

bright
ascension

HELIX[®]
ENGINEERING SERVICES

OUR SERVICES

Over the past few years, we have been building our innovative and unique **HELIX® suite of space software products**, designed to join up software systems across the entire satellite lifecycle—from construction and testing to in-orbit control and service delivery. HELIX aims to create a seamless end-to-end process and help make satellite development and operations **simple, fast, cost-effective, and straightforward**.

But even with the most advanced and efficient tools, mission software development may seem demanding and require significant expertise. That is why we complement our products with a range of expert services that equip our customers with **turn-key software packages** to their exact requirements, whilst taking full advantage of the benefits offered by the HELIX suite.

OUR DELIVERABLES

We work closely with our clients to deliver complete, end-to-end space mission solutions using our unique, heavily-tested, and flight-proven HELIX technology. In addition to getting mission-ready software packages and source code, our customers receive HELIX product licences to maintain full control over their software infrastructure. This allows them to stay flexible and tailor their systems for future development, customisation, and adaptation of mission operations. What's more, HELIX allows to significantly extend functionality as their space system evolves - whether they want to scale into a large constellation or derive space-based insights for a range of industries on the ground.

The result is enhanced operational efficiency, reduced costs, and a higher likelihood of mission success, all while providing the agility needed to evolve alongside rapidly changing space technologies.



ENGINEERING SERVICES

WHY CHOOSE HELIX?

The HELIX suite aims to cover the essential needs of customers working in the upstream, midstream and downstream segments, with a mission-proven common core technology and robust shared architecture.

It closely connects software systems in mission development, testing and operations and also includes data processing and distribution, performance analysis, constellation replenishment and management. Additionally, HELIX provides end users with an intuitive platform to request and deliver specific space-based insights and analyses.

Seamless integration across the entire life-cycle - from onboard software to end-user access and insights

Fast and efficient software development and deployment

Easy mission management, even for complex multi-platform constellations

Significantly lower total mission costs

Limitless possibilities for future mission development and functionality updates

Simple scalability and constellation expansion and replenishment



OPERATIONS SOFTWARE DEVELOPMENT & INTEGRATION



Our **Operations Software Development & Integration** service delivers reliable, efficient and cost-effective mission control systems by leveraging HELIX Groundkit, our advanced ground software development platform, and HELIX Ops, our powerful mission control environment, alongside our team's extensive software engineering heritage.

DEVELOPMENT

Designed with scalability and efficiency in mind, HELIX Ops reduces operational complexity and costs, making it an ideal solution for any mission ranging from single satellites to extensive multi-satellite constellations. Its intuitive interface and advanced capabilities ensure effective mission management, regardless of scale or complexity.

As part of the service, we further enhance these capabilities by customising and extending the software to address unique and specific mission requirements.

INTEGRATION

To ensure seamless integration with flight systems, we use HELIX Groundkit to connect the operations solutions we develop and third-party flight software. This ensures smooth communication, compatibility, and efficient workflows across the entire mission architecture.

WHAT YOU GET

Leveraging nearly 15 years of engineering across full life-cycle of space software development, our team will work closely with you and your unique mission needs to create state-of-the-art packages, using our innovative HELIX products.

HELIX PRODUCTS



HELIX Ops is a powerful and flexible graphical environment designed to streamline and automate mission operations.

- reduced complexity of mission operations
- in-built scalability, integration and support as space systems evolve
- simple constellation management, including multi-vendor systems



HELIX Groundkit is an advanced ground software development platform that provides a modular and flexible approach to building complete ground systems.

- clear integration with 3rd party operations system
- seamless maintenance of interfacing as the mission grows
- simple management of multi-platform space systems





INTEGRATED FLIGHT & GROUND SOFTWARE DEVELOPMENT

Our **Integrated Flight & Ground Software Development** service delivers an integrated approach that simplifies spacecraft development and operations through HELIX Flightkit, our advanced flight software development kit, and HELIX Ops, our powerful mission control environment.

FLIGHT SOFTWARE

HELIX Flightkit supports the creation of modular, scalable, and adaptable flight software with its library of reusable, flight-proven components. It accelerates development and ensures compatibility with diverse spacecraft hardware systems. We further customise and enhance this with bespoke components to meet specific mission requirements.

GROUND SOFTWARE

For the ground segment, we tailor and enrich HELIX Ops, our flexible graphical environment for mission control, enabling efficient monitoring, commanding, and operations for missions ranging from single satellites to large constellations.

INTEGRATION

Being part of the HELIX family, Flightkit and Ops integrate seamlessly together, enabling smooth communication, compatibility, and efficient workflows across all mission components.



WHAT YOU GET

Backed by nearly 15 years of experience in full life-cycle space software development, our team will work closely with you to design and deliver customised state-of-the-art solutions, using our advanced HELIX products.

HELIX PRODUCTS



HELIX Flightkit allows to create mission-specific flight software using configurable and pre-validated components in record time and at lower cost.

- fast mission software development
- simple re-use for future missions and constellation replenishment
- in-built mission scalability and integration
- simple support for multi-platform systems



HELIX Ops is a powerful and flexible graphical environment designed to streamline and automate mission operations.

- reduced complexity of mission operations
- in-built scalability, integration and support as space systems evolve
- simple constellation management, including multi-vendor systems

FLIGHT SOFTWARE DEVELOPMENT & INTEGRATION



Our **Flight Software Development & Integration** service provides efficient and cost-effective flight software systems, designed to meet unique mission needs. Using HELIX Flightkit for advanced flight software development and HELIX Groundkit for seamless operations integration, our expert team delivers state-of-the-art flight software, even for the most complex mission requirements.

DEVELOPMENT

We use HELIX Flightkit to enable fast development through reusability of software components and support for a wide range of spacecraft hardware and operating systems. This also ensures that the mission adapts quickly to any change in requirements as it grows and evolves.

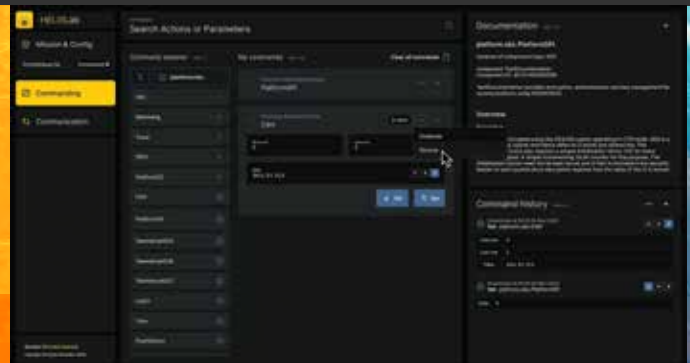
We further enhance these capabilities by customising and extending the software with bespoke components to address unique specific mission requirements. This approach reduces risks, shortens development timelines, and ensures robust functionality for all aspects of satellite operation.

INTEGRATION

To ensure smooth integration with ground systems, we use our HELIX Groundkit to bridge the gap between Flightkit-based software and third-party operations systems. It enables seamless communication and compatibility across all flight and ground-based systems.

WHAT YOU GET

With nearly 15 years of experience in end-to-end space software development, our team will work closely with you to craft state-of-the-art solutions, tailored to your mission and powered by our innovative HELIX products.



HELIX PRODUCTS



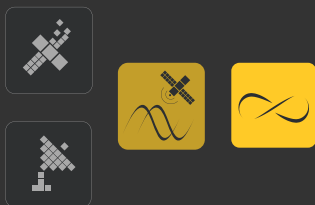
HELIX Flightkit allows to create mission-specific flight software using configurable and pre-validated components in record time and at lower cost.

- fast mission software development
- simple re-use for future missions and constellation replenishment
- in-built mission scalability and integration
- simple support for multi-platform systems



HELIX Groundkit is an advanced ground software development platform that provides a modular and flexible approach to building complete ground systems.

- clear integration with 3rd party operations system
- seamless maintenance of interfacing as the mission grows
- simple management of multi-platform space systems



ADD-ON DEVELOPMENT: HIGH-LEVEL SATELLITE TASKING

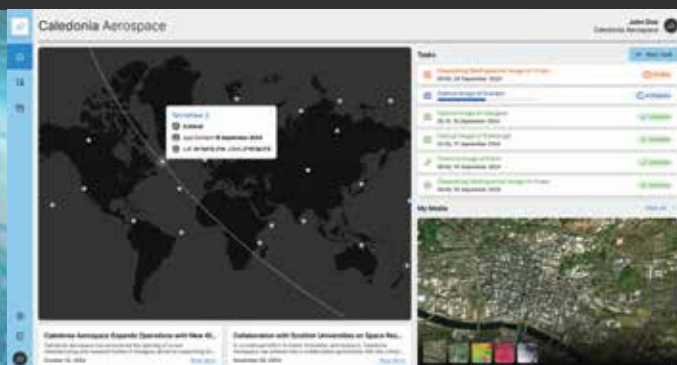
Additionally, we offer a specialised service to design and customise a **user-friendly interface for high-level satellite tasking**. This solution allows customers to provide an intuitive platform to their end users, enabling them to request customised space-based services and access actionable, space-derived insights.

SATELLITE TASKING

HELIX Infinity is a versatile, white-label software platform that allows customers to offer a user-friendly interface for accessing their space-based services. It enables end-users to request tailored space-based data and gain valuable insights. Fully configurable and customisable, Infinity delivers a seamless user experience designed to adapt to the unique requirements of any application domain.

Whether supporting Earth observation for sustainability and climate monitoring, enabling IoT or communication services, or addressing any other innovative use cases, Infinity can be adapted to diverse needs.

This solution is provided as an add-on development to our standard HELIX services and requires the use of HELIX Ops for mission operations and integration with either HELIX Flightkit or 3rd party flight software via HELIX Groundkit.



WHAT YOU GET

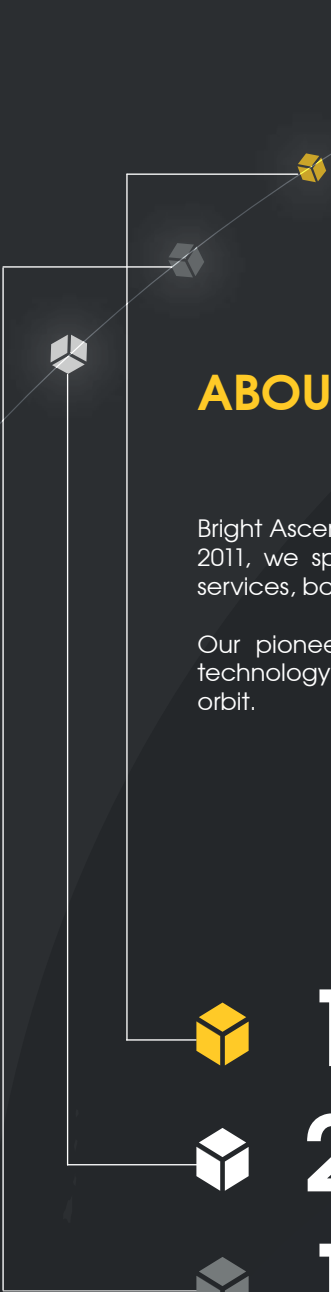
Drawing on nearly 15 years of expertise in space software development, our team of industry experts will partner with you to deliver cutting-edge solutions tailored to your mission, leveraging our advanced HELIX products.

HELIX PRODUCTS



HELIX Infinity is software platform which can be adapted and configured to allow customers to offer an easy-to-use web-based solution to their users for accessing their space-based services.

- high-level satellite tasking
- user-friendly and intuitive
- quick and easy access to space-based data and services
- limitless possibilities to further extend functionality through HELIX apps



ABOUT BRIGHT ASCENSION.

Bright Ascension is a Scotland-based industry-leading space software technology provider. Founded in 2011, we specialise in innovative software products and solutions for the delivery of space-based services, both on spacecraft and on the ground.

Our pioneering HELIX suite of space software products is built on our cutting-edge, innovative technology that has been rigorously tested and proven in-flight, with over 50 software deployments in orbit.



15

TECHNOLOGY DEMONSTRATION MISSIONS



25

EARTH OBSERVATION MISSIONS



10

COMMUNICATION MISSIONS



brightascension.com

enquiries@brightascension.com