

DIGITAL TRANSFORMATION IN THE CONSTRUCTION INDUSTRY

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The construction industry operates in an extremely competitive marketplace, having to continuously innovate and become more efficient. Over recent years, the use of digital technologies (BIM, Data analytics, GIS, LIDAR, etc.) in design, construction and operational phases of projects has increased.

The construction industry has many challenges. Foremost among these is the need to evolve from traditional 2D, separated disciplinary inputs, separate contractors/subcontractors and separate operators to a more holistic integrated delivery model. Society and governments are increasingly focused on getting value for money, improved efficiency and lower life cycle costs. Current practices often result in uncertainty around what is needed and changes are often made as requirements are clarified. Late changes, when a project is in construction are often client driven, as their understanding of their desired outcome evolves. This leads to scope changes, late delivery, re-work and cost increases for the client, the consultants and the contractor. Our industry is not considered to have modernised to the same extent as other industries and there are opportunities with new technologies to build, share and work in a collaborative way to deliver the necessary improvements.

On large scale infrastructural projects, specific 3D modelling requirements are becoming commonplace. To deliver in 3D, there is a significant step change in service delivery to a collaborative environment, required from all design professionals, contractors and operators involved. For all project participants to work in an integrated collaborative way and deliver on time to realistic project budgets there must be a consistency of approach across all phases of the project. A national BIM mandate and digitisation within the industry will help drive this forward.

To work in a data driven, high technology environment our staff must develop new skills that will enable them to work in the complex world of 3D modelling. In collaboration with academic institutions we seek out suitable training courses and programmes to enable upskilling of staff and management. A programme specifically designed for, and with relevant modules to support, evolving digital technologies is essential. This includes not only technical skills but also behavioural change from a conflictual approach to a collaborative approach. Behavioural change is a pre-requisite if the benefits of technology and other industry advances are to be realised. Such training is now becoming available to the wider industry through new courses and programmes in third level colleges and industry led initiatives such as the CitA programme with Enterprise Ireland and IDA support.

Our industry will build digital capability by developing core personnel, progressively adapting to the ever changing environment, and a company and industry wide commitment to change and adapt. Transforming our businesses to meet the needs of the digital world is at the very core of our activities within ACEI, encompassing strong values, robust business processes and best in class delivery methods.

The majority of digital transformations fail (up to 84% according to Forbes) and more often than not, the issues are related to people – typically hinging on a failure to communicate the vision or empower individuals to transform the organisation from the inside.

Engagement with digital transformation specialists offers organisations a structured and phased approach to achieving sustained success and is based upon five capability categories: Leadership, Processes, Methods, Resources and Expertise. An appropriate digital transformation process is designed to develop the capability and capacity needed, and equip management and staff to deliver collaborative projects.

This will represent a fundamental change to the way we do business, engagement with our partners and suppliers, and adds value for our clients. Focussing on people, culture and behaviours will achieve sustained success in the digital era. Full integration of information (management databases, GIS, quality, environmental, surveys etc.) is essential.

For all parties to achieve collective business benefits and deliver best value to the client, everyone needs to be fully engaged in the project information management process, have the capability to undertake their respective responsibilities and demonstrate appropriate collaborative behaviours. Investing significant resources to support our clients, partners and suppliers on their digital transformation journey is part of our ethos in ACEI.

Extending the use of digital processes from the design stage through the construction phase, creating lifecycle engagement and enriching the models with data make the models a core tool for future maintenance and operation. This in turn is creating a requirement for skilled and competent users of the technologies in client organisations if they are to realise the full benefits of digital delivery.

Building capacity in digital construction is facilitating Irish design team participation and leadership in infrastructure projects in the UK and Europe.