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Editorial
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As the Covid-19 pandemic continues and the world economy faces its deepest recession for over 60 years, we have witnessed – certainly in the UK – a resilient infrastructure sector adapt very quickly to the new normal.

Working from home has historically been a taboo for civil engineers but for many of us the few steps between bed and desk are now the daily commute. For those in essential sectors this has clearly not been possible, and their daily office and site routines are continually modified by the ever-changing nuances of this virus. I am confident our profession will continue to adapt to ensure the safe and efficient operation of society's critical infrastructure.

One upside of the pandemic is how it has prompted many civil engineering organisations to reflect on how they conduct their business. In many cases it has led to the development of some unrealised flexibility and competences of their employees. Digital technology opportunities have also been explored as never before and have fast come into daily use. These are not new to us, but as a profession we have sometimes been slow to adopt what is now staring us in the face.

As a reminder to all our readers, one such system is the Institution of Civil Engineers' (ICE) Virtual Library at www.icevirtuallibrary.com. It contains a wealth of digital information, including everything published and accepted for publication in this journal. Dating back to 1836, it is the most comprehensive online civil engineering resource in the world: one cannot fail to find an interesting piece to read during a break from Teams or Zoom.

The effective use of digital technology is explored in the first paper of this issue by Nolan (2020). He shows how building information modelling (BIM) benefitted the recently completed £3 billion programme to electrify the Great Western railway between London and Cardiff. A search of the ICE Virtual Library shows this brings the total of articles on the Great Western railway to 3972, with the earliest being in 1844. This latest paper explains how lessons learned from the Crossrail project in London were used to develop a very successful BIM strategy on the Great Western programme, leading to huge cost, time and safety benefits. A suite of seven more papers on the programme is being published this month in a special issue of this journal (see page 156).

Digital technology is also vital for infrastructure-related mathematical modelling, and we are now starting to see its use in a biological context. Pilkington-Cheney *et al*. (2020) link digital technology with health and well-being in an industry where these subjects are finally being given the same status as safety. Funded by Tideway, the company delivering London's Thames Tideway Tunnel, the authors provide guidance on how tunnelling worker fatigue models can be used for fatigue management within the wider construction industry. The ultimate goal is to develop an early warning system in accident prevention for use across the industry.

Staying with tunnelling, Watson *et al*. (2020) identify some useful lessons learned from an underwater tunnelling project built to provide a new water supply for Staten Island in New York, USA. The paper focuses on design and construction highlights, including the logistically challenging recovery of a flooded tunnel boring machine following Hurricane Sandy.

Our weather is certainly ever changing and becoming more unpredictable, leading ICE to declare a climate and biodiversity emergency in July 2019. There have been a number of previous papers relating to the emotive subject of greenhouse gases and their links to the construction industry, including by Guthrie (2019) and Amiri *et al*. (2013). Collings (2020) looks at two different approaches to studying emissions from infrastructure projects. He concludes that offsetting emissions can only ever be a small part of achieving 'net zero': the biggest benefits will come from optimised design and value engineering.

I hope you enjoy reading this diverse issue of *Civil Engineering* and encourage you to stay safe, well and positive during these extraordinary times.

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