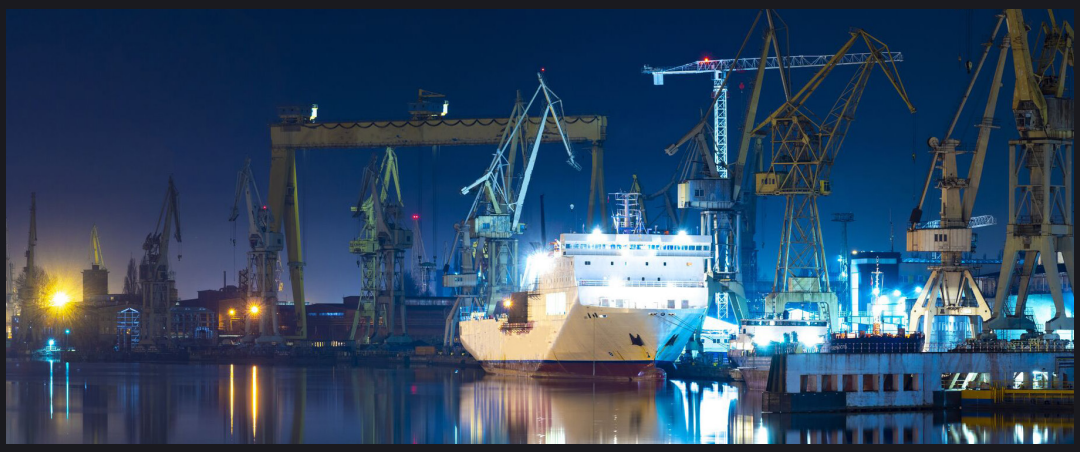
CASE STUDY

Octave's Solutions help Babcock International advance its digital integration in marine defense manufacturing



Key facts:

Company: Babcock International Group

Website: babcockinternational.com

Industry: Shipbuilding

Country: The United Kingdom

Octave products used: Forte 3D *(Intergraph Smart 3D)*, OnSite Production *(Intergraph Smart Production)*

Babcock International Group is a market leader in driving the digital integration of shipyards within the marine defense sector using its diverse skill sets, from precision engineering to heavy fabrication and everything in between. In a time where digitalization is transforming marine operations, Babcock has focused on streamlining and automating traditional manual processes, enabling manufacturing to meet tighter cost constraints and reduced time scales, while staying ahead in a competitive market.

Identifying goals

The engineering and defense leader aimed to modernize its shipbuilding processes. The company plays a vital role in the U.K.'s defense sector and is responsible for delivering five state-of-the-art frigates for the U.K. Royal Navy. The Type 31 (T31) Programme required a radical shift toward digital transformation, integrating advanced manufacturing technologies, automated machinery and digital planning tools to streamline operations. The U.K. Royal Navy's Type 31 (T31) Programme involves the construction of five Inspiration-class frigates, designed as versatile, general-purpose warships to replace the aging Type 23 frigates.

To achieve this, Babcock needed a solution to handle digital workflows, optimize resources and reduce dependency on manual methods.

Key benefits:

- Unified digital workflows replaced manual methods, cutting errors and boosting production speed
- Seamless integration of design, planning and manufacturing reduced redundancy and improved data consistency
- Automated machinery and Numerical Control (NC) - ready to outputs ensured traceable, high-quality shipbuilding at lower cost
- Enterprise Resource Planning (ERP) integration enabled real-time project management, inventory control and streamlined operations

Overcoming challenges

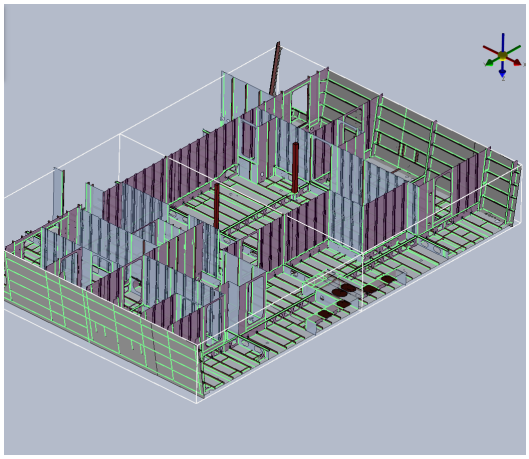
Shipbuilding has traditionally depended on manual processes, paper-based documentation and disconnected systems. Before implementing the new system, Babcock faced several critical challenges:

- The complex and costly integration of new software, machines and technologies resulted in extensive troubleshooting and refining the installed software and their intercommunication.
- A plethora of software tools performing similar tasks created redundancy and inconsistency in data management
- Budget constraints affected the adoption of new technology.
- A lack of digital understanding among teams created a training and support requirement.
- Digital systems and most CNC infrastructure were not in place; instead, a large workforce used manual methods and paper drawings.

Market pressures also played a role, with increasing competition and demands for tighter production costs and reduced timelines. As a market leader in digital integration within the marine defense sector, Babcock needed a partner who could provide a robust, scalable and efficient digital manufacturing ecosystem.

Realizing results

Babcock chose Octave to drive its digital transformation, streamline its processes, drive new automated machinery and employ a fully integrated ERP system. Using Forte 3D and OnSite Production, the company could integrate ship design, material inventory, planning, scheduling and NC outputs. The reason Babcock chose Octave 's solutions was because of the previous involvement with PEMA. Integration between Forte 3D and OnSite Production offers functionality that provides data required to drive the machines from PEMA. Alongside this, the original native ship design was created using Forte 3D, so Octave was an ideal choice for seamless integration and effective management of



Babcock's project. Also, Octave had potential to offer favorable economics, in terms of overall CapEx (Capital Expenditure) and OpEx (Operational Expenditures).

The benefits included:

- **A digital workflow management that** consolidated design, modeling, nesting and revision control into a unified platform.
- **Predefined lifecycle and machine-ready outputs** that added consistency in production, traceability and integration across workflows.
- **Reduction in manual errors and inefficiencies** for improved production speed and quality control.

"We are creating and driving the digital thread through advanced manufacturing. This includes overseeing physical CNC machine tools, digital software, IT architectures and the overall manufacturing infrastructure for the T31 Programme."

Gavin Dormer
Systems Integration Manager at Babcock

Moving forward

Babcock is committed to digital transformation extending beyond the T31 Programme. The company recognizes the need for continuous innovation to remain competitive in the emerging market. Reflecting on the collaboration, Babcock acknowledges the value of its digital shipyard model. For the future projects, it plans to expand this model and explore additional solutions that improve project efficiency, cost-effectiveness and precision in ship manufacturing.

"It's been a baptism of fire and an extremely steep learning curve, made particularly difficult with geopolitical events. All things considered, I'm very happy and proud of what we have achieved in a short space of time."

Gavin Dormer

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.