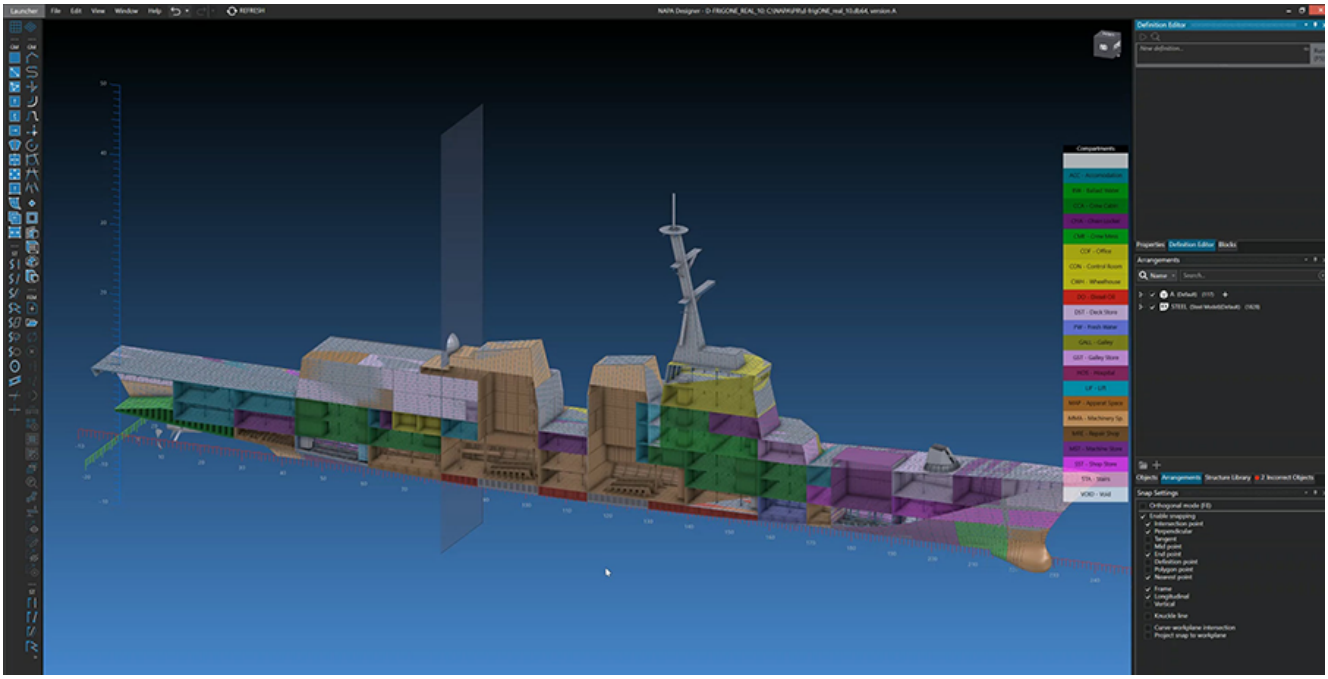
# Sea-Air-Space: How Accelerated Digitalization Improves Navy Ship Design



A digitalized ship cross-section from NAPA group. *Image credit: NAPA Group*

Other than the ability to navigate the seas, Navy ship design and cruise ship design don't appear to have much in common. But a Finnish company's software innovations for cruise ships are increasingly being used in Navy ships.

The maritime software from NAPA Group focuses on the holistic design of any floating structure, including ships and submarines. It encompasses everything from productions to operations and includes 3D models, engineering calculations, structure and stability.

"It locks in all of the design elements so there are no surprises during manufacturing that could be extremely costly," said NAPA Group CEO Mikko Kuosa.

Kuosa, whose company is exhibiting in the Finland booth (PL 101), said NAPA contracts with most of the major shipyards and

its software is used for over 90% of global shipbuilding. NAPA software has been used to design all of the big cruise ships, including Icon of the Seas, the largest cruise ship in the world.

Some of the trends in cruise ship design are being adopted by NAPA's defense customers, Kuosa said. In particular, NAPA's flooding simulation tool, which predicts within minutes how ship flooding will progress over time and how to maintain mission capability, has been used by cruise ships for 15 years and is now starting to be used in Navy ships. Electronic logbooks are also a cruise ship staple that are making their way to Navy ships.

In addition, NAPA is working on modernizing U.S. shipyards as part of the SHIPS for America Act. Asian and European shipyards already use NAPA software to accelerate digitalization, streamline design workflows, reduce costs and support innovation.

This includes using operational simulation and data at the design stage to inform decisions on new fuels and technologies. Kuosa said a trend in cruise ship construction is voyage optimization design that calculates how best to use wind propulsion for fuel efficiency.