U.S. Coast Guard Cutter Procurement Lessons' Impacts on the Offshore Patrol Cutter (OPC) Program Affordability

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Overview

The U.S. Coast Guard's upcoming acquisition of the Offshore Patrol Cutter (OPC) offers many opportunities to leverage recent procurement lessons to achieve the program's affordability requirement of $310 million per hull. We explore the question of how lessons learned from the National Security Cutter (NSC) and Fast Response Cutter (FRC) procurement programs were applied to the Offshore Patrol Cutter (OPC) acquisition strategy to achieve affordability. We examine procurement lessons addressing management reforms, best practices in competition, contract structure, multiyear procurement, requirements generation, and test and evaluation We validate the Coast Guard's OPC cost requirement of $310 million per hull using notional design data. We further illustrate the impact that varying specific design characteristics (speed, personnel, and length/beam) has on ship production cost. Finally, we conclude that the U. S. Coast Guard has successfully incorporated lessons from the NSC and FRC procurement programs into the OPC acquisition strategy and we present a trade-off analysis that program managers may use in future source selection processes.

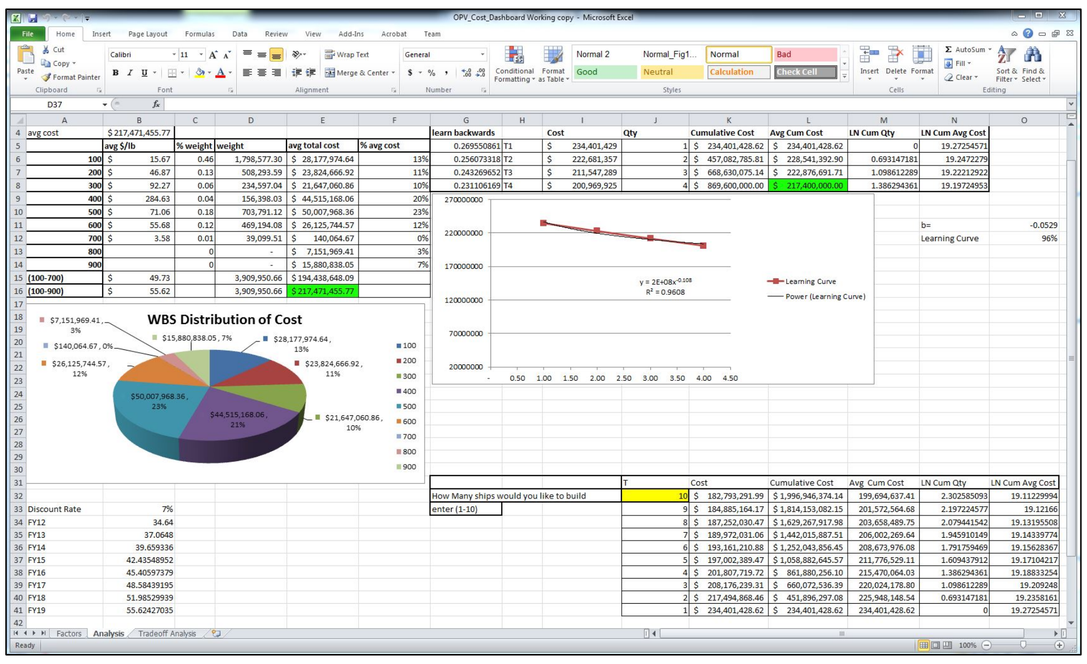
Images do not represent any specific final contract award design.

Research Questions

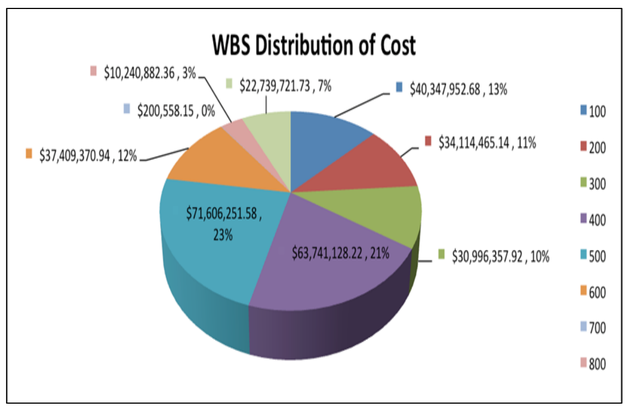
- What aspects of the OPC acquisition strategy contribute most to affordability?
- Does the OPC acquisition strategy use a multi-year or block-buy strategy?
- How will the OPC acquisition strategy procure data rights from the phase 1 contractor for phase 2?
- How did the Coast Guard write the OPC requirements to be affordable?
- How does the requirement of interoperability affect affordability?

Methods

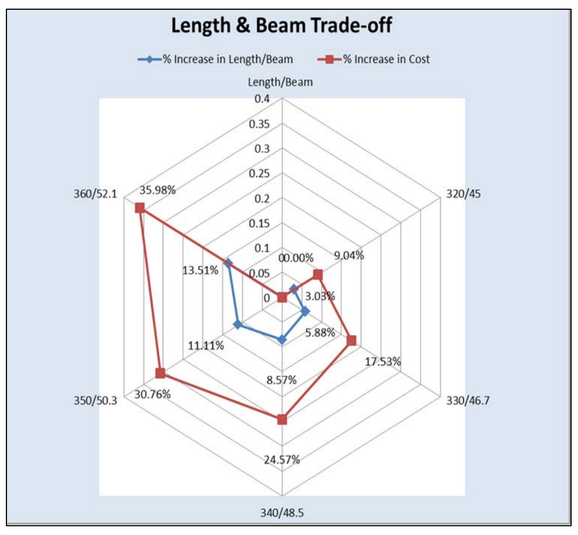
- Our research focused on procurement lessons including management reforms, best practices in competition, contract structure, multi-year procurement, requirements generation, and test and evaluation that may be applied to the OPC acquisition strategy to achieve the requirement of affordability.
- In addition to the above listed methods, this report utilized research methods from the thesis titled *Estimating production cost while linking combat systems and ship design* by Jeffrey Lineberry (NPS, 2012) to provide an estimate of the cost of the OPC given stated requirement objectives.



Lineberry's OPV Cost Dashboard



Pie Chart Depiction of OPC Work Breakdown Structure (WBS) Cost Distribution



Length and Beam Trade-Off Spider Chart

	avg $/lb	% weight	weight	avg total cost	% avg cost
100	$ 15.67	0.46	2,575,179.43	$ 40,347,952.68	13%
200	$ 46.88	0.13	727,768.10	$ 34,114,465.14	11%
300	$ 92.28	0.06	335,892.97	$ 30,996,357.92	10%
400	$ 284.65	0.04	223,928.65	$ 63,741,128.22	20%
500	$ 71.06	0.18	1,007,678.91	$ 71,606,251.58	23%
600	$ 55.69	0.12	671,785.94	$ 37,409,370.94	12%
700	$ 3.58	0.01	55,982.16	$ 200,558.15	0%
800		0	-	$ 10,240,882.36	3%
900		0	-	$ 22,739,721.73	7%
(100-700)	$ 49.73		5,598,216.16	$ 278,416,084.63	
(100-900)	$ 55.62		5,598,216.16	$ 311,396,689.03	

OPC Cost Estimation Results

Conclusions

- OPC Program effectively incorporated competition in the acquisition strategy.
- Cost-plus incentive contract to the FPI/EPA contracts used on FRC and OPC is a significant step in linking the shipbuilder's fee to their actual cost performance.
- The OPC Program executed trade-offs in the requirements generation phase by removing the stern launch capability requirement from the original design
- The cost estimation model developed by Lineberry (2012) was used to validate the cost requirement of $310 million per hull by analyzing the requirements of speed, personnel, and length/beam.

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