

Digitising construction workflows on HS2 with new drone software

Balfour Beatty VINCI

The Challenge

- Drone deployment strategy was increasingly complex and varied
- Demands of multiple teams had to be met

The Benefits

- More efficient drone surveys are saving £20,000 per site
- BBV estimates this could save around £1.6m across 80 sites
- 800 'working at risk' days removed
- £30,000 saved from monitoring aggregate stockpiles

Balfour Beatty VINCI has adopted Site Scan for ArcGIS drone software to digitise survey processes, reduce costs and enhance safety on its Midlands section of HS2. The main works civil engineering contracts will deliver earthworks, ground engineering, and many structures including bridges, viaducts and tunnels along a 90 km stretch of the UK's new high speed rail line.

The Challenge

"We needed the right software to manage an increasingly complex and varied use of drones and meet the needs of multiple teams, from logistics to site managers to engineers," explained Dan Fawcett, Innovation Director at Balfour Beatty VINCI. "New digitised workflows are rapidly replacing traditional, physical working practices and introducing new levels of efficiency, accuracy and safety. On major projects such as HS2, the ROI achieved is significant."

The Solution

Balfour Beatty VINCI has rolled out Esri's Site Scan for ArcGIS drone flight management and image processing software, to support its drone deployment strategy.

The new cloud-based software is being used to carry out drone site surveys, manage aggregate stockpiles and monitor progress of construction. Various 2D and 3D outputs are being generated for sharing with multiple stakeholders, including high-definition imagery and 3D terrain models.

Site Scan for ArcGIS is Esri's cloud-based drone flight management and image processing software, offering flight planning, hardware management, scalable image processing and unlimited data storage, plus seamless integration with BBV's Esri enterprise GIS system.

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Dan Fawcett, Innovation Director, Balfour Beatty VINCI



Early visualisation of an HS2 train.

The Benefits

More efficient surveys

Faster and more efficient drone surveys are already saving around £20,000 a year on monthly construction progress surveys, on a single site, instead of using physical surveys and the subsequent updating of CAD models. BBV estimates this could save around £1.6m if the same workflow was applied across 80 sites in the first year.

Safer stockpile monitoring

Another benefit has been the removal of 800 ‘working at risk’ days and a cost saving of £30,000 per year from monitoring aggregate stockpiles, using a single drone operator to carry out 3D volumetric measurements in 20 minutes. Previously, contractors would take a full day to physically measure stockpiles and calculate transport requirements, often working in steep and difficult environments.

Compliance management

Other applications of the new software include helping to show compliance with design tolerances in built structures against BIM and CAD models, speeding-up design cycles, particularly in earthworks and excavations design and monitoring the installation of utilities.

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