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Raytheon commissioned review

STUDY: MODIFIED DDG-1000 BEST OPTION FOR FUTURE SURFACE COMBATANT

The ideal future surface combatant for the Navy is a DDG-1000 destroyer modified with a higher-power radar and ballistic missile defense (BMD) capabilities, according to a University of Tennessee study commissioned by Raytheon that was released last week.

"The research supports an acquisition plan that would add BMD-capable DDG-1000 destroyers to the fleet in numbers that exceed the three DDG-1000s" that the Navy has proposed, the study states.

The study, titled "The U.S. Navy's Destroyer Acquisition Plan: Examining Options for Acquiring DDG-1000 and DDG-51 Destroyers to Meet Maritime Capability Requirements," was conducted by the National Defense Business Institute, housed at the College of Business Administration at the University of Tennessee-Knoxville. The institute seeks to "inspire national security business innovation" for both government and industry, according to its Web site.

In written responses to questions posed by *Inside the Navy*, David Patterson, the director of the institute and the primary author of the study, said that compared to the Arleigh Burke DDG-51 design that the Navy plans to restart production of in fiscal year 2010, a modified DDG-1000 is a better way to go for the future surface combatant (FSC) that the Navy has said it wants to begin procuring in FY-12.

"Our analysis found that the enhanced DDG-1000 option is better in terms of ship performance against current and emerging threats, keeping flexibility to be upgraded as new technologies and systems become available to address future threats, and keeping a strong shipbuilding industrial base to serve the Navy in the future," Patterson said on June 26.

Raytheon paid for the study, which is noted in the introduction. The company, which makes the combat system for the current DDG-1000, has billions at stake in the program. Last summer, the Navy announced its intentions to truncate the multibillion-dollar DDG-1000 program at three ships, contending that anti-ship cruise missile, ballistic missile and submarine threats are of a new and growing significance, and that the vessel does not have the right capabilities to counter them. Instead, the Navy wants to revert to building more of the proven DDG-51s.

The study combed media reports, reviewed publicly available data on the programs and interviewed subject-matter experts to come up with four possible options for the FSC. The options were the current DDG-1000 design; an enhanced DDG-1000 that is BMD-capable, has a higher-power radar and an option to remove one Advanced Gun System cannon for an additional Vertical Launch System missile cell; a DDG-51 Flight IIA upgraded with the Aegis Advanced Capability Build 12 (ACB-12) combat system, which makes it BMD-capable; and a DDG-51 that is BMD-capable and includes a higher-power radar.

The options were then analyzed using a "logic-driven analytical approach" dubbed Strategic Choice Structuring, as well as a weapon system capability decision model.

The study notes that four key findings significantly affected the conclusion, the first of which was that the estimated re-start costs for the DDG-51 program, including recovering tooling and skills and re-qualifying suppliers, "were significant." Secondly, it states, when the DDG-51 and DDG-1000 are compared with respect to the threat environment, given the DDG-1000's stealthiness and other features, it would be "significantly more survivable."

Further, the report states that the DDG-1000 creates a "stronger and more stable" shipbuilding industrial base, noting that the labor

required to build a DDG-51 is about 60 percent of what is required for a Zumwalt-class DDG-1000. And the final significant finding is that the larger growth potential of the DDG-1000 makes it "the better platform for future requirements where more powerful radar capability, greater demand for electrical power, more weight and more space are needed."

Patterson, who is a former principal under secretary of defense and Defense Department comptroller, said the study was commissioned in part because the current discourse on the question of the the FSC "did not provide a complete view" of all of the arguments for either the DDG-51 or DDG-1000 as the design choice.

"To improve the quality of the discussion, we sought to analyze the merits of each option across a broad set of criteria -- performance, cost, industrial base strength and preserving options for the future," he said. "The principal goal of this work, therefore, was to present a full set of options for the Navy's destroyer acquisition plan and then evaluate those in a direct comparison fashion using transparent criteria and logic."

Raytheon, with much at stake in the program, told *ITN* that it commissioned the study to "research, analyze and present data on the costs and capabilities of Zumwalt within the broader context of the Navy's future fleet strategy," according to a company statement.

"It provides a factual foundation for understanding the factors involved in the Navy's recent decisions regarding its destroyer modernization plans and provides a comprehensive analytical baseline as we look to the future," the statement staid.

Patterson added that the study was not unduly influenced by the fact that Raytheon paid for its execution.

"At the end of the day the study will stand on the merits of the research using publicly available data, personal interviews and the weapon system capability decision model developed for the study," he said. "To overcome any perception of bias, we attempted to be as transparent as possible in the assumptions and analysis. The fact that we relied on publicly available information provides a point of view that an inquiring lay person could come to as well."

The study acknowledges that choosing a DDG-51 with Aegis ACB-12 as the FSC would give the Navy two more destroyers over the 2007 to 2020 timeframe. And while going that route will meet BMD and area defense anti-air warfare requirements, the study notes that it "leaves in question" the Navy's capability against threats over the horizon and "continues an operational situation that requires ships to focus on shooting down enemy missiles, instead of enemy aircraft."

"Furthermore, this option does not sustain advanced capabilities developed by the industrial base, and it is uncertain how technologies in this ship will contribute to advances in design and shipbuilding production, or to a next generation of surface combatants," the study adds.

Meanwhile, pursuing the option of a modified DDG-1000 will result in two fewer ships, which negatively affects forward presence, but "will provide the highest capability against current and near-term threats" due to stealthiness, radar power, capacity for upgrades and operational flexibility.

"The decision before the Navy regarding future destroyer acquisitions is difficult and fundamentally comes down to a question of quantities of ships versus capabilities of those ships," the study states. -- *Rebekah Gordon*

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