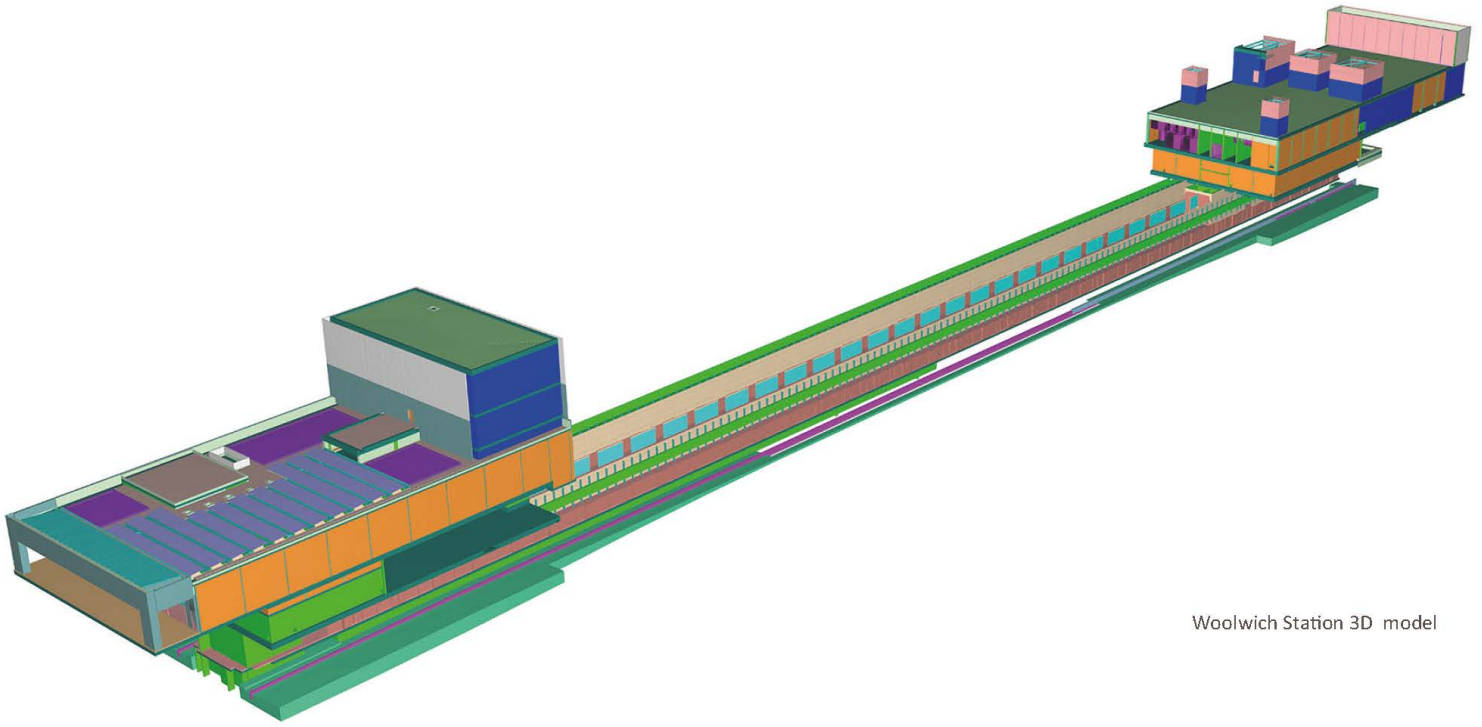


3D REPO

Crossrail: Mobile Digital Asset Management





Woolwich Station 3D model

Connecting the Capital

Started in May 2009 Crossrail is Europe's largest construction project and is designed to transform rail transport in London. Delivering the largest increase in rail capacity since WWII, Crossrail will reduce congestion on trains and at stations, cut journey times and support the delivery of 57,000 new homes and 3.25 million metres of commercial space.

As Crossrail entered the final stages of construction and with the first of the phased introduction of services already up and running, the complex task of post-delivery asset management was considerable. Working with Crossrail, and funded under the Crossrail innovation programme Innovate 18, 3D Repo developed a unique mobile platform that brings together information already held within asset lifecycle information software.



"We now have a solution that keeps all asset information in one place which, on a project the size of Crossrail, is very important."

Paco Luna, BIM Architect and Design Coordinator, Balfour Beatty

Accessing Asset Information

The Crossrail Asset Information & Configuration Management (AIMS) system, on top of enterprise Bridge (eB), recorded details of all maintainable assets across the network. Designed to provide future operators and maintainers access to information as and when it's required, this complex system recorded not only the assets but also the relationships between them using pre-formatted Excel spreadsheets which form part of the workflow and handover process. The Crossrail Asset Identification Standard provided further definition including naming conventions, style, format, fixing requirements and machine readable identification. However, despite providing a 2D Data Matrix and a separate RFID tag accessing asset data, 3D drawings and 3D models stored within eB still required a manual look up via the spreadsheet stored within the AIMS system.

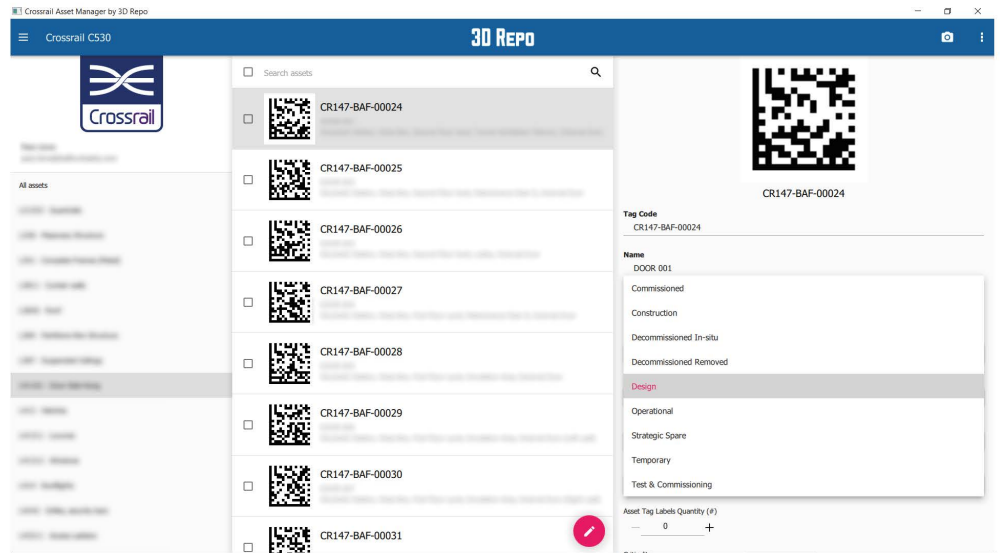
100 km of new track

10 new stations

42 km of tunnels

200,000 tunnel segments

3 million tonnes of excavated materials



3D Repo Asset Manager application

Collaborating for Success

The starting point was to develop a proof of concept application using the existing 3D Repo web based collaboration solution. The cross platform app was linked, via the existing Data Matrix codes to an online database where installation, maintenance and delivery information about each and every asset on site could safely be recorded for final handover to Transport for London (TfL). By making the existing specified asset labels 'smart' 3D Repo could maximise the investment already made in asset management by Crossrail. Using the Data Matrix codes 3D Repo also provided a direct link to AIMS giving two-way access to asset records with real-time reporting of onsite information in a pre-formatted way.



“As technology and connectivity improve and with the advent of IoT (Internet of Things) looming, we need to start understanding how to integrate systems and work digitally. This is not only sensible in terms of assurance and audit processes, but in terms of efficiency, data exchange, handover and reporting.”

William Reddaway, Innovation Programme Manager, Crossrail

Delivering Results

On completion of the test stage of the project, 3D Repo delivered a system that enabled access to 2D tags with associated drawing overlays and asset information. Users of the 3D Repo system can load and process pre-formatted asset management spreadsheets from AIM records and can separate and filter information based on specific asset Function, Class and Location, as defined in the Crossrail Asset Data Dictionary. The 3D Repo solution also allows for the display of online forms for logging of specific site issues, again in a pre-formatted style, which are recorded in a semantic fashion within the cloud.



“With the Crossrail project nearing completion we wanted to demonstrate a system that could provide a one stop solution for post-delivery asset management.”

Harry Parnell, Head of Digital Project Delivery at Balfour Beatty & Project Manager in Crossrail’s Woolwich Station

About 3D Repo

3D Repo, a spinout from University College London, is a multi-award winning company offering a Software-as-a-Service (SaaS) platform for BIM in the cloud. Instead of architects, consultants and contractors sharing massive proprietary files in a costly and time consuming manner, they can simply point their web browser to an encrypted knowledge base in order to examine each project stage virtually, even on mobile devices. Additionally, the project knowledge base can be accessed via VR, giving a live experience which has applications in Health and Safety training and client experiences.

The 3D Repo team has collaborated on a number of large scale projects with companies such as ARUP, Balfour Beatty, Highways England, Skanska, Crossrail and Canary Wharf Contractors.