

Flight Control Technology Set to Dive Underwater for Submarine Mobility



An artist's rendering of future Successor-class submarine, the first of which will be named Dreadnought. Successor-class is the United Kingdom's future ballistic missile submarine, to replace the Vanguard class. *U.K. ROYAL NAVY*

ROCHESTER, U.K. – BAE Systems is taking decades of flight controls expertise underwater on-board the United Kingdom's next-generation submarine, Dreadnought. This innovative approach involves adapting controls that are usually used in fly-by-wire aircraft and applying them in a marine environment, the company said in a March 29 release.

The complete Active Vehicle Control Management (AVCM) system will oversee all major aspects of the submarines' maneuvering capability to the highest levels of safety and reliability, similar to existing systems on modern air transport platforms.

"With over 50 years of avionics experience, we already have a great understanding of how to develop complex, control systems for hi-tech platforms," said Jon Tucker, director for Maritime Controls at BAE Systems Controls and Avionics. "However, taking our technology underwater brings exciting new challenges and we are proud to support the Dreadnought program and play an important part in our national security effort."

Similar to how fly-by-wire works for aircraft – whereby electronic systems are used to control the movement of aircraft – the company's engineers are developing electronics that control the heading, pitch, depth and buoyancy of the Dreadnought class among other critical elements with added safety benefits.

Work has already begun, supporting more than 130 highly skilled jobs in Rochester, U.K, with the number expected to grow. The program is one of the largest developmental projects taking place at the Rochester site and the company says it has made significant investments at the site to create new labs and workspaces to support the program.

The innovation has been developed by engineers in the BAE Systems' Electronic Systems business working closely with colleagues across the company's Maritime and Air sectors to develop a world-class system as part of BAE System's Active Vehicle Control One-Team. Its engineers will continue to develop the technologies with a view to expanding its applications to both other underwater and surface vessels.