



Calhoun: The NPS Institutional Archive
DSpace Repository

Acquisition Research Program

Acquisition Research Symposium

2018-05-09

Comparison of Naval Acquisition Efficiency Between the United States and China

Lorge, Matthew

Monterey, California. Naval Postgraduate School

<http://hdl.handle.net/10945/58448>

This publication is a work of the U.S. Government as defined in Title 17, United States Code, Section 101. Copyright protection is not available for this work in the United States.

Downloaded from NPS Archive: Calhoun



Calhoun is the Naval Postgraduate School's public access digital repository for research materials and institutional publications created by the NPS community. Calhoun is named for Professor of Mathematics Guy K. Calhoun, NPS's first appointed -- and published -- scholarly author.

Dudley Knox Library / Naval Postgraduate School
411 Dyer Road / 1 University Circle
Monterey, California USA 93943

<http://www.nps.edu/library>

Abstract

The People's Republic of China has emerged as the most significant long-term strategic competitor to the United States on the world stage. To accomplish this, China has made substantial investments in modern naval systems. In order to understand how successful China has been in this effort, an understanding of its acquisition system is required. Currently, there is not a standard method for comparing the efficiency of acquisition systems between the United States and other nations.

U.S. Life-Cycle Phases

- 1: Materiel Solutions Analysis
- 2: Technology Maturation & Risk Reduction
- 3: Engineering & Manufacturing Development
- 4: Production & Deployment
- 5: Operations and Support

PRC Life-Cycle Phases

- 1: Pre-Research
- 2: Validation
- 3: Planning
- 4: Engineering and R&D
- 5: Product Finalization
- 6: Employment
- 7: Retirement

Comparison of Life-Cycle Weapons Development Phases

Schedule Comparison (Months from lay-down to commissioning)									
Destroyer		Small Combatant		Amphibious		Attack Submarine		Aircraft Carrier	
DDG-51	052D	LCS	054A	LPD-17	071	SSN-774	093A	CVN-78	001A
34	50	44	23	59	23	68	97	92	60

Cost Comparison (In FY18\$M)									
Destroyer		Small Combatant		Amphibious		Attack Submarine		Aircraft Carrier	
DDG-51	052D	LCS	054A	LPD-17	71	SSN-774	093A	CVN-78	001A
\$1,750	\$813	\$568	\$381	\$2,212	\$254	\$2,766	\$914	\$14,935	\$3,048

Comparison of Cost and Schedule Data

Methods

- Conducted an analysis to compare the defense acquisition processes used by each country.
- Identified a list of factors in literature that affect a country's acquisition efficiency.
- Developed an acquisition efficiency framework with metrics and scoring criteria for each factor.
- Used qualitative and quantitative data to apply this framework to the naval shipbuilding programs of the United States and China.

Results

- This research identified 10 key factors that affect a country's acquisition efficiency: Cost, Schedule, Performance, the Acquisition Workforce, Contracting, the Resource Allocation System, Innovation, the Industrial Base, the Requirements System, and Operations and Support Costs.
- The United States' shipbuilding program outperforms China in eight areas.
- China outperforms in two key factors: Cost and Schedule performance.
- This indicates that despite the United States having a more efficient acquisition system overall, China is still able to produce warships faster and at a lower cost. The U.S. must develop strategies to close this gap.



Chinese Type 001A Aircraft Carrier (Source: Congressional Research Service)

Recommendations

- Adapt the best practices used by rapid acquisition programs to the acquisition system as a whole in order to streamline the process.
- Expand the use of multi-year contracts and block buys for shipbuilding programs.
- Provide incentives and training to shipyards that don't currently do military construction in order to increase the capacity of the industrial base.
- Incorporate existing foreign or commercial technology into ships to reduce R&D time.