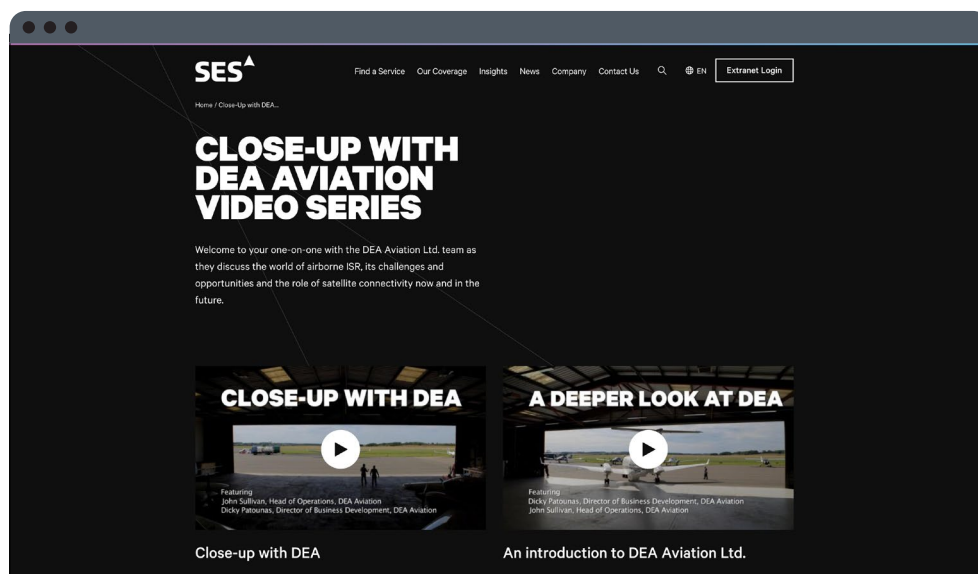# CLOSE-UP WITH DEA

SES

CONTENTS

ABOUT THIS HANDBOOK

This handbook is a supplement to the Close-Up with DEA video series. In each section, you'll find a brief overview of the topics discussed, descriptions and visual representations of key concepts, and an opportunity to dive deeper into the subject.

WATCH THE VIDEOS

Close-Up with DEA >

KEY TERMS

ISR
Intelligence, Surveillance, and Reconnaissance

GEO
Geostationary Earth orbit

MEO
Medium Earth orbit

Latency
The delay in data transmission from one communication endpoint to another

MEET
DICKY PATOUNAS & JOHN SULLIVAN

DICKY PATOUNAS
Director of Business Development

When a 12-year-old Dicky saw the fighter jets at an airshow, his love of aviation was cemented. A few weeks before his 16th birthday, he completed testing to join the RAF. Three days into the selection, he was offered a scholarship, 30 hours of flying, and a guaranteed place in the Air Force when he left school at 18.

By 20, he had received his first jet wings, and was flying Hawks—eventually becoming a qualified instructor, guiding pilots on converting from flying F-14s to Hawks. One instance flying with a Top Gun pilot underlined how one can never relax in an aircraft, and never assume that everything's going to be fine. It's imperative that you always stay aware, even on tasks you consider to be straightforward.

JOHN SULLIVAN
Head of Operations

Growing up in a checkpoint for the military low flying system, John developed an early fascination for the fast jets flying directly overhead. His parents gifted him with a flight in a motorised glider for his tenth birthday—a Fournier RF-4—and his passion for moving in three dimensions solidified. This led to his desire to not just be a pilot, but to become a Royal Air Force Fighter Pilot who flew exciting machines, served his nation, and used movement in the third dimension to add value to society.

Driven by a focus on deterring aggression to preserve and protect the lifestyle enjoyed in the UK and Europe, John is proud of his service—both in the RAF as a squadron commander, and now as part of DEA Aviation Ltd. Working for organisations such as Frontex, the agency responsible for border management in Europe, DEA provides essential services to protect the borders of Europe from malign influence, illegal activity, and other influences that chip away at democracy.

As Head of Operations, John has built a high-performance team at DEA that understands the unforgiving nature of aviation, maintains a laser-sharp focus on maintaining the highest standards of operational output, and strives to do better each and every day.
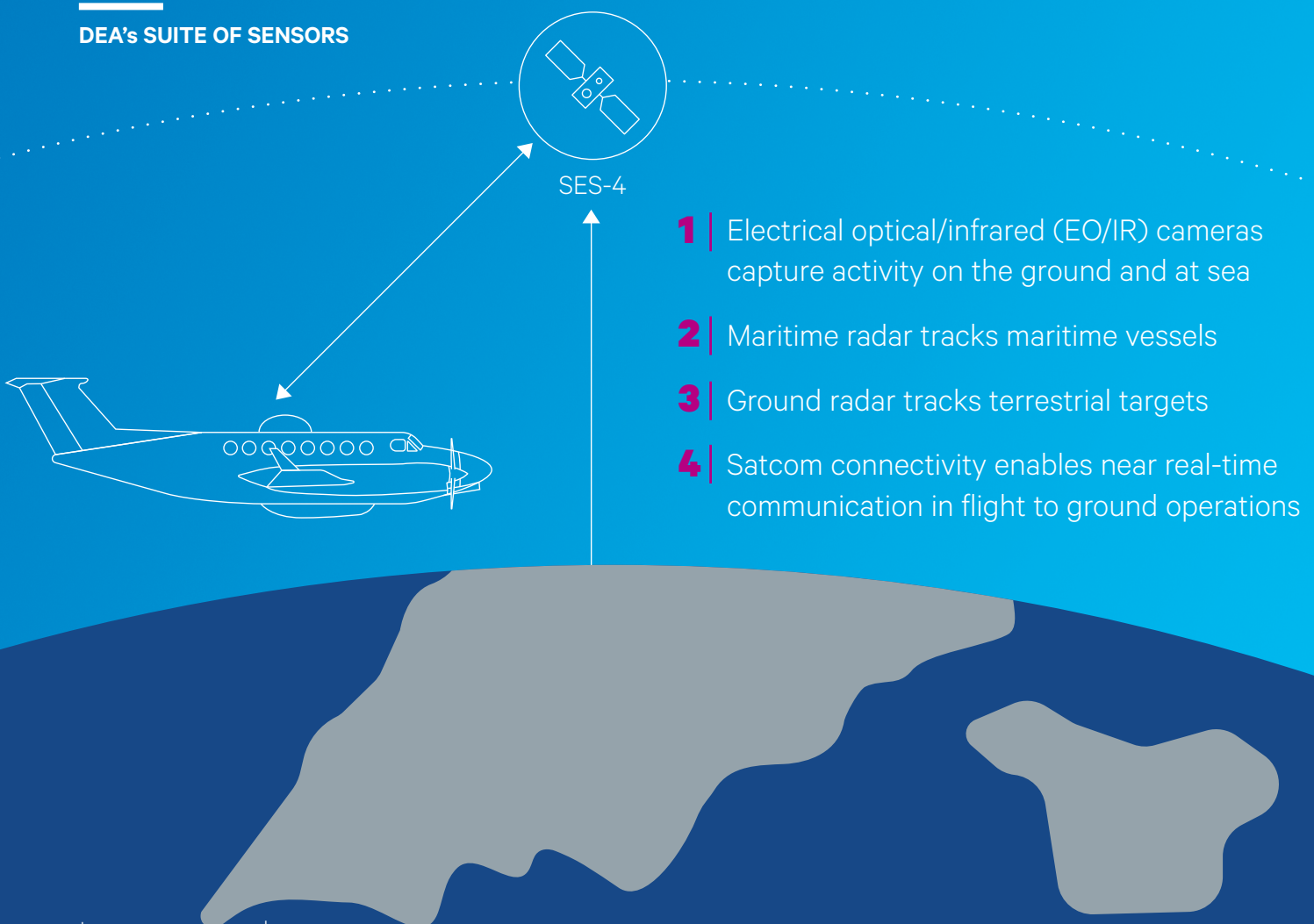
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DEA AVIATION LTD.

Recognised by the Civil Aviation Authority in the UK as the leading organisation in its sector, DEA Aviation is a rapidly growing UK-based company that delivers ISR, aerial survey, flight calibration and inspection, and commercial transport services to government organisations. The company's focus in ISR is to deliver the right information to the right place at the right time, because better-informed decision makers can achieve more.

The company's aspiration is to ensure that it meets customer needs today and in the future. Beyond gathering information and ensuring its dissemination in a timely fashion, DEA also provides intelligence analysts and liaison officers to help understand and interpret the information collected. Key to its ability to do that is the connectivity between the sensors and the aircraft, and between the aircraft and the customer. For that, DEA relies heavily on satellite communications from SES.

DEA's SUITE OF SENSORS

SES-4

1 | Electrical optical/infrared (EO/IR) cameras capture activity on the ground and at sea

2 | Maritime radar tracks maritime vessels

3 | Ground radar tracks terrestrial targets

4 | Satcom connectivity enables near real-time communication in flight to ground operations

Learn more about
DEA AVIATION

MEETING CUSTOMER REQUIREMENTS

DEA works with a variety of government customers—including the UK Ministry of Defence, UK Border Force, and Frontex, which monitors both land and maritime borders in the EU.

The company also works with non-government customers for services like mapping, technical site surveys, and monitoring for agriculture and wind farms. A number of customers task the company with patrolling land-based infrastructure at ranges way beyond line of sight.

To maintain the top spot in its industry, DEA needs to maintain a great deal of agility to meet the diverse requirements of its customers. Its teams need to be able to pick up and move locations with very short notice. Meet requirements that may change on a daily basis. Remain sensor and platform agnostic so that they can choose the best components to meet each customer's individual requirements. Or change transmission frequencies to deconflict a part of the spectrum being used by one of the sensors to collect data. As technology evolves and customers need more data, DEA bandwidth requirements will grow too. The company is laser-focused on staying ahead of customer requirements, no matter how demanding.

Its satellite communications partner needs to have the right coverage, while also providing the flexibility to respond to customers' changing demands. For ISR, satellite is essential to enabling DEA's team to gather all of the data that's been collected, and share it to the right people as quickly as possible.

The stringent demands of its industry cause DEA to be very selective. With whom the company hires as part of its team. Ensuring they fly modern, reliable aircraft to guarantee service reliability and longevity. And adding and switching out components to deliver closer to the customer's needs. Looking to the future, the company remains willing to alter what it does to remain commercially viable, while also understanding the impact aviation has on the environment. For one customer, which has DEA flying over offshore windfarms to collect data on how they are impacting the environment, the company flies a very fuel-efficient aircraft, with the lowest carbon footprint available.
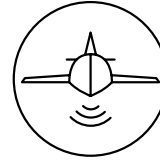
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MANNED VS UNMANNED AIRBORNE ISR

	MANNED SYSTEMS	UNMANNED SYSTEMS
GROUND FOOTPRINT	Low	3x as many support staff
MISSION ENVIRONMENTS	Contested + permissive	Permissive only
MISSION LENGTH	>8 hours	8+ hours with shift cycles
MISSION TYPE	Strategic and tactical intelligence tasks where human involvement in collection, processing, and exploitation provides an advantage	3-D tasks: dragged-out, dirty, and dangerous

DEA feels the ideal mix is to task both manned and unmanned missions, according to which has the best advantages for the requirements at hand.

SERVING DIFFERENT ISR PLATFORMS VIA SATELLITE

THE WORLD OF ISR

The first instances of airborne ISR date back to the US Civil War, when Union soldiers used hot air balloons to spy on Confederates. In the 1950s and 1960s, ISR required large aircraft to carry early computers—large boxes with limited computing power. The crew would consist of these big machines, plus 12 to 14 people to run them. As computing power has grown exponentially higher while fitting into ever-more-compact spaces, you can achieve the same objectives more cost-effectively with fewer people working on much smaller platforms.

When John first started flying in the 1980s, the main tools were a compass, a stopwatch, and a map. Whether flying at 90 knots, 300 knots or 420 knots, he would navigate speed, heading, and time without any additional external inputs beyond what he could see out the window.

While today's pilots still need to have those skills, navigation is largely done via GPS, which pinpoints the aircraft's location to a very high degree of accuracy within a system that very rarely fails. Once the pilot doesn't need to concentrate so heavily on navigation, she is free to focus on other tasks and the mission can achieve more.

Even 15 or 20 years ago, pilots would receive still images or perhaps only a verbal pilot report about what was seen while out on a sortie. Over the last five to ten years, customers are demanding full-motion video, ever-higher fidelity imagery taken from greater standoff ranges, and the integration of multiple sensors so the customer can use one platform to provide numerous image types—including radar, electro-optical or infrared imagery, high resolution stills, and video.

Today, pilots receive a Recognised Air Picture beamed to the cockpit, which provides them with full insight into the land, maritime, and airborne assets supporting the mission, as well as information from the surveillance and reconnaissance aircraft in forward positions. This gives pilots complete awareness of which assets are where, what they are doing, and how much time they have. This total situational awareness makes their task that much easier to achieve.

THE IMPORTANCE OF AIRBORNE ISR

Information gathered and relayed via airborne ISR missions benefit a range of government operations

- Border patrol and protection
- Tracking and regulating illegal activity
- Environmental monitoring
- Humanitarian assistance and disaster response
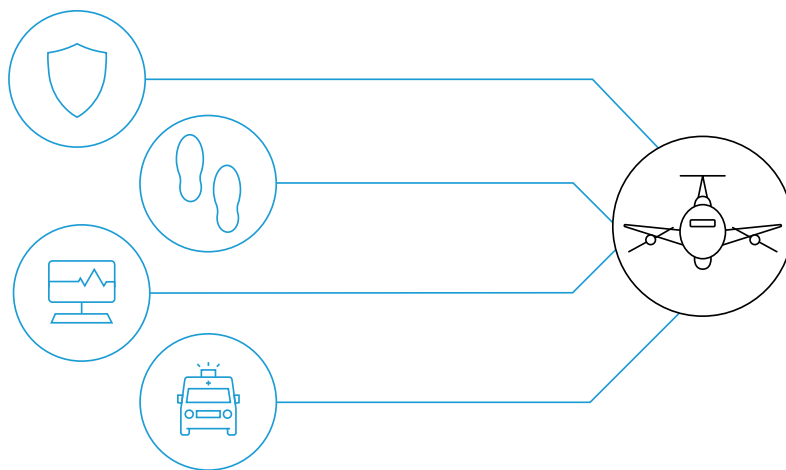
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COMPLEXITIES OF DELIVERING ISR SOLUTIONS

GROWING DEMAND FOR DATA

ISR missions generate and relay large volumes of data from multiple sensors.

ADVANCES IN SENSOR TECHNOLOGY

Improved sensors capture more data, requiring high-throughput connectivity.

NEED FOR GLOBAL COVERAGE

Near real-time connectivity over a wide coverage area is essential to beyond line of sight surveillance missions.

ADOPTION OF CLOUD-BASED APPLICATIONS

Digital transformation initiatives drive the need for direct connectivity to the cloud.

THE FUTURE OF ISR

Decision-makers increasingly expect to receive decision-quality information in real time or near real time.

As governments and non-governmental organisations increasingly adopt cloud capabilities, DEA is also gaining the ability to distribute the same information to multiple locations for potential use by multiple groups within the same customer. The goal is to make more efficient use of a single data source or single ISR mission to service the needs of multiple decision-makers.

As DEA steps into its future, there's a greater demand for reliable high-bandwidth connectivity, greater coverage, and the ability to compute data both at the edge and at the network core. Future ISR connectivity solutions will need to meet these evolving needs.

NETWORK RESILIENCE AND SECURITY

Governments need to ensure maximum information security, requiring jamming and interception resistance, and the ability to land traffic at government-owned gateways.

MAXIMUM DATA FROM A SINGLE SORTIE

Multi-sensor missions enable data gathering via a single sortie, and require high-throughput and low-latency connectivity to optimise offboarding capabilities.

CLOUD-READY CONNECTIVITY

Increasing dependence on time-sensitive cloud workloads requires low-latency performance and dedicated private connections from remote sites to the nearest cloud data centre.

NEW LEVELS OF SCALE

Sensors generate increasingly larger volumes of data, requiring high-throughput services scalable to multiple gigabits per second.

MISSION FLEXIBILITY

Dynamic mission requirements necessitate the ability to allocate bandwidth flexibly over different coverage areas and on forward and return links.

DIVE DEEPER INTO THE TOPICS DISCUSSED

DEA

- Delivering near real-time connectivity for mission critical ISR
- DEA Podcast, Part 1: Airborne Intelligence, Surveillance, and Reconnaissaince
- DEA Podcast, Part 2: Airborne Intelligence, Surveillance, and Reconnaissaince
- Optimising airborne ISR missions

ISR

- Delivering critical sensor data for ISR
- Enhancing UAS Satcom capabilities

Cloud

- Enhancing cloud capabilities for global ISR missions

WATCH THE VIDEO ❯

"There are many agencies or support organisations that don't share the level of commitment that we need. We're delighted to have a partner in SES that is willing to go the extra mile to help us, and has that commitment to finding solutions rather than providing a stock answer. That's the thing we greatly value. Our partnership with SES is very important to us."

JOHN SULLIVAN

HEAD OF OPERATIONS, DEA AVIATION

To learn more about our partnership with DEA, visit ses.com

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