‘Faster and Cheaper’: Two Navy Officials Share Vision of All-Digital Development, Testing and Acquisition of Weapons and Systems

Greater use of digital technology in developing, testing and acquiring new weapons and systems can produce the new capabilities the sea services need to match emerging peer competitors and do so “faster and cheaper,” two senior U.S. Navy officials said Nov. 20.

Digital modeling and simulation, virtual testing and combined live tests at sea or in the field can more quickly evaluate the capabilities of proposed systems while gaining valuable feedback from the warfighters, said William Bray, deputy assistant Navy secretary for research, development, test and evaluation.

A “digital transformation” to substitute computers for stacks of paper documents could reduce the time needed to take a proposed new capability from conception to full operational capability by at least half, added Garry Newton, the civilian deputy commander at Naval Air System Command.

The two officials were among a host of program officials, engineers and other procurement experts who attended a conference on model-based systems engineering staged by the American Society of Naval Engineers and described the increasing use of digitized information and processes in weapons development and sustainment.

Bray said the new National Security Strategy made it clear that “we are facing peer competitors and we have to focus on technology … and how to deliver that capability,” he said.

Part of the drive to field weapons “faster and cheaper” involves “digitizing all facets of the work” and developing a “digital blueprint” for proposed systems that can be shared among defense acquisition officials and industry, Bray said. Greater use of modeling and simulation and virtual testing, combined with live testing of prototypes, also “will drive down [the] cost” of new weapons, he said.

Newton showed a video contrasting engineers and acquisition officials struggling through huge stacks of paper documents to process a proposed system with a similar group using only computer-generated information. The old system takes 15 to 20 years to produce a new weapon system, while “our competitors are doing it in five,” he said. Doing more of the system engineering digitally could cut the developmental process by 50% and, possibly, by 75%, “if we go at it really hard,” Newton said.

He cited a recent program to update F/A-18 Super Hornets in which NAVAIR put the proposal to a contractor digitally, told the contractor what the Navy was willing to pay and signed the contract – all without using a single piece of paper.

Efforts to adapt digitally are “past the technology problems” but now must overcome the “cultural problems, helping our people use the new tools,” Newton said.