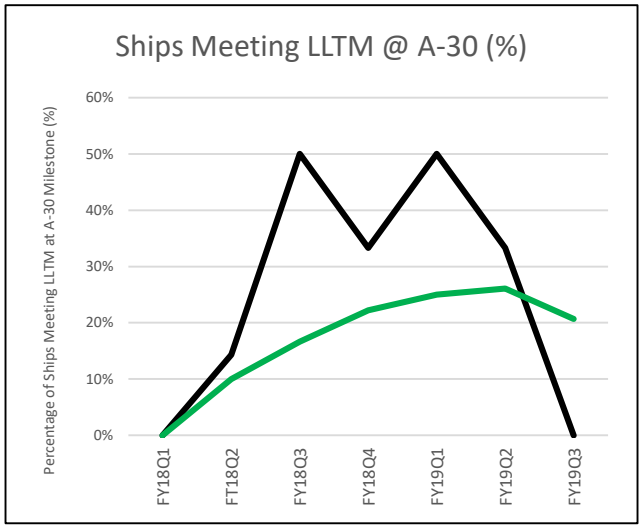
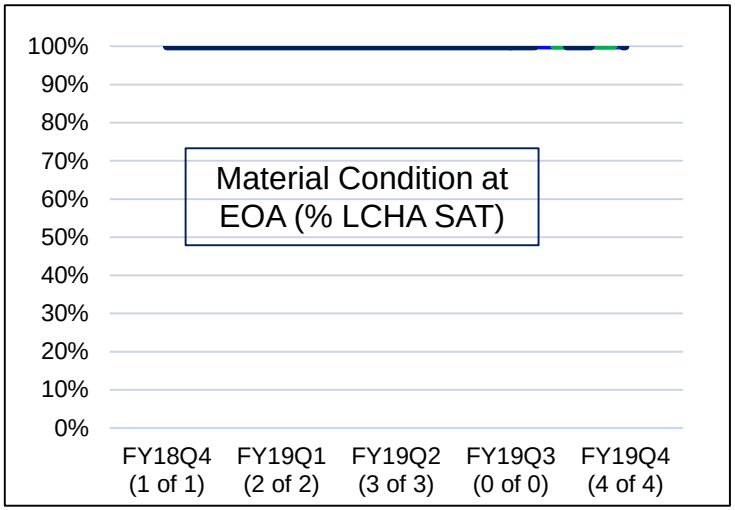
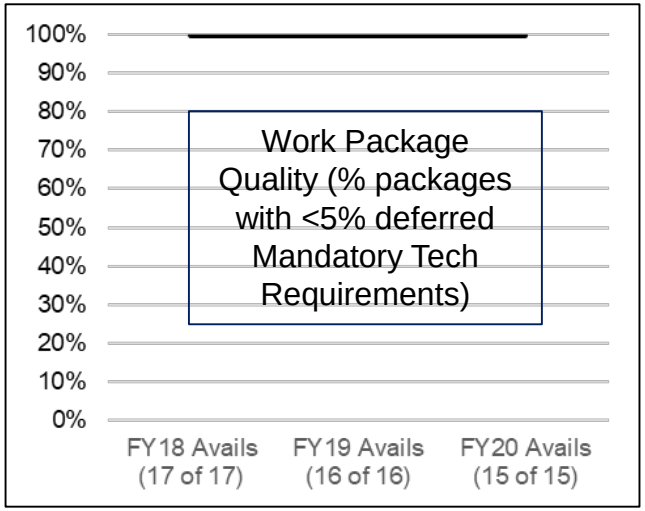
Examples of Metrics and Data

Per Quarter
Cumulative









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P2P-S Lines of Effort – Method to Improve Metric Performance

LOE	Definition	Key Metric(s)	PROCESS OWNER
1	Improve Shipboard maintenance ownership and assessments	- CSMP Accuracy - Pre-Lock TSRA Completion	FLT/TYCOM
2	Improve industrial base workload predictability and performance	- % Man Days Accomplished (Actual vs Planned)	NAVSEA
3	Assess and improve Availability Duration Scorecard (ADS) process effectiveness	- On-time per ADS projection	NAVSEA
4	Improve compliance with established planning milestones	- Package Turnover to Contracts	NAVSEA
5	Implement initiatives to effect / reduce current level of growth and new work	- % N/GW Added	TYCOM
6	Improve Long Lead Time Material Process	- 100% LLTM on-hand at A-30 - Planning Complete - Package Lock	Surface Team 1
7	Implement Ready to Start and alignment process	- Execute Schedule Module Review for each avail - Execute Stack Hands Brief before avail	NAVSEA
8	Reduce contract change cycle time	- LOE to Completion CLIN and SDVG (# of CONUS avails due to commence vs. actually with) - KPI is RCC Cycle Time	NAVSEA
9	Reduce administrative requirements	- Checkpoint reduction (%)	NAVSEA
10	Improve contract award timelines	- Early Contract Award (Award at A-120)	NAVSEA

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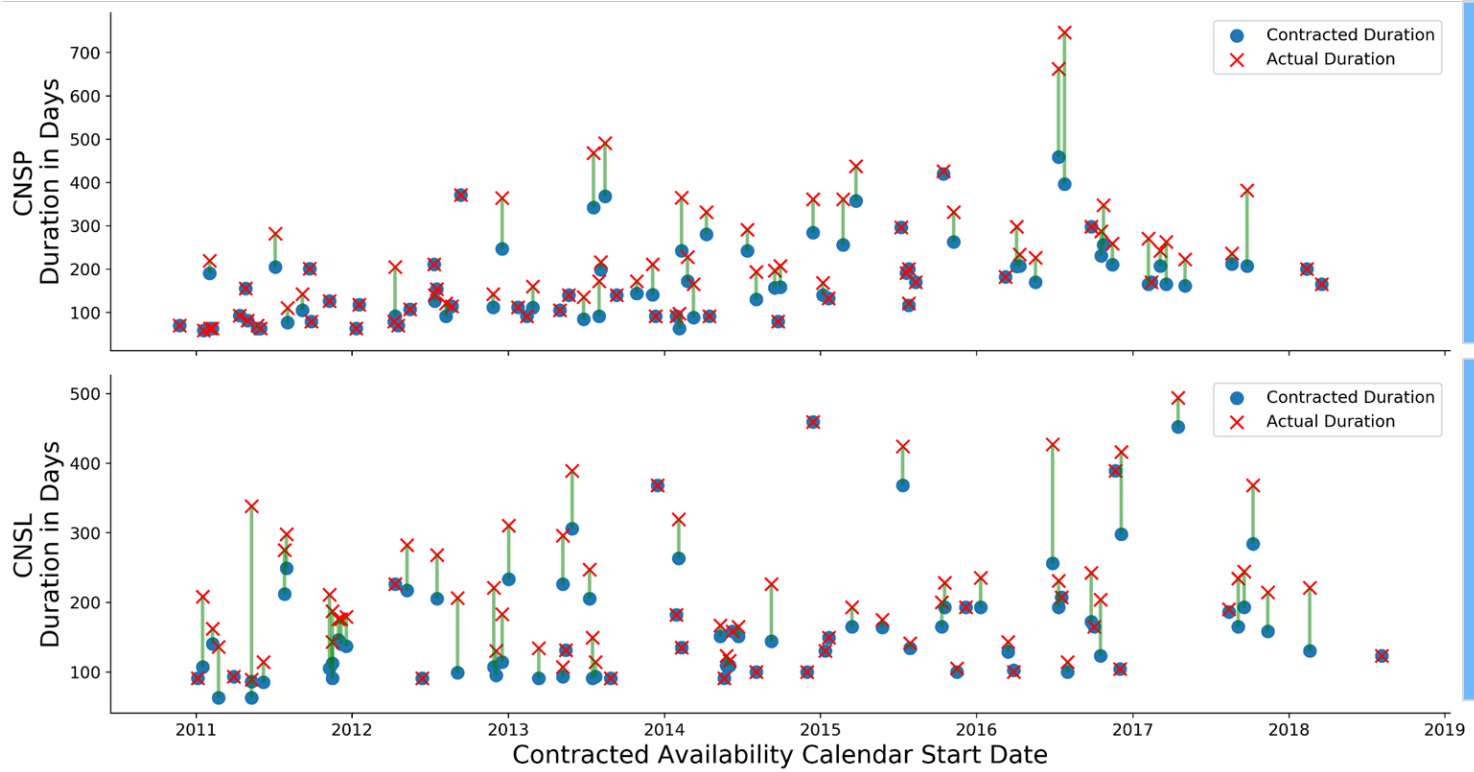
Now, some examples from CNA

Performance Per Coast



PAC

% On-Time	45%
Avg. Days of Delay	39 Days
Avg. Days of Delay %	21%

LANT

% On-Time	31%
Avg. Days of Delay	38 Days
Avg. Days of Delay %	29%

From Contract Award

- Delays in both fleets are expected to continue without SWE action
- CNA partnered with the SWE to transition modeling insights into improvement initiatives
- **Duration planning improvements** through more accurate duration forecasts
  - Integrating with NAVSEA to complement the Availability Duration Scorecards (ADS)
- **Execution improvements** by identifying high-leverage interventions to reduce duration
  - SURFOR and NAVSEA are using levers to help inform improvement initiatives

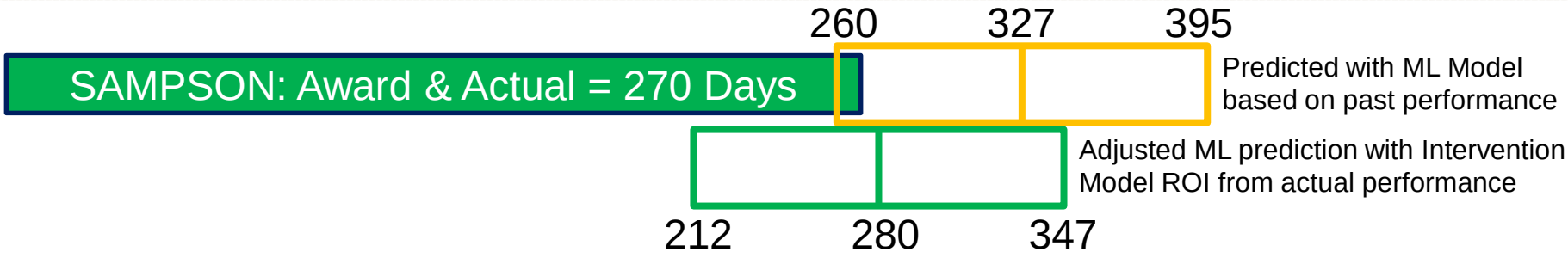
Intervention Modeling to Improve Execution

- The Intervention Model identifies **high-leverage metrics** that improve execution
  - LLTM analysis pending data from completed availabilities
- Interventions complement the ML duration forecast by quantifying how SWE actions can **mitigate forecasted availability delays**
- Interventions levels could vary depending the forecasted delays
  - Availabilities with less forecasted delays may require less intervention

Tier 2 Driver	Variable (Metric at Contract Award)	Changing Driver by this…	Has this effect on delay*
Private Sector Capacity vs Workload CNRMC	**Workload Instability** (Difference in max # avails at NSA during execution vs. max # avails at NSA 3-9 months prior)	10% decrease	-2% delay
	Workload Demand vs. Past Performance (CNO Maintenance daily workload at NSA during execution / CNO Maintenance daily workload at NSA 3-9 months prior)	10% decrease	-3% delay
	Work Density (Man-Days/Day)	50 MD/Day decrease	-5% delay
New/Growth Work Induction, Adjudication CNRMC	**% New/Growth Work (N/GW)** (RCC $'s / contract award $'s)	5% decrease	-4% delay
	% of Total N/GW Discovered 40% Completion (RCC $'s discovered / Total RCC $'s)	10% increase	-5% delay
	LOE to Completion CLIN	Implemented	-3% delay
Contract Award CNRMC	**On time Contract Award**	On time Award	-5% Delay

*Effects are the average expected change in delay, individual availability results may differ

Sampson Deep Dive - Predictive Modeling and 7 Key Levers



SAMPSON saved 47 days through planning adherence and N/GW improvements

Lever	SAMPSON Availability	Historic Average at Award	Estimated ROI from Intervention Model
Concurrent Availability Instability	0%	27%	Built into Machine Learning (ML) Prediction
Demand vs. Past Performance	523%*	115%	Built into ML Prediction
Work-Density	323 MD/Day	167 MD/Day	Built into ML Prediction
% N/GW of Contracted $'s	6.6%	22%	Delay decreased by 9.9%
% of N/GW Discovered by 40% Completion	55%	60%	Delay increased by 2.3%
LOE to Completion CLIN	Implemented	Not Implemented	Delay decreased by 4.8%
Contract Award	On-Time	22% On-Time	Delay decreased by 5%
			Delay decreased by 17.4%

* Due to a gap in CNO availabilities at SPUGT preceded by under-execution of DDG-101 and DDG-92 availabilities

We Want Your Feedback

- Request: Provide feedback via your ship repair association
  - Is the Navy is focusing on the right metrics?
  - Do the metrics capture the right information to properly reflect performance?
  - Do you recommend additional metrics and/or lines of effort?
  - Will the Navy's proposed actions improve on-time delivery?
- Please provide feedback by 30 September 2019 to:
  - Kevin Hill, (757) 836-3047, kevin.c.hill2@navy.mil

Questions?