

Setting a New Course in the
SHIPBUILDING INDUSTRY



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Across the shipbuilding industry, global demand for ships is at an all-time high. Increasing wealth, world travel and a growing retiree population have made vacation cruises, nautical sports and boat rental more popular than ever.

Demand for commercial and work ships that deliver goods, lay communication cables, ferry passengers, ship supply vessels offshore, harvest fish and keep the shipping lanes free of ice is on the rise.

Shipbuilders must confront these challenges with new business strategies. To successfully manage this transformation, progressive shipyards and engineering companies must combine innovative practices and advanced product lifecycle management (PLM) technologies to streamline engineering-through-production processes.

Whether they build aircraft carriers, submarines, cruise ships, tankers, yachts, workboats or ship components, companies will need software tools to simulate, organize, design and control their industrial processes.

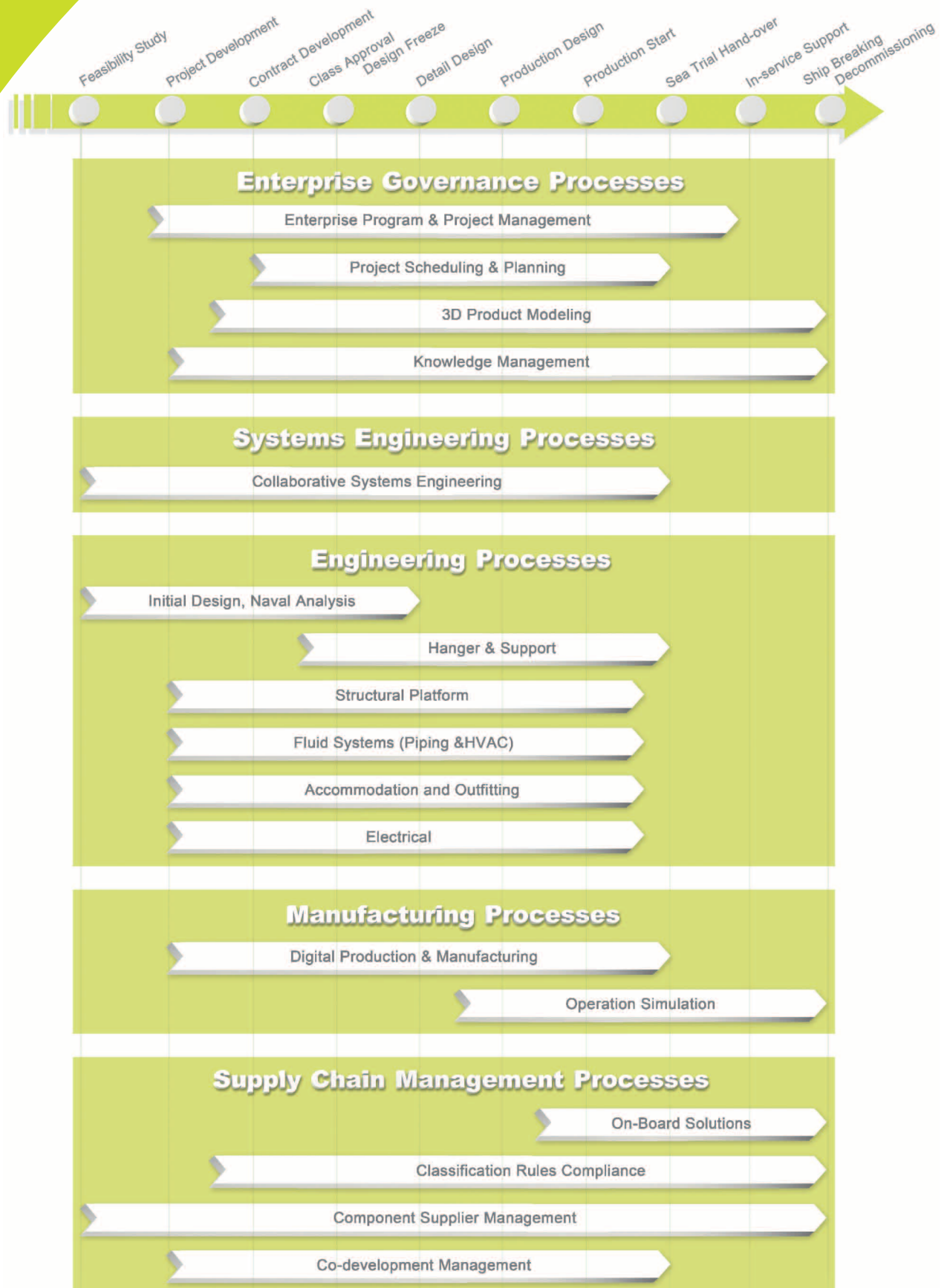
Piping & HVAC
Knowledge
Management
Cruise Ships
Collaborative On-Board
Shipbuilding Design Solutions
Technical
documentation
Hanger & Support
Navy Vessels
Component Search (SBA)
Yachts and Workboats
3D Ship Online
Navigation
Classification
Rules
Compliance
Naval Architects
Production Planning
Marine Engineering
Enterprise Program & Project Management
**Collaborative Systems
Engineering**
Initial Design & Naval Analysis
Component
Supplier
Management
Accommodation
& Outfit



Dassault Systèmes' Solutions for the Shipbuilding Industry

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To maintain their competitive advantage
and meet the critical challenges
they face ship companies must
implement the proper business
process transformation



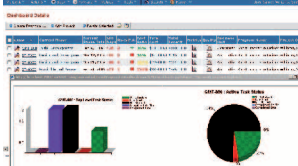


Commercial Ships

Project Management and Collaboration across multiple teams are essential in new generation Commercial shipbuilding.

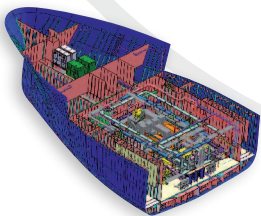
Low profit margin, increased pressures on delivery schedules and price, stringent safety standards, development of new concepts including more complex systems, push shipbuilders to optimize and transform their processes.

Enterprise Governance



Plan and manage complex projects across the extended enterprise. Access real-time data and facilitate efficient and productive collaboration to enable rapid problem analysis and decision making. Capture and manage requirements and specifications, ensure consistency, reduce cost, and increase quality: ENOVIA solutions bring real-time visibility to a project's status and dramatically increase the productivity of globally distributed operations by executing projects and programs with real-time information that is updated automatically.

Engineering Processes



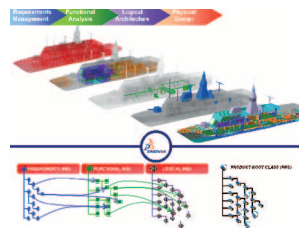
From initial ship design and naval architecture tasks to detailed engineering of Structure, Systems, Accommodation and Outfitting, CATIA solutions make it possible to perform accurate design within a virtual ship model that can be seamlessly simulated and optimized using SIMULIA tools. Based on the powerful CATIA modeling engine, structural design is performed with highly productive tools that enable quick transformation of the functional scantling into hundreds of intelligent structural objects. Pipe routing, air conditioning and electrical cables are associated to the logical diagrams for better engineering reliability. For right-the-first-time design as well as development and production cost reductions, the knowledge management tools of CATIA enable capture and reuse of ship industry practices and design principles.



Navy Vessels and Submarines

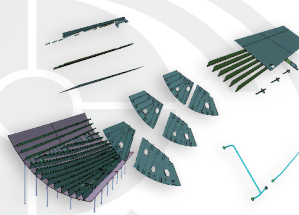
Sophisticated tools are required for the design, simulation and project management of Navy vessels and submarine weaponry systems.

Systems Engineering



Multi-discipline system specifications can be centralized in an integrated collaborative platform. The Systems Engineering solution helps engineers formalize, share and manage a unified, cross-discipline systems development process, with complete traceability of system definition, functional, logical, physical, and simulation aspects.

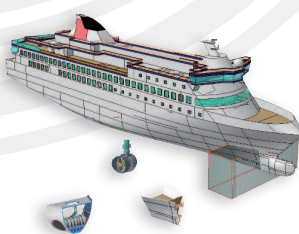
Manufacturing Processes



Simulation and automation of production and manufacturing processes can be performed within the integrated collaborative platform. Supports the complete shipyard production processes right from Plate cutting, Panel Fabrication, Block Assembly, Pre Outfitting, Grand

Assembly & Dry dock. The results of planning include manufacturing execution, construction planning & manufacturing drawings, schedule validation in 3D, sequencing, optimized material flow, resource and space utilization as well as logistics.

Supply chain management Processes



Suppliers are essential to the success of any shipbuilder. ENOVIA supply chain solutions improve part quality and supply chain performance through supplier access to assigned product data and participation in qualification processes. Suppliers can expect a collaborative environment,

extensive document support and visualization of every aspect of the ship where they work. Shipyards will find that ENOVIA improves bid quality and supplier selection by defining robust and transparent award criteria that includes multiple attributes at the same time.

For more information: www.3ds.com/shipbuilding



Yachts and Workboats

From production boats to custom built mega yachts and special vessels, it is of major importance to perfectly handle high quality exterior and interior design, multidisciplinary engineering in tiny spaces, mechanical equipment integration, and streamline processes from design to production.

What our customers say



PLM can simulate operating conditions, thereby enhancing quality and improving lifetime operation cost savings.

Brian Chang, CEO, Yantai Raffles Shipyard

Our previous modeling solution lacked the ability to manage a complete model required for efficient marine design, which was one of the reasons why we chose to manage the entire project with the DS PLM Solutions.

William Pegram, Managing Director, Isonaval

ENOVIA enables STX Shipbuilding to accelerate product innovation aimed at achieving top line revenue growth and improving bottom line profitability.

Sang Byung Shin, Innovation Team Manager, STX Shipbuilding

We chose CATIA because it's flexible and versatile allowing us to handle design activities such as ship outfitting and engine design, end-to-end flow for 2D functional design, and 3D detailed design.

William Pegram, Managing Director, Isonaval



Collaborative Shipbuilding Design



The design of a modern ship is a large and complex process that requires strong collaboration across project management and various discipline design teams such as structural design and piping design. In addition, a project may have multiple design teams working at various sites collaborating together to design the ship. Ensuring efficient and integrated design tools as well as project management and collaboration

tools is critical to ensure that ships are designed in the most efficient manner so that engineers can have the utmost confidence in their designs. The collaborative shipbuilding design solution provides shipbuilders with a suite of products to effectively address these needs. The solution includes ENOVIA and CATIA components. ENOVIA provides a fully collaborative design platform that includes project management tools, enables efficient design practices, promotes design integrity, and ensures effective sharing of project information across all project actors with proper access control. The integrated CATIA products provide shipbuilders with dedicated shipbuilding oriented tools to allow efficient 3D design and validation of a ship including ship structural design and ship system (e.g., Piping, HVAC) design.

CATIA Solutions for Yachts and Workboats



Transitioning from a 2D-based process to a complete 3D virtual model gives workboat or yacht builders a near-immediate return on investment. By designing entirely in a multi-disciplinary, 3D digital mock-up that includes hull structure, fluid and electrical systems and mechanical equipment, engineers ensure up front that the yachts can be built right the first time, with proven assembly plans and no surprise manufacturing issues. This allows better control of profit margins with time and cost reductions. Automatic extraction of drawings, reports,

and bills of material from the digital mock-up helps suppress errors and guarantees version coherence. Built on an open architecture, CATIA solutions enable seamless flow of information to all actors in the workboat or yacht building value chain, from naval architects and engineering consultants to equipment suppliers and the shipyard itself. In this collaborative environment, stakeholders work concurrently, empowering improved responsiveness to changing customer preferences and market drivers.

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The Dassault Systemes SHIPBUILDING R&D Center

In May of 2010, Dassault Systèmes (DS), Keimyung University, and the government of South Korea announced the Shipbuilding R&D Center at Keimyung University in Daegu, South Korea.

The center provides technical expertise in advanced systems development for next-generation shipbuilding systems and a training center to support both shipyards and universities.

The center will work directly with South Korean yards, including Hyundai Heavy Industries, Samsung Heavy Industries, Daewoo Shipbuilding, Marine Engineering (DSME), and STX Shipbuilding. The center's mission extends to customers and users in Japan, China, India and South Vietnam.

The R&D center's public/private partnership allows it to support and cooperate with universities with strong shipbuilding, ocean engineering and naval architecture programs, including Keimyung University, University of Ulsan, Seoul University, Busan University and Inha University.

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