

Cite this article

Ross S (2022)

Editorial.

Proceedings of the Institution of Civil Engineers – Management, Procurement and Law

175(3): 95–96, <https://doi.org/10.1680/jmapl.2022.175.3.95>

Editorial

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Editorial

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Welcome to the August 2022 ‘digital transformation’ themed issue of *Proceedings of the Institution of Civil Engineers – Management, Procurement and Law* (MPL). We have been in the midst of a digital transformation for a number of years that will continue, if not accelerate, in the near future. Digital transformation on our projects is often viewed through the lens of technical efficiency and design innovation; however, there are a myriad of impacts, implications and benefits from the perspective of how we manage, procure and resolve the legal aspects of our projects. It is for that reason that MPL has decided to have a ‘digital’ themed issue in order to explore some of the opportunities, but also the challenges, that digital transformation offers. The number of papers submitted recently to MPL that touch on or tackle in depth digital transformation highlights the popularity and relevance of this topic to our community.

It is important to consider these potential benefits from multiple perspectives, whether that be clients, contractors, consultants or other industry professionals. The digital transformation is also no longer on the horizon, it is now a key part of what the industry tackles on a day-to-day basis. For that reason, the briefings and papers that have been selected by the MPL editorial panel for this edition attempt to identify not only potential benefits and challenges but also the actual lessons learned from real projects and case studies. The time for speculating is over, we can look around us in the industry to better understand what is needed to take full advantage of what our digital transformation has to offer.

The ‘post-Covid-19’ context to digital transformation does not go unrecognised in this edition. With modern methods of construction being back at the forefront for parts of the industry, now viewed through the lens of how the industry tackled the pandemic, it may be that there is a warm embrace from all levels of organisations to accept and leverage digital transformation.

We have two ‘digital’ focused briefings. The first briefing, by Akinyemi *et al.* (2022), describes the lessons learned from the work carried out by a construction company to create a digital twin of their various work processes. The effort required was ultimately underestimated with the project taking 12 months rather than the 3 months initially planned. In future projects of a similar nature,

a focus on overcoming potential problems with planning, process documentation and standardization, and stakeholder engagement is required. In this case, overly optimistic assumptions were made in the pre-project planning stage which were found to be flawed. The research also identified the importance of clear top-down management buy-in that ensures all stakeholders can prioritise the activities that need to be undertaken.

Our second briefing is by Carlsson (2022) who, through assessing the Swedish manufacturing industry, challenges us to adopt a norm-critical perspective on the digitalisation of the construction industry. As there is further digitalisation in the industry, the social consequences and impacts need to be understood. Efforts can be made to take more of a dynamic perspective related to gender, age and physical ability relative to digitalisation.

Moving on from our briefings, it is fitting that our first paper covers the system integration challenges on Crossrail and describes the seven lessons learned that can be carried forward to our future major infrastructure projects. As is explained by Whyte *et al.* (2022), the lessons from Crossrail will no doubt be familiar to many of our readers. These lessons include the challenges around interface management, managing programme, planning for the full testing and commissioning phase and the consideration of the supply chain in such planning activities. It is put forward that one of the key lessons is ensuring that the client system integrator must have the authority to make decisions ensuring that integration can be prioritised over the schedule and cost management of each individual contract. The authors put forward the idea that there should be a focus on managing integration rather than relying on managing individual contracts, budgets and schedules. The authors also highlight the criticality of recognising that many of the technological advances, including around the trains and signalling systems, are part of global research and development programmes and not off-the-shelf products. It is great to see the lessons from such a fantastic project being shared in MPL.

In our second paper, Rahman and Sainati (2022) describe how standard forms of contract can be adapted to facilitate building information modelling (BIM). As with many digital innovations, BIM has been adopted by the industry quickly in order to harness many of the benefits on offer, but integration with the standard

forms of contract must also follow suit. The challenges presented in such integration are explained, including intellectual property rights, liability and risk allocation. The contractual status of the federated BIM model is also considered. The paper focusses on the Joint Contracts Tribunal's Standard Building Contract with Quantities and the Construction Industry Council's BIM protocol through the analysis of three sample scenarios that, in effect, test the contractual challenges that have to be dealt with by the parties. It will be interesting to see how this research is taken forward potentially with consideration of other standard forms of contract as suggested by the authors.

Our final paper, by Grabham and Manu (2022), presents a literature review on the theme of 'platform thinking' as observed in other industries as an alternative to the traditional views of the construction supply chain. As the authors describe, there appears to be reinvigorated interest in construction systems and modern methods of construction, as reflected in various industry publications, with the importance of digital platforms and ecosystems gaining recognition. The paper highlights the importance of recognising the fragmented nature of the construction industry and how supply chains form and disassemble for each given project, which must be considered for the wider adoption of modern methods of construction. As part of the literature review, some of the dilemmas associated with platform design and governance are identified and described. Further study

of platform thinking will no doubt be required by the industry in order to harness the benefits it may offer.

We hope you enjoy this edition of MPL and that it stimulates enthusiasm for the digital transformation that awaits our industry. All contributions were reviewed by international experts in accordance with the guidelines of MPL.

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