

Regardless of Progress at COP27, We Are Getting on with Transforming and Decarbonising Infrastructure Delivery

*Mark Coates, International Director of Public Policy and Advocacy, Bentley Systems
Andy Bowles, Senior Regional Director – Northern Europe, Bentley Systems*



Many across the world have been disappointed by the lack of progress on climate change and the sustainability commitments made between COP26 held in Britain in 2021 and COP27 held last month in Egypt.

For example, a lack of involvement and focus on the built environment, one of the biggest contributors of carbon dioxide, was glaringly obvious.

However, other forums—such as the Transforming Infrastructure Performance Summit hosted earlier this month by Bentley Systems—show that meaningful changes are happening in the United Kingdom, in the infrastructure sector at least.

Last year, the U.K. government released its Transforming Infrastructure Performance Roadmap to 2030, which looked at five focus areas: improving outcomes for people and nature, enhancing place-based regeneration, improving social infrastructure, retrofitting to achieve net zero, and optimising the performance for the existing built environment.

One year after this government publication, Nick Smallwood, CEO of the Infrastructure & Transport Authority, took to the stage at the summit to describe a “refreshing” level of progress.

As one of the roadmap’s main focus areas, Smallwood was keen to make clear that the government sees that all infrastructure has an interface with the natural environment, so we must do the best that we can at every point in a scheme.

Working with an array of partners, including Bentley, some of the country’s largest public sector projects are making the link between digital tools and their performance in aspects ranging from project cost, to measuring environmental and social value—from the start of infrastructure delivery to final handover.

Bentley worked with the U.K. government to make its digitisation guide, which, as Smallwood points out, is essential if a client wants to make its priorities clear to contractors and partners from the beginning. If you don't ask, you won't get at all—let alone at the right cost and pace.

Wherever you sit within the construction and infrastructure sector, there's a huge benefit that is gained from looking at government goals and seeing what your project can do to deliver on these environmental and social value objectives.

For instance, on the A12 road improvement scheme, there was a temporary site of sustainable energy set-up, using solar, hydrogen, and wind to meet current power demands, without any connection to the electricity grid. The aspiration is that it will be developed on a larger scale for the scheme's main construction site.



Enhancing productivity makes a difference at every level—from minimising costs, the environmental impact, and timeline, to maximising economic benefits through jobs and opportunities for the wider community.

However, the U.K. construction sector is not yet where it should be in comparison to other countries.

In fact, it is only at about 40% of the required level, a “huge issue,” according to Smallwood, given the scale of the projects that the country is targeting, such as HS2, Northern Powerhouse Rail, and Hinkley Point C.

The more efficient we get at building things, the more that we are able to build.

Digitisation is at the heart of enabling this change, assisting the government in building schools, prisons, and hospitals, either by managing the complex range of programmes and tools needed to manage a project, or through automation and offsite manufacturing.

Aside from new schemes, the success of retrofitting and looking at the future of our existing assets and infrastructure also depends on digitisation to help log and assess the condition and usage of assets to judge how and when they need to be maintained or replaced.

Some of the government's largest projects, which started before digitisation took hold, have made huge strides by embracing a digital approach to ensure efficient management in the future.

Crossrail, where construction began in 2009, has created a digital twin of its network, including stations and rail lines, providing more accuracy over its design and construction. What was learned from Crossrail will now feed into the ongoing development of HS2.

Projects—such as Hinkley C—have gone above and beyond the government's digital expectations, using a shared data platform for every aspect from engineering design to construction and commissioning.

A completely integrated 4D model, such as what is used at Hinkley, means that all partners can work together more efficiently and as a coherent team, rather than a just a sum of their parts.

This theme was also picked up at the summit by Nathan Marsh, chief digital officer at Turner & Townsend.

Marsh stressed the importance of frontloading a project by using digital tools to look at complex challenges—such as design, data, integration, and net zero—before the scheme even begins to help identify the types of technology and data that the projects will be using.

Though as he said that all this information is a lot to bear in mind at first, this approach reduces the chance of issues later on and increases productivity and efficiency across a project.

Rather than technology driving people further apart, this strategic approach should also empower contractors “to think like a network, rather than just individuals connected by a contract and a schedule,” Marsh said.

Both speakers acknowledged that public confidence in the U.K.'s ability to delivery large-scale infrastructure has been knocked. However, with both sides of the client and contractor relationship taking more responsibility for the outcome, as well as increasing interest in the digital tools to enable efficiency, they were confident that this trend could be reversed.

From the contractor point of view, taking this information seriously will be particularly important, according to Smallwood, because it would help the U.K. move toward an era of a more proactive government, allowing them to ask for whole life carbon projections of a project and to closely examine productivity.

This should not be a rod that the industry uses to beat itself with, but rather it is a chance to make meaningful change, whether building a school or delivering infrastructure that levels the economy.

Meetings such as COP27 may leave people disappointed at the lack of international progress and coordination, but the Transforming Infrastructure Performance summit shows that progress is advancing.

Sharing best practice across the industry as we move closer to the roadmap's 2030 deadline will be crucial to achieving success.