

The US Navy Has Ambitious Plans. Shipbuilders Must Catch Up.

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The US Navy operates the most complex ships in the world, but the US shipbuilding industry cannot build them quickly enough. Currently, in terms of annual production, the industry is delivering only about half the number of new ships that the Navy needs. Military leaders have set ambitious delivery targets over the coming decade—targets that the US is almost certain to miss without significant changes in shipbuilding processes. The shortfall threatens both national security and economic resilience.

There is no quick fix, but a BCG analysis suggests that two measures can help the industry accelerate production:

- **Modular Construction.** Splitting the build into a set of independent sections constructed in parallel at offsite facilities prior to final assembly can improve efficiency over the current approach, in which most construction happens at a final assembly shipyard.
- **Design Discipline.** Limiting the number of design changes for ships and submarines can minimize complexity along the value stream, enabling shipbuilders to increase their efficiency and productivity, better manage parts that require long lead times, and capture other benefits.

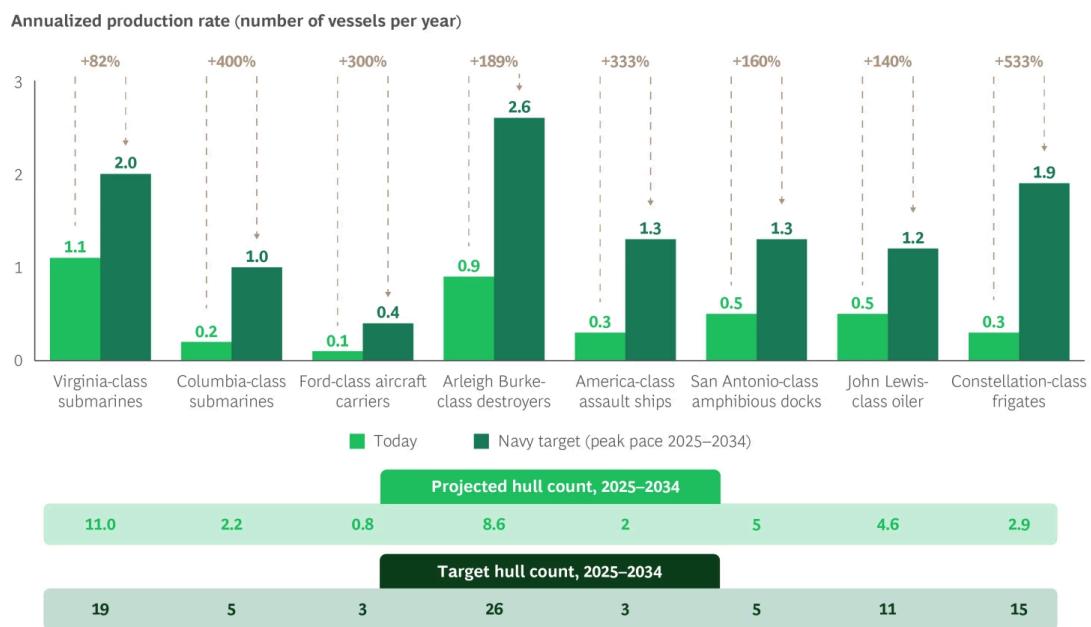
Together, these measures can boost shipbuilders' efficiency and productivity, helping the Navy meet its operational requirements over the coming decade. This approach will also unlock economic rewards that benefit the industry itself, generating roughly \$35 billion in new revenue, creating nearly a half-million new jobs, helping rebuild the domestic manufacturing base, and providing a foundation for improving commercial shipbuilding.

An Issue of Coordination, Not Capabilities

The production gap in US Navy ships is not limited to a single class or category. For example, the Navy has a goal of acquiring 19 new Virginia-class cruisers by 2034, but at current rates, it will receive just 11. The gap for Arleigh Burke–class destroyers is even greater: a target of 26, with the industry on track to deliver just 8.6. (See Exhibit 1.)

EXHIBIT 1

The US Navy Faces a Significant Gap Between Its Current Production Rates and Its Cumulative Production Targets for 2034



Sources: Fiscal year 2025 30-year shipbuilding plan; Naval Vessel Register; fiscal year 2025 President's budget; BCG analysis.

Note: Projected hull count assumes that the current build rate will continue, including vessels currently under construction; target hull count is based on deliveries in the Navy's fiscal year 2025 30-year shipbuilding plan.

Skepticism about the US industry's ability to catch up reflects a misperception that it lacks the capabilities needed to build ships more efficiently. In fact, the US industry has immense potential. It boasts one of the world's largest shipbuilding industrial bases, vast deep-water coastlines, and a large maritime workforce. Across many key dimensions of naval shipbuilding, the US ranks first or second in its peer set. (See Exhibit 2.)

Moreover, the US shipbuilding industry has delivered dramatically higher production rates in the past, from ramp-ups during World War II to Admiral Rickover's development of the Navy's nuclear fleet. The issue is not capability but coordination—enabling the industry to align its advantages in accordance with a coherent maritime strategy.

Two Measures to Improve US Shipbuilding

Shipbuilders have many levers for improving productivity and efficiency, but two in particular can drive a step change in performance: manufacturing key modules in offsite shipyards, and maintaining design discipline for ships and submarines over time.

Modular Construction

Currently, ship construction in the US is highly concentrated at the shipyards of traditional players, with only about 10% of production processes happening offsite. That limits the industry's potential to tap a broader labor and facilities base.

At shipbuilders in Europe and Asia, by contrast, 20% to 50% of construction happens upstream, where suppliers build prefabricated modules for assembly at central shipyards. For example, entire sections of cruise ships are commonly built at subcontractor yards, including fully outfitted rooms that the shipbuilder drops into place during final construction.

By adopting this approach, US shipyards can expand and distribute production, reducing bottlenecks and enabling traditional players to work on multiple vessels in parallel. The approach also reduces the manpower needed at primary yards and helps develop greater specialization in the upstream value chain.

Most importantly, modularization can increase production volume throughout the system, helping the industry meet the Navy's delivery goals without having to construct new primary shipyards (a costly and complex endeavor). We estimate that increasing the degree of modularization—and moving additional work on each ship upstream to module shipyards—would enable shipbuilders to double their current annual construction rate. Critically, such modular work can occur in a wider range of sites, including ones that don't have direct coastal access, and thereby help rebuild the country's domestic manufacturing base.

Design Discipline

The second major improvement measure involves limiting the number of variants and changes in ship designs. Since the first Virginia-class submarines were built in 2004, the hull design alone has gone through five major design upgrades, along with major alterations to the bow design and an increase in the vessel's overall length. Designers have also repeatedly revamped other aspects of the submarine, including its armament, propulsion, and crew quarters. The result: considerable

production delays and associated cost increases that may outweigh the benefits of the specific changes made.

The Arleigh Burke class of destroyers have undergone a similar process of redesign, with changes at the Flight IIA-III stage alone that increased the cost of the latest variant by 22% and lengthened the expected delivery time by almost 80%. (See Exhibit 3.)

Locking designs long enough to capture learning and repetition is foundational for increased production efficiency. Moreover, consolidating upgrades can reduce the number of individual changes needed on hulls in the pipeline. In cases where immediate design variants are necessary, government and industry should align on the potential cost and construction timeline tradeoffs.

The Economic Opportunity at Stake

Together, modular construction and design discipline can speed up the rate of construction at shipyards and reduce costs for each vessel. Those benefits would enable the Navy to order more ships, sending a clear demand signal to shipbuilders and creating a virtuous circle—a win-win situation for both the Navy and the shipbuilding industry.

According to our analysis, the total economic and workforce impact would be significant. (See Exhibit 4.) Industry revenue would increase from about \$30 billion annually to about \$65 billion simply by working through the Navy's current order book. Primary builders would increase their annual revenues by 84%, from \$7.2 billion to \$13.2 billion, and the shift to modular construction would boost the revenues of upstream players from \$300 million now to almost \$8 billion. Increased shipbuilding volume would further cause employment to increase substantially. Under the scenario we assessed, the number of jobs would rise from just over 400,000 today to nearly 1 million.

The impact would extend far beyond the shipyards themselves to include large increases in the market for equipment and materials, as well as revenue for maintenance, repair, and overhaul providers.

Three Critical Priorities

Implementing these two measures requires a significant degree of coordination between government and private industry. The challenge lies in properly integrating the many facets of the industry into a coherent whole. Three areas should be priorities:

- **Develop a cohesive national strategy.** Align all key players, including the Navy, other government stakeholders, and private industry on a clear strategy to increase production. Determine which categories and classes of vessels to prioritize, leverage the expertise of established naval shipbuilders, and mobilize the industrial base. In particular, design stability requires that the government be more selective and judicious in making changes to ship and submarine specifications once production ramps up.
- **Develop the upstream supply chain.** Embracing modular production entails developing and qualifying upstream suppliers. Government can make that proposition more attractive by offering incentives to firms entering the business. These may include subsidized land and equipment loans, production subsidies to reduce the cost of building each ship, and demand subsidies such as guarantees for buyers and payments to scrap current ships.
- **Send clear demand signals.** Defense spending can vary widely, which may deter smaller firms from making the long-term investments necessary to build their production capacity. To counter this, shipbuilders (with government support) can collectively send clearer demand signals, encouraging higher levels of private investment and reassuring private investors that reviving commercial shipbuilding is a viable, long-term play. In tandem with such efforts, government may rethink contractual elements and supply-chain dynamics with shipbuilders and suppliers. Limiting the number and extent of design changes will clarify longer-term demand signals for subtier suppliers. The overarching goal is to reset accountability and engagement along the entire value chain.

As the production demands of the Navy grow, the US shipbuilding industry must reform its design and construction methods, in part through greater coordination with government. The country already has the shipbuilding capabilities it needs. By taking a smarter approach, it can capitalize on those resources and deliver for the Navy in an increasingly complex world.

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