CASE STUDY

Odense Maritime Technology designs next-generation naval ships using Forte 3D

Key facts:

Company: Odense Maritime Technology (OMT)

Website: odensemaritime.com

Industry: Naval Design and Construction

Octave product used: Forte 3D
(Intergraph Smart 3D)

Identifying goals

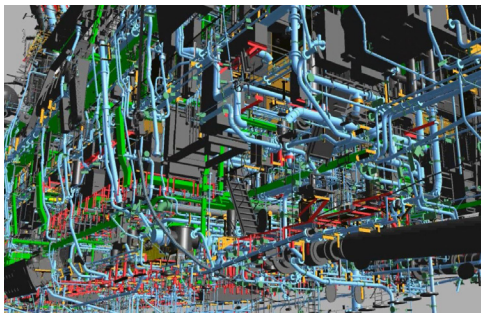
Odense Maritime Technology is Europe's leading maritime consulting firm, specializing in delivering affordable naval defense solutions while fostering industrial development in client countries.

Established in 2010 as a carve-out from the renowned A.P. Moller – Maersk shipyard in Odense, Denmark, OMT has inherited a rich engineering heritage and has evolved into a global naval design powerhouse.

OMT's core expertise spans the full project lifecycle, from conceptual and basic design to detailed engineering support and local team enablement. It has participated in the development of more than 30 unique ship classes, designed for fabrication in multiple shipyards worldwide.

Central to OMT's philosophy is the integration of construction and production considerations from the outset. OMT ships are designed to be built in shipyards around the world, with a strong emphasis on modular, production-ready ship design strategies.

By leveraging the capabilities of Forte 3D, Octave's data-centric 3D design tool for complex industrial projects, OMT benefits from an integrated environment where intelligent models drive consistency and accuracy across disciplines. The solution's rule-driven automation and relational design capabilities allow



for seamless collaboration between naval architects, engineers and production planners.

Overcoming challenges

Historically, shipbuilding was dependent on manual processes and extensive onsite measurements. OMT has turned this approach on its head with a model-driven, digital-first workflow powered by Forte 3D.

This allows the company to define the exact placement of every component, from steel plates, electrical wiring, piping and HVAC systems, before production even begins. OMT's Vice President, Thomas Knudsen, emphasizes the value of up-front digital planning: "It is well worth spending a few hours planning production – it results in significant work-hour savings during execution. We've seen this first-hand, for example from our experience building the Iver Huitfeldt frigates at Lindøværftet."

Key benefits:

- Centralized 3D model guiding complex ship design and construction
- Significant reduction in production hours through early-stage planning
- Modular design supports distributed manufacturing across multiple locations
- Supports flexible, future-ready naval ship configurations

By leveraging a single 3D model to align everything from design to construction, OMT ensures that the hundreds of thousands of components making up a ship are available precisely when needed, without costly rework or manual intervention on the shop floor. "When 400,000 components need to be installed, they must arrive on time – and no one should have to stand around measuring pipes. The components arrive, and they fit," says Kåre Groes Christiansen, OMT's CEO.

Forte 3D supports multi-discipline coordination and clash detection, enabling OMT to anticipate design conflicts before they materialize in production. For a ship design firm operating across borders and engaging with various subcontractors, this is critical to ensure that design intent is preserved and efficiently executed.

Realizing results

OMT's advanced digital model makes it possible to build ships in modular blocks at distributed production sites across Denmark. This not only accelerates timelines but also makes it possible to leverage specialized capabilities in different regions. Distributed manufacturing is essential in today's defense sector, where supply chain resilience and local expertise can offer strategic advantages.

The model also supports increased operational flexibility. The latest generation of frigates designed by OMT features adaptable "cargo bays" capable of carrying mission-specific modules, such as aerial, surface or underwater drones.

These plug-and-play capabilities enable navies to rapidly shift mission profiles based on evolving needs.

"Many countries prefer flexible naval ships, and I have no doubt – given the rapid pace of technological change – that we must build vessels that are adaptable. Things are constantly evolving. Just a few years ago, drones played a minor role in military operations, but today they are absolutely central. That's why it makes sense to design ships with modules that can be replaced," says Kåre Groes Christiansen.

The power of Forte 3D lies in enabling such future-ready designs. Its comprehensive design automation allows users to manage massive volumes of data while maintaining control over all elements' properties and relationships. OMT can manage design changes efficiently, ensuring traceability and consistency throughout the lifecycle.

Next steps

Beyond designing naval vessels, OMT is now responding to growing demand for local shipbuilding capacity. The company has designed an advanced ship production facility in Australia and continues to advise governments on how to build modern "ship factories" rather than traditional shipyards. These modular production models depend on an accurate, data-rich 3D design to coordinate manufacturing across locations and ensure national security in times of crisis.

"We can build one block at one production site and another elsewhere. We can tap into Denmark's national competencies and assemble everything at the end. But it requires an integrated 3D model," says Thomas Knudsen.

By supporting concurrent design, fabrication and assembly processes, Forte 3D enables governments and defense contractors to localize production while maintaining global standards. This strategic flexibility is increasingly important as nations seek to strengthen domestic capabilities and ensure continuity in critical defense infrastructure.

"When 400,000 components need to be installed, they must arrive on time – and no one should have to stand around measuring pipes. The components arrive, and they fit."

Kåre Groes Christiansen,
CEO, Odense Maritime Technology

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property, and assets– for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency, and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.