Right Contracting Strategy

The way to execute the Project within defined timeframe, budget and with desired quality

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What is Contracting Strategy?

Contracting strategy is the strategy by which for a given project we choose the type and nos. of construction contracts.

Decision on Contracting Strategy

There are numerous factor which affect the decision on contracting strategy. There are some inherent risk involved in almost all construction projects. These risks include completing a project which does not meet functional requirement (quality), which is delivered late or costs more than the Budget. The procurement / contracting strategy developed should balance risks against project objectives at an early stage of the project. Generally, the key criteria to take decision on contracting strategy are:

- time (speed or certainty of completion date).
- cost (price level or cost certainty).
- quality (functionality and performance).

These criteria are interdependent and are often in tension as shown in Figure1.

Emphasis on only one of the key criteria will almost certainly have a negative effect upon the others.

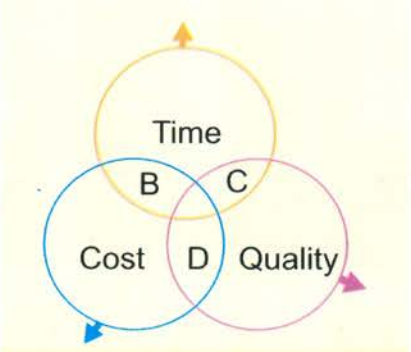

Figure 1:

One need to determine which criteria are most important and which could constitute the greatest risk.

In most cases, the priorities of the projects will fall into the areas illustrated as B, C or D in the Figure 1, where two of the three criteria are identified as most important to project success. It is rare for time, cost and quality to be equal in either importance or impact. So the bottom-line is that Project Proponent has to set the priorities out of time, cost and quality.

Other Factors

- Size of the project in terms of outlay and BUA
- Budget allocation
- The nature of the project—Brown field, Green field, Restoration, etc.
- Measure of control by the client
- Accountability—Single point, multipoint and with whome
- Certainty of final cost
- Restrictions—Site constraints, restricted working hours ,etc.
- Changes during construction

Contracting Options

The available contracting options are:

- Design- Bid- Build (Traditional contracting)
- Design Build
- EPC (Engineering, Procurement and Construction) / Turnkey.
- EPCm (Engineering, Procurement and Construction Management).
- Cost plus
- Alliance Contracting

Design Bid Build (Traditional Contracting)

1. Standard practice in the building industry for 150 years.
2. Full documentation is necessary for tendering purposes.
3. The client has control over design, specified quality and standards through appointed architect and Project Management Consultant.
4. Changes or variations are possible during construction of the work as the contract permits the variation.
5. Valuations and payments are in

the hands of the client. For payment, the work is measured and paid for.
6. Risks are balanced between the parties.
7. Multi-point responsibility
8. Multi-Package Tendering
9. The overall completion time of the project is relatively long because this is a sequential process.
10. Relatively lower project cost and reasonable certainty on construction costs.

Case Study: Every second contract in India is design-bid-build contract. The construction of India Expo Centre & Mart in Greater Noida followed this contracting option. In this case, project proponents were not sure of their requirements and things were evolving as design was being discussed with Architect and it was quite evident that there might be lot of changes in the layouts / designs during the course of project. in such cases this option suited the most as there is flexibility of changing the design during the course of the project. The design controls are with owners. The contracts can be awarded with approximate bill of quantity and later on as per the contractual provision the variation in quantity can be managed by PMC / quantity surveyor who are appointed by the owner to administer the contract.

Design Build

1. A method where the contractor is responsible for undertaking both design & construction for a lump sum price. The client define their requirement and bidder bid against these requirement.
2. The client's requirements can range from a simple accommodation schedule to a fully worked out scheme design.
3. Adequate time must be allowed to prepare client's requirements to the appropriate level and contractor must be given adequate time to prepare his proposals.
4. Tender evaluation is crucial in terms of checking that the proposals fully satisfy the client's requirements.
5. Client has no direct control over contractor's design.
6. Because design and construction may proceed in parallel, overall time for the project is relatively less.
7. The project cost may be slightly more but the certainty of the cost is very high because these are fixed contract sum option.
8. Changes during construction are not permitted. If the changes are desired, consequential cost and time will be more and will be decided by the contractor.
9. Greater amount of risk placed on the Contractor
10. The scope must cover the complete project otherwise disadvantage is risk of potential cost/time claims where a contractor alleged poor co-ordination between packages.
11. Single point responsibility
12. Fixed price contract
13. Payment terms: Mobilisation advance and milestone linked payment.

Case Study: The construction of MCD Civil Centre followed the design build contracting option. The contract was awarded to the Malaysian construction firm IJM India Infrastructure Ltd. The total project cost is INR 545 Crores (approx.). In this case, MCD wanted to have the certainty of cost and wanted to avoid the delays mostly happen due to various design and construction coordination issues. This option was most suited because the entire project design (Civil as well as MEP) and construction was handled by IJM.

EPC / Turnkey

1. In its most extreme form, EPC is referred to as a Turnkey contract wherein Employer involvement is only to turn the key after completion to commence operation of the constructed facility. This is quite similar to design build but terminology is more prevalent for large oil & gas, infrastructure projects
2. This is a Design & Construct style contracts, where the project is largely Contractor managed and the cost risk and control are weighted towards the Contractor and away from the Owner.
3. EPC agency is contracted to provide engineering, procurement and construction services by the owner. The EPC contractor has direct sub-contracts with the construction contractors.
4. Contractor would require broad range of experience across different industries e.g., where the scope of works encompasses civil and structural works, specialized M&E works etc.
5. Fixed Price Contract
6. Minimal / no opportunity for the Employer to change the design after the bid is accepted.
7. Employer to furnish precise requirements in terms of specs, capacities and performance parameters.
8. Tender review is very crucial to ensure that the Contractor's proposed design meets the Employer's requirements and are of the requisite quality
9. Contractor also to invest greater resources in tender preparation as he is responsible for Project Delivery
10. Payment terms: Mobilisation advance and milestone linked payment.

Case Study: The contract for modernization & expansion of Chhatrapati Shivaji International Airport (CSIA) was awarded as EPC contract to India's leading technology, engineering and construction company by Mumbai International Airport Pvt Ltd (MIAL) today. The EPC option was best suited for this works because it was a well defined with Detailed Engineering Complete before EPC

Contractor selected with Detailed Engineering Complete before EPC Contractor selected so there were minimal unknown. This option also have advantage of having minimum legal risk because maximum risks are weighed towards contractor.

EPCM

1. This is mostly a service contract and not a construction contract. where the project is largely Owner managed and the cost risk and control is weighted towards the Owner.
2. EPCm is contracted to provide engineering, procurement and construction management services. Other companies are contracted by the Owner directly to provide construction services and they are usually managed by the EPCM contractor on the Owner's behalf.

Case Study: KBR, Inc. (KBR), an engineering, construction and services company, has been recently awarded an EPCM contract by the Hindustan Petroleum Corporation Limited (HPCL) to provide license and engineering services and proprietary equipment for augmenting the capacity of an existing de-asphalting unit in its Mumbai refinery in India. The option of EPCM was best suited for the project because this is a less defined project with anticipated changes to scope of supply and in EPCM contract you have the flexibility to fix the same. The other advantages in EPCM contract are that overall cost is lower as compare to EPC contract. Owner has better control over the process. It is less prone to the legal litigation because in this case you can identify the issues early and remedy situation before larger problems arise. Also owner has greater financial flexibility.

Cost Plus

1. The contract sum is arrived at on the basis of actual costs plus the contractor's margin.
2. Break-up of cost - Direct Cost + Indirect cost + Taxes + Off top / Co ordination charges.
3. Break-up of direct cost - Material Cost + Labor Cost + Sub contractor cost + Depreciations (Equipment & Formwork) + Any other input as cost to enhance the progress.
4. Break-up of indirect cost - Salaries, allowances and all benefits of Contractor staff + Cost of all Facilities and Infrastructure Installations + Tools, Tackles and all construction aids + Welfare facilities + Mobilization and demobilization expenses + All Taxes and Duties + Insurance Premiums and bank Guarantee charges + Water and electricity charges + Miscellaneous expenses.
5. Off top generally are 15% and some incentive for achieving specific defined cost, time & quality.
6. The cost certainty is not there. The contract sum is a floating figures which keep on changing with every market fluctuation.
7. The contract has an option of defining the target cost and achieving it with added incentives.
8. Client needs a very strong audit team to monitor the cost being incurred. This is open book method of contracting.

Case Study: The construction of Commonwealth Games Village in Delhi has followed the Cost Plus contract option. The contract also have a clause offering a 7.5% incentive on the contract value if the project is completed before schedule. Off top are 20%. This option was best suited because of tight time line project was requiring an early start on site and in the cost plus option you can start the work by giving the part information / drawings to the contractor because it is not possible to prepare full design information before the work commence. The other advantage is that owner has complete design and contractual control through their Architect and PMC.

Alliance Contracting

1. This works on the partnering approach. In this method, an alliance board is formed which may comprise of the client's, Consultant's, PMC's and contractor's representative.
2. The alliance is built on core values of:
   - Commitment – to achieve the contract goals in an environment where the project comes first
   - Trust – to work together to in a sprit of openness, cooperation and no blame
   - chosen on a best – for – contract basis
   - Respect - for all participants by all participants
   - Innovation – through breakthrough thinking and intelligent risk taking
   - Fairness – by integrating staff from all participants, chosen on a best – for – contract basis
   - Fairness – by integrating staff from all participants
   - Enthusiasm – for the professional duties of all staff and for the contract.
3. The contract is run in an open book environment
4. The contract is managed by an integrated team, reporting to an alliance board who carry full responsibility to bind the participants without recourse to arbitration or litigation
5. The cost of the participants are met by the owner, together with a fee for corporate overheads and profit and a risk/reward arrangement
6. Conduct of the contract is controlled by the alliance board, their roles and responsibilities are defined
7. There are no provision for dealing with extensions of time
8. There are no liquidated damages
9. The procedure for reimbursement

of costs (and the definition of the same) is defined

10. Payment arrangements are generally defined
11. The risk / reward mechanism is defined
12. There are no alternative dispute resolution, litigation or arbitration procedures, the alliance board is solely responsible for resolving disputes

Case Study: Alliancing is a complex, and as yet immature concept, That is why there are not too many references available. In India, this option has not been exercised because of the week legal contractual framework for the owner. The whole concept is based on the trust between all stake-holders which in Indian scenario lack the appreciation from project proponents.

Australia in particular has embraced alliance contracting as a means to approach large infrastructure projects. In Australia, alliancing was initially suggested in the 1980s as a method to overcome the problems associated with the typically adversarial approach to contracting within the engineering and construction industry that existed at that time. The lack of collaboration and communication that characterized the industry then resulted in excessive disputation and litigation, with corresponding delays and blowouts in cost.

The first foray into alliance contracting in Australia was the A$364 million Wandoo B Offshore Oil Platform, developed by OP Ampolex Limited. This project began in 1994 and was completed in 1997.

Sydney Water Corporation then initiated the AU $465 million Northside Storage Tunnel Alliance in 1997. This was the first public sector driven alliancing project in Australia. It aimed to provide water infrastructure that would ensure that wet weather sewerage overflows into Sydney Harbor would not interfere with the events to be held there as part of the 2000 Sydney Olympics. The time frame for project completion was ambitious and it was essential that target outcomes were achieved in time for the opening of the Games. The project objectives were achieved as planned, and with a cost increase of only 3.3% above target. Sydney Water noted the project's success in achieving 'exceptional results in its delivery of community relations, environmental management and safety.

So for a given project, the above benchmarks can be used which will help the consultants / Project Proponent to take the right decision with a view to complete the project within the defined parameters of time cost and quality.