



Helix

Uncrewed Mission Solutions

Helix offers end-to-end operational solutions for the development, deployment, and command and control of intelligent collaborative uncrewed systems.

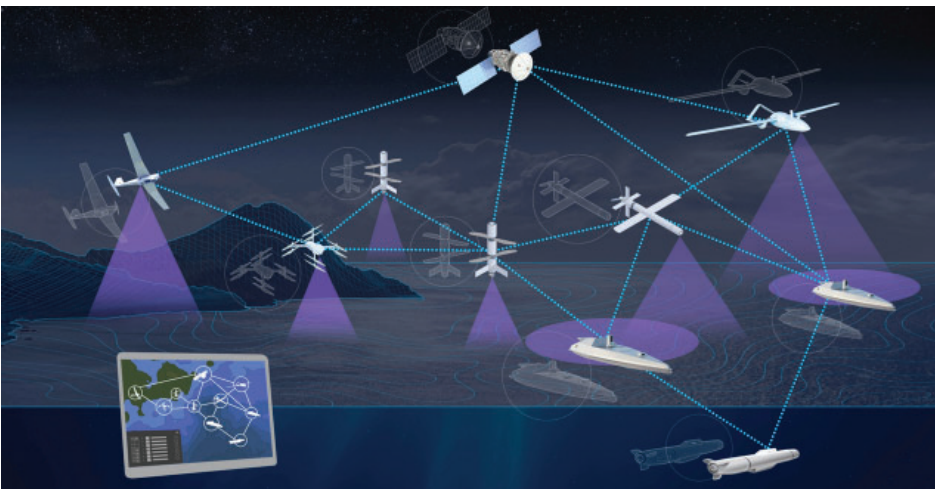
Overview

An ecosystem of rapidly configurable solutions integrating the leading uncrewed mission systems, empowering customers to deploy attritable mass to theater. Helix includes:

- **Mission Kits** with advanced hardware and software including mission specific autonomy behaviors for platform and payload control to execute complex missions.
- **Mission Digital Twins** provide a real-time, high fidelity, physics-based simulation engine for mission training, planning, and rehearsal. Provides Live, Virtual and Constructive (LVC) testing enabling mission scaling through real-time virtual platform integration into live exercises.
- **Mission DevOps** are designed to rapidly develop, test, and deploy solutions, reducing mission execution risk, leveraging a depth of mission engineering expertise.

Highlights

- Demonstrated at Navy's Silent Swarm and Mission Autonomy Proving Ground
- Integration of heterogeneous COTS platforms and payloads
- Digital Twin supported by physically accurate simulation engines and other mission simulators
- Standard interfaces including UMAA, STANAG, and MAVLink
- Scalable System of Systems approach for multi-vendor solutions
- Mission rehearsal and mission risk reduction through LVC testing
- Scalable analysis and optimization of mission parameters via Digital Twins



Helix Uncrewed Mission Solutions integrate the leading uncrewed mission systems across domains for even the most complex missions.



Mission Digital Twins provide a real-time, high fidelity, physics-based simulation engine for mission training, planning, rehearsal and replay.

Software

Helix's Mission Kits are interoperable with standard interfaces and state-of-the-art algorithms for multi-domain uncrewed systems. Our ecosystem contains third-party software made compatible with our platforms and payloads through Northrop Grumman-developed software adapters. All software is tested using Helix's Mission DevOps methodology

At NSWC Crane's Silent Swarm 2024, Helix deployed Mission Kits on Group 1 and 3 uncrewed aerial vehicles (UAVs) and uncrewed surface vehicles (USVs) for autonomous collaboration, track correlation and message abstraction

Payloads

Our Mission Kits include a catalog of payload and platform options from Northrop Grumman and our partners. All Mission Kits are integrated into the ecosystem to enable rapid configuration including use in our Mission Digital Twin. Our catalog of Mission Kits includes electro-optical/Infrared (EO/IR),

electronic warfare (EW), communications, processors, UAVs, and USVs. The breadth of these solutions, including our EW enabled UAVs and USVs were previously demonstrated at Silent Swarm 2024.

Modeling, Simulation and Analysis

Helix's Mission Digital Twin leverages multiple simulation engines, often together, and is leveraged throughout our Mission DevOps process from conception through live experiments. In simulation we can run large scale Design of Experiments with autonomy and AI in the loop to quantify the effectiveness of any mission parameter including our Mission Kits. Helix's Mission Digital Twin has been used in support of the NIWC Pacific's Mission Autonomy Proving Ground.

Integration and Operations

Our interdisciplinary team includes experts in Aviation and Systems Engineering that can support needs ranging from concept to flight certification. We can also provide the

data and experimental evidence to validate mission relevance. Operations are core to our Mission DevOps process, including our Live, Virtual, and Constructive experiments. Members of our team previously supported the Army's FTUAS program.

For more information, contact:

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