EBOOK

Navigating the future of shipbuilding

The shipbuilder's guide to maximizing efficiency across the entire project lifecycle

Contents

Shipbuilding is more complex than ever.

From global disruption and changing customer expectations, to tighter regulations and mounting sustainability demands—the shipbuilding industry is navigating a new level of change. New challenges and increasing pressures have made digital transformation a business imperative, not a future ambition.

Shipbuilders that embrace digitalization, automation and digital twins are better equipped to rise to the challenge, improve execution and make smarter decisions. These capabilities not only increase operational efficiency and control, but also cut waste and power more sustainable operations.

Yet many shipbuilders remain weighed down by legacy systems and disconnected processes that prevent them from keeping pace with industry change. Limited visibility, fragmented data and manual workflows make it difficult to meet customer requirements and regulatory demands while containing costs and maintaining profitability.

The storm of change on the horizon shows no sign of stopping. Are you ready to face it?

01 Key challenges for the shipbuilding industry

Despite a tumultuous few years, shipbuilding is on the rise, with the industry expected to achieve compound annual growth of 5.7% through 2026. This will see the market value top $178 billion[1] – welcome news after the impact of COVID-19 on new vessel orders.

At the same time, shipbuilders are finding themselves navigating new waters. Today's customers are increasingly demanding fundamental changes to ship design in the pursuit of more eco-friendly, efficient and cost-effective options for transporting goods.

While shipping has always offered a superior load-to-cost ratio than other transportation methods, meeting new customer and regulatory demands means going further. To succeed, shipbuilders must rework their approach and examine the ecological impact of traditional ship design.

Change is no easy task, but improving information management and use can help shipbuilders adapt and thrive. Following the lead of other industries, digitalization and digital transformation (i.e., using data to make more accurate strategic decisions more quickly) will be essential.

[1] Shipbuilding Market By Product Types – Global Industry Analysis, Growth, Share, Size, Trends, And Forecast 2021 – 2028 – DATAINTELO - https://dataintelo.com/report/shipbuilding-market/

Challenges that shipbuilders must overcome:

01
Assessing risk management

Successful project management demands precise estimation from day one. Yet many shipbuilders struggle to achieve suitable levels of accuracy when estimating cost, time and resource requirements—leading to busted budgets and causing project overruns.

Without access to accurate information, shipbuilders too often lack the required insight to manage risk throughout the complete project lifecycle. This problem only compounds when there is no standardized way for different departments to collaborate.

02
Managing cost and schedule

As a project progresses, change management becomes increasingly critical. Every deviation from the project plan must be captured, along with its effect on other variables. Soaring material costs, delivery delays and design changes all increase costs and push out final delivery. Limited yard capacity can stress the issue. For example, overrunning construction on one project will lead to delays for others. As this scenario repeats across multiple shipyards, it can become even harder to control costs.

“Best guess” decisions rarely yield the best results—but detailed visibility can make it easier to identify and tackle problems earlier, reducing impacts on cost and timelines. Without the ability to easily aggregate data from multiple sources, shipbuilders aren’t able to make the level of accurate assessments or informed decisions that amplify performance.

03
Data handling issues

Today, many shipbuilding operations exist in silos. A lack of integration and end-to-end visualization of processes leads to errors in communication and resource planning. Meanwhile, limited re-use of existing data leads to inefficient quality management and materials overrun and waste.

Without access to reliable information and data integration capabilities, there are few opportunities to automate fabrication and production. Over time, continued reliance on disconnected, manual processes is more expensive, risky and likely to result in project overruns.

02 Introducing enterprise project performance

At the root of many of today's shipbuilder challenges are outdated tools that limit project visibility. Excel spreadsheets that need to be manually updated. Systems that don't connect. Standalone solutions that may offer limited insight into operations, but lack visibility across the entire supply chain. These disconnected tools lead to gaps and information siloes that compound over time.

In these scenarios, key project performance indicators like budgeting, forecasting and cost control take place in isolation, often using incomplete, disconnected data sets. And data that connects nowhere, optimizes nothing.

Enter the enterprise project performance (EPP) tool. These solutions are specifically designed for sharing project data in real-time across the business. With a single, central repository for project-related data, all stakeholders are empowered to make smarter decisions that improve project outcomes and cost control.

03 How Sequence Enterprise helps shipbuilders face the future

Introducing **Octave Sequence Enterprise** (formerly EcoSys): An intelligent solution that streamlines operations and optimizes performance for the shipbuilding industry and beyond.

Sequence Enterprise Project Performance software combines project portfolio management, project controls and project management software into a single, powerful platform. By integrating key processes throughout the full lifecycle, Sequence Enterprise drives better business outcomes for every shipbuilding activity.

Shipbuilding project managers will find these Enterprise Project Performance (EPP) features particularly useful:

Estimation tools

Sequence Enterprise assists with estimation of everything from cost libraries and labor, to resources and materials. This functionality lets shipbuilders explore and weigh different opportunities, so they can make smarter, faster decisions from the earliest stages of planning.

Portfolio management

Shipbuilding projects rarely operate in isolation. Sequence Enterprise offers the ability to track multiple projects and resources simultaneously. Capacity planning tools make it possible to adapt to changes, reallocate resources and quickly identify the best shipbuilding projects to take on.

Project excellence

From scheduling and budgeting, to progress tracking using NESTIX data, Sequence Enterprise equips shipbuilders with end-to-end visibility of all projects. Using Industry 4.0 concepts, NESTIX combines all the functionalities required for work preparation, component arrangement and numerical control (NC) with load balancing for materials and resources in a single integrated solution. Forecasting and reporting tools enable on-the-fly improvements and adjustments, while providing insight into the impact of changes before they are implemented.

Predictability

Timely forecasts enable decision-makers to course-correct faster. In addition to minimizing project delays, early warning capabilities provide an opportunity to better control costs. Simultaneously, your business will enhance its reputation and credibility by avoiding chronic delays and cost overruns—hallmarks of a reliable, trustworthy partner for your customers.

Sequence Enterprise provides integrated digital connectivity between engineering, production and project performance. With one single source of truth, all stakeholders have total visibility, empowering them to make informed strategic decisions that accelerate work, improve safety and deliver higher quality ships to customers, faster.

04 Customer case study

Our client, a modern shipbuilder and in-service ship support provider in North America, delivers efficient building, fabrication, conversion and servicing of vessels and offshore platforms. They are currently contracted to build several next-generation vessels for a national navy.

Because of their government work, our client is often required to comply with EIA-748 Earned Value Management (EVM) standards. These procedures outline a guide for scope definition, schedule and cost objectives—the establishment of baselines and reporting. The techniques are used to measure productivity, better identify problems, implement corrective actions and control changes.

To successfully implement these EVM practices, the client must be able to report on earned value (EV), quickly track both Cost Performance Index (CPI) and Schedule Performance Index (SPI) and deliver accurate Estimates at Completion (EAC).

To meet these obligations, our client began exploring software to replace their existing in-house EVM solution. They needed a system robust and flexible enough to handle all the associated data, processes and reporting needed for full EIA-748 compliance. The software also had to integrate with their other systems, including Primavera P6, a design program and financial systems.

After a thorough evaluation of available solutions on the market, the Sequence Enterprise platform rose to the top thanks to its Excel-like feel, ease of use, flexibility and integration capabilities. Program stakeholders appreciated how simple it was to extract and trade information between Sequence Enterprise and other data sources. More modular competing systems were rejected for being too difficult to work with. Our client was particularly impressed by how flexible Sequence Enterprise is, allowing users to configure the software and tailor processes to their needs, rather than having to rely heavily on IT (Information Technology) for support.

Day-to-day, our client uses Primavera P6 to create its Work Breakdown Structures (WBS) and work packages. They then load work packages, baselines and actuals into Sequence Enterprise to calculate earned value and report to stakeholders. Sequence Enterprise is currently handling 25 million transactions (working forecasts) with another 2 million actual transactions.

Today, Sequence Enterprise helps our client:

- Standardize work processes with more precision and structure—with no possibility of data manipulation without proper authority
- Amplify efficiency and track budgets with accuracy through the Benefit-Cost Ratio Process
- Easily create and tailor custom spreadsheets and reports
- Export data easily as needed
- Get teams up to speed quickly with an intuitive platform that's straightforward for even non-technical users to learn and configure
- Integrate seamlessly with existing project and program management systems

Learn more

Contact us

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.