Some Important Changes and Developments in International Contracting Arrangements

A SHORT SUMMARY

For many years international contracting has experienced changes. However, those changes have largely been incremental and have not fundamentally altered how projects are procured and delivered.

BUT THERE ARE SOME CURRENT CHANGES WHICH ARE POTENTIALLY VERY FAR REACHING

These fundamental changes seek to address many very longstanding problems in the construction industry. Some of these changes go to the very root of the roles and responsibilities of owner, designers, prime contractor, and subcontractors and suppliers – and to risk carrying, pricing, programming, and contracting.

A recent report of projects around the world identified that between 2013 and 2019:

• successful delivery of projects	reduced from 48% to 17%
• 'mega-projects' experiencing cost overruns of 30% to 75%	was between 80% and 98%
• 'mega-projects' experiencing significant delays	was 40%
• cost overruns of 50%	were common
• cost overruns of greater than 50%	were not uncommon
▪ infrastructure projects such as highways and bridges	typically showed cost overruns of 30 to 35%
• more complex projects (such as airports, railways and power stations)	typically showed cost overruns of at least 40%
• nuclear power stations	cost overruns of 100% were not uncommon

And many projects have been the subject of very expensive and lengthy dispute resolution, and accordingly public perception of the construction industry is not good.

Unlike other industries the construction sector has been slow to adopt new technologies and productivity has generally not improved over the last 40 years. And the industry is extremely fragmented.

PROFOUND CHANGES ARE TAKING PLACE TO INCREASE THE USE OF TECHNOLOGY AND TO DRAMATICALLY REDUCE FRAGMENTATION – BUT THESE CHANGES ARE NOT WIDESPREAD

But the questions to be answered are will these changes bring about:

- effective and efficient benefits to a sufficiently large pool of future projects?
- a much better analysis and consistency of understanding of the design and construction, programming, contractual and legal, completion and operational, and pricing risks to be carried?
- clarity throughout the contracting chain of the capacity and capability for managing key risks?
- integrity of contract documentation, project information, and project communications?
- greater certainty in the forecasting of project outturns?

AND CAN THE CHANGES BE SUCCESSFUL IRRESPECTIVE OF THE EXPERIENCE AND EXPERTISE OF THE OWNER, CONTRACTOR, SUBCONTRACTORS, SUPPLIERS AND OPERATORS?

Forecast of Increased Global Construction Output 2020 to 2030

The following sets out the potential growth in the construction market up to 2030:

- *global construction output in 2020 was US$10.7 trillion*
- *this to grow by 42% between 2020 and 2030 to reach US$15.2 trillion (and to reach US$13.3 trillion by 2025)*
- *the global construction industry is set to be a global engine for economic growth and recovery from COVID*
- *Asia Pacific will account for US$2.5 trillion of growth in construction output between 2020 and 2030, becoming a US$7.4 trillion market by 2030*
- *construction output in North America will grow by 32% to US$2.4 trillion in 2030*
- *Western Europe to grow by 23% to US$2.5 trillion in 2030*
- *the average annual growth of 3.6% per annum to 2030 will be higher than manufacturing or services.*

It must now be expected, with the current economic challenges around the world, that these growth figures will be reduced somewhat, and delayed.

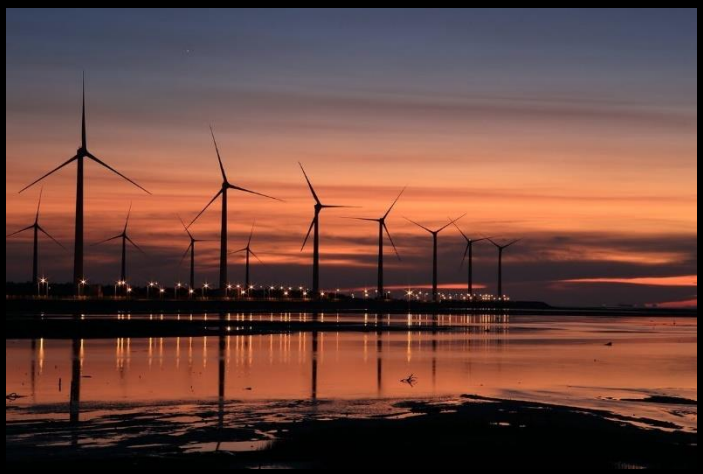
BUT THE CONSTRUCTION INDUSTRY (WHATEVER THE GROWTH) MUST CHANGE TO BETTER DELIVER THIS – AND WHERE INCREASED TECHNOLOGY AND OTHER FUNDAMENTAL CHANGES HAVE BEEN INITIATED THERE HAVE BEEN 20% REDUCTIONS IN LIFE CYCLE COSTS AND SUBSTANTIAL IMPROVEMENTS IN COMPLETION TIMES, QUALITY AND SAFETY

Some Key Changes and Developments in International Contracting Arrangements

There are three current initiatives which are seeking to make major changes to the means of procuring, contracting, and administrating international projects – *increased use of technology*, the *'Construction Enterprise Model'*, and the *FIDIC 2017 contract forms*.

Increased Use of Technology

An increasing number of construction projects are incorporating new software applications, digital sensor systems, intelligent machines, and mobile devices – and progressively being integrated with a central platform of Building Information Modelling (BIM).

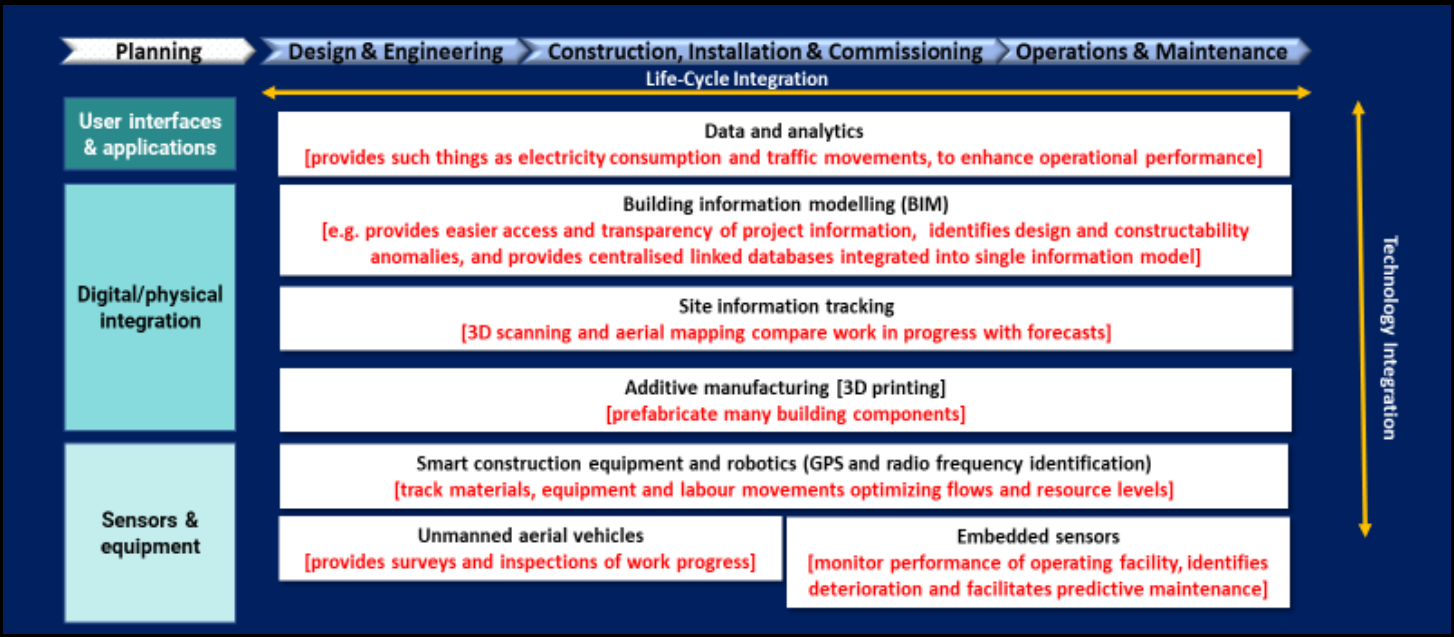


The three major life-cycle stages (design and engineering, and construction; installation and commissioning; and operation and maintenance) of some major construction projects are being transformed by digitalization.

However, this is not widespread, and the industry continues to be slow in adopting these necessary changes – but indications are that this will accelerate in the coming years.

Advances in technology are fundamentally changing the life cycle of a built facility – from conceptualisation through to demolition/renewal.

Digital technologies are being used in the following ways:



By 2030 full digitization has been estimated to deliver very significant savings across design and engineering [13% to 21%], construction, installation and commissioning [13% to 21%], and operations and maintenance [10% to 17%].
The spread of these is shown in the table below.

	I Office building	II Long-distance highway	III Power plant
Impact on total-life-cycle cost	-15%	-16%	-12%
• Design & Eng. cost	±0%	±0%	-5%
• Construction cost	-12%	-19%	-14%
• Operations cost	-18%	-10%	-10%
Impact on construction time	-30%	-23%	-15%

'Construction Enterprise Model'

Over the last twenty years and more there has been many changes to the manner in which construction contracts have been structured. This has seen the use of several new styles of contract conditions –

sometimes incorporating the 'prime contractor' taking a role of managing delivery of the project and taking much less risk than in most historical contracting models.
Perhaps, at the centre of these different contracting and management arrangements is the employment of what is termed a '**construction enterprise model**'.

The construction enterprise model is very different to the traditional 'construction programme' (or transactional) model. It was developed by the Institution of Civil Engineers ("ICE") who considered the transactional model for delivering major infrastructure projects and programmes to be broken. The ICE identified that the transactional model prevented efficient delivery, prohibited innovation, and failed to provide the high-performing infrastructure both public and private employers require.

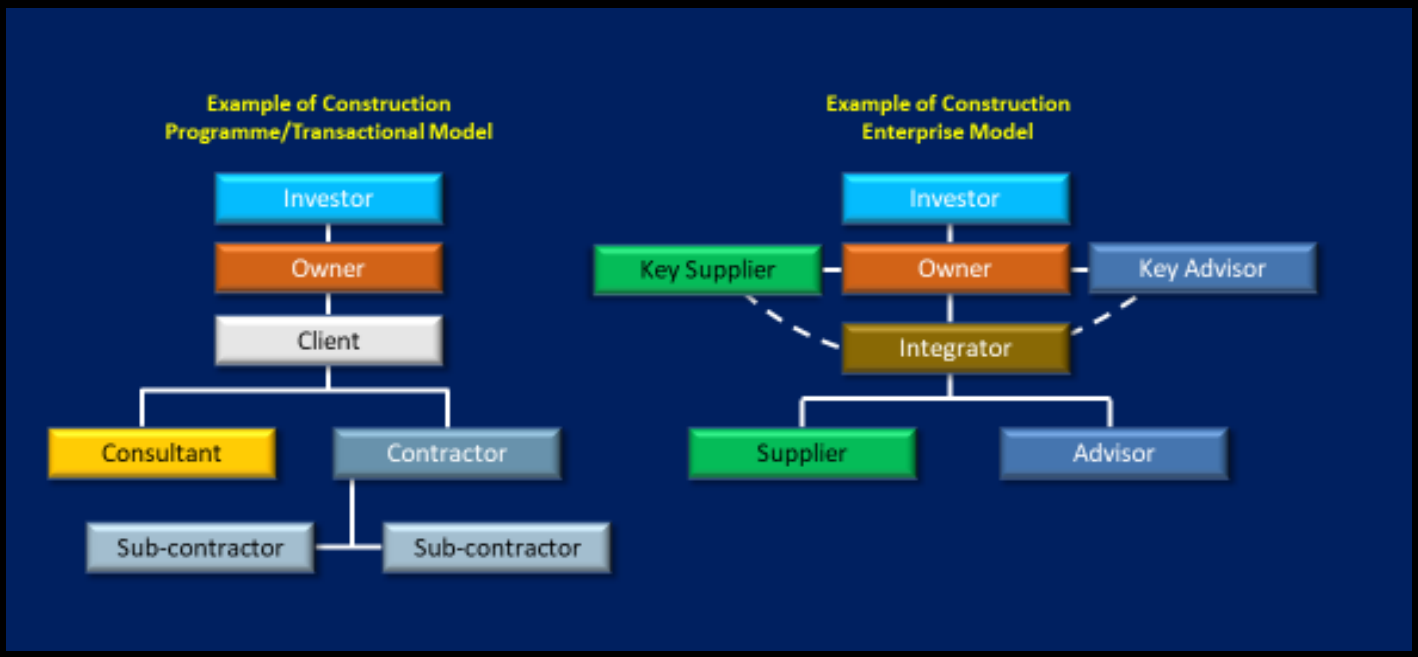
The focus of the enterprise model is to boost certainty and productivity, to improve project whole-life outcomes, and to support the development of a more sustainable, innovative, and highly skilled construction industry.

The enterprise model brings together owners, partners, advisers, contractors, subcontractors and suppliers, working in more integrated and collaborative arrangements, developing long term relationships. All participants are incentivised to deliver better outcomes.

The ICE defined this new delivery model with five "pillars" and a set of principles. These are shown in the table below.

Pillars	Principles
Capable Owner	• the owner develops enterprises built on long term b2b relationships • the enterprise is set up to deliver clearly articulated customer outcomes and long term asset performance
Governance	• value is defined at outcome level (through baselines, benchmarks or affordability) • the 'Enterprise' is rewarded for outcome performance • risk allocation is aligned with capability • commercial arrangements provide the potential for sustainable returns
Organisation	• all parts of the 'Enterprise' are aligned with the outcomes to be delivered • strategic subcontractors and suppliers are engaged early in developing solutions • the 'Enterprise' integrates capability in high performing, collaborative teams
Integration	• the 'Integrator' brings together capabilities that translates solutions into production systems • the 'Integrator' enables a platform approach to delivery • strategic suppliers organisationally and commercially aligned with the outcomes • the 'Enterprise' has a common and committed approach to health, safety and wellbeing
Digital Transformation	• the 'Enterprise' digital transformation strategy enables an integrated digital approach to asset management and delivery • the 'Enterprise' effectively integrates engineering and digital technology to deliver intelligent solutions

The fundamental organizational structure difference between the construction programme/transactional model and the construction enterprise model is shown in the following diagram.



The essence of the construction enterprise model is:

- **it is <u>not</u> a form of contract - application of the pillars and principles will vary in line with the required outcomes, organisations, and relative starting points**
- **the owner is central and leads the enterprise and defines the long-term value requirements for the asset**
- **key suppliers and advisors have direct relationships with the owner**
- **an 'integrator' actively engages and integrates all tiers of the delivery organisation**
- **the owner, integrator, key suppliers, and advisors work as one team to optimise value across the whole life cycle**
- **reward is based on the <u>value added</u> to the overall outcomes, not the service provided**
- **there is a greater understanding of cost drivers and risk across all participants with commercial incentives for collaboration in jointly mitigating risk (and not transferring it)**

BUT ESTABLISHING A HIGH-PERFORMING AND SUCCESSFUL CONSTRUCTION ENTERPRISE MODEL REQUIRES FUNDAMENTALLY DIFFERENT LEADERSHIP, GOVERNANCE, BEHAVIOURS, AND SPECIFIC SKILL SETS THROUGHOUT THE CONTRACTING STRUCTURE

Common features of projects using the construction enterprise model are:

- ***the key challenges are seen as 'enhancing or maximising asset values, keeping construction and life-cycle costs low or minimising them, and maintaining high levels of health and safety and environmental protection***
- ***creation of a fully collaborative contracting model containing an asset delivery organization with long term framework agreements***
- ***a common set of objectives and performance incentives***
- ***knowledge and key resources are shared openly***
- ***extensive use of standardisation and optioneering to speed up and improve construction***
- ***digitally enabled product lifecycle management to virtually operate a facility and train teams with immersive technology before construction completes***
- ***design engineers have become "product optimization and integration engineers".***

AND ALL THIS WILL REQUIRE AN INTELLIGENT OWNER, AN EXPERIENCED PRIME CONTRACTING AND MANAGEMENT PARTNER AND A SUPPLY CHAIN WITH THE NECESSARY EXPERTISE AND FINANCIAL STRENGTH
and
ALL OF THEM CARRYING AND MANAGING RISKS DIFFERENT TO THOSE CARRIED HISTORICALLY

In international contracting this will be a significant challenge for many owners, contractors, and particularly for local supply chains.

The FIDIC 2017 Suite of Contract Forms

For several decades, many international projects have been developed under the terms of FIDIC contracts. The 1999 edition of the FIDIC forms has been extensively used for over 20 years but this is now being replaced by the 2017 edition. All multinational development banks have agreed to adopt the FIDIC 2017 suite of contracts.
Amendments to the initial editions of FIDIC 2017 were published by FIDIC at the end of 2022. These amendments have made important changes to some requirements, obligations and entitlements.
FIDIC 2017 is vastly different to FIDIC 1999, and a summary comparison and some key differences are highlighted below.

Comparison of FIDIC 1999 and FIDIC 2017 Conditions	Red Book		Silver Book	
	FIDIC 1999	FIDIC 2017	FIDIC 1999	FIDIC 2017
No of Clauses	163	168	166	169
Number of Pages	74	128	72	123
Number of Words	35,300	56,900	31,300	58,600
Number of Defined Terms	60	88	50	80

Key Features of the FIDIC 2017 suite of contracts include:

- ***FIDIC 2017 is much more prescriptive than FIDIC 1999 including much greater detailed processes for establishing entitlements to additional payment and/or extensions of time***
- ***a 'Notice' (from either the Employer or the Contractor) in some 80 clauses in FIDIC 2017***
- ***a 'Notice of no Objection' in FIDIC 2017 replacing approvals and consents of the Employer***
- ***the FIDIC 2017 Red Book generally requiring the Engineer "act as a skilled professional and …deemed to act for the Employer" but when providing a determination, the Engineer is to act "neutrally" between the Employer and the Contractor***
- ***the FIDIC 2017 Silver Book requiring the Employer's Representative to "act on the Employer's behalf under the Contract" and when providing a determination, the Employer's Representative is not "deemed to act for the Employer"***
- ***the FIDIC 2017 Silver Book containing significant changes to obligations and liabilities for design***

- ***FIDIC 2017 contains very substantial requirements for the Contractor's initial programme, and all subsequent revised programmes (and complying with these requirements is vital to entitlements of the Contractor)***
- ***significant additional requirements related to the 'Tests on Completion' and 'Tests after Completion'***
- ***important changes to what constitute a 'Variation'***

Can These Changes and Developments in International Contracting Arrangements Bring About the Expected Improvements

Governments, private investors, lenders, contractors, consultants, and others are constantly demanding improvements across a wide range of construction related issues. Perhaps by far the most consistent demand is that for greater certainty in the outturn of the project – and 'outturn' here refers to the progress of works, the completion date, and the final cost for all participants.

Greater certainty in project outturn must be a fundamental deliverable for any proposed changes to international contracting arrangements. This would bring benefits for all – increased ability to rely on project reporting, better and more decisive decision making, reduced expenditure and waste, and increased confidence of shareholders and the public.

Without this surely the construction industry will continue to disappoint irrespective of other changes and developments.

There are no doubt current construction contracts and contracting arrangements (despite many changes over the years) provide insufficient means to deliver clarity of outturn.
So, do the changes and developments in international contracting noted in this paper deliver that clarity or greater certainty?
The short answer is no! Each may deliver other improvements or benefits, but none bring significant change to the status quo with regards to enabling better forecasting of completion dates and final costs.

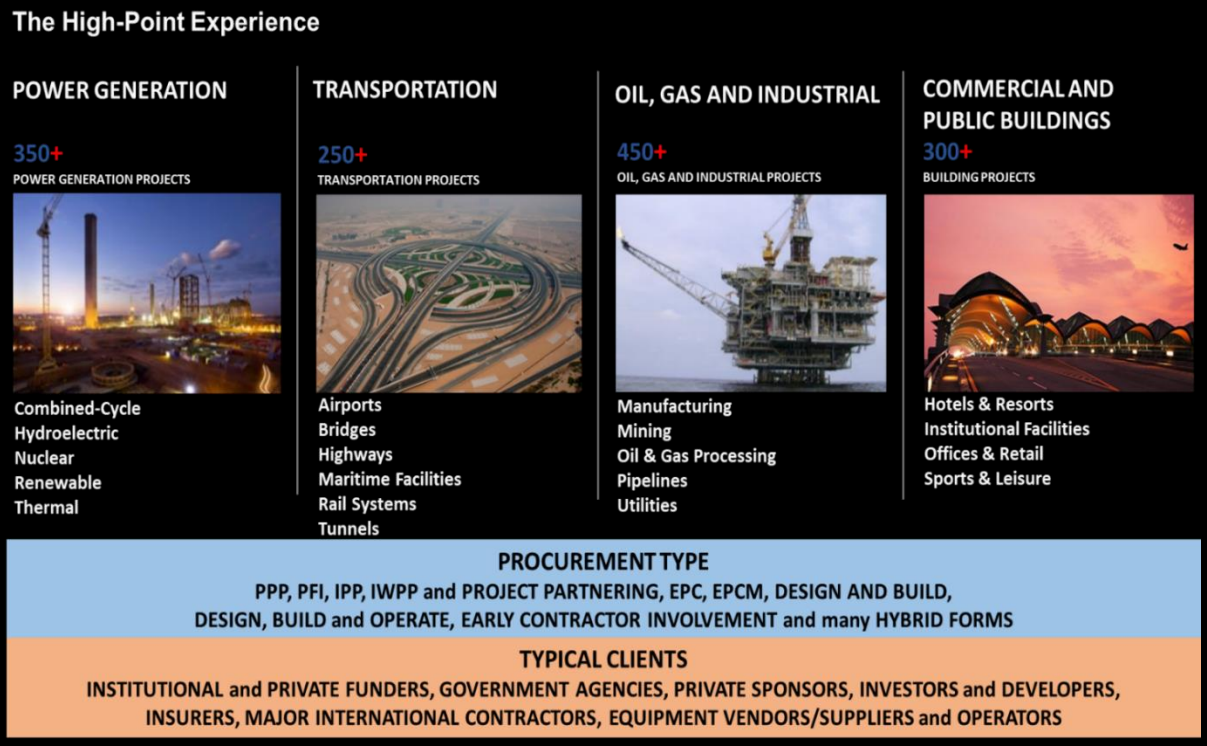
Some reasons for this conclusion are:

- ***increased use of technology*** – undoubtedly the greater use of technology will improve the quality of construction, improve delivery of better project information, reduce waste, and improve knowledge of progress with suppliers of key materials and equipment. It, therefore, ought to also reduce the cost of buildings. However, it may be some time before many

international projects are able to obtain the full benefits of the technology improvements, and to use those benefits to deliver better forecast of project outturn.

- ***construction enterprise model*** – this new model has many positive attributes but also faces many challenges in its use in international projects. In respect of better forecasting and certainty in project outturns, it does, of course, largely rely upon the selected contract terms. And present international contracts focus (almost exclusively) upon historical reporting and provide little in terms of delivery high quality completion dates or financial outturns.
- ***FIDIC 2017 suite of contracts*** – these new contracts bring several key improvements for the better management of international construction projects. However, like its 1999 editions, it had failed to recognise and address some very important challenges to achieving some of those improvements. And it remains a contract largely focusing upon historical reporting of programme and financial performance.

OBTAINING THE MAXIMUM BENEFITS OF CHANGES AND DEVELOPMENTS IN INTERNATIONAL CONTRACTING, GREATER CONFIDENCE IN THE TIME TO COMPLETE PROJECTS AND THE COST OF THEM, AND ULTIMATELY IMPROVEMENTS IN THE PUBLIC PERCEPTION OF THE CONSTRUCTION INDUSTRY HAS TO COME WITH BETTER FORECASTING THROUGHOUT THE PROJECT LIFE-CYCLE – AND THIS WILL REQUIRE NOT ONLY DIFFERENT CONTRACT TERMS, BUT DIFFERENT PROCESSES AND TRAINING



If you require any further discussion or explanation of the matters described above, then please let us know.

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