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The Infrastructure Metaverse Already Exists

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The Infrastructure Metaverse Already Exists

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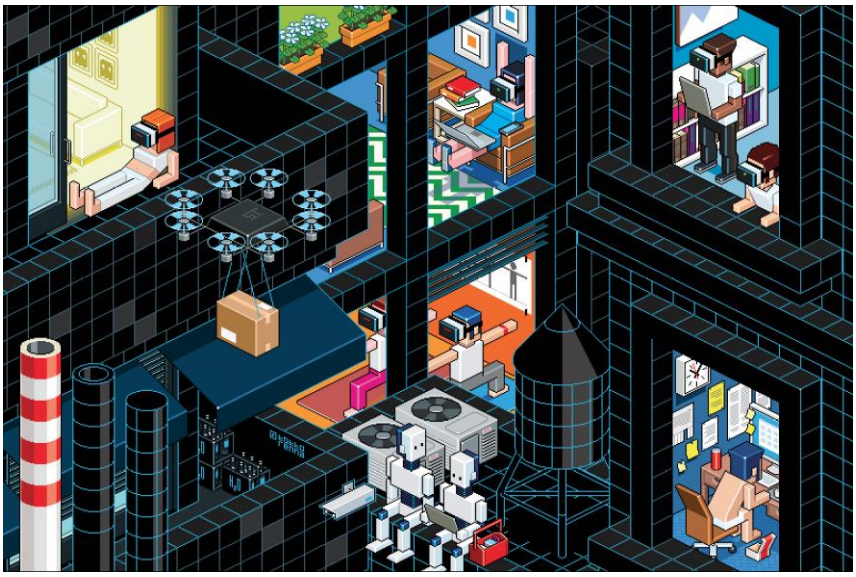
The volume of technological interventions that hounded the construction industry has been momentous in recent years. It has now been common knowledge that the following significant change or the next revolution in this sector will happen through digitalisation. Guided by this general hysteria, it seems evident that the future currency is 'data'. There are research, discussions, and policy implementations worldwide regarding the capture and use of this invaluable currency in the construction sector.

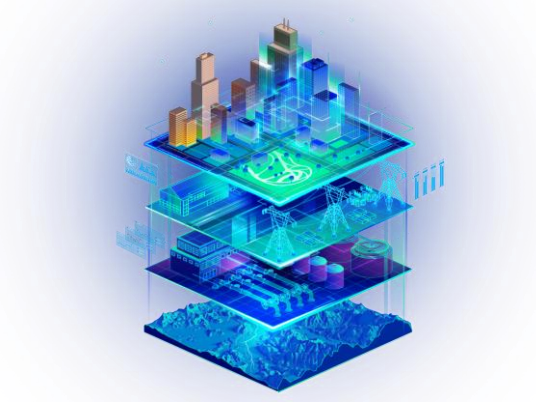
However, there are several challenges to this information management concept, such as: What data to capture? Who will capture the data? How will they be captured? How will they be stored? How to use them?

These questions get increasingly complicated given the diversity of data, activities and processes involved in a construction project. Nevertheless, shifting our focus away to other industries and sectors, recently, there was a wild frenzy when technological giants like Facebook and Microsoft raced against time to declare the development of a METAVERSE. For the uninitiated, twenty years ago, author Neal Stephenson, in his science fiction novel *"Snow Crash",* described a world entirely virtual and life-like avatars could co-exist virtually.



The construction industry has taken several steps towards digitalisation and automation in recent years. Many international and national bodies have been working towards integrated project delivery using advanced technologies, artificial intelligence and machine learning. The **National Digital Twin Programme (NDTp)**, set up in 2017 by the United Kingdom on the recommendations of the National Infrastructure Commission, planned to create a sort of infrastructure metaverse in the country. Another initiative, "The Digital Twin Hub Programme", an Industry/Catapult partnership, has been involved in researching and developing a digital footprint of the entire built environment in the United Kingdom.

By the end of this decade, the United Kingdom plans to develop and enable an ecosystem where every infrastructure – be it any residential property, bridges, railways, hospitals, malls or offices, will be replicated digitally to form a connected digital Britain. All existing structures will be cloned onto a digital platform, and new buildings will be mandated to provide a digital copy to the NDTp prior to work commencement.



A Platform of the Future!

Not only does a digital twin provide a digital visualisation of an entire infrastructure network, but it will also deliver an information management framework wherein secure real-time data will be shared and communicated to all parties. The digital twin concept will capture the entire gamut of data from when the structures were built, construction details, cost details, O&M data, and Facility Management data until decommissioning.

One of the biggest challenges for this Digital Twin Hub programme to succeed is understanding information management in a construction context. The length and breadth of information flowing untouched in a project lifecycle are vast. The next big step is to understand the scope and envision ways to tame this information onslaught. The ISO 19650 standards have been a formative construct in this area – providing a framework for information management. However, there is more to be done since the collaboration of state government, legislative bodies, municipal corporations, educational institutes, and construction firms is inevitable. There is a crucial need for a tectonic mindset and work culture shifts to move towards Industry 4.0.

The A-EYE Control Tower project is a promising step towards that goal. While the system is in place to utilise and benefit from data, our role is capturing and making sense of that data. Our vision is to extract meaningful data with minimal manual interference. Consolidating a project lifecycle and magnifying construction productivity require modern information capture, handling, and management methods. Devoting this responsibility to the on-site construction staff is ineffective since it falls out of their work scope and requires unique skills.

Therefore, our A-EYE technology aims to take that responsibility!