



THE FORCE BEHIND THE FLEET

NAVSEA CBM+

January 2019

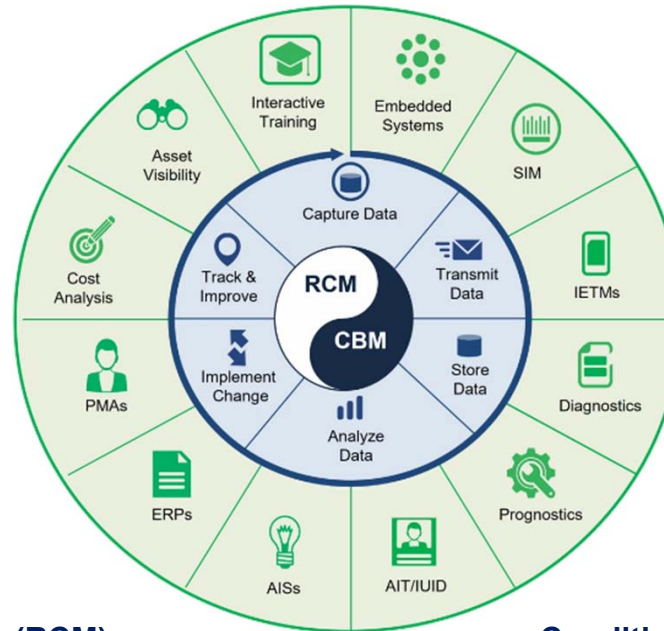
Presented to:

**SNA 2019
Surface Navy
Association**

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NAVAL SEA SYSTEMS COMMAND

CBM+



Reliability Centered Maintenance (RCM)

- Since 2001 over 10K trained and certified
- FY19 Plan has 66 RCM Courses and 6 Fleet Maintenance Effectiveness Reviews which will review ~9000 maintenance Procedures
- RCM is the feedback mechanism with the Fleet operators and maintainers

Condition Based Maintenance (CBM)

- Over ten years of investment in CBM
- Recent improvements to CBM+ enablers are going to make vast improvements in our Operational Availability, reduce system down time and also save money
- This new information will be fed back into the RCM process to drive further improvements

Results Driven to Save Cost and Increase Operational Availability

eRM and CMAS

Integrated Condition Assessment System (ICAS)

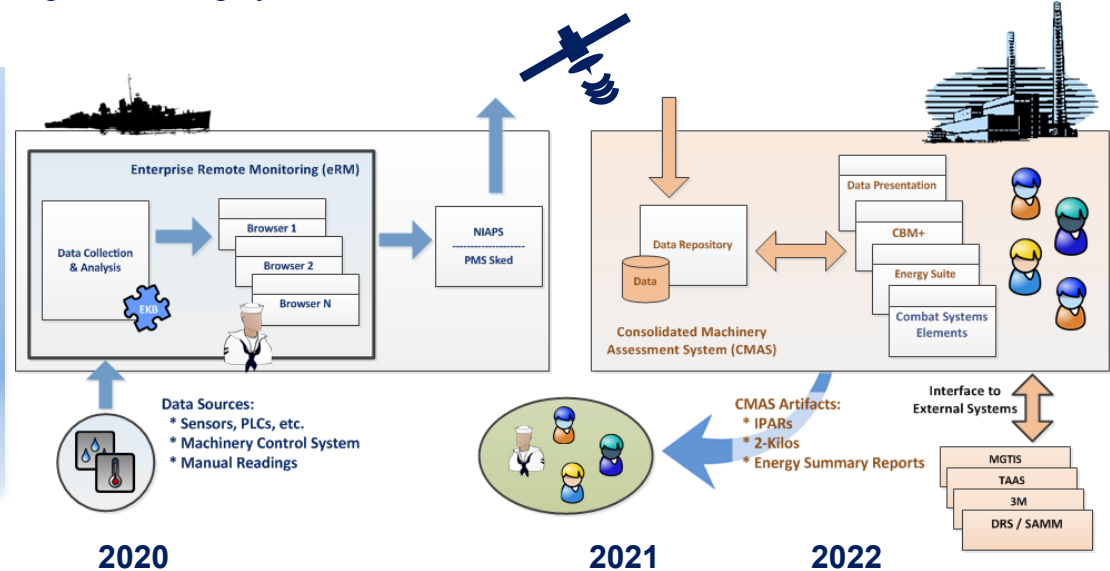
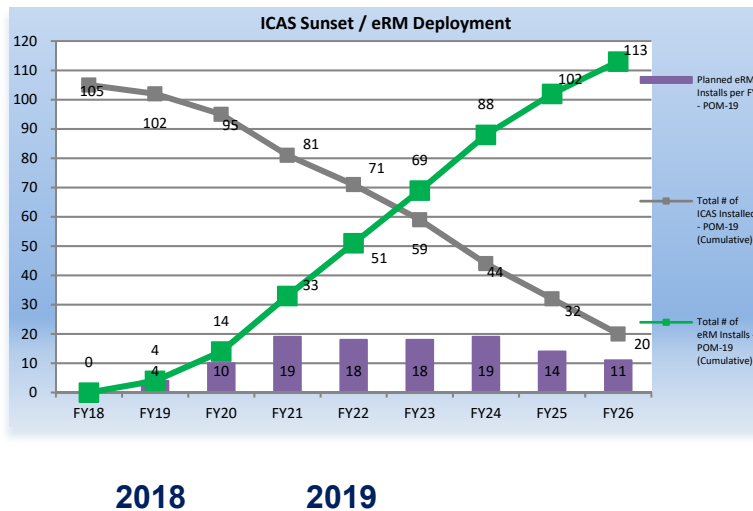
- Has been NAVSEA's common tool to support Condition Based Maintenance (CBM) for the past 20 + years

Enterprise Remote Monitoring (eRM)

- Increased speed, scalability, cyber posture
- Able to support rapid development for
 - New algorithms
 - Digital twin
 - Linkage to existing systems and sensors

Consolidated Machinery Assessment System ashore (CMAS)

- Diagnostics, parametric trend analysis and providing condition alerts



eRM First in class

CG

LCS

DDG

LSD

LPD

LHD

Advanced Analytics

Gas Turbines

Drive Trains

Diesels / Air Cond & Reefers / Air Compressors

Others

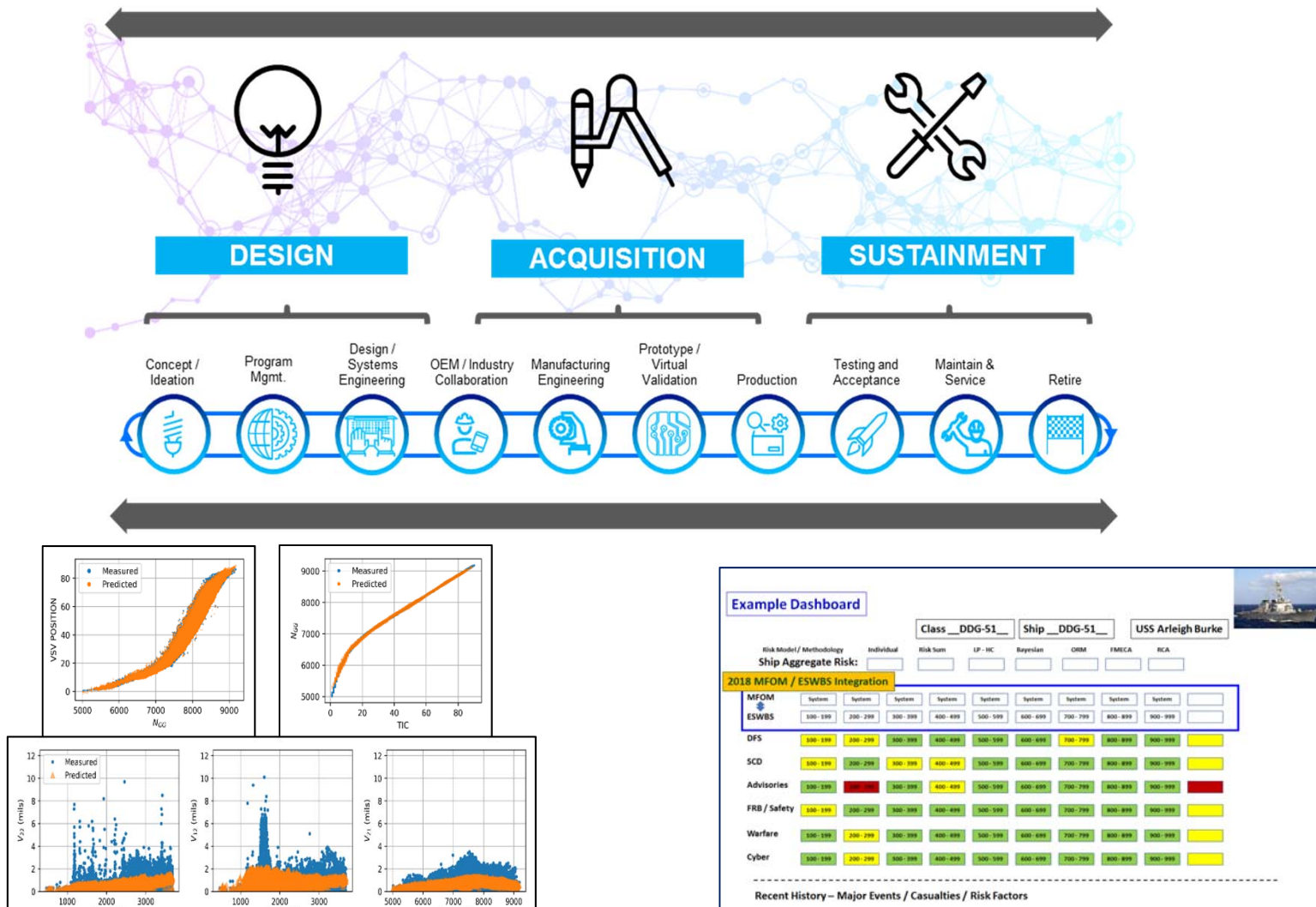
Software

CMAS v1.2 to v1.3

eRM v3.1 to v3.3

CMAS is in The Early Stages of Realizing Digital Twin Capability for CBM+

How CBM+ fits in the BIG picture



CBM+ is a Critical Enabler to Close the Digital Thread