

US Governance Model – Shipbuilding

Naval Sea Systems Command (NAVSEA): directly accountable to the US Navy for the build – this section is responsible for the ship design and build. Responsible for management of over 150 acquisition programs.

Supervisor of Shipbuilding, Conversion and Repair (a subsection of NAVSEA): This is the liaison between the Department of the Navy and Huntington Ingalls, Incorporated-Newport News Shipbuilding (HIINC-NNS) who are engaged in the design and construction of new nuclear powered submarines and aircraft carriers as well as the repair and modernization of submarines and aircraft carriers in the Fleet.

It is the Supervisor's responsibility to administer all contracts, outfit the ships, assure that the technical and quality assurance requirements of the contracts are fully met, ascertain that satisfactory production schedules are maintained, and ensure that the final product delivered to the Fleet is ready to sail "in harms way." They ensure that the fleet is delivered to standard. This is a core section of the Governance Model.

Governance Model: The US uses extensive and detailed operations manuals to govern oversight for contracts for the construction, conversion, overhaul and repair of ships. Essentially, the oversight function is there to ensure that:

- the shipbuilder performance meets the terms and conditions of the applicable contract;
- to influence the shipbuilder to maximise project performance; and
- ensure that the headquarters have knowledge of how the shipbuilder is performing.

The US model uses an enterprise risk management approach as part of their Governance framework to identify, assess and manage risks, and to concentrate their efforts on key points of failure to reduce the level of impact that an event could have if it was to occur.

General Information: US Navy Shipbuilding and Shipyards

<https://shipbuilders.org/us-navy-shipbuilding>

The Navy shipbuilding is a market segment most dominated by two large corporations: General Dynamics (GD) and Huntington Ingalls Industries (HII). When the builders of the Littoral Combat Ship (LCS) are added to the five shipyards of these two corporations, we have eight shipyards building the large majority of the Fleet. **These are the principal shipbuilders for the US navy.**

These principal Navy shipbuilders construct aircraft carriers, submarines, complex surface combatants and the large auxiliary ships of the Fleet. HII's Newport News Shipbuilding and GD's Electric Boat build nuclear class vessels. HII's Ingalls Shipyard and GD's Bath Iron Works build the destroyer class ships, and HII's Ingalls and Avondale build the amphibious warships that transport the U.S. Marine Corps. Fincantieri Marinette and Austal USA build the LCS. Finally, GD's National Steel and Shipbuilding Company (NASSCO) on the west coast, specializes in the larger, complex auxiliary and support ships as well as large commercial vessel construction.

MAJOR U.S. PRIVATE SHIPYARDS		
Shipyard		Recent Products
General Dynamics	Bath Iron Works	DDG-51 class, DDG 1000 class
	Electric Boat	<i>Virginia</i> class SSN
	NASSCO	RO-RO Strategic Sealift Ships, TAKE, Auxiliary Ships, MLP
Huntington Ingalls Industries	Newport News Shipbuilding	<i>Ford</i> class CVN, <i>Virginia</i> class SSN
	Ingalls/Avondale	LPD 17 class, DDG 51 class, LHA 6 class
Austal	Austal USA	Littoral Combat Ship, JHSV
Fincantieri Marine Group	Marinette Marine Corporation	Littoral Combat Ship

The government segment of the U.S. shipyard complex also includes **four government-owned and government-operated shipyards**: Portsmouth, Pearl Harbor, Puget Sound and Norfolk Naval Shipyards, all of which are nuclear capable. These yards are used only for repair, maintenance and modernization of naval vessels.

Note – this section is copied from the internet (see link)

Mid-tier shipyards build various Coast Guard vessels, a variety of auxiliary ships for the U.S. Navy, National Oceanographic and Atmospheric Administration (NOAA) research ships and U.S. Army inter-theater transport vessels. These mid-tier shipyards are also engaged in building a wide variety of commercial vessels.

U.S Navy Budget and shipbuilding:

U.S. Navy new ship construction is funded within the Shipbuilding and Conversion, Navy (SCN) appropriation. SCN funds are used for investments to finance the construction of new ships and conversion of existing ships, including service life extensions and nuclear refueling and complex overhauls (RCOH). Included in the SCN appropriation are hull, mechanical and electrical equipment (HME), electronics, guns, torpedo and missile launching systems and communications systems. SCN also includes plant equipment, ship outfitting and post-delivery projects, machines and tools. This appropriation is a multi-year appropriation and normally remains available for obligation for five fiscal years or the obligation work limiting date (OWLD) of the ship under construction. The OWLD is established as 11 months following completion of fitting out the ship, and the OWLD date of the last hull in a class of ships governs when the appropriation is scheduled to expire. Amphibious ships that transport the U.S. Marine Corps are funded within the U.S. Navy's SCN appropriation.

The Program Executive Offices (PEOs) budget for and fund ship new construction programs and carrier refueling overhauls (RCOH) from SCN and Research, Development, Test & Evaluation (RDT&E) appropriations. Based on the estimates of the program managers, the Naval Sea Systems Command (NAVSEASYS COM) prepares annual budget requests which are submitted for review. The budget process calls for sequential submissions up the chain starting with the Navy Budget in the summer, the Office of the Secretary of Defense (OSD) Budget normally submitted in the fall, the President's Budget submission to the Office of Management and Budget (OMB) in December and culminates in the President's budget submission to Congress in February of each year.

The Shipbuilding and Conversion, Navy (SCN) budget for the past seven years has represented an average 33 percent of the Navy's and 12 percent of the Defense Department's overall procurement budget - with, on average, seven combatants per year.

What is good governance?

Good governance is about the processes for making and implementing decisions. It is not about making 'correct' decisions, but about ensuring the best possible process for making those decisions. Good governance is accountable, transparent, responsive, efficient, participatory, and follows the rule of law. Good governance informs good policy.

The US Model for Shipbuilding

On 15 December 2016, the US Navy released a new force-structure goal that calls for achieving and maintaining a fleet of 355 ships of certain types and numbers. This new 355-ship force-level goal replaces a 308-ship force-level goal that the Navy released in March 2015. Procuring the additional ships required to maintain the 355-ship fleet will require several billion dollars per year in additional shipbuilding funds; all elements of the fleet could be achieved by 2035 at the earliest.

NAVSEA is responsible for the design, construction, delivery, maintenance and disposal of Navy's ships and ship systems. NAVSEA engineers, builds, buys and maintains the Navy's ships and submarines and their combat systems, and manages 150 acquisitions programs. NAVSEA's five affiliated Program Executive Offices are responsible for all aspects of the life-cycle management of their assigned programs. The five PEOs are:

- PEO Aircraft Carriers
- PEO Integrated Warfare Systems
- PEO Littoral Combat Ships
- PEO Ships
- PEO Submarines

The PEOs budget for and fund new construction programmes and carrier refuelling overhauls from Shipbuilding and Conversion, Navy (SCN) and Research, Development, Test & Evaluation (RDT&E) appropriations. The program managers provide estimates to Naval Sea System Command (NAVSEASYS COM), which prepares annual budget requests which are submitted for review.

The Supervisor of Shipbuilding, Conversion and Repair is a subsection of NAVSEA which acts as the liaison between the Department of the Navy and Huntington Ingalls, Incorporated-Newport News Shipbuilding (HIINC-NNS) who are engaged in the design and construction of new nuclear powered submarines and aircraft carriers as well as the repair and modernization of submarines and aircraft carriers in the Fleet.

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Operations Manuals

The US uses extensive and detailed operations manuals to govern oversight for contracts for the construction, overhaul and repair of ships. The oversight function is there to ensure that:

- The shipbuilder performance meets the terms and conditions of the applicable contract;
- To influence the shipbuilder to maximise project performance; and

- Ensure that the headquarters have knowledge of how the shipbuilder is performing.

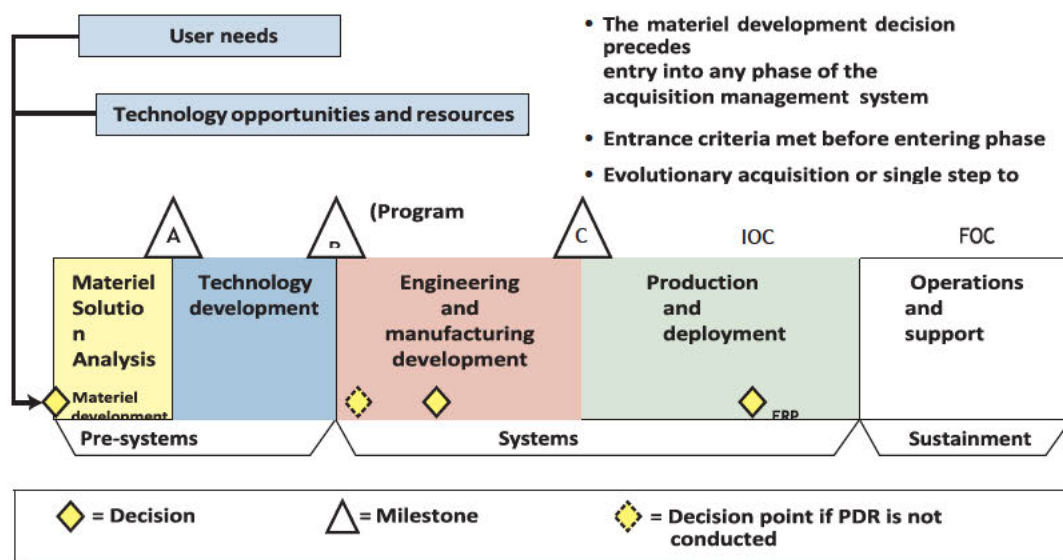
The US model uses an enterprise risk management approach as part of their Governance framework to identify, assess and manage risks, and to concentrate their efforts on key points of failure to reduce the level of impact that an event could have if it was to occur.

The US Department of Defense has a well-established set of policies, procedures and organisations for acquisition management and oversight, described in the 5000 series of directives and instructions. These documents describe procedures and organisational responsibilities for program management, major milestones and key technical reviews, systems engineering, and test and evaluation. The goal of the 5000.02 instruction is to establish 'a simplified and flexible management framework for translating capability needs and technology opportunities based on approved capability needs, into stable, affordable, and well-managed acquisition programs that include weapon systems, services and automated information systems.'

DoD uses a phase-decision point process for its acquisitions, where programs proceed to the next phase of development after successful completion of a milestone review. The acquisition process has five distinct phases:

- Material Solution Analysis (MSA)
- Technology Development (TD)
- Engineering and manufacturing development (EMD)
- Production and deployment (PD)
- Operations and support

Between the five phases there are three milestone decision points. The acquisition framework is demonstrated below:



(Source: DoDI 5000.02)

In addition to the Department of Defense's directives, the Department of the Navy has specific instructions for the implementation of the acquisition process. SECNAVINST 5000.2D formalises the internal-to-the-Navy acquisition process, and is referred to as the two-pass/six-gate acquisition process.

Pass 1: concept decision and concept refinement phase

- Gate 1 – Culminates in the Navy's approval of the Initial Capabilities Document to submit to J-8. This gate also validates the Analysis of Alternatives (AoA) plan and approves the start of concept design.
- Gate 2 – Reviews the AoA content, approves the Service's preferred alternatives, approves the start of the Capability Development Document and concept of operations of operations generation.
- Gate 3 – Reviews the preliminary design and cost outputs, validates the System Design Specification development plan, and reviews cost, risk and budget

Pass 2: Technology Development Phase

- Gate 4 – Approves the System Design Specification development plan and proceeds to Gate 5.

Pass 2, Continued: System Development and Demonstration Phase

- Gate 5 – Checks that all items are complete before releasing the system development and demonstration or a Request for Proposal.
- Gate 6 – Evaluates the readiness for production and follows the award of the system development and demonstration contract.

While the US has clear directives for shipbuilding, there are challenges associated with the implementation of the 5000 process. Ships have several characteristics that make them unique from other defence acquisitions, including the length of time to design and build, importance of industrial/political factors, concurrency of design and build, complexity, low quantity/production rate, high unit cost, and test and evaluation procedures. As such, having a single overall process that is applied to a wide variety of programs can mean that policies and procedures may not be entirely appropriate for all acquisitions.

Shipbuilding in the UK

The UK Ministry of Defence's shipbuilding programme demonstrates the importance of good governance in naval acquisitions. The procurement of Royal Navy ships has been slowed by unclear governance and poor linkages across the total enterprise of shipbuilding, including industrial capacity and capability. At present, the complexity of shipbuilding projects and the effects of silo activity are leading to significant growth in specification, scale and end cost of ships, and extended procurement timeframes. Industry capability needs to be better integrated into the total planning of naval acquisition, with an Independent Report to inform the UK National Shipbuilding Strategy recommending that the Ministry of Defence establish a transparent Master Plan for naval shipbuilding which lays out procurement plans for each series of ships over the next 30 years. It suggests that the Master Plan should be backed by "set and assured" capital budgets for each new series of ships, and Government should drive cultural and governance changes in the Ministry of Defence to 'inject genuine pace into the procurement process with a clear grip over requirements, cost and time'¹. Good governance is essential to the success of naval procurement projects.

Key Takeaways

Shipbuilding programs are complex, and require good governance to ensure that they are delivered on time and on budget. Ships are produced at lower rates and quantities than other major defence acquisition programmes,

¹ An Independent Report to Inform the UK National Shipbuilding Strategy, p. 8

and have unique production issues and requirements depending on their type. The US's 5000 series of directives and instructions provide a simplified and flexible management framework for managing naval acquisitions; however, they are not necessarily appropriate for all shipbuilding programmes. The SECNAVINST 5000.2D directives are specific to Navy, and provide tailored instructions for naval acquisitions. Given that shipbuilding programmes have unique requirements when compared with other procurement projects, a tailored naval acquisitions directive is appropriate and necessary.