

Connecting people in a large-scale multi-disciplinary project

Fusion

The Challenge

- Share information with people in multi-disciplinary teams across multiple organisations
- Deliver a large-scale, complex infrastructure project efficiently and cost effectively

The Benefits

- Effective collaboration between people in 60+ organisations
- Improved cost and resource management
- Greater efficiency in key business processes
- Faster resolution of snagging issues

In a highly complex and large-scale, multi-disciplinary ground works project, the joint venture organisation Fusion needs to collaborate effectively with over 60 contractors, subcontractors and third parties. It uses ArcGIS through a Managed Cloud Services agreement to help it connect people with up-to-date data, improve the efficiency of key business processes and manage costs and resources effectively.

The Challenge

Fusion was appointed in 2016 to carry out essential preparatory works along a 100 km section of the route for the new High Speed 2 (HS2) railway line. The contract includes everything from clearing sites and diverting utilities to creating new habitats for newts and investigating archaeology.

The joint venture's vision is to connect people, but it soon became clear that this was going to be a particular challenge on the HS2 project. Over sixty different contractors and subcontractors with different specialisms were involved in undertaking engineering, ecology and archaeology surveys and implementing ground preparation and remediation works. Fusion needed to be able to share up-to-date information with people from all of these separate companies, as well as HS2, Natural England and the civil engineering organisation leading the next stage in the railway's construction.

The Solution

Fusion selected Esri's ArcGIS solution, opting to subscribe to a Managed Cloud Service provided by Esri UK. ArcGIS quickly became Fusion's main asset management system for the HS2 project, enabling Fusion to better manage and share all of the building information management (BIM) data that it needs to coordinate the project, as well as deliver contractually to HS2.

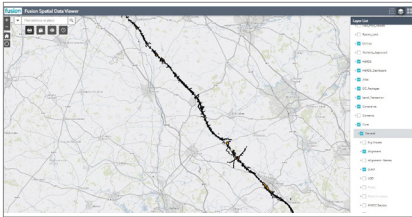
Now, Fusion's core ArcGIS web portal is used by over 750 users from Fusion, its contractors, HS2 and other third parties. With new data added daily, ArcGIS allows Fusion to manage, visualise and share over 500 information layers on everything from ecology and archaeology to flood zones and land ownership. Everyone can see the same up-to-date data, zoom into a specific area on the digital map and turn on the layers, to better understand where preparatory works are needed, why they are needed and when these works have been completed.

In addition to the main ArcGIS web portal, Fusion has developed a number of smaller ArcGIS web apps to meet the needs of specific teams or support discrete business processes. One of these apps allows Fusion to manage land access and pass on land ownership to the principal contractor responsible for managing the next phase in the construction of HS2. Another app, the Ecology Viewer, allows people to view, in one place, all the data collected in ecology surveys by multiple organisations. It enables everyone to more easily see, for example, the species of bat that roost in the vicinity of the HS2 route, the badger sets that need to be relocated and the nest boxes that have been installed for barn owls.

Graham Starling, Information Manager at Fusion, says: "Esri UK has provided an excellent level of service throughout the project lifecycle, from being adaptable to changing requirements during project implementation and providing efficient and effective remedial actions when issues arose during delivery, through to providing consultation and

“ In a project like HS2 that involves a vast number of contractors and other third parties, ArcGIS keeps everyone in the loop. Multi-disciplinary teams from many different companies can all share the same data and collaborate effectively to complete work to a high standard. ”

Tom Wicks, BIM manager, Fusion



Fusion's ArcGIS web portal showing some of the 500 data layers that can be viewed on the digital mapping interface

recommendation during demobilization and archiving. I would highly recommend this ArcGIS managed service for other similar projects.”

The Benefits

Effective collaboration between people in 60+ organisations

ArcGIS significantly improves collaboration on this large-scale project by making it easy for people across many different organisations to share and view up-to-date information. With a better understanding of the area, everyone involved can take appropriate measures to protect heritage sites, avoid disturbing animals during key breeding times, and abide by the law by not inadvertently crossing land that is private. “In a project like HS2 that involves a vast number of contractors and other third parties, ArcGIS keeps everyone in the loop,” says Tom Wicks, BIM manager at Fusion. “Multi-disciplinary teams from many different companies can all share the same data and collaborate effectively to complete work to a high standard.”

Improved cost and resource management

By using ArcGIS to undertake geospatial analysis, Fusion is better able to estimate resource requirements for specific works and manage costs across the entire contract. For example, the organisation uses ArcGIS to analyse the density of bats and trees in particular locations and make comparisons between different sections of the route. It can then share this data with HS2 and use it internally to help it accurately gauge the cost of tree works or ecology interventions in different locations, and allocate the required resources based on up-to-date data from the field.

Greater efficiency in key business processes

The small GIS team at Fusion has been able to develop a series of ArcGIS apps that improve the efficiency of key business processes. For example, it has created a form-based app using ArcGIS Survey123 that enables people to capture details about any works needed and insert ArcGIS polygon drawings from the web portal. This detailed ground plan can then be shared with HS2 and other partners, within ArcGIS, accelerating decision making and works scheduling. “Having an Esri UK Managed Cloud Service frees time in the GIS team so that we can do geospatial analysis and build high value GIS apps that improve efficiency across the whole project,” says Wicks.

Faster resolution of snagging issues

As in all large projects of this type, small issues will inevitably arise that need attention, such as broken fence panels. In the past, these snagging issues were recorded in different ways, by different companies, in different spreadsheets without accurate location data. Now, information is recorded in a consistent way, by all parties, using ArcGIS Collector, and the data can be viewed by Fusion in near real-time on an ArcGIS Dashboard. “Having this data in real time, means snags can be sorted as soon as possible,” Wicks explains.

Esri UK | Millennium House
65 Walton Street | Aylesbury
Buckinghamshire HP21 7QG
T 01296 745500 | F 01296 745544
E info@esriuk.com | www.esriuk.com

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No.1288342. VAT No.787 4307 91. Registered Address:
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