



NAVAL MACHINERY RESEARCH and ENGINEERING

*Presented at the Sandia National Laboratory
Prognostic Health Management
Center of Excellence Advisory Board Meeting*

6 Dec – 8 Dec 2004

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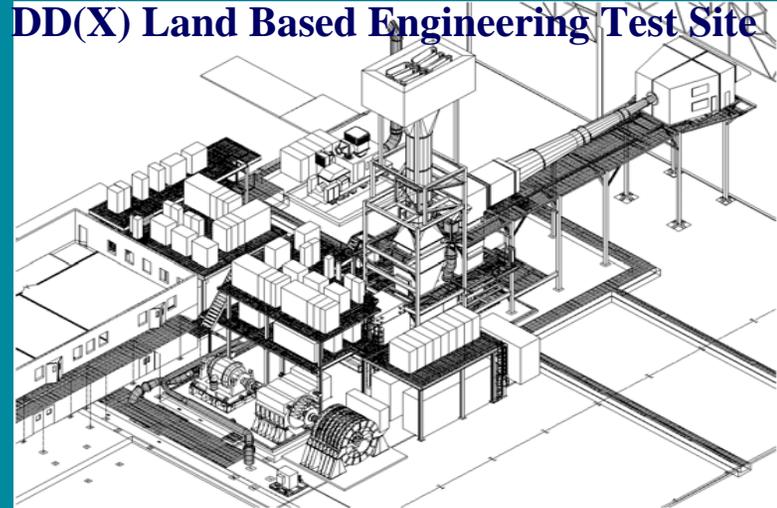


Machinery Research and Engineering

Mission

“We are Naval and Maritime Machinery!” We Provide Full Spectrum Support for S&T, R&D, T&E, Engineering and Fleet Support for Naval and Other Maritime Surface and Undersea Vehicle Machinery Systems.

DD(X) Land Based Engineering Test Site



People

1,340

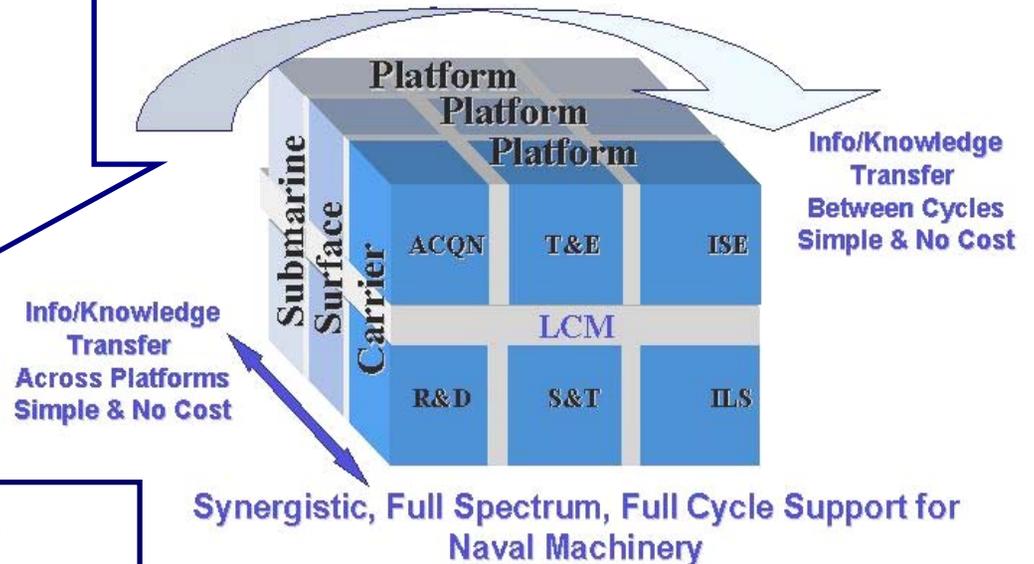
Doctorate	10
Bachelors	635
Masters	144
Mechanical/Structural/Architectural	458
Electrical/Electronics/Computer	285
Chemical/Material	16
Scientist	10
Specialists	163
Technicians	289
Administrative	75
Co-op	44



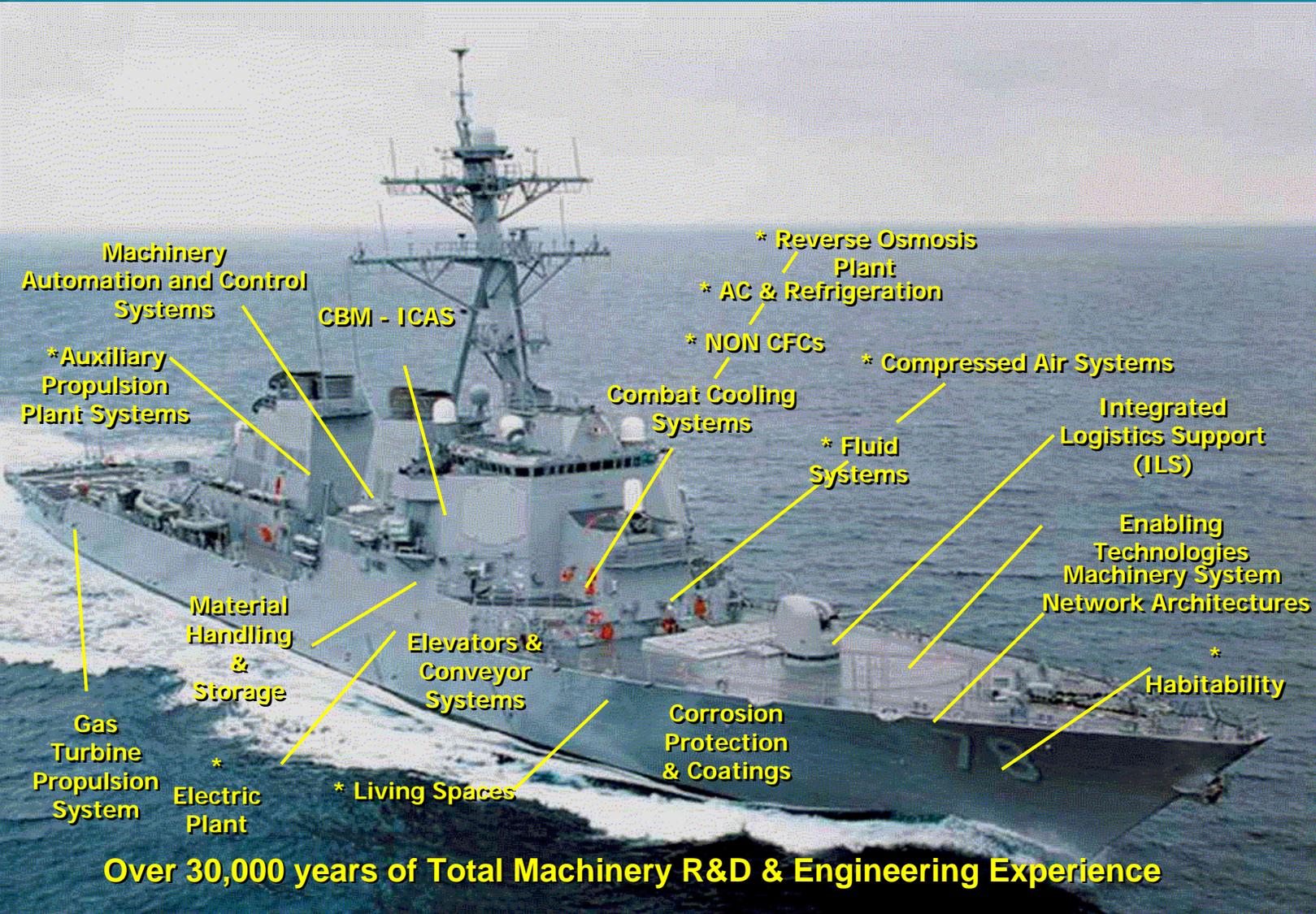
Integrated Management Approach

Program & Platform Management
Capital Investment Management
Assess Strategic Environment
Information Management
Business Development
Financial Management
Product Management
Customer Interface

Across Technical Capabilities
Across Platforms
Across Customers



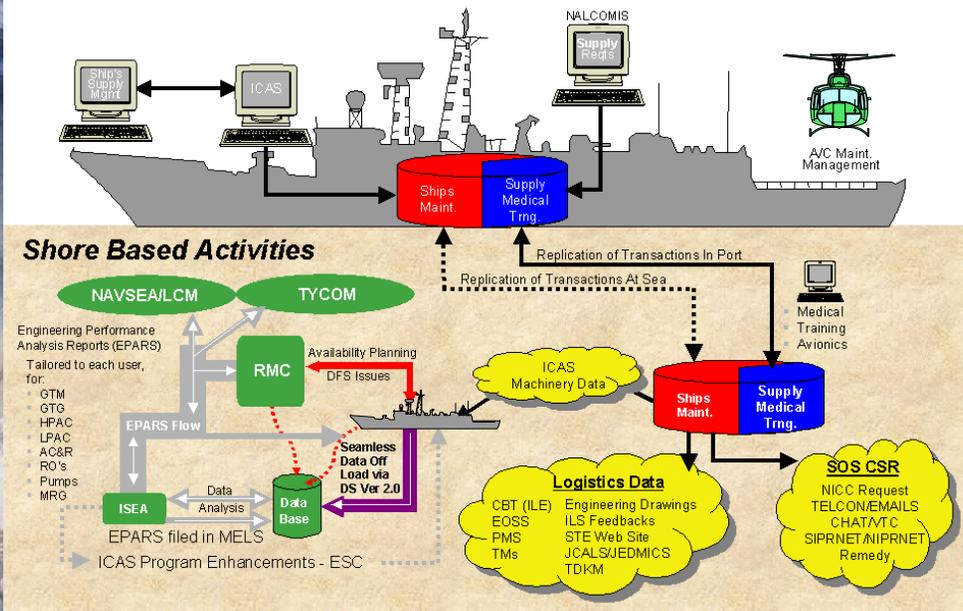
Machinery Leadership Areas



Over 30,000 years of Total Machinery R&D & Engineering Experience

Distance Support

Current Shipboard Situation -



Initiatives:

- Innovation Cell
- Distance Support Customer Service Desk
- Processing Feedbacks thru the NICC
- Remedy
- Technical Data Knowledge Management (TDKM)
- Integrated Condition Assessment System (ICAS)
- Sailor-2-Engineer
- JCALS – repository Links
- Chat/VTC/SIPRNET Room

Objective:

- Support the sailor though both our Sea Based and Shore Based

Network Infrastructure

Status:

- All initiatives are scheduled for delivery on or before 30 Sept 04

Deliverables and Future Actions:

- Distance Support Training Curriculum Revision
- List of trainees trained as part of the Battlegroup/ARG program
- Distance Support Schoolhouse Implementation Strategy
- List of Learning Centers & specific Schoolhouse courses that have DS Integrated



INTEGRATED LOGISTICS AND FLEET MAINTENANCE

MISSION: We distill Engineering Knowledge into effective guidance for the Operation, Maintenance, and Supply Support of Shipboard Machinery to ensure we have the World's #1 Navy.

RESPONSIBILITIES/CAPABILITIES:

- Planned Maintenance and Process Analysis
- Technical Manuals, Interactive Electronic Technical Manuals (IETMs)
- Technical Training
- Provisioning & Supply Support
- JCALS
- Engineering Operational Sequencing System

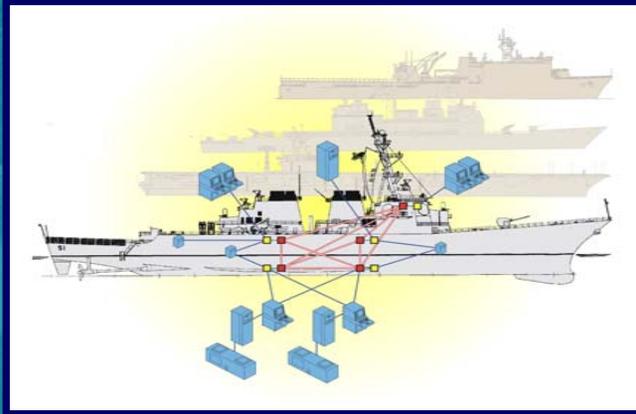
FACILITIES:

- Surface Ship Digital System Integration Facility
 - Engineering Logistics Automated Workflow System (ELAWS)
 - ETMs and IETMs
 - JCALS





MACHINERY INFORMATION, SENSORS & CONTROL SYSTEMS



TEST FACILITIES:

- MCS Software Development Facility
- Test Operations and Analysis Center
- Shock & Vibration Facility
- Environmental Simulation Lab
- Volumetric Flow Lab
- Arc Fault Detection Lab
- Electromagnetic Compatibility Lab
- Wireless Technologies Development Lab

MISSION: Principal providers of life-cycle management and the engineering technical agent for machinery information, sensors and instrumentation, and machinery control systems. We improve reliability and maintainability, reduce total ownership costs, and introduce enhanced and new capabilities/technologies for the defense and maritime industry.

RESPONSIBILITIES/CAPABILITIES:

Machinery Systems Information

- Maintenance Monitoring and Decision Support Systems
- Data Systems Engineering, Hardware and Software

Machinery Sensors and Instrumentation

- Shipboard Instrumentation and Systems Calibration (SISCAL)
- New/Advanced Sensor Technology Development
- Micro Electromechanical Systems Development
- Wireless Technology Development

Machinery Control Systems

- Software Development/Machinery Simulation
- Software-based Machinery Control System Trainers
- Programmable Logic Controller Programming



CBM(+)/PHM Enabling Technology RDTE Portfolio

- **Eight Phase II CBM SBIR projects supporting PEO Carrier, PEO Ships, and MDA**
- **Five new Phase I SBIR projects for PEO Ships in FY05.1 BAA for technology R&D that can further enable the instantiation of CBM methodology and support the extended goals of the DoD CBM+ policy.**
- **Three new Phase I SBIR projects for PEO Ships in FY05.2 BAA in advanced sensor calibration technologies**
- **Five CBM+ R&D tasks in support of the DS Program in Logistics data area**
- **A new CBM+ Enabling Technology RDTE roadmap initiative in support of the DS Program**
- **A new Wireless Sensor System R&D project for Aircraft Elevator monitoring and control supporting the CVN21 Advanced Weapons Elevator and the DoD Title III Wireless Vibration Sensor Project .**



CBM(+)/PHM Enabling Technology RDTE Portfolio

- **A new On-Line Electro-dynamic Filter/Smart Oil Sensor S&T project in support of the ONR TOC initiative**
- **Continuation of approx 24 CBM Tech R&D tasks supporting ICAS enhancements under the NAVSEA BG-AME project**
- **Continuation of the Wireless Sensor Technology R&D project in support of DS Program involving coordination with ship system condition data acquisition initiatives at NSWCCD, NSWC Crane, and NSWC PHD**
- **Continuation of the Northrup Grumman Newport News Shipbuilding Automated Diagnostic/Prognostic System ICAS Integration Task addressing CVN-73 Ventilation Fans under a Defense Sustainment Consortium Project**
- **Continuation of a DDX MRSS R&D project addressing ICAS integration**



CBM(+)/PHM Enabling Technology RDTE Portfolio

- **Continuation of the DS MRAS R&D project addressing ICAS/SKED/TRMS/DS2 shipboard data integration**
- **A collaborative maintenance management R&D initiative addressing integration of SMCM in MRAS in support of DS, SEA05N, and the Fleet's mFOM2.0 development initiatives**
- **Continuation the Prime Photonics R&D project supporting MGTs**
- **Continuation of Megget/Vibrometer R&D project supporting MGTs**
- **Continuation of the TOMS R&D project support MGTs**
- **A new R&D project directed at development and test of a 501k start/fuel nozzle algorithm built on the Impact PEDS technology**



CBM(+)/PHM Enabling Technology RDTE Portfolio

- **A new RDTE project directed at obtaining diagnostic and prognostic data sets during an LM2500 Stall Test in support of the MGT Program**
- **A new NSWCCD Workshop to define emerging and established technologies in the area of prognostics & diagnostics for application of these technologies to support future Naval operations within the joint forces' net-centric war-fighting environment.**
- **Support of the Navy Modeling and Simulation Standards Steering Group, Logistics Application Planning and Review Group**
- **Support of the NDIA Electronics Prognostics Working Group**