Highways England

PROGRESSES ITS JOURNEY TO A DATA-DRIVEN ORGANISATION

A BJSS Case Study

Highways England is a government-owned company that is responsible for the operation, maintenance and improvement of England's motorways and major A-roads. Its mission is to connect the country through better journeys.

To fulfil this mission in the future, BJSS has been working with Highways England to support its journey to a data-driven organisation. From designing and building a cloud-based data architecture platform through to designing its service wrap and providing a clear view of data across the organisation.

Challenge

Technological changes are altering the UK's transport network and roads, as well as our concept of mobility. This presents several challenges and opportunities for Highways England and its Strategic Road Network (SRN). From a potential increase in demand on the SRN and infrastructure through to society's adoption of advanced technology.

To prepare for the new digital era, Highways England has developed an Information Vision and Strategy that sets out to future proof the SRN – the 4,500 miles of motorways and major A-roads at the heart of England's road system.

A fundamental aspect of Highways England's vision is its ability to utilise data to provide safe, reliable and better journeys for their customers. However, as with many large organisations, Highways England's data was dispersed right across the company on 10,000s of spreadsheets and disconnected systems.

To become a truly data-driven organisation, Highways England needed to bring its systems and data together to act as one. BJSS is helping Highways England to achieve this by delivering Data as a Service (DaaS).

Solution

We form one part of a wider supplier ecosystem that is working towards supporting Highways England's journey to a data-driven organisation. Our responsibility was to deliver DaaS – a critical enabler to Highways England's broader data programme.

Following an intensive four-week Discovery phase to identify the problem areas and user needs, we then delivered DaaS using an agile approach.

To deliver DaaS we:

- **Developed a clear picture of the data held within Highways England** – This saw the team map over 80% of the data entities held within Highways England, building connections between them. We then produced a Proof of Value visualisation tool that makes the exploration of the ontology as easy as possible.
- **Designed and built a cloud-based data architecture platform** – Using Azure Databricks and Azure Synapse, our Cloud and Platform capability designed and developed a cloud-native data architecture platform. The platform, which is now fully owned by Highways England, allows any team to build data pipelines and deliver data projects in one place.
- **Designed and delivered a service wrap for the platform** – We defined and rolled out two services with collateral to support the platform – an adoption service and an operational service. The adoption service supports users who are looking to onboard project data into the platform. The operational service supports the management of the platform and ensures users can discover and access data.

The establishment of DaaS is a crucial first step in Highways England's data journey.

Benefits

Collaborative ways of working

The success of this project centred on our ability to work collaboratively with Highways England and its partners. From the outset, we worked with users across the organisation to understand their needs and pain points. When building the cloud-based data architecture platform, we worked closely with Highways England's Governance, Architecture and Security teams to meet their standards, ensuring that the platform is fit for enterprise adoption. For the service, we ran a series of collaborative workshops with key user groups within the business. We also worked with other data suppliers to build out a holistic understanding of the landscape the service will operate in. These insights were crucial in informing the delivery of the service and mitigating risk.

Increased data accessibility

Before the creation of the data ontology, Highways England's data was spread across disparate systems, and it was difficult to get a full picture of what entities existed. Now for the first time, Highways England's internal and external users can understand what data entities exist, how they are interrelated and crucially, how they map to different data sources. The company's data is more connected than ever before – helping to unlock the potential value of data in the future.

Laying efficient foundations

The establishment of the data architecture platform and its supporting service enables additional data capabilities to be delivered and support long term cost and efficiency savings. Over time, data will be utilised to improve the way the SRN is designed, built, operated and used in line with the Highways England vision for digital roads.

"From a standing start, in less than a year, BJSS has created an agile, scalable, sustainable enterprise data platform that will help our organisation make better use of data for years to come."

Ian Gordon, Head of Data Architecture and Engineering, Highways England