



Aligning Maintenance Operations Metrics with Warfighter Outcomes

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Navy Enterprise

The Navy's strategic vision:

Deliver maritime dominance globally to fight and win with a forward deployed, rotational, and surge capable Navy in support of our Combatant Commanders (COCOMs), today and in the future.

The Naval Enterprise framework:

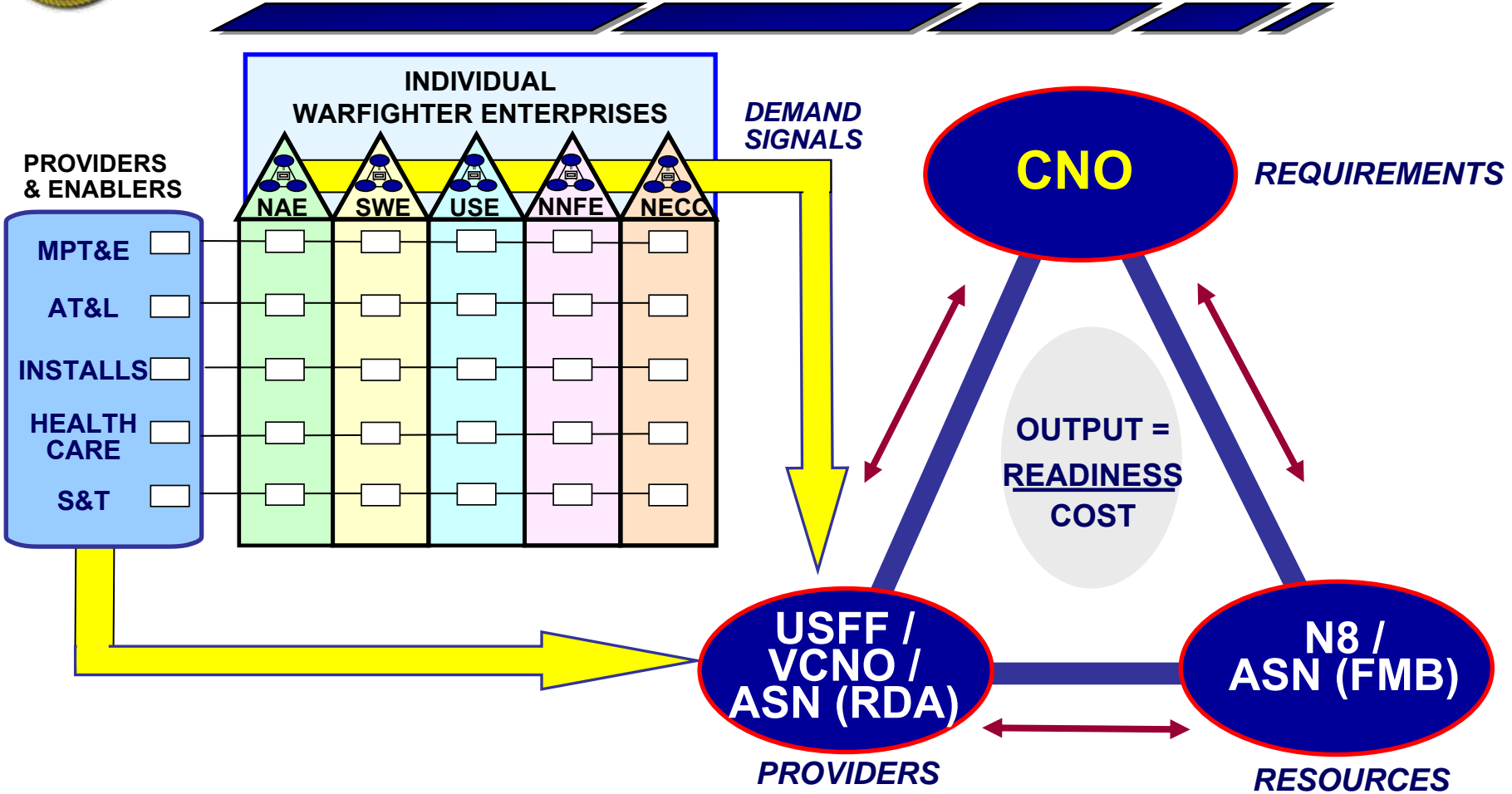
Consists of activities, governance, and behaviors that will drive additional efficiencies in how the Navy delivers current readiness and future capability, as well as provide a foundation for making better, more informed mission, capability, resource allocation, and risk decisions.

Guiding principles of Navy Enterprise:

- Deliver the right warfighting capability, at the right time, at the right cost
- Achieve common, transparent financials, people management, and processes
- Collaboration to optimize output/cost for the Enterprise
- Unity of effort and alignment
- Measurement and accountability
- Effective, integrated governance



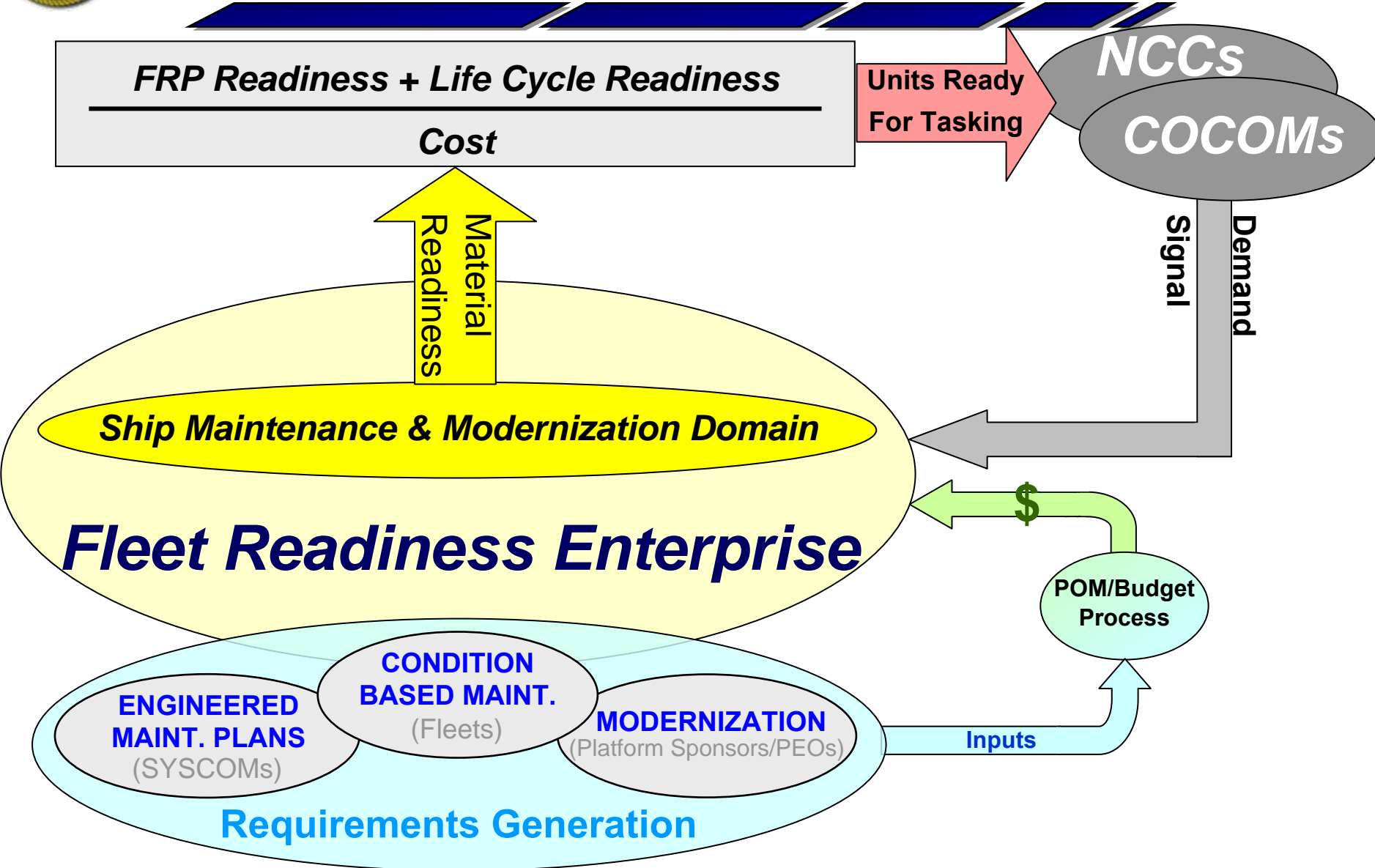
Navy Enterprise



- PRODUCTIVITY DRIVERS:**
- PRIORITIES
 - BEHAVIORAL CHANGES
 - SINGLE PROCESSES / OWNERS
 - COMMON METRICS
 - INTEGRATED CAPABILITIES
 - TRANSPARENCY OF INFORMATION



Today's Strategy





FRP Codified

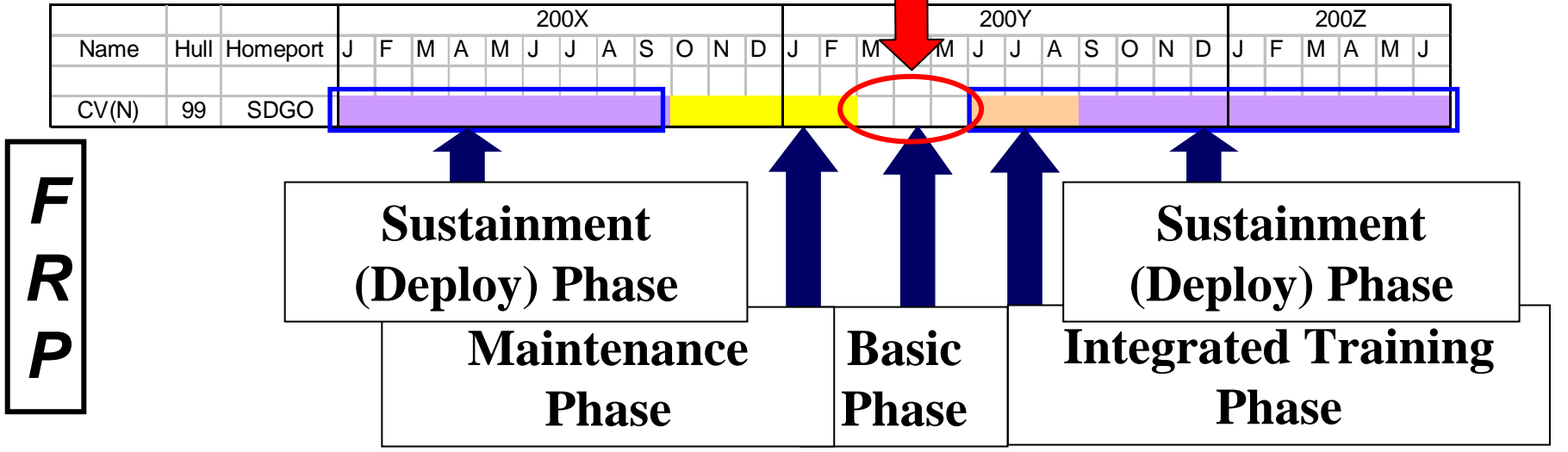
- FRP cycle defined . . . “The Ready Fleet”
 - Basic / Integrated / Sustainment (includes Deployed) / Maintenance



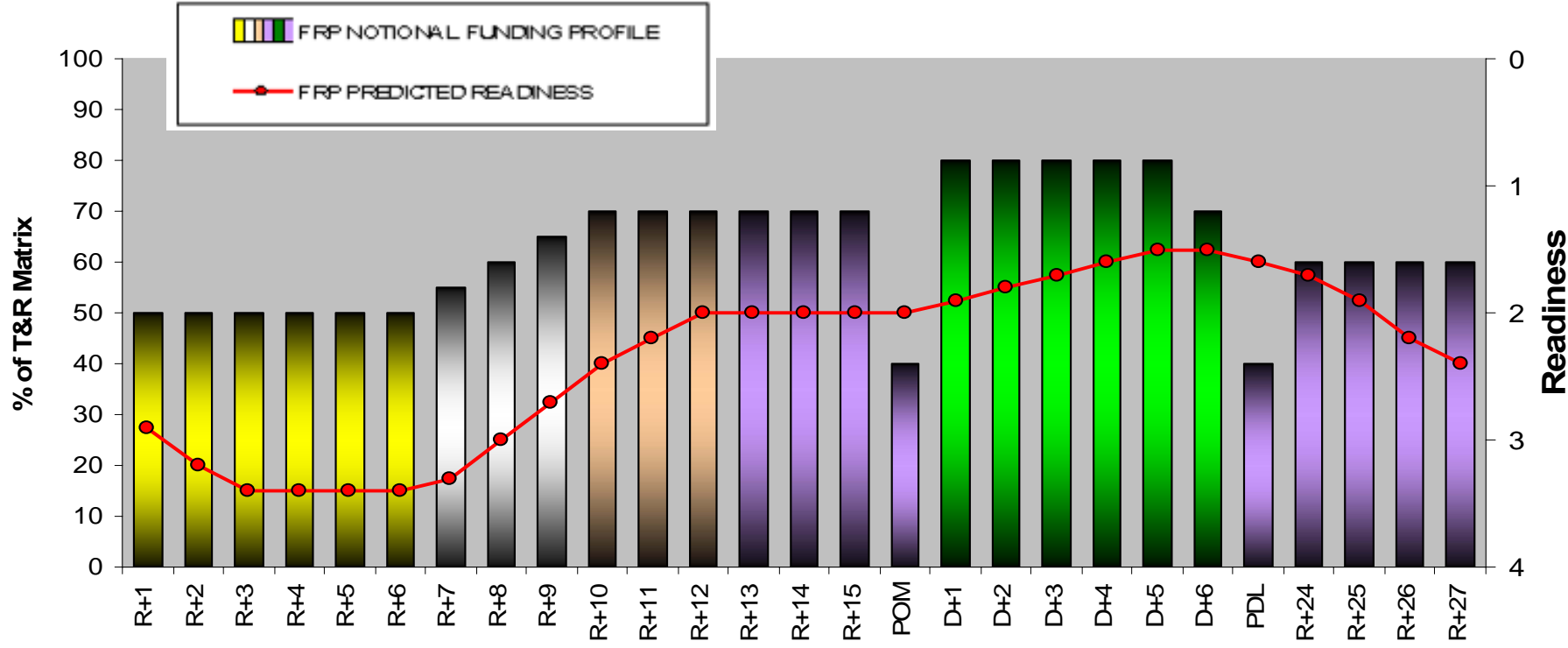
- Capitalize on capacity to increase availability
 - Create flexible deployment options
 - Make available Maritime Security and Homeland Defense forces
- FRP phases tied to mission...Maritime Security, GWOT and MCO
 - Thresholds of readiness
- Lays out responsibilities for maintaining high readiness
- Standardizes terms and definitions
- Application beyond Carrier Strike Groups
 - Strike Groups and all other deployable Navy units.



CSG Deployability Then & Now



Fleet Readiness Training Plan Carrier Airwing



Maintenance	Basic	Inter	Sustain	Deployment	Sustain
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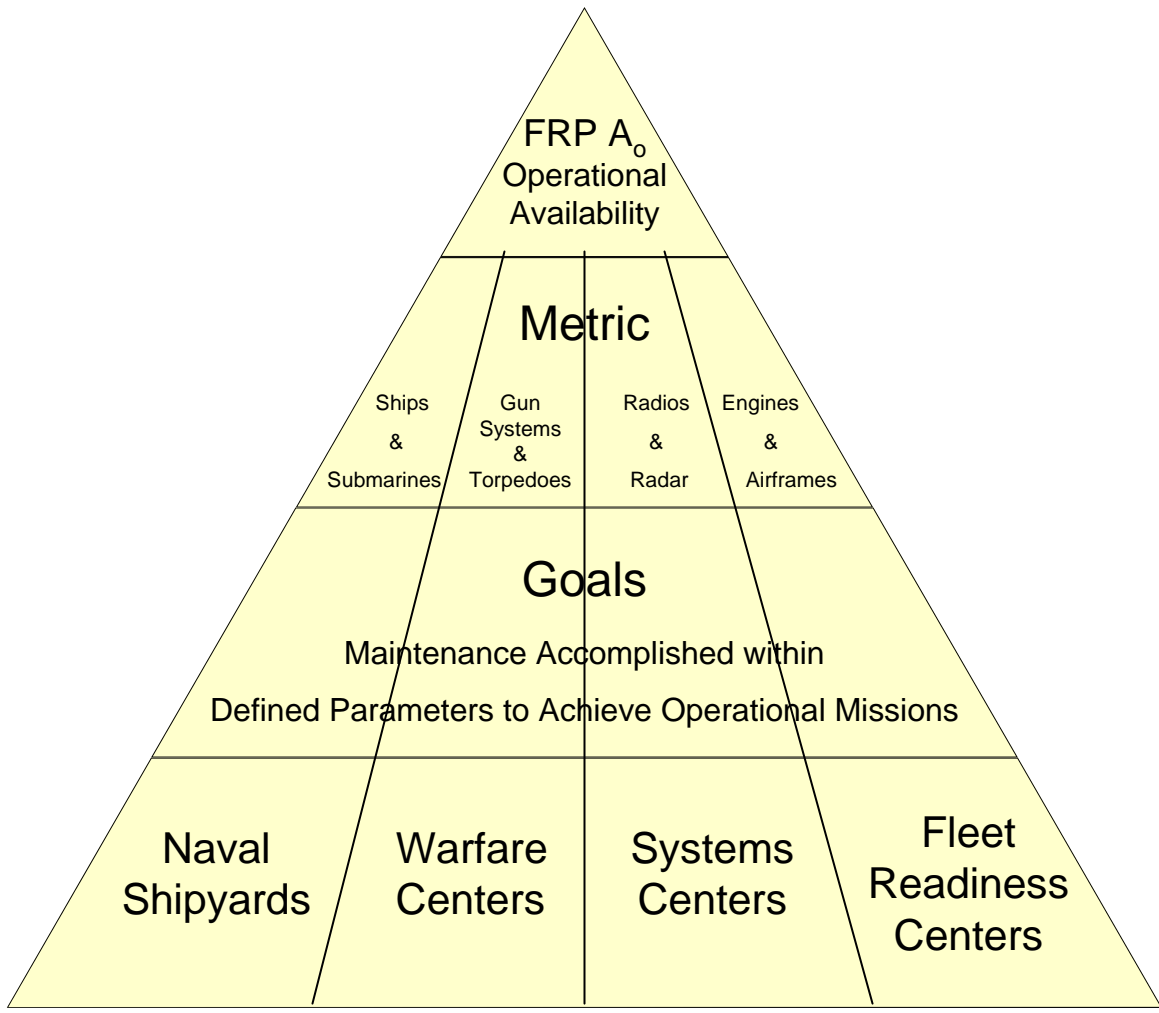
What Does FRP Do?

$$A_o \text{ Fleet} = A_o \text{ FRP} + A_o \text{ Life Cycle}$$

- Fleet Response Plan (FRP) maximizes the availability of forces ready for tasking during their operational cycle
- FRP optimizes return on investment in readiness accounts
- FRP enhances Navy *rotational* commitment strategy by enabling a more flexible force provider decision to fulfill emergent missions.
- FRP can be applied to any unit that develops readiness through a *time-phased* training program
- Training requirements, operational capabilities and amount of maintenance accomplished are unchanged by FRP

Fleet Response Plan (FRP) Operational Availability (A_o)

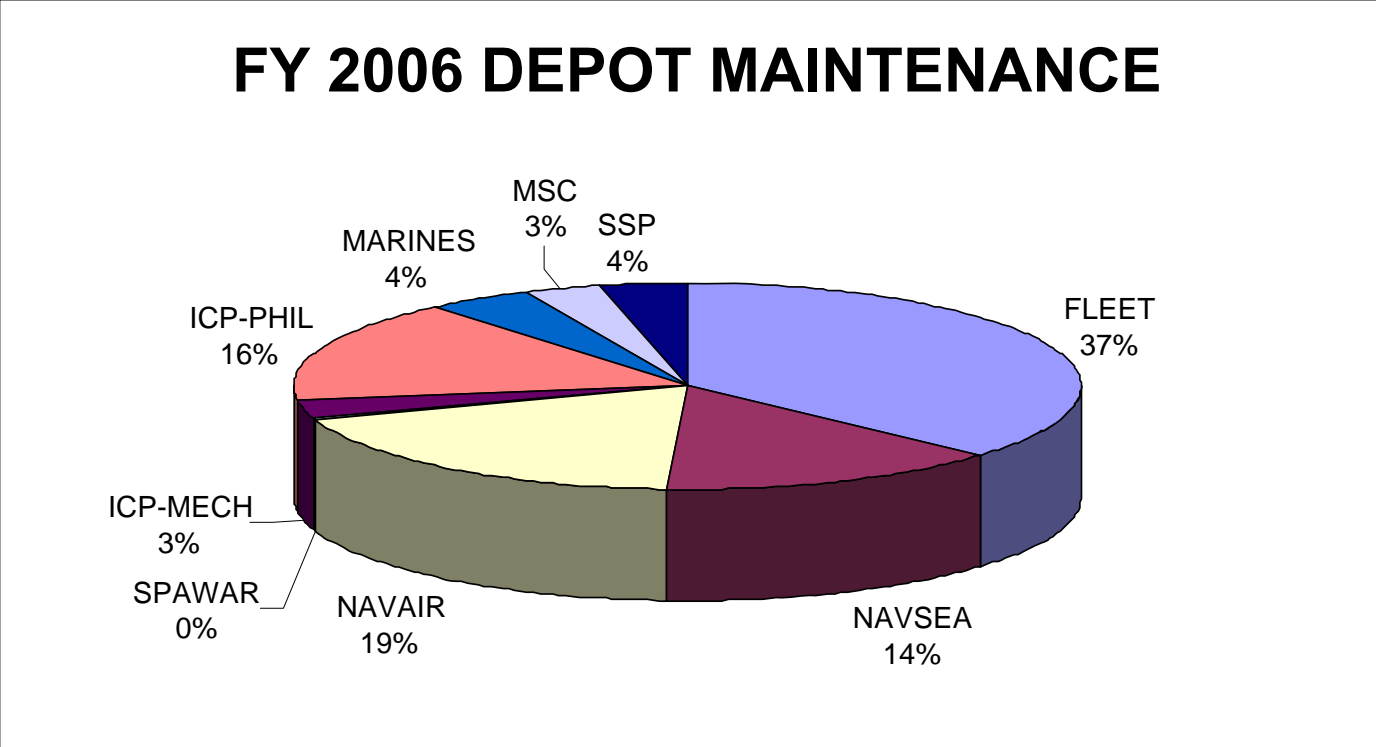
Strategic Alignment



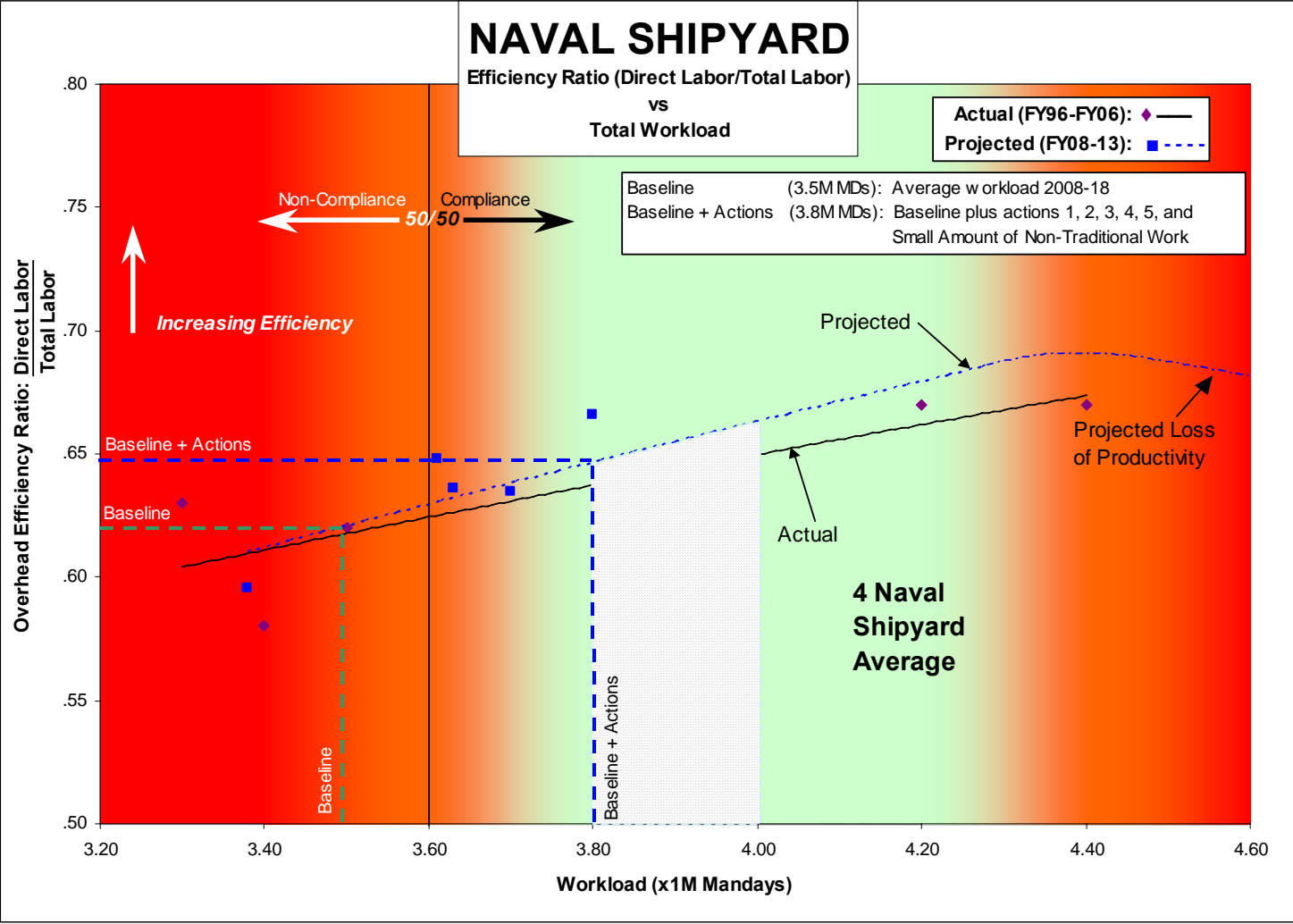


Public/Private Distribution of Depot Maintenance for FY 2006

	Annual Workload Costs (\$M)									DON TOTAL
	FLEET	NAVSEA	NAVAIR	SPAWAR	ICP-MECH	ICP-PHIL	MARINES	MSC	SSP	
Line 1: Total Workload (Principal)	3,862.4	1,507.8	1,995.4	27.0	278.9	1,724.0	449.4	337.0	376.5	10,558.3
Line 2: Total Workload Performed by Employees of DoD	2,258.1	1,084.0	1,170.7	13.8	70.2	913.8	396.6	12.3	148.4	6,067.9
	58.5%	71.9%	58.7%	51.1%	25.2%	53.0%	88.3%	3.6%	39.4%	57.5%
Line 3: Total Workload Contracted for Performance by Non-Federal Personnel	1,604.3	423.8	824.6	13.2	208.7	810.2	52.8	324.7	228.1	4,490.4
	41.5%	28.1%	41.3%	48.9%	74.8%	47.0%	11.7%	96.4%	60.6%	42.5%



Naval Shipyard Business Plan





Depot Maintenance Working Integrated Process Team

- DM WIPT tasked with developing a means for quantifying and reporting depot maintenance.
 - Relevant metrics for each of the Life Cycle Sustainment Outcome Metrics (LCSOM) at the strategic level.
 - Criterion for determining suitable depot maintenance performance metrics for each LCSOM was that no new measurement or reporting systems were to be created.
 - Ties to the DoD Depot Maintenance Strategic Plan
 - Used for strategic assessments and looks at trends and anomalies.
- DM WIPT is developing a Handbook for the Life Cycle Sustainment Outcome Metrics (Depot Maintenance)



Life Cycle Sustainment Outcome Metrics

Matériel Reliability = Mean Time Between Failure

$$\text{Matériel Reliability} = \frac{\text{Total Operating Hours}}{\text{Total Number of Failures}}$$

Measure of the probability that the system will perform without failure over a specific interval. Must be sufficient to support the warfighting capability needed.

Ownership Cost = O&S costs* associated with Matériel Readiness

Provides balance to the Sustainment solution by ensuring O&S costs associated with matériel readiness are considered in making decisions.

* Using the Cost Analysis Improvement Group (CAIG) O&S Cost Estimating Structure Selected cost elements, including 3.0 Maintenance (All)

Mean Down Time (MDT)

$$\text{Mean Down Time (MDT)} = \frac{\text{Total Down Time for All Failures}}{\text{Total Number of Failures}}$$

Total downtime required to restore an asset to its full operational capabilities.

Matériel Availability (MA)

$$\text{Matériel Availability} = \frac{\text{Number of End Items Operational}^*}{\text{Total Population of End Items}}$$

Number between 0 and 100 that provides the average percentage of time that the entire population of systems is materially capable for operational* use during a specified period.

* Operational means in a matériel condition such that the end item is capable of performing an identified mission.



OSD Metric Quarterly Reporting Requirements

Material Availability - Measured in Terms of Organic Production

(1 chart per depot-top 4 systems (TMS)/Family of systems/Core WBS categories...per depot) NAVSEA uses mandays for units...top 4 manday availabilities per shipyard

Material Reliability - Measured in terms of Quality Deficiency Reports (QDRs)

(1 chart per depot - same level as Material Availability...if break down is not to that level, then 1 chart per whole depot)

Mean Down Time - Measured in Organic Flow Days

(1 chart per depot-same level as Material Availability)

Ownership Costs - Measured in terms of Direct Costs

(1 chart per depot-submitted at the depot level...does not break down below depot)

Ownership Costs - Measured in terms of Business Operations (G&A + Overhead)

(1 chart per depot-submitted at the depot level...does not break down below depot)

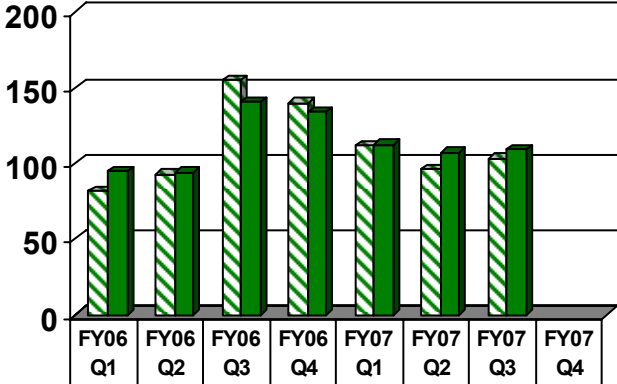
Total of 5 charts per depot

Materiel Availability

Measured in Terms of Organic Production

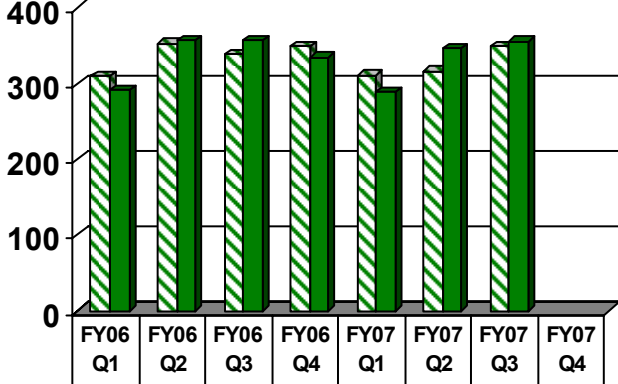


PNSY



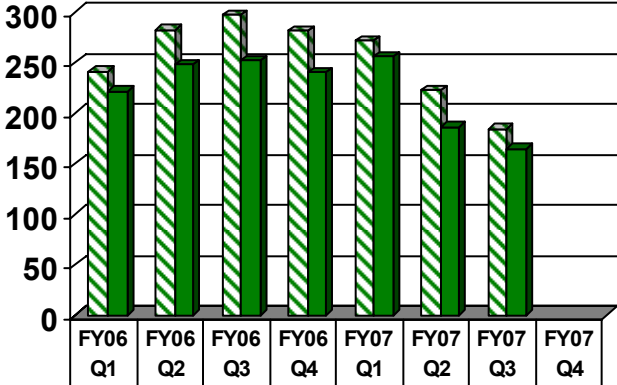
Sched KMDs (Qtr)	81.9	92.9	155.1	139.7	111.7	96.2	103.3	
Prod KMDs (Qtr)	94.6	94.3	140.8	134.2	112.6	107.1	108.9	

NNSY



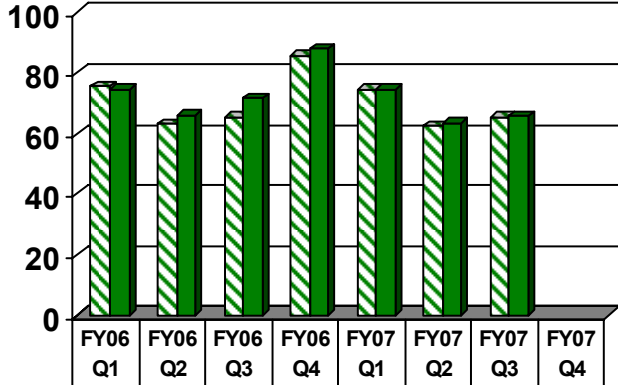
Sched KMDs (Qtr)	310.1	353.7	339.4	348.6	310.7	316.9	348.7	
Prod KMDs (Qtr)	291.3	356.6	356.6	334.8	289.2	346.1	356.1	

PSNS



Sched KMDs (Qtr)	241.3	282.1	297.7	281.5	272.1	222.5	184.1	
Prod KMDs (Qtr)	221.5	248.5	252.4	240.5	255.9	186.7	164.9	

PHNSY



Sched KMDs (Qtr)	75.5	63.1	65.3	85.6	74.4	62.5	65.3	
Prod KMDs (Qtr)	74.5	65.9	71.5	88.1	74.6	63.5	65.7	

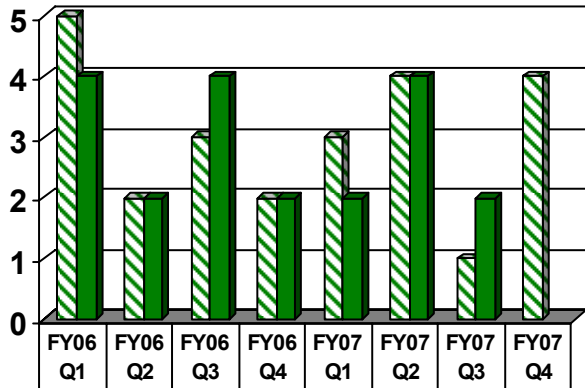
Materiel Availability

Measured in Terms of Organic Production

FRC South East (Jacksonville)

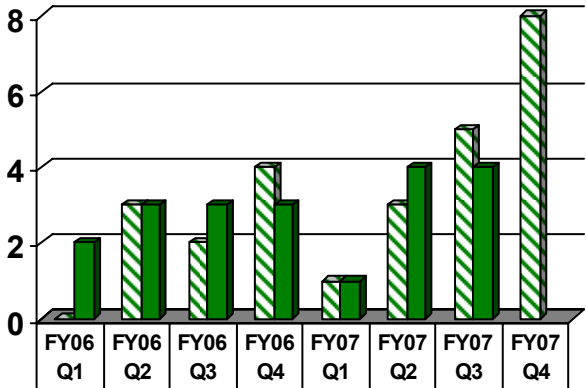


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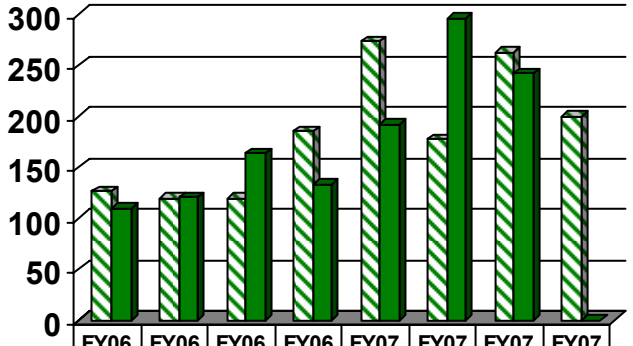
Sched (Qtr)	5	2	3	2	3	4	1	4
Prod (Qtr)	4	2	4	2	2	4	2	0

F/A-18C



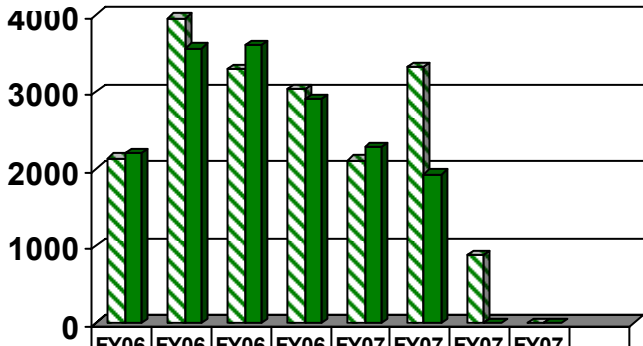
Sched (Qtr)	0	3	2	4	1	3	5	8
Prod (Qtr)	2	3	3	3	1	4	4	0

F414



Sched (Qtr)	126	120	120	185	274	177	263	200
Prod (Qtr)	110	121	164	133	192	296	242	0

Engines



Sched (Qtr)	2144	3967	3294	3038	2119	3339	883	3
Prod (Qtr)	2201	3578	3614	2908	2292	1937	0	0



Wrap-Up

- **OSD and Services Collaborating on Legislation, Policy, and Reporting, etc.**
- **OSD, Services HQs, and Depots Responding to GAO Audits**
- **Metrics – How are we doing?**
 - **Corporate DoD/Navy/FRP A₀ Enterprise Metrics**
 - **Depot (local) Level Metrics**
- **Capabilities Models – Requirements Feedback Loop**
- **Navy Depot Maintenance Family of Strategic Plans**
 - **Plans Aligned to Enterprises: SWE,USE,NAE**
 - **Maritime (NAVSEA/USFF)**
 - **Naval Shipyard Business Plan**
 - **Ship Repair Industrial Base Report**
 - **Aviation (NAVAIR/COMFRC)**
 - **Warfare Centers (NAVSEA)**
 - **Systems Centers (SPAWAR)**
- **Rightsize and Sustain Organic Depots to Reduce Overall Cost**
- **Regional / Depot & Intermediate Maintenance Consolidations**



Questions

