



A Hands-On Approach

Construction is going digital, forcing new skills requirements across the industry. – By Murray Ross and Ole Wong

We're a global engineering, management and development consultancy focused on guiding our clients through many of the planet's most intricate challenges. Backed by our global network of engineering and development consultancy expertise, Mott MacDonald has been shaping the face of Hong Kong since 1957 and contributed to the design, development, and construction of some of the city's most significant infrastructure and most iconic landmarks.

Building the future

On 21 January 2018, The Development Bureau of HKSAR issued Technical Circular (Works) No. 7/2017 making Building Information Modelling (BIM) delivery mandatory for all public works projects with the aim of enhancing design, construction, project management and asset management, consequently improving the overall productivity of the construction industry. The increased emphasis on digital delivery in the form of BIM calls for new skills, implying that the best construction consultants will be those committed to learning new standards of digital development.

In the past, design tools developed slowly, and it was practical to learn skills on the job. But now, the lifecycle of a software tool can be shorter than that of an engineering project. Consultants that aren't set up to adapt quickly will begin to struggle in the new age of digital delivery, while those who follow best practice seriously will lead the market.

It's not just digital design tools that are evolving quickly, projects and models are now founded and managed on collaboration platforms that foster multiple workflows around a single source of shared data. This means that both asset owners and construction consultants need to be up to speed with the technology, whilst remaining open to new automation processes as this is where the real efficiencies are gained.

Such innovation brings both opportunities and challenges to senior professionals within the industry. Certainly, investment in training and development needs to remain high on the agenda, as firms will start to lose the benefits from their most gifted engineers if they cannot keep up with the delivery tools – the very people who make professional services not just good but great.

Traditionally, consultants within leadership roles are a step away from design production. However, in today's environment it is essential that project directors and technical directors have hands-on experience of design authoring and review tools in a common data environment. After all, to lead the doing, you must know how it is done.

With advances in how digital data is managed within an organisation, a new balance based on greater digital knowledge needs to be struck whilst remembering that human experience, intuition and interaction is invaluable. For example, while advancing technology is a strong catalyst for innovation, innovation needs human guidance to ensure that progress is made. A

balance requires insight into an asset owner's needs, solid resources and leadership, and an understanding of the development of digital processes. It is critical for people to evaluate the right balance between the needs of programme, cost, quality, sustainability, and risk.

Certainly, data correctly gathered, managed, manipulated and shared can profoundly change perceptions and enable more powerful, value-added decisions. With this approach, asset owners can be confident that their advisors can provide a market-leading, value-added delivery.

A practical approach must bring technology into the heart of planning for bidding, budgeting and project delivery. Over the past few years, project technology groups have moved from providing project support to standing out front and centre of client-facing delivery teams. This has happened naturally in response to market demands as innovation and new delivery models are embraced.

Looking ahead, we believe that the pairing of experience and digital intelligence will be one of the key attributes of the best advisors within a matter of years, if not months. As we can see in Hong Kong, those who invest in technology, innovation and in learning and development are differentiated, and prepared to lead the market of the future. The days of learning on the job really are over. As we welcome Technical Circular 7/2017, let's use it as an opportunity to build the skills among Hong Kong's construction professionals to lead the way internationally.

How will BIM benefit Hong Kong's asset owners?

BIM can offer significant benefits to asset owners in developing and managing their assets. It starts with collaboration and design optioneering, leading to

a streamlined delivery and optimised performance, maintenance, renewal and eventual decommissioning, reducing whole-life asset costs. Conventional asset delivery results in loss of information at the end of each milestone stage, as one team hands over to another. This leads to wasted time and increased risk.

Instead of losing information at each interface, the value of information in the model environment increases as it is passed on. This 'virtual asset' accompanies the physical asset for the duration of its life, continuously increasing in value and enabling new teams to hit the ground running for all works further down the asset lifecycle.

Information provided by consultants and contractors in the design and construction phases can be organised and structured according to the asset owner's operational needs. Consistency, rigour, and standardisation are crucial, as are information exchange processes and interoperability between applications. In addition, different departments in client organisations, typically procurement, operations and facility management, should be engaged from the outset of each project as key stakeholders. This way they can enhance project design and delivery and ensure that the asset is truly fit for purpose, delivering whole-life efficiency.

When properly laid out, BIM offers the asset owner control over the process, providing the foundations for creation of a model that adds value throughout the asset lifecycle.

Clients need to regularly assess progress and maturity, both within their organisation and across their supply chains. Hong Kong's consultants will then naturally provide support to clients by acting as both information managers and BIM co-ordinators, either in support of design commissions or as a separate service. 



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