

PROJECT DELIVERY SYSTEMS

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1. TYPES OF PROJECT DELIVERY SYSTEMS

There are a range of contract types which may be attractive on a particular civil engineering project.

The choice of a particular style of project delivery system will depend on many factors, for example:-

- ease of design (buildings vs complex engineering projects);
- desire for design flexibility during construction;
- availability of suitable contractors/project managers, and balance sheets of such contractors;
- political considerations;
- budget constraints vs performance of completed project.

On major public sector projects, the use of standard form fixed-price contracts would be more prevalent than on similar scale private sector projects (though, in contrast, BOT projects are essentially public sector projects delivered by the private sector).

This topic is intended to consider different types of project delivery systems as follows:

i. Fixed Price Contracts

The traditional form of construction contract has been a fixed price contract.

The general operation of this type of contract requires the Contractor to tender on, and then take the risk in relation to, the price of the works. The Contractor, irrespective of the actual cost of the works, will be entitled to be paid no more than and no less than the Contract Sum, as agreed between the parties prior to commencing the works.

In fact, for a number of reasons which are discussed elsewhere in this and related topics, a fixed price contract is rarely performed for exactly the amount of the originally agreed Contract Sum. For example, if the Principal delays the Contractor in obtaining the site, the contract would usually provide for an increase in the Contract Sum.

The critical characteristic, however, of a fixed price contract, is that the Contractor takes the risk as to the ultimate price, and that the parties agree to pay the Contract Sum (as adjusted pursuant to the provisions of the Contract).

ii. Cost Plus

The critical characteristic of the cost plus contract is that there is no risk, as to cost, borne by the Contractor.

The Contractor and the Principal agree, at the time entering into the Contract, that the Contractor will perform the works, and that the Principal will pay for those works, on the basis of the actual cost of the Works to the Contractor, plus an agreed fee, usually an agreed percentage of that sum (or some other agreed incentive over and above the actual cost of the works).

A cost plus contract is, therefore, risk-free, as to cost, for the Contractor.

This does not mean, however, that the Contractor is entitled to charge whatever he likes. The Contract will usually provide that the Contractor has to verify and/or justify the cost of the works to be charged under the Contract. Further, one could envisage circumstances where, through negligence by the Contractor or some other reason, the Contractor would not be entitled to recover the full cost of those works.

There are flexibility reasons why such an arrangement may be attractive from time to time for a Principal.

For example, the Principal might have a strict budget to comply with, and may be in a position of being able to increase or reduce the Works as they are performed (for example, by deleting or adding parts of the Works, or by increasing or decreasing the quality of the selected materials) to ensure that the final cost of the Works remains within that strict budget. (In theory, this should be equally possible under a fixed-price contract. For the reasons referred to above, however, in certain instances the Contract Sum being able to be adjusted, a Cost Plus Contract, where the Works themselves are able to be changed during construction, might, conceivably, provide a more convenient method of ensuring that the cost stage within particular limits, albeit that the Works to be performed may change from that which was originally proposed.)

The nature of cost-plus contracting, therefore, is that the Contractor agrees to perform the works but that the risk as to the final cost of those works is borne by the Principal, not the Contractor (the reverse of the position under the fixed price contract).

iii. Design & Construct Contract

A design & construct contract requires the Contractor to tender on the works described in the Design Brief (prepared by the Principal), and tender not only for the construction of the works described in that Design Brief, but also for the completion of the detailed design, consistent with that Design Brief.

There are a number of construction reasons (discussed in paragraph 7.3 of this topic) which suggest that the design & construct method of contracting has the potential to reduce the overall cost of construction to the Principal.

The nature of this type of contract is such that the Principal is able to enjoy the advantages of design

efficiencies which Contractors, through their contracting experience, may be able to incorporate into the design of the works, which may have the effect of reducing construction cost (this is discussed further below).

The Principal is still required to adequately specify (in the Design Brief) the works to be completed for the Contract Sum. The degree to which that work is specified, however, is less than that which would occur under a construction only contract. The accuracy of the Design Brief (which, again, is discussed further below), is critical to the Principal being able to rely on the design & construct contract.

iv. Project Management Agreement

A project management agreement is one in which the Principal contracts, not with a Contractor who would perform the construction (or the design and construction) works, but with a person who would manage the project on behalf of the Principal, whether by performing the works in part or wholly himself, or by contracting out part or all of the works on behalf of the Principal, or a combination of all of the above.

There is an infinite variety of possible project management contract types (these are discussed further below).

The nature of a project management agreement, however, is that the Principal engages a person to manage the project on its behalf, rather than engaging a Contractor to construct the Works. The functions typically performed by a Project Manager, therefore, are usually more extensive than those which might be performed by a Contractor. Further, the risks borne by a project manager, under a project management agreement, are typically less than, or at least different to, those borne by a Contractor.

The types of functions performed by a project manager, pursuant to a project management agreement, typically include the design, or procurement of the design on behalf of the Principal, the construction or procurement of the construction on behalf of the Principal, and, in particular instances, other activities including, for example, site selection, site acquisition, permit approvals, advertising of the project, leasing or pre-leasing of the project, and/or other activities which might otherwise need to be performed by the Principal.

The essential feature of the project management agreement is that the works to be performed pursuant to the agreement are the necessary management services rather than the contract construction works.

v. Construction Management Agreement

A construction management agreement is similar in most respects to a project management agreement, except that, typically, the services to be provided by the Construction Manager are restricted to construction activities only (rather than, for example, design activities, site acquisition, leasing activities...).

Accordingly, construction management agreements are, typically, similar in structure to project management agreements.

The substantive functions to be performed by construction management, typically, include engaging trade contractors on behalf of the Principal, and potentially, the provision of preliminaries for those trade contractors.

vi. Managing Contractor Contract

The Managing Contractor Contract was developed, primarily, in Australia, for the Department of Defence.

This form of contract might be characterised as a hybrid of a project management/cost-plus/fixed price contract.

Typically the features of such a contract would include:-

- the Managing Contractor contracts with the Principal to manage the construction of the works on behalf of the Principal;
- the Managing Contractor contracts with the Principal to provide, at a fixed price, or alternatively at a percentage of the total contract price, certain aspects of the works (for example, the preliminaries, including crane hire, site sheds, supervision services...);
- the Managing Contractor may perform all or part of the design services for the Principal;
- the Managing Contractor will arrange the trade packages, tender and enter into the trade contracts on behalf of the Principal and, potentially, itself perform some of the trade contract works;
- the Managing Contractor will perform the usual supervision, reporting activities required on the project to keep the Principal informed of the progress of the works.

The attraction of the Managing Contractor type of contract is its flexibility and the skills which the Managing Contractor may be able to bring to bear in the procuring the Works, to assist the Principal.

vii. Warranted Maximum Price Contract

A Warranted Maximum Price Contract is, in substance, a cost-plus contract between the Principal and the Contractor, which, in turn, is subject to an upper limit (the Warranted Maximum Price), above which, subject to certain conditions, some of which are discussed below, the Contractor will bear the risk as to costs.

Under a Warranted Maximum Price contract, the Contractor is to be paid on a cost-plus basis up to a certain limit. Over and above that limit, the Contractor is not entitled to any further payment. That limit, however, as in the case of the Contract Sum under a Fixed Price Contract, is subject to adjustment in certain circumstances (for example, where the Principal varies the works, or where the Principal causes delay and/or additional cost to the Contractor).

The benefit of the Warranted Maximum Price contract is in giving some upper limit degree of comfort as to the total cost of works, provided those works are adequately described as to scope, yet allow the parties to enter into the contract on a cost-plus basis where that is an appropriate vehicle for them (this is discussed further below in paragraph 7.2.4).

viii. ***Build Own Operate Transfer (BOOT) Project***

In recent years, in Australia, there have been a substantial number of major construction projects which have been performed using the BOOT, or BOT vehicle.

This topic is discussed in more detail in paragraph 7.5 below.

The basic structure of a BOOT project is that the Contractor agrees with the Principal not only to build the project but to arrange finance for the project, and then, using that finance, to build the project, to own the project for a limited period, to operate the project throughout that period, and then, at the end of that period, to transfer the project to the Principal.

Typically, this style of structure is employed on public infrastructure projects where, but for the intervention of private sector financing, the project might not proceed.

Choice of Project Delivery System

The choice of any particular project delivery system is made at the commencement of the project. Historically, however, little, or inadequate, consideration is given to the many types of possible contract structure available for any particular project.

In fact, there is an unlimited number of potential project delivery systems based on the above, or a combination of any or all of the above, which might be suitable to any particular project.

The choice will usually depend on factors such as:-

- the need for strict cost control;
- the need for flexibility in what is to be constructed throughout the construction period;
- the complexity of what is to be constructed;
- the inhouse resources of the Principal;
- the expertise of the likely tenderers;
- particular budget constraints;
- financing considerations.

The above project delivery systems reflect a more complex style of project delivery. Interestingly, we are now seeing more complex standard form types of project delivery systems (for example, AS4300-1995, General Conditions of Contract for Design & Construct, has only recently been released whereas the related fixed price Standard Form Contract has been in circulation for more than 25 years).

2. FIXED-PRICE vs COST-PLUS CONTRACTING

2.1 Fixed Price?

In theory, a Fixed Price Contract is one in which the Principal contracts with the Contractor to perform agreed works for a fixed price.

Accordingly, irrespective of whether the works actually cost more or less than the agreed Contract Sum, the Contractor is entitled to receive no more than and no less than the Contract Sum at the end of the works.

In practice, however, there are a number of ways in which the Contract Sum can (and usually does) alter during the period of construction on the works, including, for example:-

- the Principal failing to deliver the site to the Contractor on time;
- the Principal failing to deliver exclusive access of the site to the Contractor at the agreed time;
- the Principal failing to provide the detailed contract drawings and/or specifications required of the Principal under the Contractor by the agreed time;
- the drawings and/or specifications provided by the Principal having errors or omissions or being incomplete;
- the site having characteristics different from that which was described in the tender documents;
- material to be dealt with on the site being different from that which was anticipated under the tender documents;
- other reasons pursuant to which the Contractor would reasonably be entitled to claim more or less than the Contract Sum on the basis that the works as ultimately performed were different to those works which were described in the tender documents.

In fact, as a matter of practice, a Fixed Price Contract is rarely performed for the exact amount of the **original** Contract Sum. This is not surprising when one considers the nature of a construction contract (in comparison, for example, with a Contract of Sale for land). The nature of a construction contract is such that works as **generally** described in detailed and complex contract documents are to be performed over an extended period of time, subject to a large number of variable conditions, which the parties need to anticipate and which may bear on the actual cost of construction.

Turnkey Contracts

The Fixed Price Contract is dramatically different to a true "turnkey" contract.

(Unhappily, the word "turnkey" is often used interchangeably with "fixed price contract", or what are in fact fixed price contracts are wrongly called "turnkey" contracts on particular projects, thereby giving rise to the confusion.)

A turnkey contract is one in which the Principal and the Contractor agree on a fixed Contract Sum to be paid upon completion of the works to a particular standard and/or performance criteria, and in relation to which the Principal does not participate in any way in the actual performance of the works but, at the end of the works, is invited to inspect the works and, subject to the works being adequately constructed and performing to the requisite criteria, the Principal then paying the full amount of the Contract Sum and taking over the works. (The Principal is said to simply hand over the cheque, turn the key and commence operation.)

In a fixed price contract, by comparison, the Contract Sum is **adjusted** throughout the contract period, (for the reasons set out above).

A true turnkey contract, therefore, is more akin to a purchase contract than to a construction contract.

2.2 Cost Control of Cost-Plus Contracts

The Principal may impose a number of cost controls in a cost-plus contract.

Capping

For example, there may be an overall cap on the Maximum Price (usually referred to as a Warranted Maximum Price Contract), subject to the following:-

- the Warranted Maximum Price is subject to the scope of the Works being adequately described;
- the Warranted Maximum Price as adjustable, just as the Contract Sum is adjustable under a fixed price contract.

Trade Contracts

Alternatively, the Contractor, though himself on a cost-plus basis, may be required to procure all or an agreed part of the works through fixed price trade contracts, each of which is to be vetted and approved by the Principal.

The Principal would, with the assistance of the Project Manager, negotiate and enter into prime contracts with the five proposed Alliance Contractors, the technology providers, and other major contractors as are identified at the time of allocating work/supply contracts between the prime contractors.

This structure has been successfully used on a number of major projects around Australia (including, for example, the construction of Toyota's car manufacturing facility at Altona by John Holland

Constructions, and the construction of the Southgate project in Melbourne by Jennings Constructions Ltd, in recent years).

Wherever this project structure has been successful, however, the Principal has been protected from the possibility of unlimited cost overruns by incorporating all of the work (in the Southgate example, 85% of the work) in fixed price trade contracts. The Principal enters into a cost-plus contract with the prime contractor, the work is then contracted out by the prime contractor on a fixed price basis, the prime contractor being entitled to cost-plus reimbursement by the Principal for those trade contract prices. Effectively, therefore, the Principal has the benefit of fixed price contracting.

Features of the Trade Contracts

The Contractor would be required to perform the works within a number of trade contracts.

There are a number of contractual protections (for the Principal) which should be incorporated into those trade contracts to ensure the time/cost targets are ultimately met on the project:-

- (a) the trade contracts should be fixed price;
- (b) the terms of the trade contracts, generally, should be agreed between the Principal and the Contractor;
- (c) the trade contracts should be put out to open tender;
- (d) there should be an approval process whereby the Principal may review the proposed tender process, and shall have final approval of any particular trade contract (subject to, if necessary, such trade contracts having a value above a minimum trade contract value);
- (e) the trade contracts should provide adequate security for the performance of the contract, and provisions for liquidated damages (in respect of both, later completion and underperformance) sufficient to compensate the Principal for its losses if necessary.

Subject to these protections, the Principal would have effective contractual remedies in respect of the works, should there be a failure to perform in accordance with the targets ultimately developed.

Bonus/Penalty Provisions

Finally, the cost-plus contract would preferably include a regime of bonuses and penalties, and potentially a cap on the total cost, all of which would be subject to adjustment in appropriate circumstances.

The bonus/penalty targets would be developed by the Principal, assisted in some instances by the Contractor, and incorporated into the cost-plus contract.