NSRP | National Shipbuilding Research Program

NSRP USCG Product Lifecycle Management Data Requirements: Interface Mapping

Business Technologies Panel Meeting

June 23-24, 2026

Project Team Members

SSI® Lead Member

USCG Baltimore Shipyard, Surface Asset Logistics Center (SALC), Surface Forces Logistics Center (SFLC)

EASTERN Heritage Class Offshore Patrol Cutter (OPC) Stage 1

AUSTAL USA Heritage Class Offshore Patrol Cutter (OPC) Stage 2

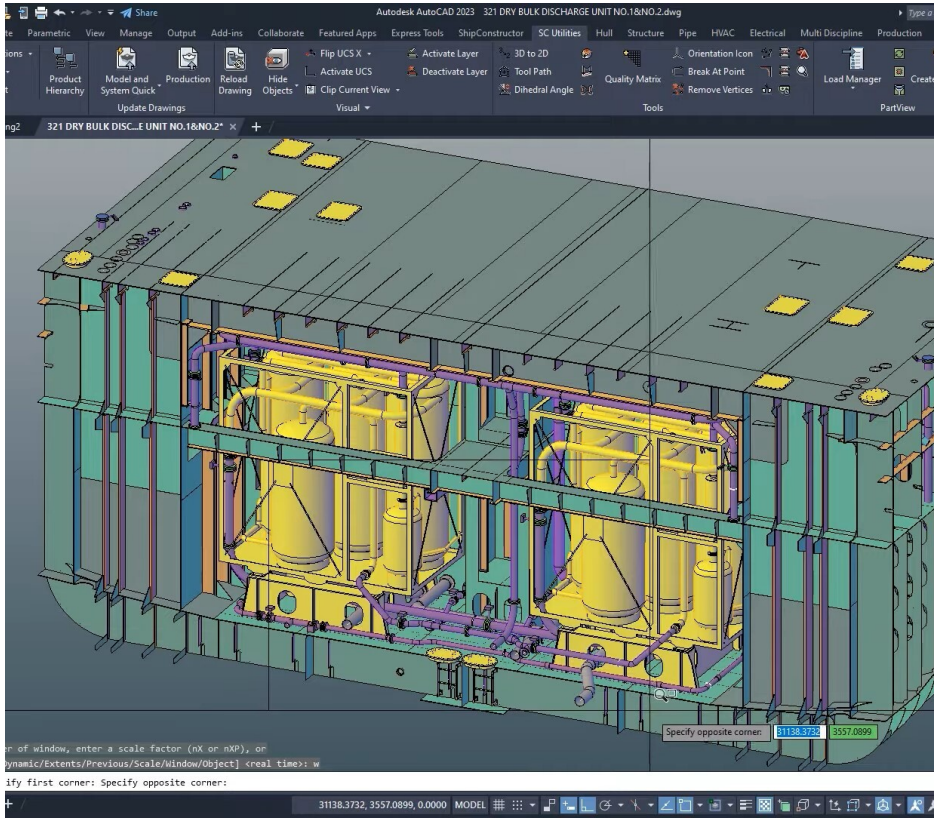
Birdon Waterways Commerce Cutter (WCC) 2 Variants

Agenda

- Overall Project Objectives
- Background and Challenges
- Phase 1 Project Objectives
- USCG Sustainment System Overview
- Findings from discussions with Project Participants
- CDRL Mappings Across Programs & Templating
- Initial Software Interface Development (Tasks 4&5)
- CDRL & RTVM Alignment with ShipConstructor & SPLM
- Value Proposition for the USCG
- Next Steps (Phase 2)

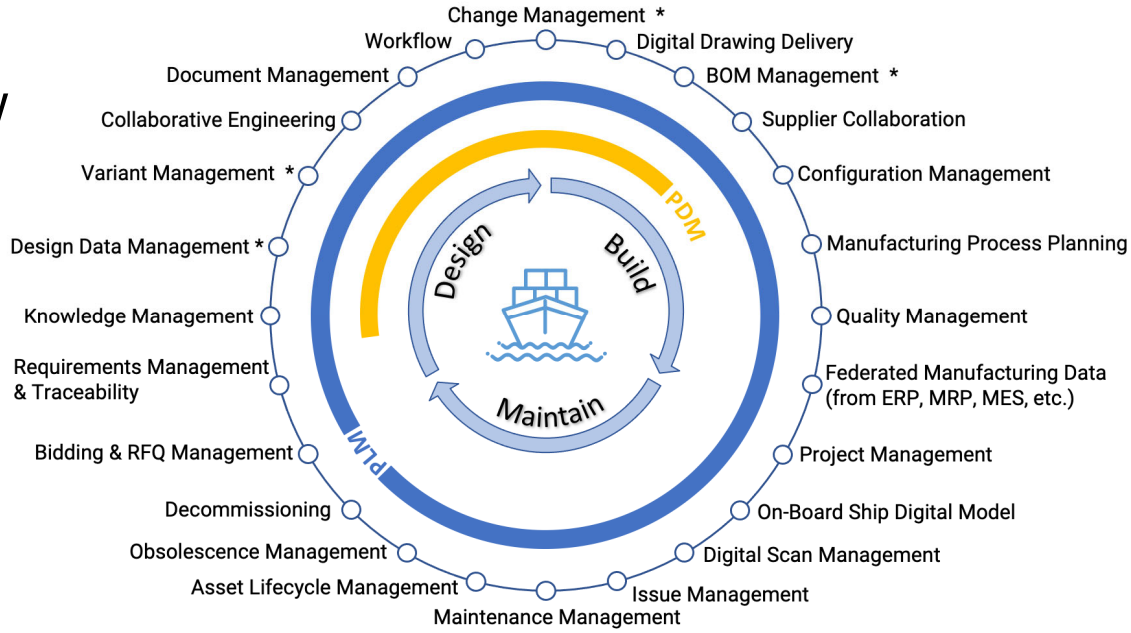
Overall NSRP Project Objectives

- Harvest sustainment data from 3D build models.
- Map USCG SPLM needs to interfaces/connectors.
- Develop/test software for shipyard SPLM → USCG SPLM data flow.



Background & USCG Sustainment Challenges

- Digital MRO Shift: Moving toward digital maintenance, repair, and overhaul by leveraging shipyard 3D models and PLM data via new interfaces
- Key Challenges: 80% of depot maintenance is contracted out
- Scattered configuration data across multiple systems
- Growing parts obsolescence as the fleet ages
- PLM Solution: Create a single authoritative source of truth with full metadata and a federated transition from legacy systems

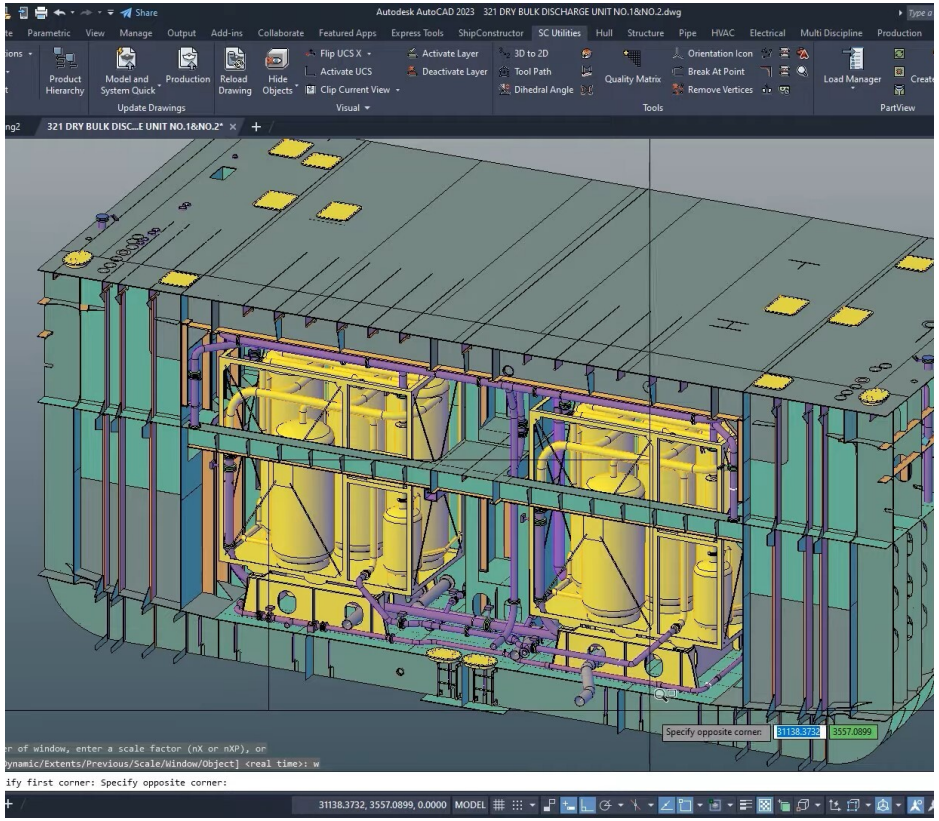


Background & USCG Sustainment Challenges

- USCG Surface Forces Logistics Center (SFLC) has five product lines
  - Long Range Enforcer
  - Medium Endurance Cutter
  - Patrol Boat
  - Icebreaker / Buoy and Construction Tender
  - Small Boat
- USCG SFLC Engineering Services Division (ESD) serves as the design agent for MRO for all cutter and boat classes
  - 221 cutters across 6 classes
  - 2 icebreaker classes
  - 1,337 boats of many classes

Phase 1 Project Objectives

- “Crawl, walk, run”
- Learn sustainment data needs and what shipyards provide.
- Map USCG SPLM needs to interfaces/connectors.
- Simulated simple use cases for shipyard SPLM → USCG SPLM data flow.



USCG Sustainment Systems Overview

Key Systems Receiving Shipyard Data Via CDRL requirements

EAL – Electronic Asset Logbook (asset status & readiness)

FLS – Fleet Logistics System (maintenance & configuration)

NESSS – Supply Support System (parts & inventory)

FLS-MAM – Mobile Asset Manager (field/unit-level maintenance)

CWD – Contract Workbook Database (project & contract management)

CDRLs (Contract Data Requirements Lists) Shipyard provided data

3D models, drawings, and HM&E data

Equipment lists and BOMs

Configuration data and maintenance task definitions

Parts / allowance lists

Test & inspection records

Build status and change data

J-4 Documents (CDRLs): Section J of the USCG contract that specifies exactly what data and documents the shipyard must deliver to support the vessel's sustainment and lifecycle.

Findings from Discussions with Project Participants

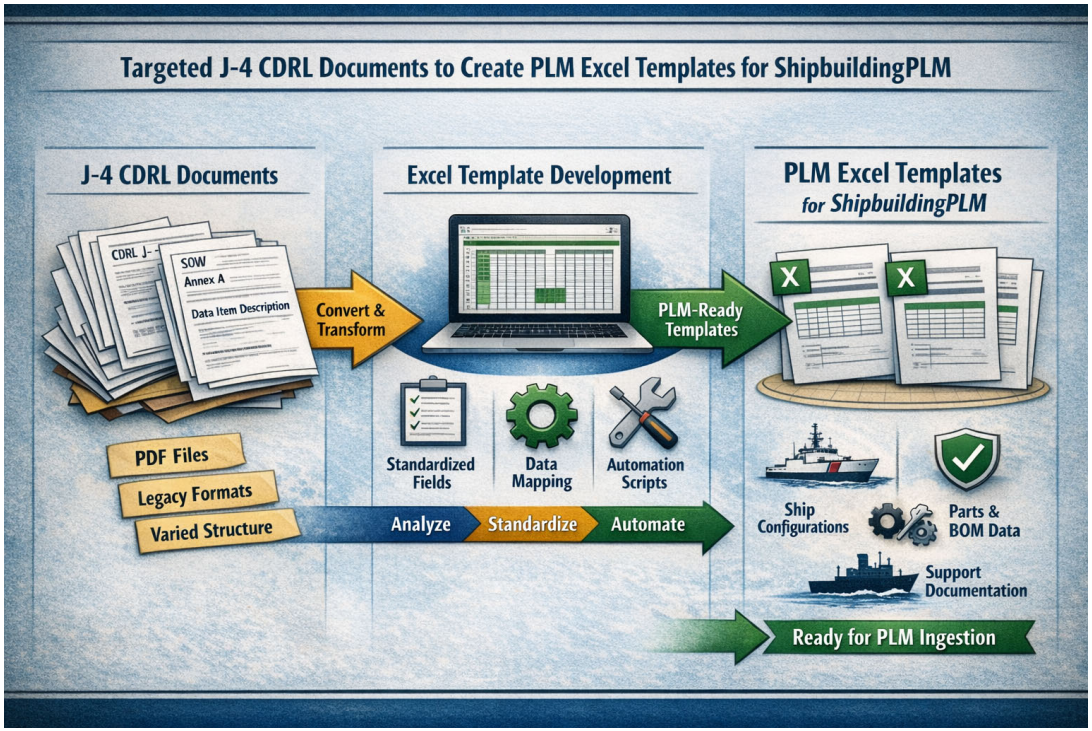
Phase 1 Accomplishments

- ~800 MB of USCG datasets processed
- Developed PLM Data Requirements Matrix by mapping shipyard workflows and J-4 CDRL deliverables to USCG sustainment systems
- Completed detailed workflows/CDRL maps for Eastern (OPC), Austal (OPC), and Birdon (WCC)
- Tasks 1-5 completed (Project Initiation, Data Transfer Requirements, Gap Analysis, Initial SPLM Configuration, and Configuration Evaluation)

CDRL Mappings Across Programs & Templating

Phase 1 Accomplishments

- Developed from shipyard engagement sessions (Aug–Sep 2025)
- WCC (Birdon): Detailed mapping of ~90 deliverables
- (e.g., Management Plans → IDE/CWD; Equipment Lists → FLS/EAL)
- OPC (Austal & Eastern): Aligned design reports, analyses, and BOMs to FLS/NESSS
- Created templating framework that maps each CDRL deliverable's format, submission timing, and target PLM objects
- Sets the stage for automated ingestion into ShipbuildingPLM while preserving metadata



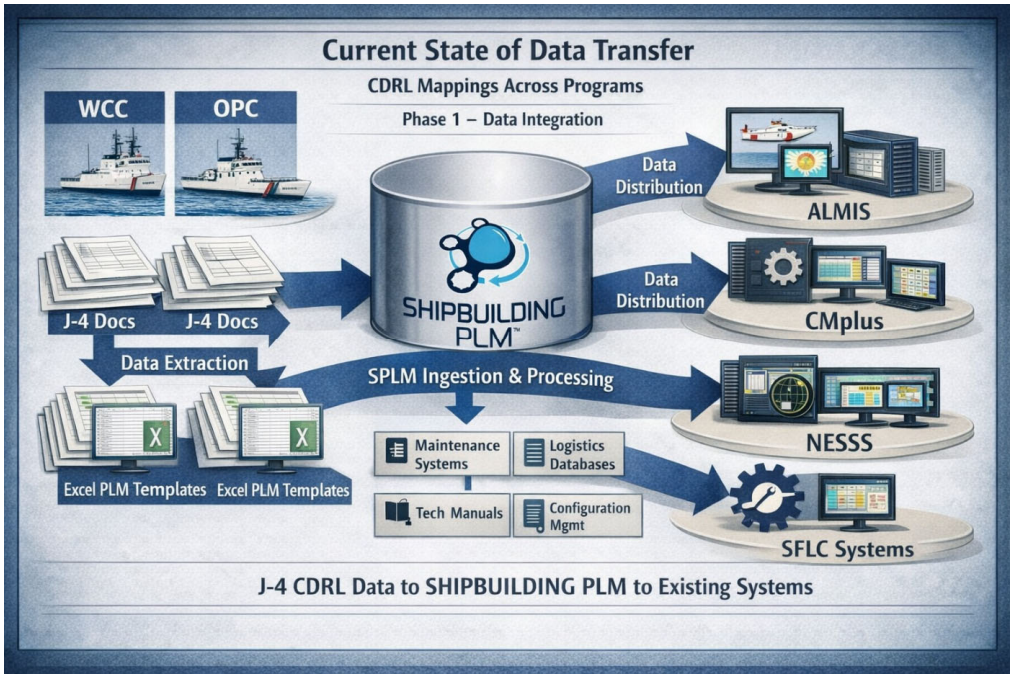
Initial Software Interface Dev. (Task 4)

- Reviewed USCG and shipyard interviews to identify data transfer requirements and gaps for current and future MRO needs
- Developed Entity Relationship Diagrams for data flow (ShipbuildingPLM → future USCG PLM + legacy systems)
- Configured a PSV 3D model as a non-ITAR test case (dummy ship model used in place of live OPC or WCC data)
- → Added item types and maintenance metadata to represent Coast Guard sustainment needs
- Established an SPLM instance on an in-house server at SSI's Mobile, AL facility to simulate the USCG environment (avoids production system approvals)

Initial Software Interface Dev. (Task 4)

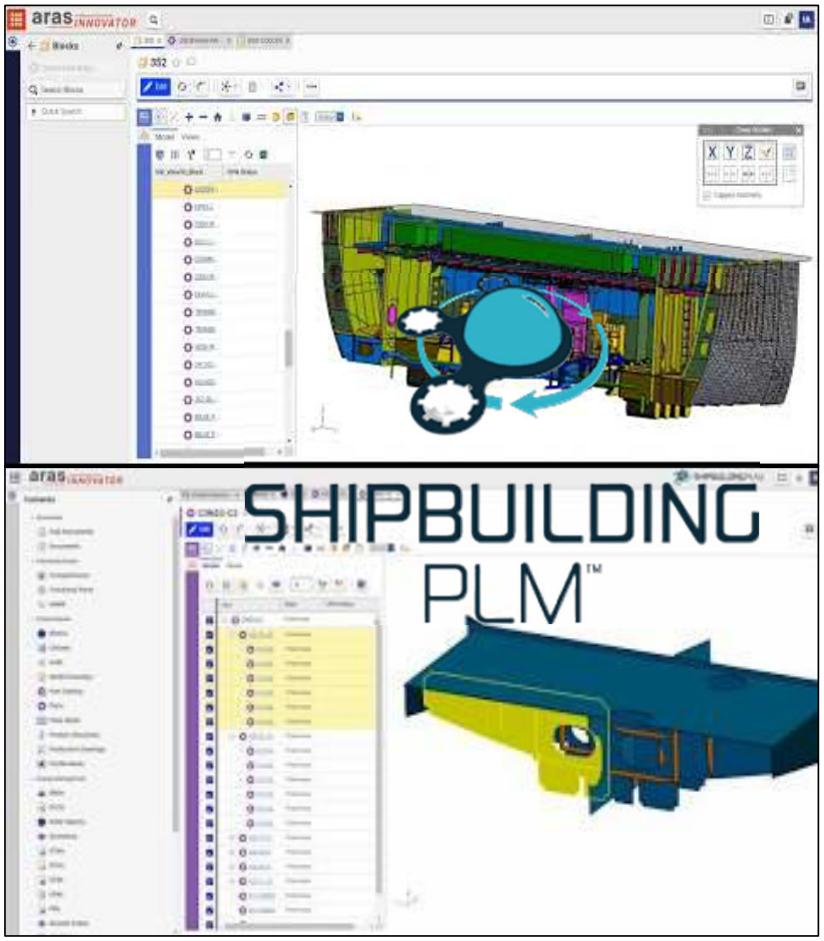
Key Assumptions & Benefits

- Key Assumption: Federated approach — support existing legacy systems with no interruption to fleet operations; legacy systems will be phased out over time
- Benefits: Enables improvements to contractual deliverables during construction while also enabling efficient MRO data extraction and use

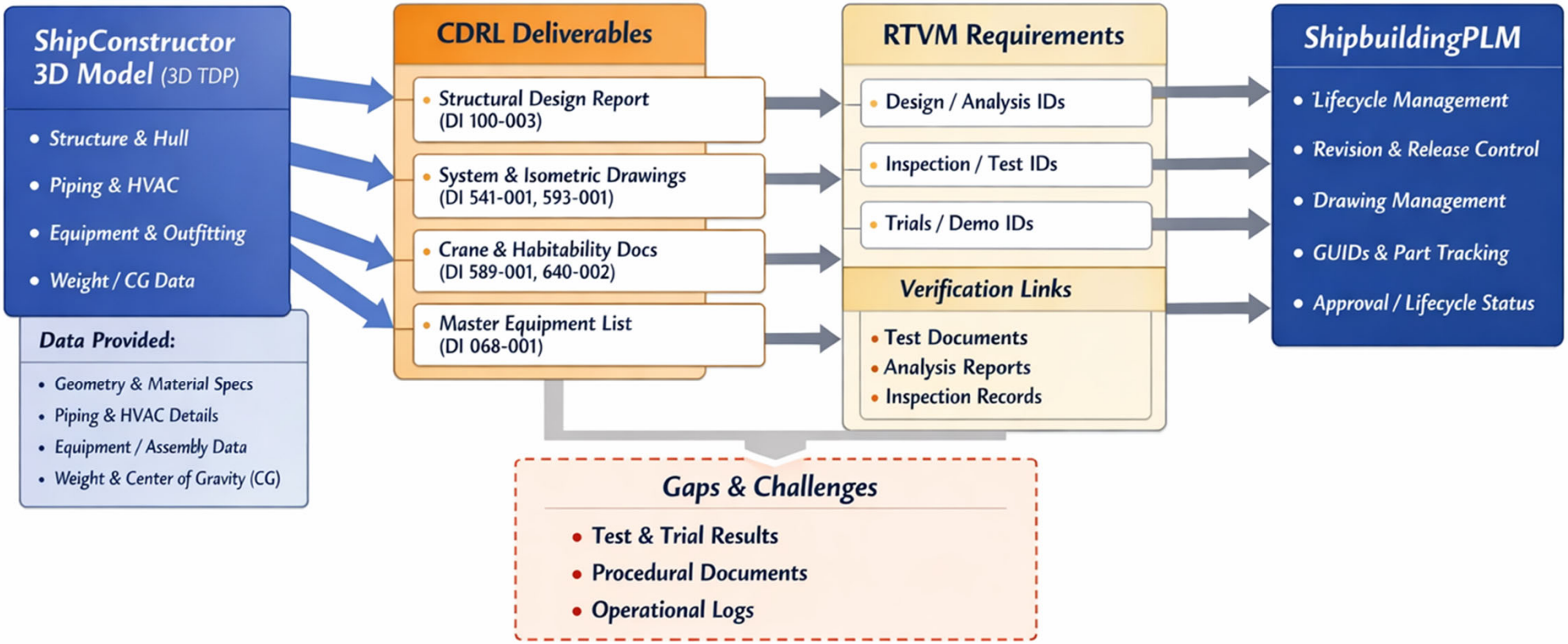


Initial Software Evaluation (Task 5)

- Reconfigured and loaded data from SSI's PSV training model into ShipbuildingPLM to support demonstration and evaluation of simple use cases
- Incorporated the Requirements Traceability and Verification Matrix (RVTM) — the Coast Guard's checklist used to review and approve incoming CDRL deliverables — as a core data requirement
- Conducted a full project team demonstration of the developed process within the ShipbuildingPLM tool (with all participants present) as part of the successful Phase 1 Review and Workshop on 26 March 2026



CDRL & RTVM Alignment with SC & SPLM



Value Proposition for USCG

- Authoritative sustainment data from new construction yards with full traceability and reuse
- Reduced Navy/DOD SAFE dependence for CDRLs
- Improved configuration accounting, obsolescence handling, and readiness analytics
- Quantified benefit: 60–75% reduction in data retrieval/validation time (from project metrics)

Next Steps

- Phase 2 officially approved by NSRP on May 18, 2026
- Conduct full hands-on workshop with 15–20 USCG personnel on June 25, 2026, at the USCG SFLC facility in Baltimore
- Incorporate feedback from the March workshop into targeted workflows and training using ShipbuildingPLM
- Perform onsite workshops at each participating shipyard (Eastern, Austal, and Birdon)
- Continue software development and interface enhancements between ShipbuildingPLM and USCG systems
- Early 2027 Phase 2 Software Evaluation
- March 2027 Final Workshop and Project Results

Questions