HS2 trials Artificial Intelligence solution to cut carbon emissions

September 14, 2020

As part of HS2's plans to reduce its carbon footprint, a new carbon and cost estimating solution powered by Artificial Intelligence (AI) is being trialled on a number of HS2 sites managed by the Skanska Costain STRABAG joint venture.

Using the AI tool, the building information model (BIM) processes are automated so that different design options can be simulated using different types and quantities of construction materials. This means carbon emissions and environmental impacts of construction can be visualised, measured and compared, resulting in the design of a more environmentally-friendly solution.

BIM is a collaborative process coupled with the use of the latest technology trends in 3D Computer Aided Design and Engineering to develop digital representations of HS2's railway assets such as bridges and stations.

The new solution, which is being developed by Skanska as part of a project funded through Innovate UK, is an innovation which will replace the current method of manually measuring 3D drawings, and will assist the design process in reducing carbon emissions throughout the life of a building. The results will deliver

carbon and cost savings not just across HS2, but across the whole sector.

This tool will enable construction projects to leverage the full benefits of BIM and will empower construction teams to design for cost and carbon efficiency. It will lead to shorter pre-construction phases, reduced project management costs, greater visibility of carbon emissions and overall improved cost and carbon control. The project will also develop industry best practice for estimation and cost management.

A consortium of organisations is working to develop the solution. Skanska UK is leading the project, working with software developer Nomitech, design consultant Mott MacDonald, the Manufacturing Technology Centre (MTC Data and AI Research), The Royal Institution of Chartered Surveyors and HS2.

HS2's Head of Digital Engineering Sonia Zahiroddiny said: "HS2 is a project designed to support the UK's transition to a net-zero carbon economy, so we're extremely pleased that we can provide a live construction environment for the practical application of this new AI-enabled App.

"Innovation is at the heart of our drive to reduce carbon, and this ground-breaking solution will enable us to realise immediate efficiencies across Phase One of the project, as well as building it into Phase Two. We will also play our role in disseminating the new App to the wider industry in order to achieve cultural change across the sector to help meet the UK's carbon emission targets."

Skanska's Head of Innovation Vaibhav Tyagi said: "This is a fantastic example of how an innovative mind-set can lead to solutions that address climate change. Investing in innovation is essential to produce great ideas like this. Innovation and digital integration are critical to reduce carbon and work towards net-zero emissions."

Photo credit: HS2 Ltd

For today's rail news from railbusinessdaily.com click here.