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How Owners can Decide Whether to Integrate Key Equipment Manufacturing and Facility Delivery in a single Contract

When owners design a contractual strategy for a major industrial or infrastructure project, the decision whether to integrate equipment manufacturing and facility delivery is always an essential topic. It is generally preferable, but not always possible. In this White Paper, we review the main drivers for such integration.

Industrial projects generally require large specialised equipment embedded in a wider facility, that is designed and built by a generalist project delivery contractor. A key question for an owner is always whether to separately contract the equipment and the project delivery. In our experience, several factors are involved in the choice:

- The level of equipment standardisation, which will be a major driver of lead time and design,
- Whether the equipment includes substantial elements of owner proprietary and confidential design elements or solutions (in particular in innovative processes), where there may be a need to avoid giving the facility contractor all the elements relative to the solution,
- Schedule aspects: the lead time of the equipment compared to project delivery timeline.

There are strong benefits for the owner in including equipment procurement as part of contractor facility delivery, in particular in terms of performance guarantee interface risk reduction

How to determine the level of equipment standardisation

Fundamentally, the short term choice on the level of standardisation for a given project should be managed by owners. Key decision-making parameters will be:

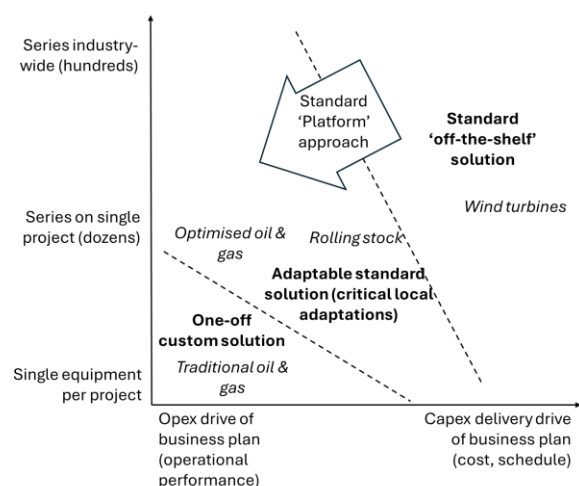
- Capex vs operational performance and operating expenses in the business plan,
- inherent series effect within a single project,
- acceptability of standard solutions by other project stakeholders,
- and, in the longer term, actual market availability of performing standard solutions.

The choice will first depend on the objectives and the business plan of the owner: for example, if Capex schedule or cost competitiveness is a major driver, it may be acceptable to go for standard equipment even if it is not optimal from a performance point of view. It will be less the case if the business case is mainly driven by operational performance: in some parts of the energy industry (e.g. oil & gas production), owners historically preferred to have custom solutions to achieve the best infrastructure lifetime performance since business plans were not fundamentally driven by Capex optimisation. Still, the owner organisation may weigh-in potential optimisation in terms of spare parts and maintenance in case of standardisation, in particular if operational expenditure is important.

Finally, the acceptability of standardisation will also often depend on the other project stakeholders (local and national authorities, user groups...), which may want special features for a variety of reasons. For example, rolling stock is always somewhat customised due to specific user requests.

In some markets such as renewable energy, transportation and infrastructure, the drive for standardisation is much stronger because each project inherently involves small series even within each project, thus creating a driver to develop a manufacturing basis for standard equipment.

In the longer term, the choice will be influenced by the market availability of performing and customisable standard solutions, which will only be developed by equipment manufacturers if there is a sufficient market and if technology is sufficiently mature to be profitable.



As schedule and competitiveness pressures increase across industries, and in particular when technologies mature, there is a strong trend towards equipment standardisation, or at least 'platforming': standardising as much as possible, with some limited adaptations and customisations possible to adapt to local circumstances. This is enabled by equipment designers and manufacturers that respond to competitive pressures from owners in terms of cost and schedule by proposing more standardised solutions.

Parameters to consider in terms of Capex delivery schedule

If the lead time for key equipment is much longer than the lead time for actual facility project execution, which is often the case for one-off custom solutions, the owner usually orders the equipment and free-issues it to the project delivery contractor, who has to design the facility around the equipment. The owner then has to contractually manage the two contributors in terms of schedule coordination, which is generally cumbersome and introduces a contractual risk for the owner. In addition, the project delivery contractor then generally cannot take responsibility for the actual performance of the facility, contrary to the expectations for turn-key contracts, and the owner will bear the full responsibility.

A key question for an owner is always whether to separately contract the equipment and the project delivery.

This situation is influenced by two strong project trends, which make possible to have the project delivery contractor order the equipment directly:

- the move towards standardised or platform solutions when technology matures diminishes equipment lead time, making it more suitable for inclusion within an overall project delivery contract,
- increasingly, alliances are being formed between equipment contractors and EPC contractors with the value proposition of taking the responsibility for the technical and schedule interface between the two scopes and allowing the owner to have a single contractor for what has traditionally been separate scopes,
- to accelerate projects, project delivery contractors (especially in the alliance configuration described above) are increasingly mobilised by owners earlier during project development, at least from the front-end design phase. An additional value is then reaped from an integrated infrastructure delivery: great benefits can be expected of the overall optimisation of the early design of the infrastructure, as early involvement of project delivery contractors earlier during the definition process enable them to optimise equipment specifications as well.

Those trends increase the possibility to integrate both equipment and facility delivery in the same contract, however, the major underlying factor remains the maturity of the technology and the availability of some level of standardisation to diminish equipment lead time.

Short term and long term decision making criteria for owners

Short term or for a single project

Putting everything together, on the short term or for a single project, the decision criteria for integration should be based on whether equipment lead time is shorter than

front-end design (detailed feasibility) plus project delivery duration.

In that case, provided the delivery contractor is already mobilised for the front-end design phase, an integrated contract is possible. If the equipment lead time is much longer, then separate contracts will have to be managed.

At all times, the relative weight of operational performance versus Capex in the business plan should be considered to check whether it would be worthwhile to go for a standard equipment even if there is a slight degradation of operational performance,

since the benefits of an integrated contract and of a standard solution are very significant.

Longer term for a portfolio of projects

On the longer term, an owner, or a group of owners that develops several facilities in the same industry will want to develop its supply chain to enhance standardisation or platforming and reduce lead time. This will allow, after some time, to consider integrated contracts. The benefits of developing the supply chain need be weighed against the potentially significant effort and investment by the owner(s) to achieve the desired standardisation.

Summary

While there are strong benefits for the owner in including equipment procurement as part of contractor facility delivery, in particular in terms of performance guarantee interface risk reduction, it is not always possible due to equipment lead times. Still, in particular when Capex is the dominating business plan factor or there are significant benefits in standardisation, choices can be made towards integration. This may drive the selection and mobilisation of the project delivery contractor, sometimes in alliance with an equipment supplier, already at the start of the detailed feasibility / front-end engineering, and not immediately after the Final Investment Decision.

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