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Editorial

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Editorial

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The pace of technological and digital innovation is evident in every aspect of our lives. The speed at which advanced digital tools and applications, as well as modern technological solutions and products, are developed and adopted is defining the future of the built environment. A digitally immersive living and working space would enable stakeholders to experience enhanced value. Such an environment can only be provided by a construction industry that embraces practices, tools and culture capable of delivering innovations that enable users and stakeholders to engage this emerging digital world. This comes at a time when the performance of the construction industry, in terms of cost, quality and speed of delivery, is continuously challenged for failing to meet the expectations of government targets and society.

This themed issue invited researchers to share their knowledge and research findings and provide new insight into how the construction industry can accelerate the pace of innovation to deliver a smart built environment.

The guest editors of this themed issue are leading the International Council for Research and Innovation in Building and Construction (CIB) Task Group 96, which is focused on accelerating innovation in construction (CIB, 2019). This task group is hosted by the CIB and is active on LinkedIn. Researchers and practitioners are welcome to participate in the group's activities.

The papers submitted to this themed issue brings a number of innovative ideas. Kumaraswamy *et al.* (2019) examined the use of relationally integrated value networks (Rivans) by clients to empower the supply chain to share resources, build trust and integrate their processes to deliver and sustain innovation. Such networks are further extended to link design and construction with the operation and management of the asset to create total asset management networks. The study concluded that there is a gap between the desired and realised connectedness of the networks, which means failure to realise the full benefit of Rivans. Although integration was achieved within the design and construction networks, the connections between construction and asset management were weak. This would undermine the effectiveness of the construction industry to deliver the smart built environment capable of meeting the expectations of the assets users and operators.

Sanni and Adebisi (2019) examined how adopting innovative procurement strategies enables stakeholders to realise enhanced value in infrastructure projects. Examining the critical success factors of public–private partnerships (PPP) in transport projects in Lagos, Nigeria, has identified quality control of the innovation as well as clear innovation plans and the deployment of the required human resources needed to contribute to the success of innovation. The study findings emphasised the important role of senior management in driving innovation by emphasising innovation centrality to the project and for innovation to be seen to extend innovation benefits to the different stakeholders. In this case, the authors provided interesting insight into the effort to carry out extensive consultations between the different stakeholders, including the government, to generate the required commitment. This issue may be useful to the research of Kumaraswamy *et al.* (2019) in addressing what they observed as the gap in the project networks.

Further on the use of PPP to deliver innovation, Saeed *et al.* (2019) focused on defining innovation from the perspective of social PPP projects. The investigation explained how the public sector can provide the drive for innovation. Using their experience in executing PPP projects, public sector clients were conceptualising and documenting the required innovations that would deliver the desired improvements, which then obliged the private sector to deliver such innovations. This practice can help to reduce the risks for public sector clients but arguably creates a passive private sector. A procurement framework based on trust and more engaged stakeholders could move the innovation dial into a zone where the client and supply chain work in partnership.

The study by Yuan and Zhang (2019) into innovation in a PPP project in Canada helped to further develop the emerging picture on innovation dynamics. Innovation was found to be more pragmatic as it was focussed on addressing either competitive forces in the market, for private organisations, or enhancing efficiencies to improve value in public projects. The competitive pressure ensured that contractors are always looking for new ways to improve their performance. However, the active role of public clients in initiating projects and dictating the innovation agenda have led the private sector to reserve their innovation effort for later stages of the project. Again, this highlights the

need for an integrative approach that would empower rather than limit innovation.

The innovative use of industrialised building systems (IBS) in Saudi Arabia for the purpose of enhancing construction performance is examined by Trigunarysyah *et al.* (2019). Although it was not surprising to find the main motivator to be increased speed of construction, it was notable that the top barriers were the perceived inflexibility of IBS when considered during design and implementation, as well as transportation challenges. This would highlight the importance of avoiding the long tail of innovation where innovation is not embraced throughout the different stages of the project and across the supply chain.

Although Islamic finance is reported to have been in use for a few decades in several countries, it remains a new concept to the rest of the world. Rarasati *et al.* (2019) explored how the use of Islamic finance can support the accelerated development of public assets. The case studies used in this study showed how the different types of Sharia-compliant schemes were deployed to finance infrastructure projects. Although the different stakeholders in these case studies have accepted the principles of this innovation, there was a need for the different stakeholders to have detailed knowledge of how they are implemented.

We envisage that this special issue will contribute, embark on and enhance the thinking of academics and practitioners to accelerate the pace on innovation in the built environment. One interesting theme emerging from the papers here is that the fragmented nature of innovation in construction – where innovation is introduced and

adopted in one aspect of the project without its effective diffusion through the value chain – meant the inability of the rest of the value chain to contribute to innovation. Future research can explain how the synergy of the different parts of the project would enable effective diffusion and accelerate the pace of innovation.

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