



White Paper 2015-19

How to Achieve Sustainable Cost Reductions in Projects from an Owner Perspective, or How to Overcome the Fallacy of Short-Term Risk Transfer

Owners devote a lot of thought to finding ways to do more for less in the current commodity market. They aim to ensure that their developments will be less costly, less capital intensive and less risky for them. Sometimes this translates into simply shifting risks to Contractors who are forced to take them in the current market. In this White Paper, we explain how transferring risks to Contractors is in a large measure an illusion on the medium term; the sustainable solution lies in making project execution more reliable overall, and requires Contractor development. Ways to achieve these objectives are discussed in a systematic manner and can form the basis for an action plan from the Owner perspective. This paper complements White Paper [2014-18 'How to Be more Cost-Effective in Project Execution'](#) which was written from the Contractor perspective.

The pressure of doing more for less

Finding ways to achieve cheaper developments and minimize cost and schedule overruns is an economic imperative in many infrastructure-based industries. This is currently reinforced by the low price of commodities in Mining and Oil & Gas. In the nuclear industry, where the initial investment is even more essential to the overall economics of projects, achieving cheaper and more reliable delivery is even essential from the entire industry sustainability perspective. In the current context, the pressure to find solutions to lower cost and risk of Large, Complex Projects has become very significant. This will probably lead to significant shifts of practices and reshape the entire contracting industry.

Transferring risk to the Contractor only using bargaining power is not sustainable

What sustainable solutions for cheaper and more reliable project delivery are

Sustainable long-term solutions

Sustainable long term solutions for Owners involve the following essentials:

- Making sure that **Contractors minimize Cost of Non Quality, increase productivity and resolve all dysfunctions** that adversely affects their delivery thereby improving reliability and reducing consequential impacts related to project delivery failures,
- **Implementing a series effect** on Owner developments (series effects offer very significant savings of 20-30% even on the second or third iteration). This in turn requires:
 - an effective copy mechanism avoiding the trap of optimization between iterations (this requires tightening Management of Change processes in engineering with discipline so that changes are restricted to the strict minimum),
 - a stable technical specification reference over time, which needs to be ensured from the Owner and from the regulators,
- **Simplifying Owner's technical specifications** (refer to our White Paper [2015-06 'How to Overcome the Curse of Excessively Detailed Specifications Leading to Uneconomic Infrastructure Projects'](#)),

- **Minimizing the complexity managed by the Owner, in particular the interface between Contractors.** The interface risk between contractors is arguably the area of maximum risk for the Owners: foster vertical integration of Contractors, or different contractual approaches and as an added benefit, create opportunities for optimized solutions over the entire development.
- In general, **ensuring that the Contractor properly implements the best practices of project delivery to maximize the odds of success** (such as those we are striving to develop at Project Value Delivery and that we see too often not followed, even from the basics perspective).
- **Implementing where possible standardization of requirements across Owners** so as to create series effect in the Supply Chain as well with the objective minimize procurement costs,

Financing from Capex to Opex

In addition, in a situation where the financing of high Capex investments are less easy to arrange by Owners, solutions where part of the financing is done by Contractors and the cost is transferred to an Opex rental model is attractive and will certainly be developed over categories of assets which are considered today not to be fully bankable. While it requires substantial development of project financing capabilities, this can be an attractive proposition for Contractors as it would give them a more reliable revenue base to overcome the ups and downs of the construction market. The commercial models that would spread the risks in a sustainable manner remain to be developed in a number of areas, but are already available for example in the FPSO market. Owners could seek to develop this model which has also the benefits of forcing the Contractors to think about long term operation of the facility, maintenance optimization etc. which they tend not to do when uniquely building facilities.

Challenges and opportunities of series effects

In this section we investigate the specific issues related to seeking series effects.

Series have fantastic potential for savings, and they can materialize very quickly at the second or third iteration, with savings very quickly in the tens of percent.

The stumbling blocks of this approach from the Owner perspective include:

- Full standardization requires using the same Contractors and the same key suppliers for the repeat copies. While this increases the bargaining power of the Owner, it also makes it more dependent on specific Contractors and suppliers. It is also requires to be careful on the assumptions of series gains and share the gains somehow on the basis of incentives,
- Some infrastructures are more amenable to series effects than others. For example, FLNG, nuclear containment and primary circuit, are relatively location independent. Certain parts of onshore plants (generally the core processes) as well. Some technological developments could allow increased standardization of some components – for example the development of subsea processing could allow more standard FPSO topsides. Identifying the key standard segments (generally the most costly and technologically advanced) and what are those to be customized to the site and circumstances is a key success factor for this approach to work,
- Local content requirements and specific environmental parameters are a specific challenge to learning curve / series effect and standardization across projects. It requires identifying which are the parts of fabrication and construction that can be performed in-country, as most supply chain and engineering will generally be standard and performed globally. The standardization drive must also be resilient to large differences in the environment (temperature, extreme events), and different environmental protection requirements. The issue of the difference in regulatory requirements and approaches between countries is another difficulty that needs to be managed without falling in the trap of systematically being compliant to the most onerous requirements.
- It is always extremely difficult to impede engineers to try to optimize things between each iteration. Strong engineering management and discipline is required and changes carefully managed in batches. It is also essential to achieve as much as possible a regulatory and specifications stability during the entire series, which can be a challenge in certain circumstances.

In summary, to benefit from the series effect requires a lot of thought and strategizing from the perspective of the Owner. It is a long term endeavour. It can change the overall economics of an industry. At the same time it is extremely difficult to achieve consistently, and those that will achieve it will be winners in their industries.

The Opportunity of changing the contracting logic and reshaping the Contracting landscape

To minimize integration and interface risk on a large development it is essential for the Owner to foster the emergence of Contractors that can embrace and optimize the whole. There are two possible ways.

Vertical integration of Contractors has started happening and will certainly continue. This is developed from a Contractor perspective in our White Paper [2014-17 'How the Current Crisis Could Redefine the Business Model for Industrial Infrastructure Contracting'](#),

A parallel approach is to re-think the concept of EPC contractors. On a large development, would it not be better to have a single Engineering and Procurement contractor, supported by a number of specialized fabrication / construction subcontractors? This is already the model for some areas (onshore plants) and could be scaled up at the level of full developments. This could significantly reshape the contracting industry with the emergence of generalist EP contractors and specialist Construction subcontractors.

Transferring Risk to Contractors, mainly a short term tactical solution

Many Owners consider in the short term transferring more risks to Contractors. This is a tactical position which may be suitable as a one-off solution, in particular by using the current Owners' bargaining power, but can only be sustainable if:

- the risk transferred can be better managed by the Contractor than by the Owner, and
- if the Contractor has the effective financial and technical capacity to overcome the consequences of the risk if it materializes.

While in the current market some Contractors might be ready to take on any risk for the sake of having work, the risks the Owner wishes to transfer are often too large in magnitude and not really manageable by Contractors. Those Contractors that accept excessive risks in the current market will sooner or later disappear, progressively increasing the leverage of the remaining Contractors

and limiting options for Owners in areas where high barriers to entry in asset availability and know-how exist. In addition, the performance on those projects can already be anticipated to be abysmal if the Contractor struggles with survival at the same time it tries to execute them.

Summary

Limiting the cost and risk of large complex projects to respond to the expectations of Owners is a long term effort that requires a lot of advance preparation and strategizing. Transferring risks on the short term to contractors is not sustainable for an industry.

Achieving a series effect is a well proven solution to minimize cost and increase reliability of delivery. Owners should aim resolutely at this objective. At the same time, the entire contracting strategy should be reviewed and new approaches implemented consistently to allow the emergence of new Contractors that will be able to better respond to the upgraded needs of Owners.

There are a number of sustainable solution to gain significant efficiency. They require long term investment and discipline. They also imply new contracting approaches



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