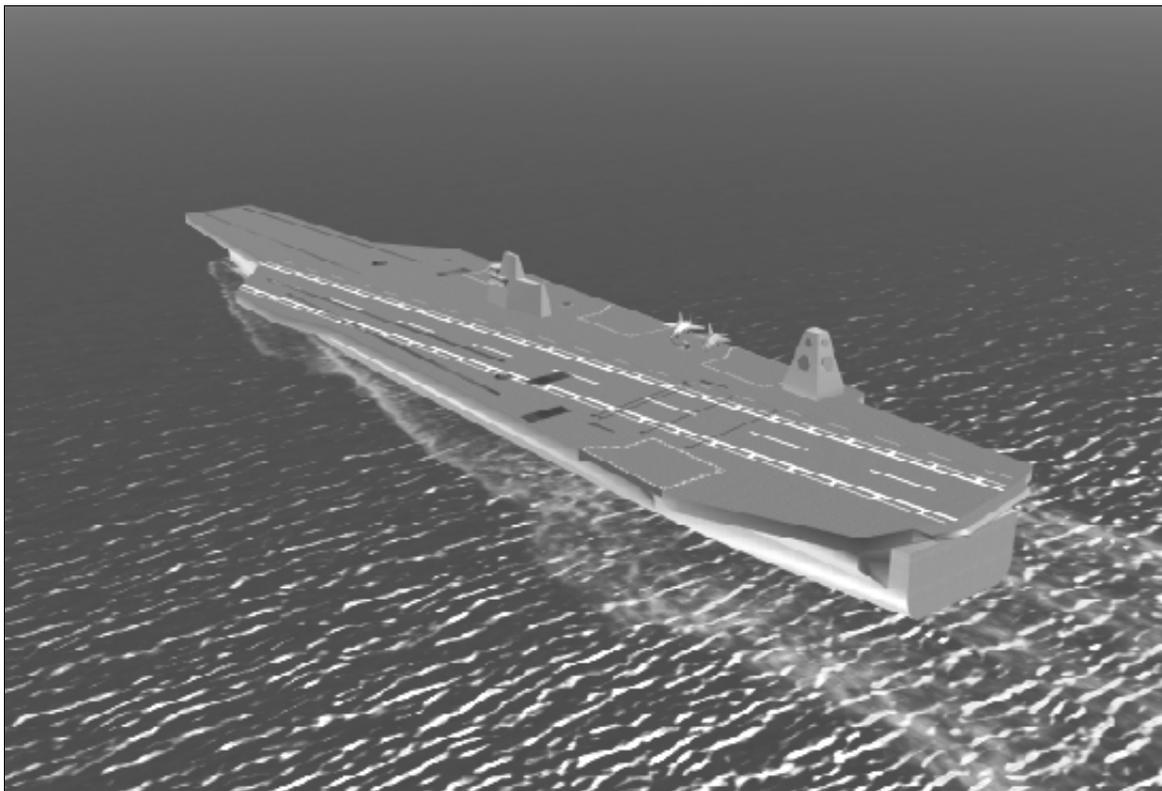


CVN(X)



Navy ACAT ID Program

Total Number of Systems:	TBD
Total Program Cost (TY\$):	TBD
Average Unit Cost (TY\$):	TBD
Full-rate production:	N/A

Prime Contractor

Newport News Shipbuilding

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2020

CVNX is a new class of nuclear-powered, large deck aircraft carriers. With an expected 50-year life cycle, the first ship (CVNX1) will be a part of the fleet through at least 2063 and with its new warfare system, it will be a major factor in achieving *information superiority* for the *dominant maneuver* force of tactical naval aviation. Using an evolutionary approach to acquisition, current plans call for incorporation of major elements of a new integrated warfare system, including a new Multi-Function Radar (MFR) and Volume Search Radar (VSR) in CVN77 to ensure *precision engagement* of enemy forces. Newport News has selected Lockheed Martin Corporation to be the CVN 77 Electronic Systems Integrator that will ultimately be included on CVNX.

CVNX1 will have a Nimitz class hull with an upgrade of the CVN77 weapon system, new reactor and propulsion plant design, and greatly increased electrical power generating capacity. If technologically feasible, this ship will have an Electro-magnetic Aircraft Launching System (EMALS)

that will replace the steam driven catapults of earlier aircraft carriers. This decision will be made in FY02.

CVNX2 will incorporate a new Electromagnetic Aircraft Recovery System (EARS) and other new technologies along with flight deck design changes. EARS also includes service life growth margins while reducing manpower requirements and total ownership costs.

BACKGROUND INFORMATION

The Navy's evolutionary approach to acquisition of a new aircraft carrier was approved by OSD in a June 15, 2000 Milestone I decision, following an extensive Analysis of Alternatives (AOA) concerning potential approaches and designs. Part 1 of the AOA, performed in 1997, focused on the carrier air wing composition and size, selecting an 80-plane air wing. Part 2 of the AOA was completed in October 1998, which selected the Nimitz hull for CVNX1 with evolutionary improvements in CVNX2 and follow-on ships. Part 3 of the AOA ended in January 00 where 6 new designs and 8 modified CVNX1 designs were analyzed before selecting concepts that will affect CVNX2. Milestone II is scheduled for Apr 02 and construction of CVNX1 is set to begin in 2006.

TEST & EVALUATION ACTIVITY

This year's T&E activity focused on preparation of the Milestone 1 Test and Evaluation Master Plan in parallel with development of the Operational Requirements Document. Consistent with the emphasis on early program involvement, DOT&E and OPTEVFOR representatives were active participants in the T&E Integrated Product Team (IPT) charged with TEMP preparation as well as the Integrating IPT that addressed overarching acquisition program issues.

In the Live Fire Test and Evaluation area, the Navy delivered a draft of the Milestone I Vulnerability Assessment Report (VAR) to DOT&E for review in May 2000. The assessment, the first in a series of six VAR's, was a summary of the survivability work accomplished for the Analysis of Alternatives. DOT&E submitted its questions and proposed changes to the Navy for incorporation into the final version of the VAR, scheduled for completion in early FY01.

TEST & EVALUATION ASSESSMENT

The Milestone 1 TEMP includes an Early Operational Assessment (EOA) that will commence in 2001 to evaluate the CVNX1 preliminary design. A diverse team comprised of OPTEVFOR test directors, subject matter experts from Navy Systems Commands (laboratories and field activities), and user representatives from the fleet will perform this EOA. The team will examine ship design documentation and the results of all applicable testing performed by the shipbuilder and system developers. The team will pay special attention to DD21 Program technologies that are candidates for insertion beginning with CVN77 and to the progress of Electro-Magnetic Aircraft Launching System (EMALS) testing. Since CVNX will evolve from the Nimitz design, the team will assess whether deficiencies in the current design are being addressed to the satisfaction of the fleet.

Although the mature Nimitz class aircraft carrier program has not been under active oversight in recent years, DOT&E has signaled special interest in the CVN77 warfare system. If the CVN77 warfare system proves to be a precursor of the CVNX warfare system as currently planned, DOT&E and

OPTEVFOR will closely monitor all relevant contractor and developmental testing. OT will be conducted at appropriate land-based test facilities and aboard CVN77 following delivery.

Regarding LFT&E, and since CVNX1 will be built using a Nimitz class hull, DOT&E believes that an assessment of the known vulnerabilities is critical to minimizing the vulnerabilities of CVNX. The draft Milestone I VAR, however, presented no data on Nimitz class vulnerabilities, even though CVN 76 was the baseline design for the Analysis of Alternatives. Furthermore, the VAR failed to establish that the survivability of any of the design alternatives was better or worse than the Nimitz class ships currently in service and in production. In comments and questions provided to the Navy, DOT&E has asked that this comparison between CVN 76 and CVNX design alternatives be made. Director, Strategic and Tactical Systems, and DOT&E, in a memorandum approving the TEMP, stated that the Navy should program adequate resources to design CVNX to counter current and future underwater threats, and evaluate them prior to Milestone II.

CONCLUSIONS, RECOMMENDATIONS AND LESSONS LEARNED

DOT&E endorses the level of early OT community and user involvement associated with the Early Operational Assessment (EOA) that will be conducted in 2001 and 2002. This important, independent evaluation will afford an early opportunity to identify and correct any significant shortcomings in the CVNX1 design and reduce the requirement for costly changes during the construction process.

CVNX depends on technology advances pursued in DD21, particularly with regard to the new warfare system and associated radar. Any slide in the DD21 program will have repercussions on CVNX.

