

The Modern Construction (MC) era will drive new industry collaborations and a measurably better deal for construction's customers. Without leadership to advance these developments, their potential may flat-line or regress.

Construction is undergoing massive transformation worldwide. There are many new forces driving these changes. They include;

- The construction industry fully embracing the digital economy,
- The Industrialisation of construction's processes and assemblies,
- The globalisation of construction's supply chains.

MC is driving a systemic change to all of constructions traditional systems and culture. The edges of the '*Constructing*' world are now blending with the '*Constructed*' world. In short '*smart construction*' is transforming into '*smart use*'. These are new experiences for an industry that has traditionally survived at the margins were '*good enough*' and local jurisdictions have constantly come up short in moderating the industry's weaknesses in delivering in-full, fit for purpose and compliant construction. This is a major shift of the goalposts and there will be no haven for any player. The movement has its own momentum.

There are many consequences of construction's accelerating transformations. Some include;

- The industrialisation of construction will involve and increasing shift of former on-site fabrication activities to off-site. On-site will become a place of assembly, performed by new self-directing work teams and advanced work packaging,
- Within 5 – 7 years as much as 60 percent of construction value add will have occurred before being incorporated on-site, and much of this from off-shore,
- The industry's methods of value recognition will become dynamic and recognise progressive value-add in real time, increasingly deploying crypto-currencies,
- The industry's insurers and financiers will take over from local jurisdictions as the main demanders of improved construction performances and compliance,
- The Internet of Things (IoT) will enable the tracking of construction inputs from source, to fabrication, assembly on-site, customer acceptance and in-service,
- The organisation of construction's traditional transactions and supply chain engagement protocols will progressively trace those of other transformed industries,
- Modern media will have a profound impact in identifying and outing weak links.

Tomorrow's constructors and their enterprises will require new tools to enable them. New collaborations will be required from construction's traditional contributors who have always imagined the industry continuing its calamitous and unaccountable trajectory. Evidenced measurement of effectiveness and performance will inform first movers of the way ahead. Those measures will inform construction customers and users. Big-data will join the parts. New collaborations will be required from once disparate disciplines. Universities can play a vital part in several ways. This will need smart collaborations. For example;

- The edges between Architecture, Engineering and Construction will become blurred,
- Industrial design expertise will be required to bring the pieces and parts together,

- Business schools will need to reimagine construction’s transaction flows and inform its new enterprise business models,
- Computing capabilities will be needed to set up the digital and big-data interfaces,
- Law schools will need to reimagine and help re-write construction’s contracts.

Once standalone tools such as BIM, Lean, DfMA, Quality Assurance and Certification will need to be welded together to demonstrate how they measurably enable smarter, better, safer, faster, cheaper, more sustainable, resilient and adaptable construction. Unsustainable practices such as construction’s traditional risk and accountability aversion for its performance and allocating these obligations to their supply chains won’t work. Without re-imagining how construction performance certainty will be repackaged to assure construction’s customers and the public of a better deal, MC’s momentum will flat-line.

The rapid developments in construction processes, materials and assemblies must be brought under a unified umbrella where in-full means just that and the industry’s customers not left to become ‘guinea pigs’ of the Modern Construction era. The sum of construction’s parts must become the main game. Brand and authenticity will be the new differentiators.

The built world has mostly been reliable for performing its intended purpose for 50-years and more. The industry is looking into a future where as much of the built world that has ever been built, is likely to be added or replaced as developed economies modernise their infrastructure and developing countries embrace urbanisation and become part of a global marketplace. How ‘local’ and ‘global’ MC opportunities unfold will depend on new universal capabilities across the multi-disciplines and the multi-jurisdictions of construction. There has never been a more opportunistic time for modern thinking, able constructors to thrive in a digital, industrialised and global constructing world. Multi-discipline collaboration is the key.

The diagram below shows the MC Collaborations relationships envisaged.

