Bottom Line Up Front

The vast majority of the product data required to perform a downstream function probably exists in electronic form. The problem is to find, trust it, translate it, and USE it.

- FINDING THE DATA : The case for an Integrated Product Data Environment
- TRUSTING THE DATA : The case for Accreditation
- TRANSLATING THE DATA : The case for STEP

We need to make sure that we acquire and manage the product data commensurate with the level of the data rights to which we are entitled.

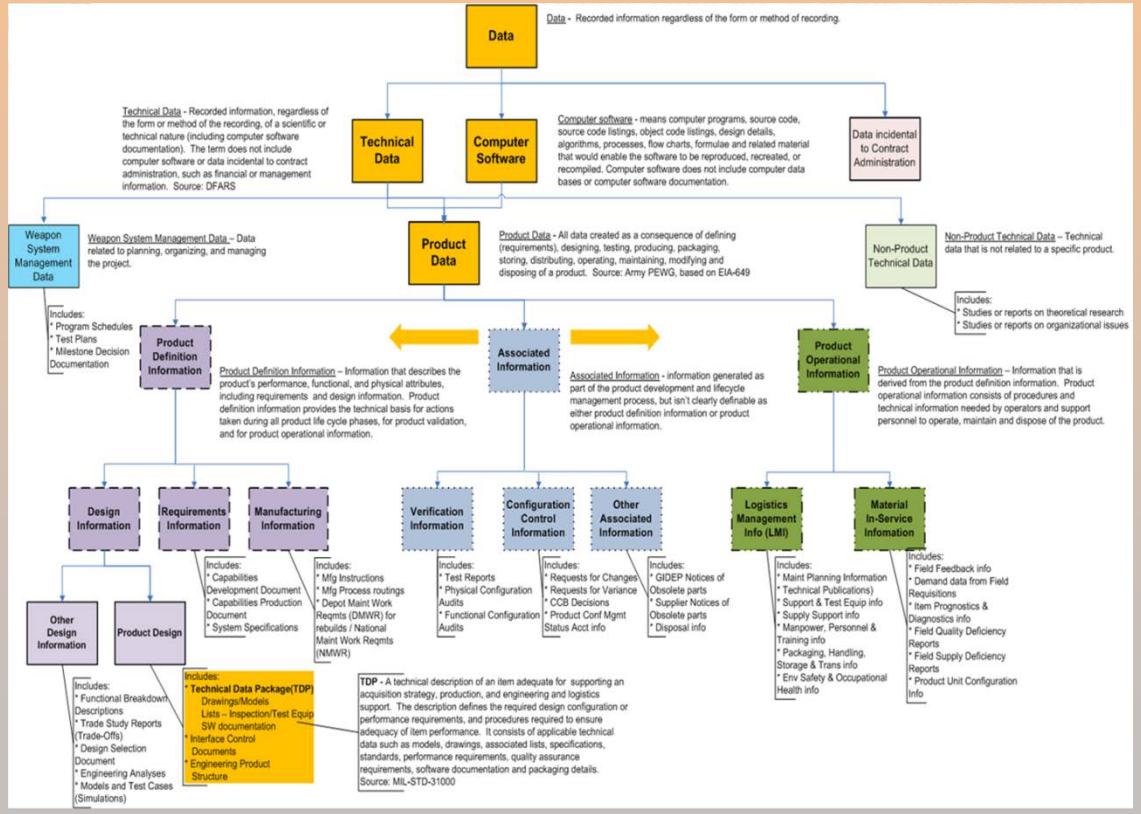
- Form, fit, and function in the cases where the governments rights are limited.
- All OMIT data (operation, maintenance, installation, training).
- Detailed manufacturing data in the cases where the government has the appropriate rights.

Early stage design, contract design, detail design, construction, and logistics support all benefit from an accurate, up to date Product Model!

Product Model Data

Define, Operate, Manage, and Support

Program Managers for ACAT I and II programs shall assess the long-term technical data needs of their systems.



Consider technical data requirements as part of life-cycle sustainment planning within the Acquisition Strategy

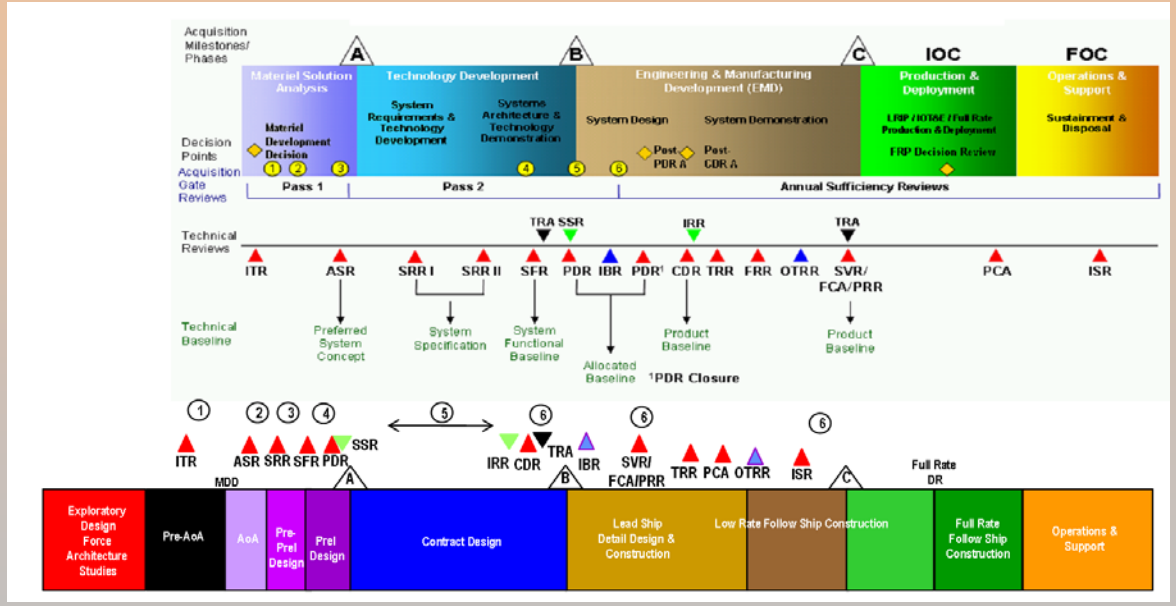
Assess the data required to design, manufacture, and sustain the system, as well as to support re-competition for production, sustainment, or upgrades

Enforce the contractor's responsibility to verify any assertion of restricted use and release of data.

Digital Product Model Data

… its more than just design and construction

- **The DPM should be the primary source of data for all pre milestone B activities.**
- **The DPM should be used by NAVSEA to validate the design during the Detail Design and Ship Production phases.**
- **The DPM should be the authoritative source of data for technical data packages, technical manuals, and training.**



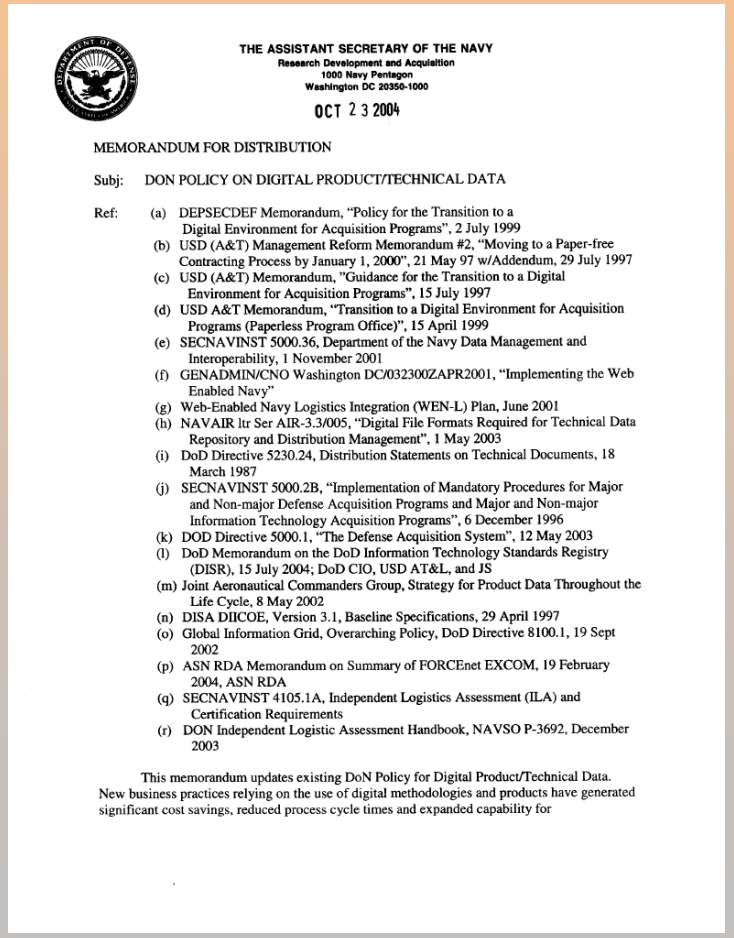
The Digital Product Model can support the entire ship's lifecycle.

Product Model Data and Exchange

Current NAVSEA Policy

DISTRIBUTION STATEMENT A : Approved for public release; distribution is unlimited

DON Policy stipulating that product model data should be delivered in STEP format



THE ASSISTANT SECRETARY OF THE NAVY
Research Development and Acquisition
1000 Navy Pentagon
Washington DC 20350-1000

OCT 23 2004

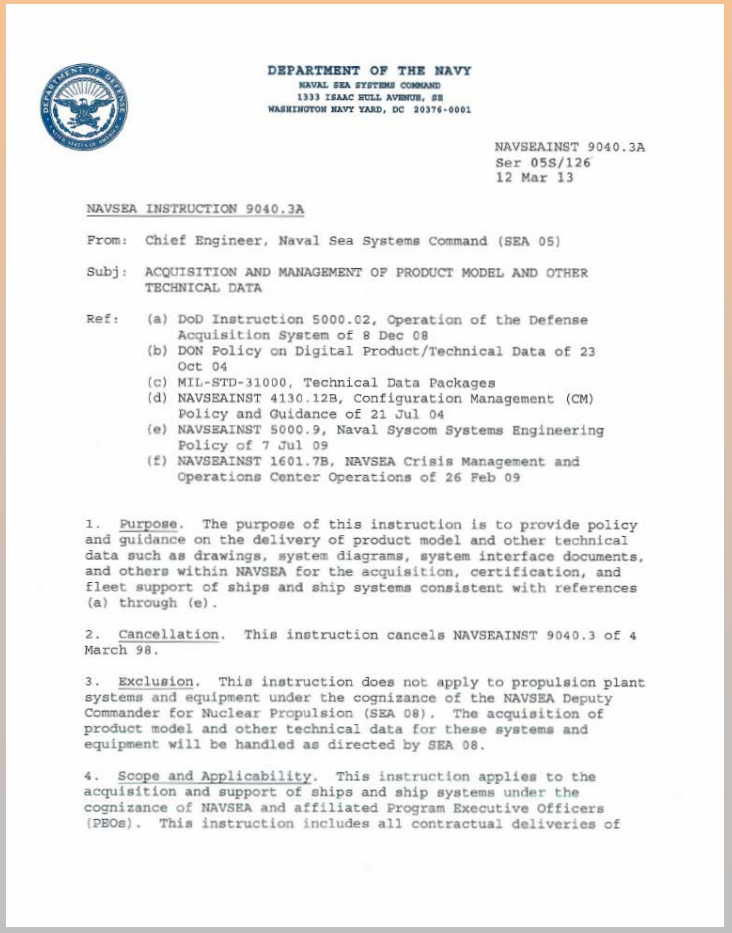
MEMORANDUM FOR DISTRIBUTION

Subj: DON POLICY ON DIGITAL PRODUCT/TECHNICAL DATA

Ref:
(a) DEPSECDEF Memorandum, "Policy for the Transition to a Digital Environment for Acquisition Programs", 2 July 1999
(b) USD (A&T) Management Reform Memorandum #2, "Moving to a Paper-free Contracting Process by January 1, 2000", 21 May 97 w/Addendum, 29 July 1997
(c) USD (A&T) Memorandum, "Guidance for the Transition to a Digital Environment for Acquisition Programs", 15 July 1997
(d) USD A&T Memorandum, "Transition to a Digital Environment for Acquisition Programs (Paperless Program Office)", 15 April 1999
(e) SECNAVINST 5000.36, Department of the Navy Data Management and Interoperability, 1 November 2001
(f) GENADMIN/CNO Washington DC/032300ZAPR2001, "Implementing the Web Enabled Navy"
(g) Web-Enabled Navy Logistics Integration (WEN-L) Plan, June 2001
(h) NAVAIR ltr Ser AIR-3.3/005, "Digital File Formats Required for Technical Data Repository and Distribution Management", 1 May 2003
(i) DoD Directive 5230.24, Distribution Statements on Technical Documents, 18 March 1987
(j) SECNAVINST 5000.2B, "Implementation of Mandatory Procedures for Major and Non-major Defense Acquisition Programs and Major and Non-major Information Technology Acquisition Programs", 6 December 1996
(k) DOD Directive 5000.1, "The Defense Acquisition System", 12 May 2003
(l) DoD Memorandum on the DoD Information Technology Standards Registry (DISR), 15 July 2004; DoD CIO, USD AT&L, and JS
(m) Joint Aeronautical Commanders Group, Strategy for Product Data Throughout the Life Cycle, 8 May 2002
(n) DISA DIICOE, Version 3.1, Baseline Specifications, 29 April 1997
(o) Global Information Grid, Overarching Policy, DoD Directive 8100.1, 19 Sept 2002
(p) ASN RDA Memorandum on Summary of FORCEnet EXCOM, 19 February 2004, ASN RDA
(q) SECNAVINST 4105.1A, Independent Logistics Assessment (ILA) and Certification Requirements
(r) DON Independent Logistic Assessment Handbook, NAVSO P-3692, December 2003

This memorandum updates existing DoN Policy for Digital Product/Technical Data. New business practices relying on the use of digital methodologies and products have generated significant cost savings, reduced process cycle times and expanded capability for

NAVSEA instruction for the development, maintenance, and acquisition of product model data



DEPARTMENT OF THE NAVY
NAVAL SEA SYSTEMS COMMAND
1333 ISAAC HULL AVENUE, SE
WASHINGTON NAVY YARD, DC 20376-0001

NAVSEAINST 9040.3A
Ser 05S/126
12 Mar 13

NAVSEA INSTRUCTION 9040.3A

From: Chief Engineer, Naval Sea Systems Command (SEA 05)

Subj: ACQUISITION AND MANAGEMENT OF PRODUCT MODEL AND OTHER TECHNICAL DATA

Ref:
(a) DoD Instruction 5000.02, Operation of the Defense Acquisition System of 8 Dec 08
(b) DON Policy on Digital Product/Technical Data of 23 Oct 04
(c) MIL-STD-31000, Technical Data Packages
(d) NAVSEAINST 4130.12B, Configuration Management (CM) Policy and Guidance of 21 Jul 04
(e) NAVSEAINST 5000.9, Naval Syscom Systems Engineering Policy of 7 Jul 09
(f) NAVSEAINST 1601.7B, NAVSEA Crisis Management and Operations Center Operations of 26 Feb 09

1. Purpose. The purpose of this instruction is to provide policy and guidance on the delivery of product model and other technical data such as drawings, system diagrams, system interface documents, and others within NAVSEA for the acquisition, certification, and fleet support of ships and ship systems consistent with references (a) through (e).

2. Cancellation. This instruction cancels NAVSEAINST 9040.3 of 4 March 98.

3. Exclusion. This instruction does not apply to propulsion plant systems and equipment under the cognizance of the NAVSEA Deputy Commander for Nuclear Propulsion (SEA 08). The acquisition of product model and other technical data for these systems and equipment will be handled as directed by SEA 08.

4. Scope and Applicability. This instruction applies to the acquisition and support of ships and ship systems under the cognizance of NAVSEA and affiliated Program Executive Officers (PEOs). This instruction includes all contractual deliveries of

NAVSEA Product Model Data Policy

NAVSEA Instruction 9040.3A

Product Model Data	**Procure and accept product model data in STEP, native CAD, and/or LEAPS format that provides the best technical and cost performance as determined by a business case analysis.**
Analysis Data	**Procure and accept analysis models in a format that provides the best technical and cost performance as determined by a business case analysis.**
Drawings	**Procure and accept all drawings in a digital format that provides the best technical and cost performance as determined by a business case analysis.**
Configuration Management	**Implement configuration management controls to ensure that all product model data, analysis models, and drawings are consistent and can be associated to a specific configuration of the ship.**
Accreditation	**Ship and ship systems design, acquisition, and fleet support activities shall establish a digital data accreditation process.**

Harmonized with the OPNAV PDM Working Group and the DoD Engineering Drawing Modeling Working Group

Product Model Data and Exchange

Ships Specification 098 – 3D Product Model

The Digital Product Model shall be delivered in both a native and neutral format. The neutral format shall comply with the Department of the Navy Policy on Digital Product/Technical Data dated 23 October 2004. ISO 10303 Part 214 shall be used to define the Digital Product Model geometry. ISO 10303 Part 239 shall be used to define product structure, the relationship between objects, and configuration management data. The Builder shall provide a list in the PPM[1] of each data exchange specification (DEX) that will be used to support the ISO Part 239 exchange. In the event the contractor can demonstrate the need for an additional DEX, then the contractor shall develop a NAVSEA approved DEX.

[1] **Project Peculiar Manual**

Product Model Data and Exchange

A NAVSEA perspective

A two level approach for the exchange of product model data

First level : Support configuration management, logistics support, provisioning, spares, and repairs through the use of STEP for geometry, product structure, non graphical attributes, and to manage configuration items of the as-built / as-maintained ship.

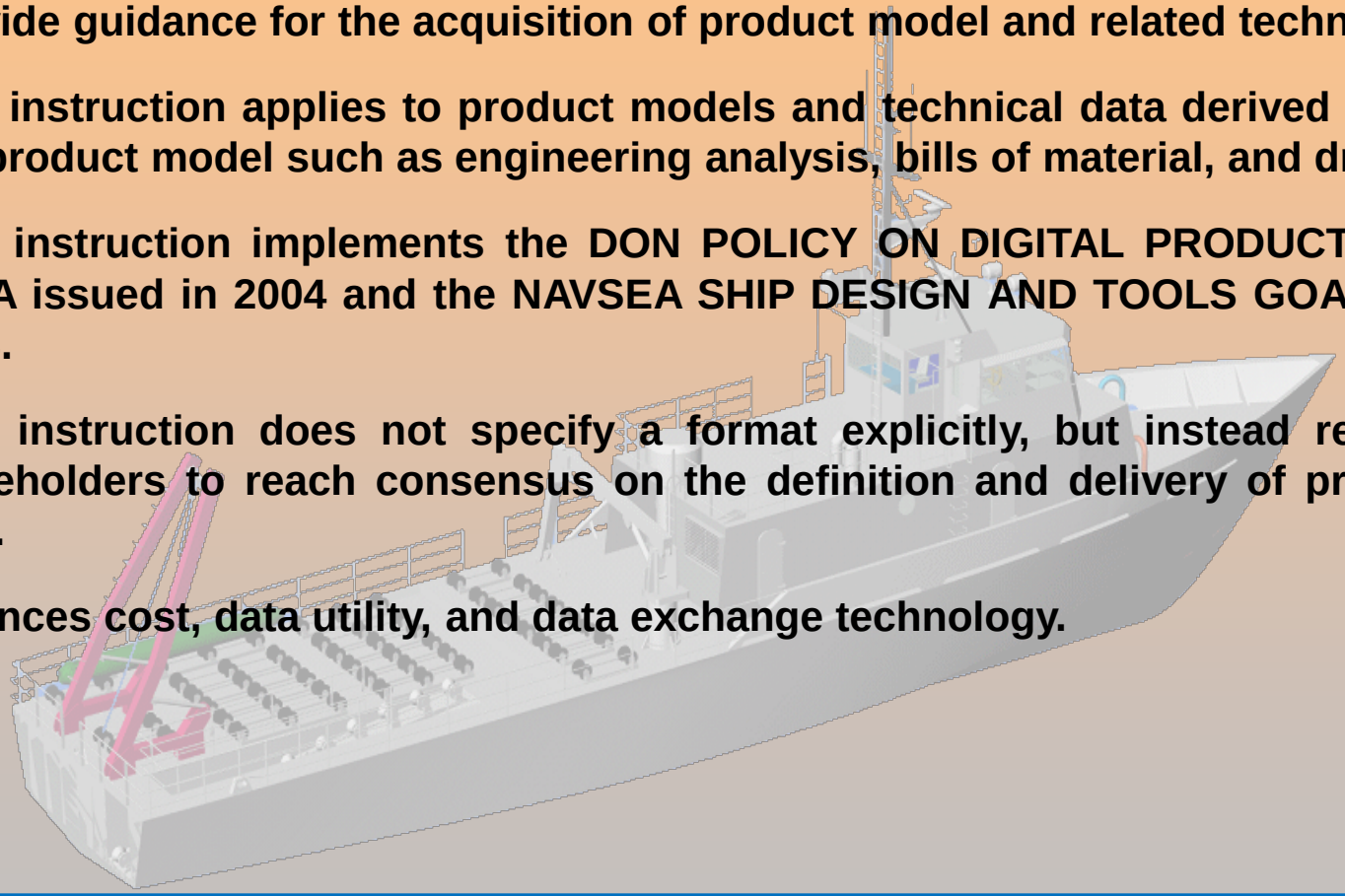
Second level : Deliver the as-designed class model of

1) molded forms suitable for defining a general arrangement
2) scantling level of detail of structure to support structural (and other types of) analysis
3) functional distributed systems model (i.e. path, components, and connections)
4) compartmentation, including accesses, opening, and tightness
5) plates, stiffeners, brackets, collars, and other structural components as parts
6) distributed system components, fittings, and equipment as parts.

NAVSEA Instruction 9040.3A

Acquisition and Management of Product Model Data

- **Provide guidance for the acquisition of product model and related technical data.**
- **This instruction applies to product models and technical data derived directly from the product model such as engineering analysis, bills of material, and drawings.**
- **This instruction implements the DON POLICY ON DIGITAL PRODUCT/TECHNICAL DATA issued in 2004 and the NAVSEA SHIP DESIGN AND TOOLS GOALS issued in 2008.**
- **This instruction does not specify a format explicitly, but instead requires Navy stakeholders to reach consensus on the definition and delivery of product model data.**
- **Balances cost, data utility, and data exchange technology.**



Getting the right data to the right place at the right time for the right cost

Questions and Comments?

Product Model data is the combination of 3D geometry and non-graphic attributes to define ship objects such as a piece of equipment, deck, bulkhead, etc. Product Model data can be organized to define interim products and ultimately the entire ship.

Part & System Definition (Caterpillar 3512, Starboard Main Engine, Propulsion System)

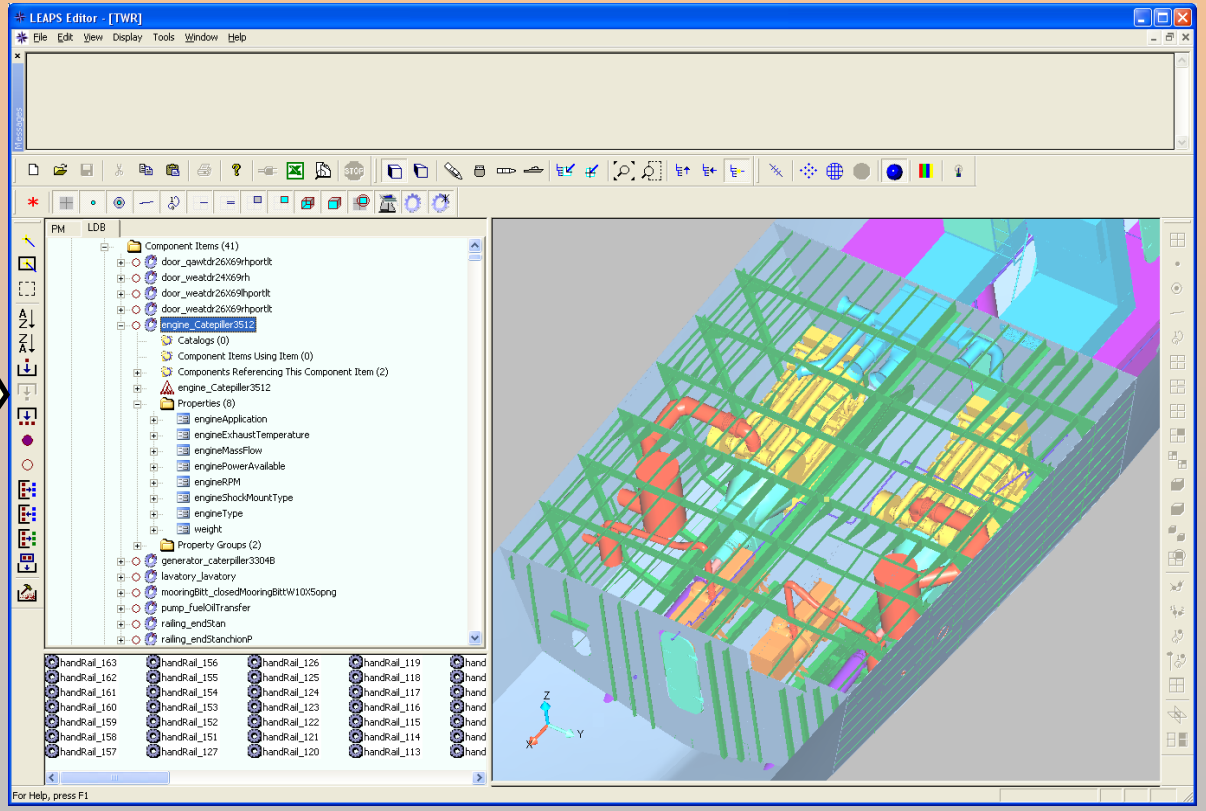
Design Definition (12 cylinder 4 stroke diesel engine)

Physical (Geometry, material connections, etc.)

Engineering Definition (1175 HP, 6464kg, 170mm bore, 190mm stroke)

Process Definition (Starting instructions, shaft alignment)

Logistics Support (FGC, SCLSIS, etc.)



Advocates anticipate substantial economies from Product-Model-based design, construction, and service-life support activities due to better integration and reduction of engineering effort to locate, verify, and transform information.