

White Paper 2025-08

Why Understanding Industry Maturity is an Essential Factor When Developing Project Contracting Strategies

As maturity of an industry improves over time with experience, contractual strategies for project delivery tend to become more integrated, and contractors tend to take wider responsibilities. However, it is essential not to rush towards delivery integration if the industry is not yet mature enough. In this White Paper we describe this general trend and discuss typical timeframes involved, and how this process can be accelerated, or reversed.

What does industry maturity involve?

Industry maturity is based on 3 aspects:

- Technological,
- Supply-chain,
- Country-specific environment.

Technological maturity

Technological aspects will involve qualification or certification, and actual track record from past projects using the same technology, including feedback from a number of years of operation. Maturity will improve with generations of applications of the same technology, leading to increased knowledge and understanding of the technology drivers. This generally involves standardisation around a typical facility size, standardisation and simplification of key equipment, and the availability of public technology standards shared in international standardisation organisations (instead of proprietary ones).

It should be noted that a very large increase or decrease in facility scale may be such that technological maturity reduces again and requires another maturity cycles (examples include the dramatic increase in process topsides weight for FPSO floaters since the 2000s, which has resulted in a redefinition of project management approaches, or in the other direction, the current development of Small Modular Reactor projects compared to large scale industrial nuclear reactors).

Supply chain maturity

Supply chain maturity will be measured by the concentration, integration and breadth of capabilities of key suppliers and contractors for the particular industry. Low maturity industries typically rely on a limited number of specialised small innovative companies for the core process or key equipment whereas high maturity industries rely on larger, more generalist and more integrated supply chains.. In certain cases, some equipment manufacturers can remain small, single source due to technological advance and intellectual property protection even if the rest of the industry is very mature, but will then find exclusive usage only in certain niche applications.

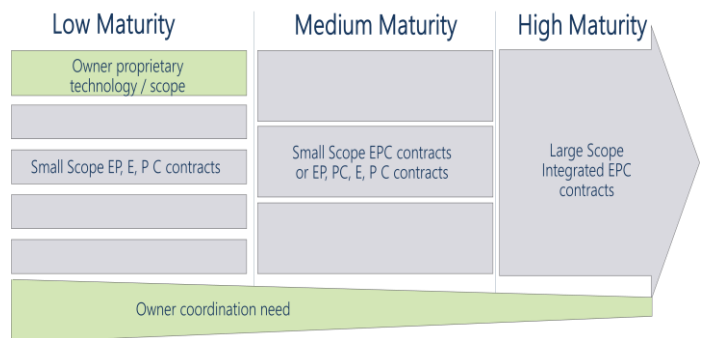
Country-specific environment maturity

Depending on the importance of regulatory aspects for the particular industry, regulatory maturity and standardisation of regulatory requirements will be an important element to consider. Local requirements and actual in-country track record and adequacy of local supply-chain may also affect actual supply-chain maturity.

The impact of industry maturity on projects contracting strategies

The lower the maturity, the more the owner will need to contract and coordinate a variety of contractors and suppliers. Only in high maturity industries will it be possible to rely on large turn-key contracts involving performance guarantees.

When developing the contractual strategy for an industrial project it is essential to understand the maturity level of the industry



In lower maturity industries, the owner needs to take the coordination role seriously because it will be critical for actual project delivery success and facility operational performance. This will require a significant investment in project management competencies and skills from the owner perspective, which will decrease as the industry becomes more mature.

Industries too often rush into integrated scopes, with poor outcomes

Owners tend to be over-eager to transfer coordination to contractors. Most owners have limited project management capability and do not want to invest in coordination capability nor take the interface risks. Financial lenders also promote this model believing that integrated turn-key engineering, procurement, and

construction (EPC) contracts with all the interface risks transferred to the contractor reduces their investment risk.

On their side, contractors are more than willing to respond to those expectations. It will increase their backlog / revenue. They believe that higher margins are available on integrated projects, which is true only if they are successful. In the short term at least, higher backlog means higher valuation and stock price. Contractors often underestimate the associated risks at their peril.

Industry maturity is based on 3 aspects:

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- **Supply-chain,**
- **Country-specific environment.**

As a result of both owner and contractor aspirations, there is a tendency to overly anticipate and rush into integrated scopes. Integrated contracts are then awarded to contractors that do not have the experience and track record on those integrated scopes, which leads to disappointments and project failures for contractors, owners and lenders alike.

The road towards maturity and integration: count minimum a decade

The road to integration is littered with dead contractors (and unhappy owners).

From a contractor specialised either in Engineering or Construction in a specific industry, it takes years to build an integrated EPC capability, with the ability to deliver reliable integrated project outcomes (typically 5-8 years).

Maturity in an industry requires the underlying technology to be mature and proven enough to be reasonably certain that there will be sufficient technical mastery and no redesign, and that the supply chain is available. Hence it needs at least the time for one or two project cycles, plus some years of operational experience, at least 8-10 years.

In the meantime, in a particular industry, many contractors will fail on projects and go bankrupt or be absorbed by competitors in a consolidation movement to end up with 3-4 industry leaders able to reliably deliver wider range of services after a decade.

Maturity acceleration factors

Industry maturity will be accelerated by short project cycles and short feedback loops on operational performance. For example, it will naturally be quicker in conventional low regulated industries (typical project duration of 2-3 years) than in nuclear and other highly regulated industries (typical project duration 10 years).

It will also be accelerated when projects are based on the aggregation of small-scale independent units compared to a single large scale unit, as the years of operating experience will multiply naturally. The number of

comparable projects carried out worldwide will also be a key factor for the generation of experience.

Maturity regression factors

If the underlying project complexity increases (linked to facility scale, regulatory and certification requirements, feedstock supply chain issues, product market challenges), or the scale changes by an order of magnitude, industry maturity may be jeopardised, and another cycle may be required to reach an acceptable maturity and project reliability level. This will of course also be the case if there is a major technological disruption in the industry involving innovative processes and products offering a significantly higher value to the end-user.

Summary

When developing the contractual strategy for an industrial project it is essential to understand the maturity level of the industry. This maturity level involves technological, supply-chain and regulatory maturity. Rushing into integrated contracted scopes is not a good idea if maturity and experience is limited for the particular industry. In that case it is better for an owner to coordinate a number of specialised contractors. However, this will require a substantial investment in owner project team capability and skills.

Read the Industrial Projects Practical Owner Guide

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