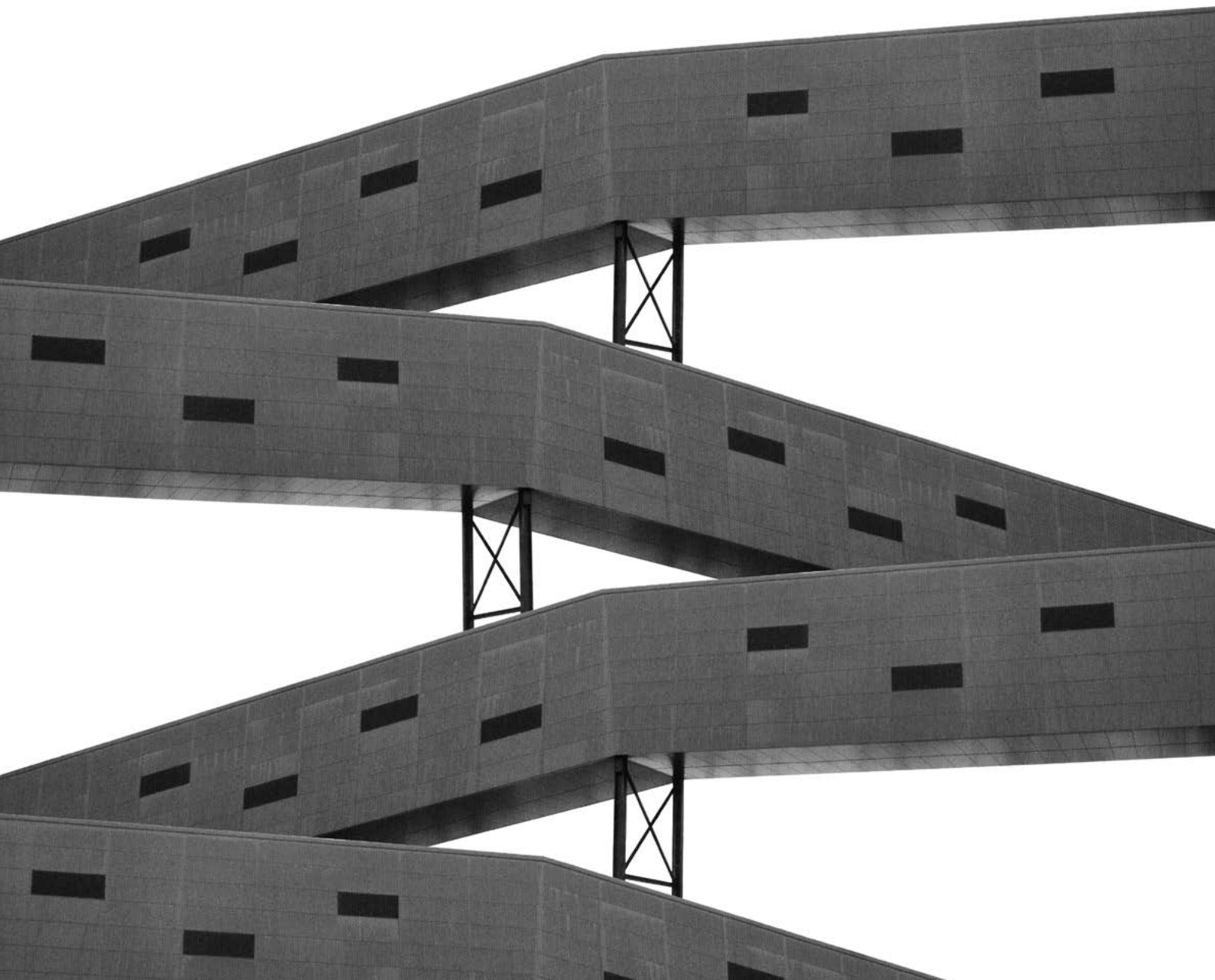
The future of large-scale construction:

How Sensat saved Heathrow £20 million

Location:
London, United Kingdom

Aviation project:
UK aviation project

sensat

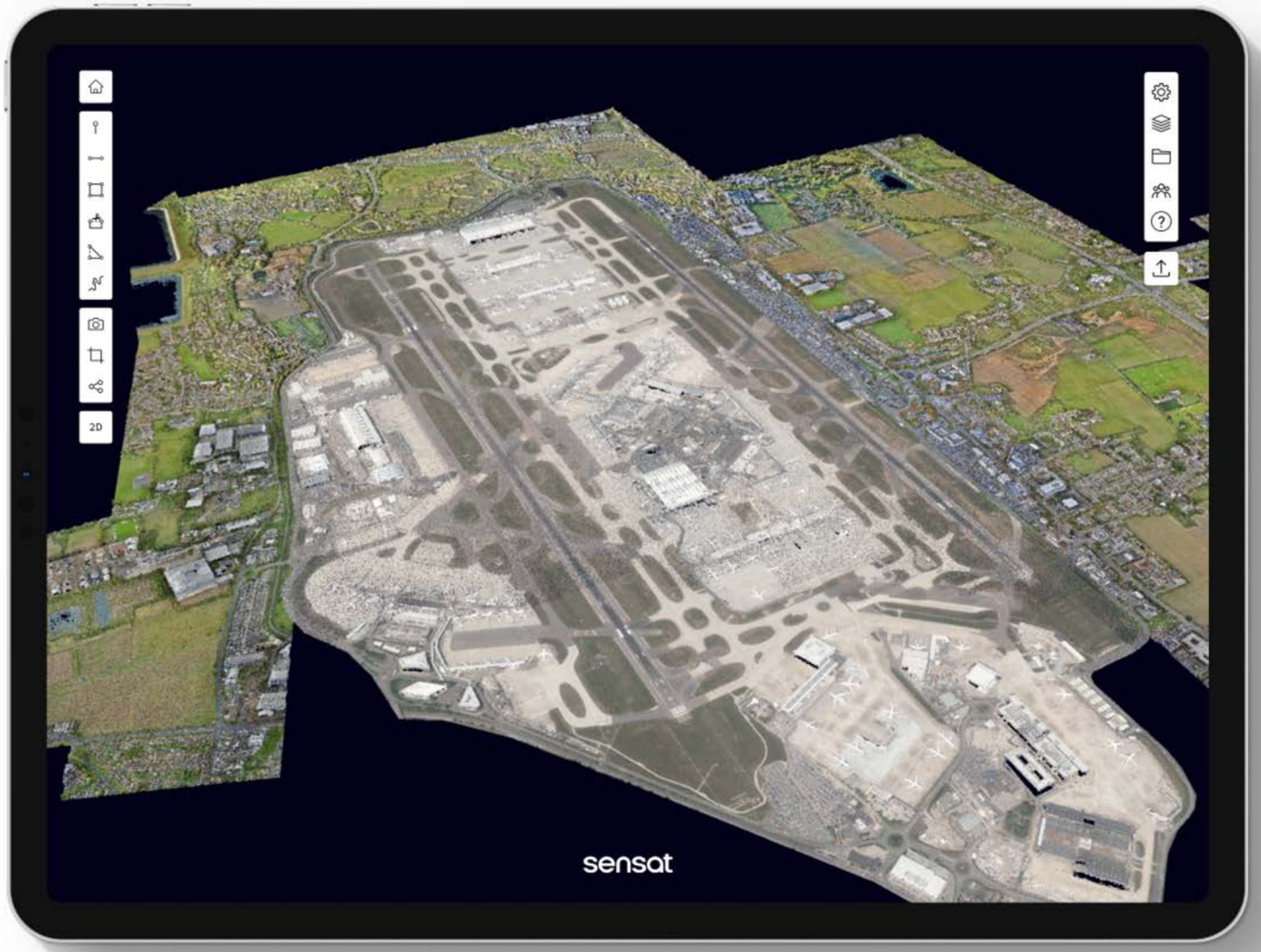


Project

Heathrow worked with Sensat to expedite data capture in an essential aviation project saving £20m.

The challenge

Heathrow required a fast and efficient way to facilitate the design process for the third runway to reduce the amount of time engineers spent on site. With concerns that the project could run late and over budget, Heathrow prioritised innovation where possible to save time and money.



> “This capability has seen the innovative and safe deployment of drone technology in close proximity to Heathrow Airport, demonstrating the value that drone [data] can bring to the early stages of this complex, major infrastructure project.”

Emma Gilthorpe
Executive Director, Heathrow

Time saved*

○ 100,000 hours. Time taken by traditional survey methods

● 1,000 hours. Time taken by Sensat drone data capture

*Based on a team of 1

Source: Sensat

- (A) Aviation
- (E) Energy
- (H) Highways
- (R) Rail
- (RE) Real Estate
- (W) Water

The project

Heathrow worked with Sensat to expedite data capture in an essential aviation project saving £20m.

To support Europe’s busiest airport, the Heathrow Airport team required a highly-accurate 3D digital model of the 29 km² site. This was to facilitate the design process for a third runway, better engage with local communities, and reduce the need for engineers to be on site.

Above highly-accurate 3D digital model of Heathrow airport and surrounding area displayed within Sensat’s platform

The challenges

A manual, ground-based survey was completely unfeasible. Given the large size of the area as well as the heavy air traffic, traditional methods to digitise the site were too time sensitive, expensive, unsafe, intrusive and disruptive to the public.

Land access approval
It would have taken a team up to three months to secure land access approval and digitise the site manually. The last time Heathrow required a data capture of this scale, it took almost a year to be fully processed and the outputs were restricted to certain members of the team. This would limit collaboration and design capabilities.

Siloed and difficult to access data:
Existing data was difficult to access or non-existent. Heathrow were looking for a way to carry out engineering-grade measurements and share data between stakeholders. Automating current manual measurements would remove the need for engineers to be onsite in a challenging political environment.

£

£20m

Costs saved over the course of the project

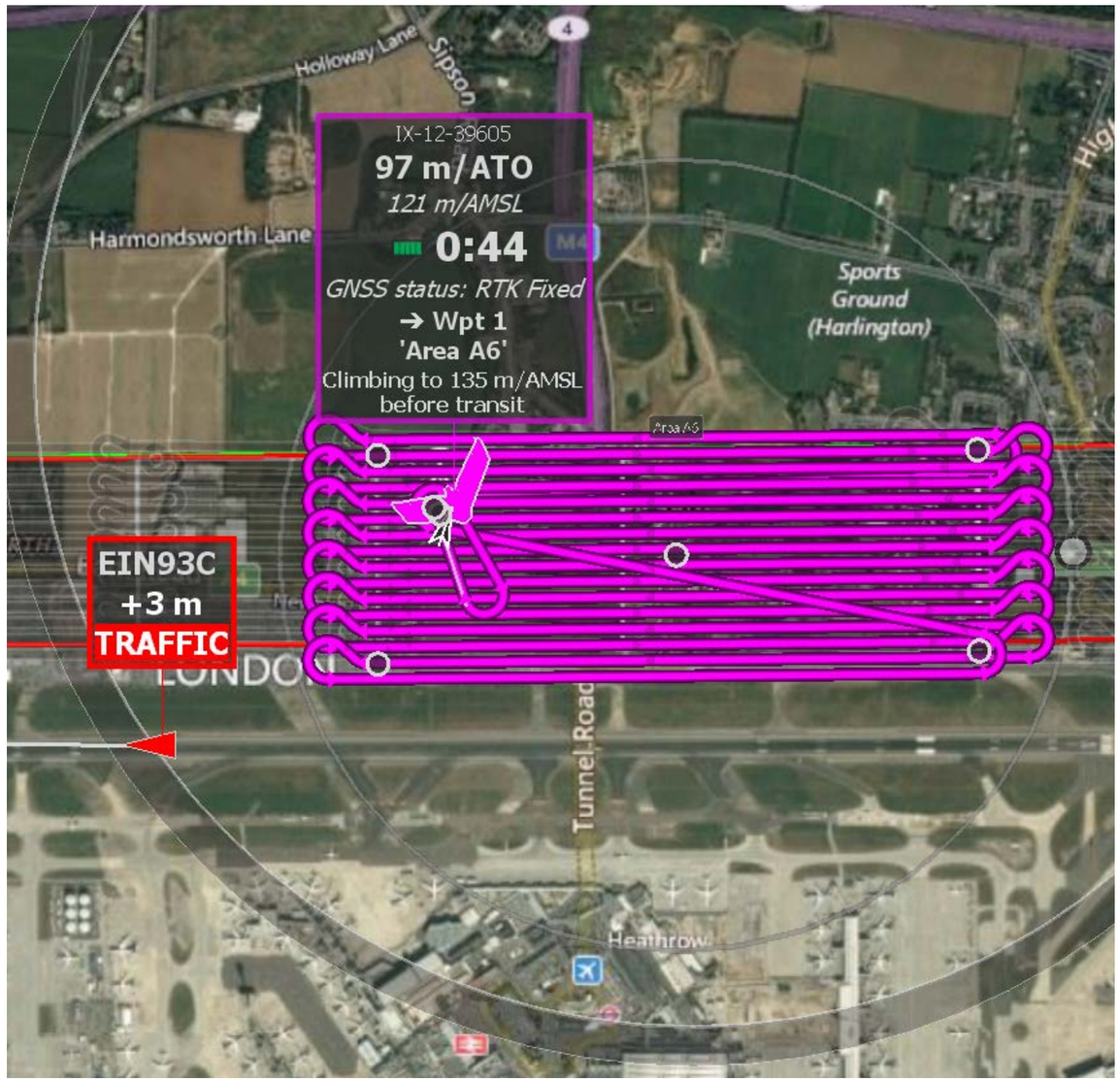
The solution

Utilising drones, Sensat safely captured the required data in just 16 days, with zero delays to the airport. Sensat's drone solution meant the data could be collected quickly, without the need for land access approval, and without putting boots on the ground. This saved an estimated 100,000 work-hours and £20m in project costs which was as much as 40x cheaper than a traditional ground-based survey.

Efficient and collaborative planning:
To ensure non-disruption to airport operations and alignment with daytime patterns of runway alternation, Sensat worked closely with National Air Traffic Services (NATS), Heathrow Control Tower, Airfield Operations, Horus Security, and six different police forces surrounding the airport.

How Sensat's platform expedites design:

- The visualisations created* from the drone survey included a high-density point cloud, DSM, orthomosaic, and 3D mesh.
- The captured data, consisting of over 19 billion data points, is hosted on Sensat's cloud-based platform being used as a **digital native workspace**, allowing **multiple stakeholders across Heathrow and the design team** to easily **visualise and interact** with multiple large data sets. The data can be integrated with CAD and BIM to provide an incredibly detailed, versatile and collaborative environment. Thus **reducing the risk of errors and expediting the design process**.



Conclusion

This project is a testament to the partnership between Sensat and Heathrow, who worked together to deliver innovation on a complex aviation project. The solution allowed a huge area to be surveyed faster and cheaper than ever could have been achieved on foot. ■

Drone surveys →

Explore the platform →

Problem	Solution
It would take a year to secure land access approval and survey the site manually	Utilising UAVs, Sensat captured the required data in just 16 days without the need for land access approval, saving 100,000 work-hours and £20m
It is unsafe to have a team of ground-based surveyors next to a live runway	Sensat utilised UAVs to capture the required data without having boots on the ground in a dangerous environment
Information about the project is siloed and hard to share	Sensat's software allows multiple stakeholders across Heathrow to easily visualise, interact with, and share large datasets
It is impossible to validate designs in their real-world environment	Through Sensat's platform, you can visually combine dynamic project information in their real-world environment, including CAD, BIM, and LiDAR
There is no way to conduct engineering-grade measurements without sending someone on site	The platform allows the team to make engineering-grade measurements of heights, areas, and volumes remotely, in just a few clicks

Case study

Project stats*

Size of the area:	29.13 km²
Data capture time:	16 days
Data delivery time:	43 days

***What are these outputs?**
Check out our data suite for more info.

"Utilising Sensat's groundbreaking software, we have delivered the information and knowledge required to make key strategic and design decisions with minimal local impact. I have no doubt that Sensat's platform will be a trailblazer for the way future infrastructure is designed and developed."

Emma Gilthorpe
Executive Director, Heathrow

Heathrow

Looking for more information?

Call: +44 (0) 20 3488 2645
or click below

Data suite →

Get a quote →

All information correct at the time of publication. Images by Sensat.

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