

Wednesday, February 11th

11:10 – 11:30 AM

Innovation Showcase: The Hidden Integration Crisis: Why Digital Modernization Fails Before It Reaches the Fleet

Zac Staples

Founder and CEO

Fathom5

Abstract:

Over the last decade, the Navy has seen an explosion of promising prototypes, autonomy pilots, and cyber modernization initiatives, yet only a fraction ever make it to the fleet. The result is a widening gap between innovation activity and operational readiness. That gap is exemplified in the cancellation of the Constellation Class frigate before the first one launched.

In this session, Zac Staples examines the underlying causes of this persistent integration failure and why so many high-potential technologies stall before reaching scale. Drawing from Fathom5's industrial AI framework in the Brilliant Machines thesis and the cyber-defense principles articulated in The Second Age of Cyber, Staples argues that the Navy's digital modernization and physical construction challenge is not a lack of innovation, but a lack of infrastructure capable of scaling innovation into operation.

Modern warships combine steel and code, composed of interacting industrial control systems, advanced weapons and sensor technology, autonomy components, machine-learning models, and platform IT. Yet, these systems are engineered, accredited, and maintained as if they are isolated components. This approach leaves brittle integrations, cyber vulnerabilities, and operational risk that cannot be mitigated with the current generation of processes and tools.

Staples will outline why the Navy must move beyond traditional systems engineering toward an approach that treats the ship as a unified digital-physical ecosystem. An approach designed to deliver assured autonomy, resilient cyber defense, and rapid scaling of new technologies across hulls. Zac Staples will also preview how emerging commercial efforts, including his newly formed Caliburn Technologies, are preparing to close gaps in the defense digital backbone.

This talk provides leaders, engineers, and acquisition professionals with a candid

assessment of where modernization and integration efforts are failing and what must change to ensure that innovation reaches the Fleet faster, safer, at operational scale and speed.