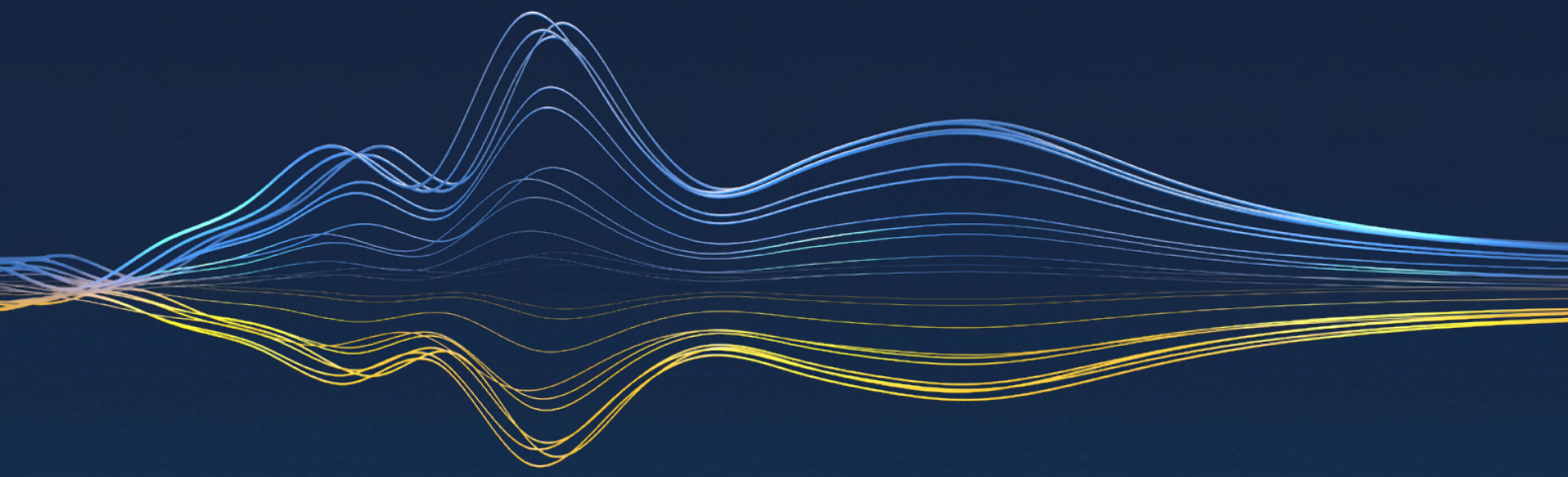
Collaborative contracting and procurement

OWEN HAYFORD



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Introduction

The construction industry has suffered for ages from contracts and procurement processes that crudely allocate various risks resulting in misaligned incentives and consequent disputation.

The simplicity of a competitively tendered fixed price, from contractors and other non-owner participants that are prepared, even on complex mega-projects, to make heroic assumptions regarding risks they cannot control but are asked to accept, is too attractive for most owners to resist. This remains so despite the long history of non-owner participants seeking to subsequently mitigate their losses through claims in order to generate a margin and remain financially viable.

Such claims are often settled, even though they lack legal merit under the contractual terms accepted by the contractor, because the additional costs or delays did not result from any want of care or diligence by the contractor. Rather they often result from the occurrence of risks that the contractor accepted but could not control.

More disturbingly, conventional fixed price contracting can create commercial incentives for non-owner participants to act in a manner contrary to the interest of the project owner, and vice versa. This misalignment of commercial interests discourages the collaboration between project participants that is needed to jointly solve the problems that arise on construction projects.

It was from a desire to overcome this misalignment of interests that 'collaborative contracting' was born. The expression embraces a wide and flexible range of approaches to managing the relationship between project owners and other project participants, based on the recognition that there can be a mutual benefit in a more collaborative relationship. If the project owner contractually commits to share the benefits it receives from outstanding performance by the non-owner participants, the contract can financially motivate the non-owner participants to achieve such outcomes, even if they need to expend more effort and money to do so. This is often expressed as the establishment of a win-win scenario.

Enthusiasm for collaborative contracting by those who usually determine the contracting model for a project – the project owners – tends to follow the cycles in the construction and engineering market. The preference of project owners, particularly the less experienced ones, for the simplicity, price certainty and risk transfer of conventional contracting is greatest when contractors are hungry for work and prepared to price risks aggressively to win new projects. But when the construction and engineering industry is busy, project participants become more selective about the projects they tender for and the risks they will accept. Accordingly, many project owners embrace collaborative contracting approaches during such times to better attract participants to their projects and keep construction prices down.

* The primary author of this paper, Owen Hayford, gratefully acknowledges the contributions of various colleagues over many years, including John Gallagher, Doug Jones AO, Stuart Connor, Hannah Stewart-Weeks and Julia Krapeshlis.

[1] McKinsey Global Institute, *Reinventing construction: A route to higher productivity*, February 2017, p1.

For similar reasons, collaborative contracting models are often considered for 'mega' projects, where the pool of project participants with the financial strength and capabilities required to undertake the project can thin out to a level that constrains the project owner's ability to extract value and transfer risks through conventional competitive tendering processes.

The economic impact of COVID-19 is also creating fresh interest in collaborative contracting as governments seek to stimulate their economies through spending on infrastructure. The preference is for 'shovel-ready' projects where construction activities and associated job creation can commence immediately. The ability of collaborative contracting models to alleviate the lengthy, sequential procurement processes of conventional contracts, can make projects more 'shovel ready'.

But collaborative contracting is more than a response to an overheated construction market, a health pandemic or inadequate competition for mega projects. It is a mechanism that can overcome the inherently adversarial nature of conventional contracting, and unlock significant productivity improvements that would enable the industry to deliver more infrastructure for less.

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The problems with conventional contracting

There will always be a place for conventional tendered fixed price contracting. It is not the aim of this paper to suggest otherwise. Owners and head contractors need to appreciate, however, that there are various inherent problems associated with conventional contracting.

2.1 Allocating responsibilities leads to the 'blame game', not problem solving

Conventional contracting allocates specific responsibilities and risks to each participant. The designer is responsible for completing the design, and bears the risk that the design does not comply with relevant design standards. The main contractor is responsible to the project owner for all construction work, including that performed by sub-contractors, but isn't responsible for design defects. Sub-contractors are responsible to the main contractor for the quality of construction work performed by them, but not for the construction work performed by other sub-contractors. And so on.

Under such arrangements, each project participant has strong financial incentives to perform the responsibilities that are allocated to it, but is far less invested in how others perform their responsibilities. The project can essentially become a collection of sub-projects, where each non-owner participant is rewarded by reference to the performance of its sub-project, rather than the performance of the project as a whole.

Indeed, late or poor performance by another participant will typically excuse a project participant from the need to strictly fulfil its own obligations as originally proposed. Accordingly, when things start to go wrong the financial interests of participants are often best served by demonstrating that another participant is to blame for the problem, rather than working cooperatively with the other participants to overcome the problem. This is why conventional construction contracts are often described as being 'inherently adversarial'.

2.2 Fixed prices motivate minimum compliance

Private sector entities are in business to generate profits for their owners. When engaged under a conventional fixed price contract, the contractor is financially motivated to minimise the cost of performing its obligations, to maximise its profit.

Accordingly, when the owner separately engages the designer and the main contractor under fixed-price contracts, each of them is financially motivated to do no more than the minimum required of them, even if doing more would reduce the costs incurred by the other, or result in better outcomes for the project owner.

For instance, having agreed to produce a design for a fixed price, there is little incentive for the designer to do extra work to produce a design that will reduce the cost of constructing the asset, or minimise operation and maintenance costs, unless the design brief requires this.

Likewise, if the main contractor encounters unexpected ground conditions, there is no incentive for the designer to change the design to overcome the unexpected conditions, unless the owner agrees to pay the additional costs incurred by the designer in adjusting the design. Conversely, if a deficiency in the design is discovered during the construction of the works, there is no incentive for the main contractor to develop a construction solution that overcomes the deficiency, if doing so will increase its costs without a corresponding increase in the fixed construction price.

If the project owner wants a project participant to do more than the minimum required to overcome a problem and achieve a better outcome for the project, the owner will usually have to compensate the participant for the additional costs, to restore the participant's profit margin.

2.3 No incentive on other participants to contain the cost of changes

Conventional procurement models provide no incentive for project participants to minimise the cost impacts of changes to the project. Rather, they provide an opportunity for the incumbent project participants to charge monopoly prices for the additional work, as it is usually impractical for the owner to competitively tender the extra work.

2.4 Obligations to co-operate don't really work

It's one thing for the participants to contractually commit to cooperate and collaborate with one another at the commencement of a project. But when a project runs into trouble, the benefits of blaming others, and putting self-interest ahead of the interest of the project or other participants, can soon outweigh the downsides of breaching an obligation to co-operate. At this point, the commercial incentives built into conventional contracts render virtually useless commitments by project participants to working co-operatively to jointly solve problems. Commencing legal proceedings to recover losses arising from a breach of an obligation to cooperate is rarely an attractive or effective remedy.

2.5 Fast tracking and early contractor involvement is difficult

Conventional procurement prefers a sequential approach to project scoping, design and construction. The scoping and design of conventionally procured projects is generally completed, or well progressed, before the project owner calls for tenders from contractors. Engaging with one or more construction contractors during the scoping and design process, with a the view to making the project easier to build and less expensive, or fast-tracking the project development process by running scoping, design and construction phases in parallel, can limit an owner's ability to attract contractors that haven't been involved to competitively tender for the construction work. This can, in turn, hinder the project owner's ability to obtain fixed construction prices via a competitive tender process.

Collaborative procurement

It was the problems of conventional contracting that gave birth to 'collaborative contracting' and 'collaborative procurement'.

3.1 Early contractor involvement

As distinct from conventional procurement which prefers a sequential approach, collaborative procurement is often premised on 'early contractor involvement' (ECI). As its name suggests, this is where the contractor is brought in before the feasibility and design elements are finalised. The purpose is to obtain the contractor's insight on issues including design, buildability, risk management and works packages early so that the owner can optimise the design and construction activities.

The ECI phase is usually preceded by a procurement process to select one or more contractors for the ECI role. This procurement process may involve shortlisting contractors on the basis of non-price criteria such as capability, experience and capacity. It can also involve a further phase whereby shortlisted contractors are then invited to submit further information including pricing and programme.

The expectation is that each of these ECI contractors will engage in collaborative activities with the owner and project designers throughout the ECI phase. This often involves the owner giving the contractor access to its internal network, operations and designs. In light of this new information, the contractor re-examines the project tender requirements and provides its feedback on issues including design, buildability, scheduling, contingencies, construction method, risk allocation and compliance.

In the past, the main benefit of ECI was considered to be contractor input on buildability of the proposed design. But ECI is increasingly being used by owners as a way to 'de-risk' a project: by getting the ECI contractors' input on how risks can be managed more effectively perhaps via design adjustments or different construction methodologies, thereby reducing the contingencies which would otherwise be included in any fixed construction price. At the same time, the ECI contractor develops a heightened understanding of the owner's objectives for the project, which enables it to develop a proposal for the construction phase that better achieves the owner' objectives.

Traditionally, the ECI phase has been followed by the award of a fixed price D&C contract for the construction phase. If a fixed construction price is only sought from one contractor, this can raise value for money concerns. As already noted, it can also be difficult to attract contractors that haven't participated in the ECI phase to bid against the ECI contractor(s), making it hard to add competition to the process at this point to demonstrate value for money.

But the need to demonstrate value for money via tendered fixed prices falls away if the ECI process is followed by a more collaborative form of contract that replaces a fixed price remuneration regime with an alternative such as a target cost with sharing of saving or overruns. Instead, value for money can be demonstrated in other ways.

3.2 Encouraging innovation

ECI is not the only way to have a more collaborative tender process.

It is well recognised that project owners can encourage greater innovation through the procurement process by specifying the outcomes they are seeking to achieve, rather than the deliverables/outputs the owner considers it needs to achieve those outcomes. Framing project objectives in such a way means that tenderers may come up with a variety of different means to achieve the desired objectives. A minimalist output specification at tender will generate greater innovation than a prescriptive input specification.

CASE STUDY: NORTHERN GAS PIPELINE

The Northern Gas Pipeline project (previously known as the North East Gas Interconnector) is a great example of how procurement processes for infrastructure assets can be structured to encourage innovation.

The Northern Territory Government wanted to support the private sector development of a pipeline connecting its vast onshore gas reserves to the gas pipeline network servicing Eastern and Southern Australia. Two potential connection points were identified – Mt Isa in Queensland, and Moomba in South Australia. The competitive process allowed bidders to propose the route, connection points, initial capacity, expansion capacity and the level of government support required, having regard to each bidder's assessment of the various factors affecting the financial viability of the pipeline.

By specifying the problem to be solved, rather than a particular infrastructure solution, the government allowed bidders to develop innovative solutions which resulted in an outcome (in terms of the required level of government support) which few thought possible.

3.3 Co-creation of solutions

Tendering processes and the need to deal with tenderers fairly can create challenges for owners that wish to co-create solutions to problems with tenderers during the procurement process. As each tenderer develops its own unique solution the inputs that the owner will provide to the development of each tenderer's solution will necessarily differ.

But fairness doesn't mean that owners need to provide identical inputs to each tenderer. Rather, what's important is that each tenderer is extended an equivalent opportunity to engage with the owner's team in developing its solution. How each tenderer chooses to use the opportunities extended to it is a matter for the tenderer. A tenderer can't legitimately complain if a competing tenderer manages to use the opportunity more effectively, if an equivalent opportunity was extended to each.

There is plenty of scope for creative owners to engage in the co-creation of solutions with tenderers in a manner that is fair to all participants.

3.4 The selection process and value for money

Selection processes for collaborative contracting models can differ from those involving the tendering of a fixed price. In particular, it is common on cost reimbursement contracts for projects owners to select the non-owner participants based on *non-price* criteria, such as expertise of proposed team, ability to work within a the proposed contractual framework, ability to work with other participants, ability to achieve project objectives, preliminary ideas on innovation and strategies to deliver exceptional results. Price related considerations, such as the target cost, profit margins and gainshare/painshare regimes, are often finalised collaboratively with the preferred non-owner participants after they have been selected.

Establishing value for money is a challenge for both public and private sector owners even under conventional procurement models with price competition during the tender process. The tendered 'contract price' is rarely the sole indicator of value. Other factors which may affect the value for money proposition of a tender include:

- risks to be borne by owner (which if they materialise will affect the final outturn cost);
- expected quality and asset performance outcomes;
- expected whole-of-life costs;
- other benefits associated with the tender; and
- certainty of promised outcomes.

Accordingly, even with tenders for a traditional fixed price contract, the tender with the lowest tendered price will not necessarily be the tender which offers the best value for money.

The challenges associated with establishing value for money are exacerbated with more collaborative forms of contract if:

- the preferred tenderer is selected on the basis of non-price criteria; and
- the target cost, and other performance targets which will ultimately influence the final 'price' paid to the non-owner participants, are not determined until after the preferred tenderer has been selected.

Demonstrating the veracity of the target cost and other performance targets is central to establishing value for money on many forms of collaborative contracts, given these are the factors which ultimately determine the profit and contribution to overheads derived by the non-owner participants.

There have been some project alliances which have been delivered for less than the target cost, or which have met or exceeded other performance targets, where it has been suggested this is due to the target cost and other performance targets being 'soft' because they were established in an uncompetitive environment, rather than due to better than usual performance by the participants.

Steps which can be taken to demonstrate value for money on alliances and other collaborative contracting models are explained in section 7 of Appendix 2.

Collaborative contracting

Collaborative contracts incorporate features that are specifically designed to overcome the misalignment of commercial incentives associated with conventional fixed price contracts. These features can range from:

contractual commitments to co-operate and act in 'good faith';

early warning and risk management mechanisms, designed to alert other participants to emerging issues, so that solutions can be developed and agreed before the issue escalates;

a variety of alternative approaches to key risks of cost, time and quality;

painshare/gainshare arrangements that financially motivate non-owner participants to act in a manner that is best for the project, rather than best for the participant;

governance arrangements that facilitate collective problem solving and decision making;

transparent competitive tendering of subcontracts as a way of demonstrating value for money;

'no blame' regimes, where each participant waives its right to sue any other participant for mistakes, breach or negligence by another participant (except in the case of wilful default).

Collaborative contracting is sometimes referred to as 'relationship contracting'. However, the latter term is probably best reserved for contracting approaches that involve longer term relationships that span more than one project.

4.1 Express obligation to cooperate

As a minimum, most collaborative contracts will expressly require the parties to cooperate and act in good faith. For example, GC21, the standard form D&C contract used by the New South Wales Government expressly requires the parties to do all they reasonably can to co-operate in all matters relating to the contract and to avoid hindering the performance of others under the contract. In the NEC suite, the obligation is for the parties to act in a spirit of mutual trust and cooperation.

Obligations of this nature routinely draw criticism from lawyers concerned about the imprecise nature of such obligations, or that they might cut across the rights that a party otherwise enjoys under the contract. Such concerns no doubt led to the drafting in GC21 that "the rights and obligations of the parties under the contract (or otherwise) remain unchanged" despite the obligation to cooperate.

Such concerns are often overblown. An express obligation to cooperate simply reflects the obligation that is implied into commercial contracts under Australian law absent express provision to the contrary. It doesn't change the rights or obligations of the parties as set out in the contract, nor does it require a party to put aside its own self-interest. It does not preclude a party from relying on an express term of the contract, such as a time-bar, or from exercising an express right, such as a right to terminate for convenience.

There is, however, some uncertainty as to what acting "in good faith" or "in a spirit of mutual trust" actually entails. Most commercial people would accept that it at least involves acting honestly. Others would also accept that it involves acting reasonably, and not improperly exploiting or misleading the other party. It probably also requires the parties to act transparently, particularly when the contractor is claiming payment or compensation on a cost reimbursement basis. But again, it doesn't require a party to put aside its own self-interest. Despite this uncertainty, it's an obligation that most commercial parties entering into a construction contract are happy to accept.

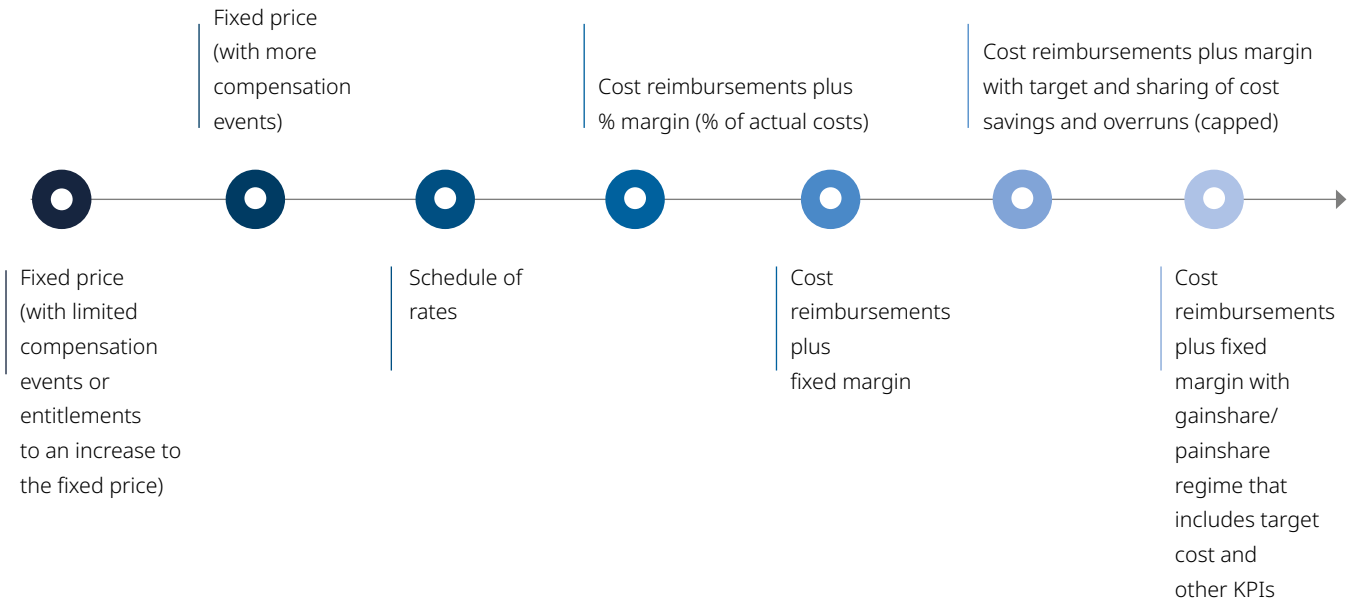
4.2 Early warning and risk management processes

Many collaborative contracts incorporate a risk management process under which each party is obliged to give early warning by notifying the other as soon as it becomes aware of any matter that could increase the cost of the works, delay completion, or impair the quality of the works.

The NEC suite requires the parties to keep a register of the early warning matters and hold regular meetings to consider proposals for how the effects of early warning matters can be avoided or reduced, and decide on the actions which will be taken and who will take them.

A failure by the contractor to give a timely early warning will typically not bar the contractor from claiming extra time or money if the relevant matter is a compensation event. However, if an earlier warning could have been given and would have reduced the cost and/or time impacts of the event, the contractor's entitlement to extra time and/or extra money may be reduced accordingly. A failure to give a timely early warning notice can also result in costs incurred by the contractor which would have otherwise been reimbursable being disallowed.

4.3 Cost risk



The diagram above shows the spectrum of common approaches to the allocation or sharing of cost risk.

As we move from left to right the risk of an increase in construction costs is increasingly shared by the owner.

On the far left the risk is almost wholly allocated to the contractor, as the contractor receives a fixed price on account of the actual construction costs that it bears. If the actual construction costs exceed the fixed price, the contractor bears the cost overruns.

Some fixed price contracts include very few compensation events that entitle the contractor to an increase to the fixed price or extra money. For example, compensation events can be limited to when the owner orders a variation to the works, or the suspension or resequencing of the works, or there is a change to statutory requirements after contract award that causes the contractor to incur additional costs.

As we move along the spectrum, more compensation events may be included in the contract, such as latent ground conditions, and delay or disruption caused by the owner or the owner's other contractors.

Next we have a schedule of rates, where the contractor bears the risk of an increase in the cost of materials or a unit of work, but the owner bears the risk of the quantity of materials or units of work being greater (or less) than anticipated.

The remaining approaches on our spectrum all involve the contractor being reimbursed by the owner for the actual direct costs that the contractor properly incurs in carrying out the works. The difference between these remaining approaches relate to the calculation of the amount that the contractor receives on account of its profit margin and contribution to overheads.

In the first case, we have a simple 'cost-plus' approach, where the margin is calculated as an agreed percentage of the contractor's actual costs. A problem with this approach is that the amount the contractor receives on account of its margin increases in the event of a cost overrun, resulting in poor alignment of commercial interests.

The next approach overcomes this problem by agreeing upfront a fixed lump sum on account of the usual profit margin and contribution to overheads the contractor expects to make based on the estimated cost of the works. This way the actual profit margin that the contractor earns in percentage terms falls as actual costs increase, thereby aligning the parties commercial interests in minimising construction costs.

As we move further along the spectrum, the owner agrees to share a portion of any cost savings relative to the target cost with the contractor, and the contractor agrees to bear a portion of any cost overruns. The amount which the contractor contributes towards any cost overruns is typically capped by reference to the fixed amount it would otherwise be entitled to receive on account of its margin and contribution to overheads.

The final approach on the right hand side of the spectrum involves a more fulsome gainshare and painshare regime whereby the contractor can earn a gainshare payment if the project performs well against the target cost and other agreed KPIs. Conversely, if the project performs poorly against the agreed KPIs, the contractor shares the owner's pain by making a painshare payment to the owner.

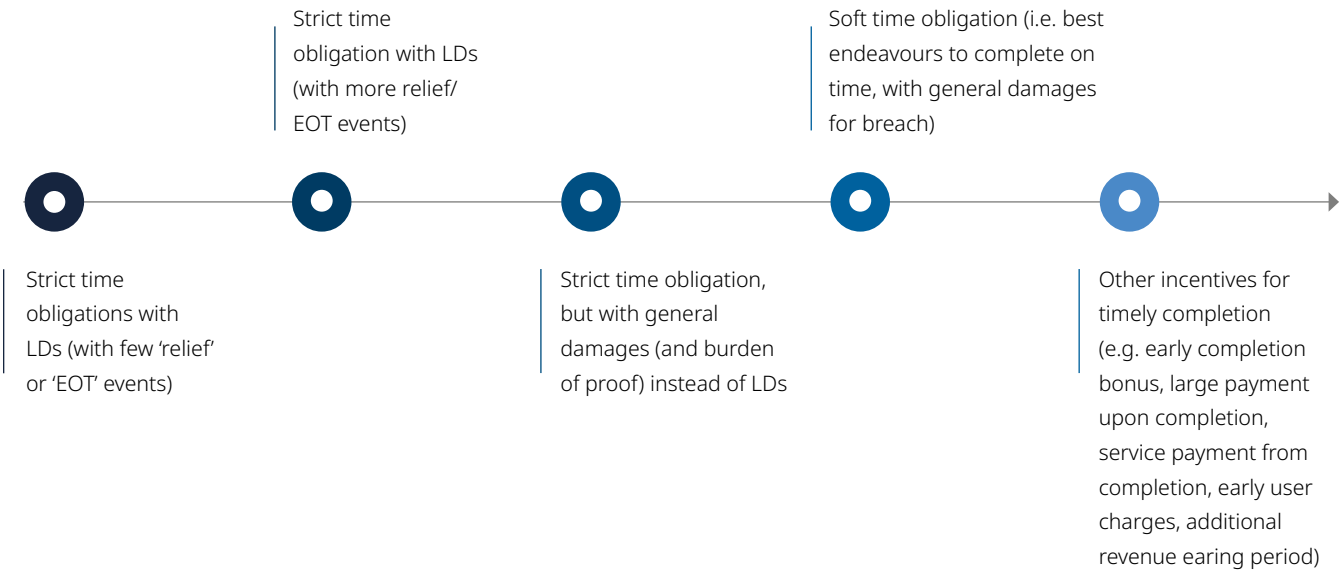
The maximum painshare payment is often capped at 100% of the fixed amount that the contractor receives on account of profit and contribution to overheads. Under this arrangement, sometimes referred to as an 'alliance style payment regime',[4] the contractor and other non-owner participants in a project can generate above business-as-usual profit margins if the project performs well against the agreed KPIs. Conversely, they can end up being liable for a painshare payment that wipes out their profit and contribution to overheads.

The advantage of this final approach is that it can align the commercial interests of the non-owner participants with those of the owner around objectives other than cost, such as timely completion, quality, environmental, local content, stakeholder satisfaction and safety, in a way that optimises trade-offs between competing objectives.

[4] The features of the alliance style payment regime are explained in detail in section 1 of Appendix 2.

4.4 Time risk

The diagram below shows the spectrum of approaches with respect to time risk.



The traditional approach is shown on the far left of the spectrum of the spectrum, where the risk of late completion is allocated to the contractor via an obligation to pay pre-agreed liquidated damages (LDs) to the owner for every day that completion is late. Flexibility of approach moves in a towards the right.

If the daily rate for LDs is sized to fully compensate the owner for all of the losses and disbenefits the owner suffers as a result of late completion, and is uncapped, then risk is fully transferred to the contractor. If the daily for LDs is sized at a lower level, or is capped in the aggregate, then the owner ends up sharing the time risk.

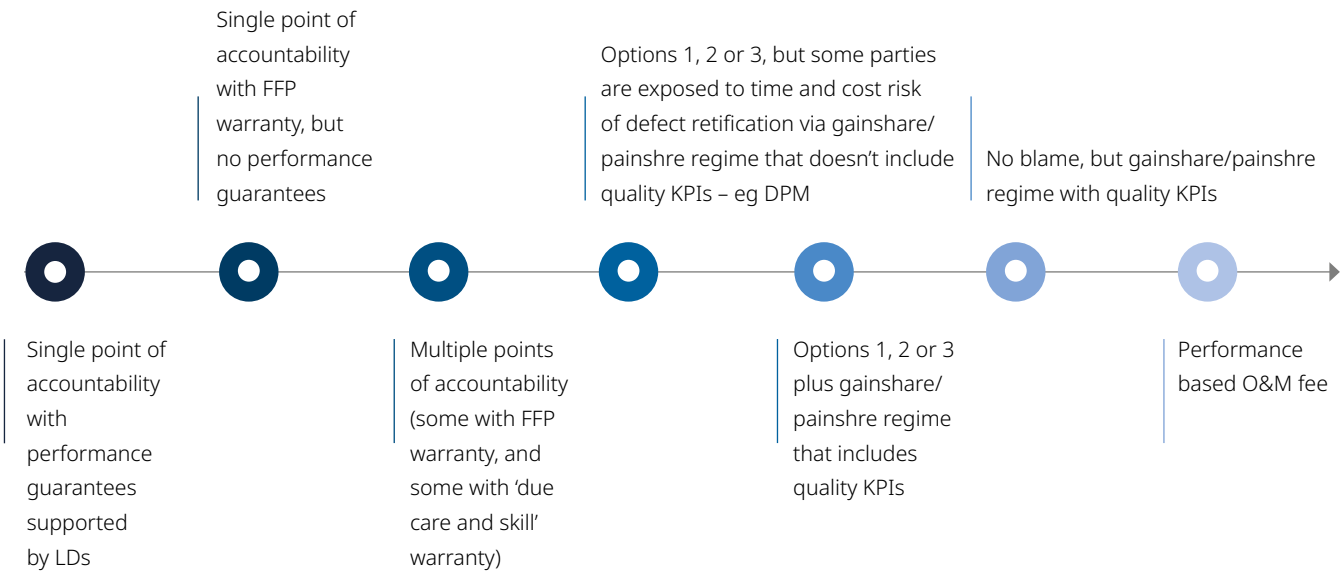
Similarly, as the list of events that entitle to contractor to an extension to the date for completion increases, the owner increasingly shares the risk of late completion, as each extension to the date for completion results in the owner losing its entitlement to LDs for that period of time.

A strict time obligation with general damages instead of LDs appears in the middle of this spectrum because the burden of proof that the owner needs to discharge to claim general damages is often so onerous that the owner doesn't bother claiming general damages.

The next approach is to replace the strict time obligation with a soft time obligation whereby the contractor undertakes to use its 'best endeavours' to achieve completion on time. With this obligation, a delay to completion won't put the contractor in breach of contract so long as the contractor has tried its best to complete on time. This approach avoids the need for an extension of time clause, and the angst that making and administering extension of time claims can create between the parties. If the delay to completion arises because of a failure by the contractor to try its best, the owner can claim damages for breach of contract but the burden of proving the loss actually suffered falls on the owner.

Finally, there are a range of other contractual approaches that owners can adopt to create appropriate commercial incentives for non-owner participants to ensure construction is completed as quickly as possible including early completion bonuses, payment of a significant portion of the contract price upon completion or, if the contractor has a role beyond completion, structuring service payments and rights to collect user charges so that they only commence when completion has been achieved. Similarly, by structuring a contractor's revenue earning period so that it ends on an anniversary of the date for completion (rather than on the date of completion), an owner can effectively offer the contractor a longer revenue earning period in return for early completion.

4.5 Quality Risk



The diagram above shows the spectrum of approaches to quality risk.

The spectrum begins on the left hand side with a D&C or EPC contractor providing the owner with a single point of accountability, a fit for purpose warranty and guarantees regarding the asset's operational performance supported by pre-agreed LDs if the asset doesn't achieve guaranteed efficiency or reliability levels.

More typical, however, is a single point of accountability providing a fit for purpose warranty without LD for post completion performance failures.

Next on the spectrum is each non-owner participant being accountable for its own work without any single participant wrapping the quality of the asset as a whole. Some of these non-owner participants may warrant that the works for which they are responsible will be fit for purpose, whilst others such as the designer may only warrant that they will exercise due care and skill in performing their tasks, but not the outcomes that the owner is seeking.

Without a single point of accountability, the owner must prove the proportionate responsibility of non-owner participants for any defects in the works, and bears the risk of participants looking to reduce their proportionate responsibility by blaming other participants. Under this approach, the owner will also be expected to compensate or provide relief to each non-owner participant for the time and cost consequences of poor performance by the other participants.

The next approach along the quality risk spectrum is for the contractor to agree to share the pain of additional costs or lost time arising from the rectification of defects arising from the work of the owner's other contractors, via a painshare regime that includes KPIs around the cost and time outcomes for the project. The owner can also agree to share the benefits of good cost and time outcomes for the project via a gainshare payment.

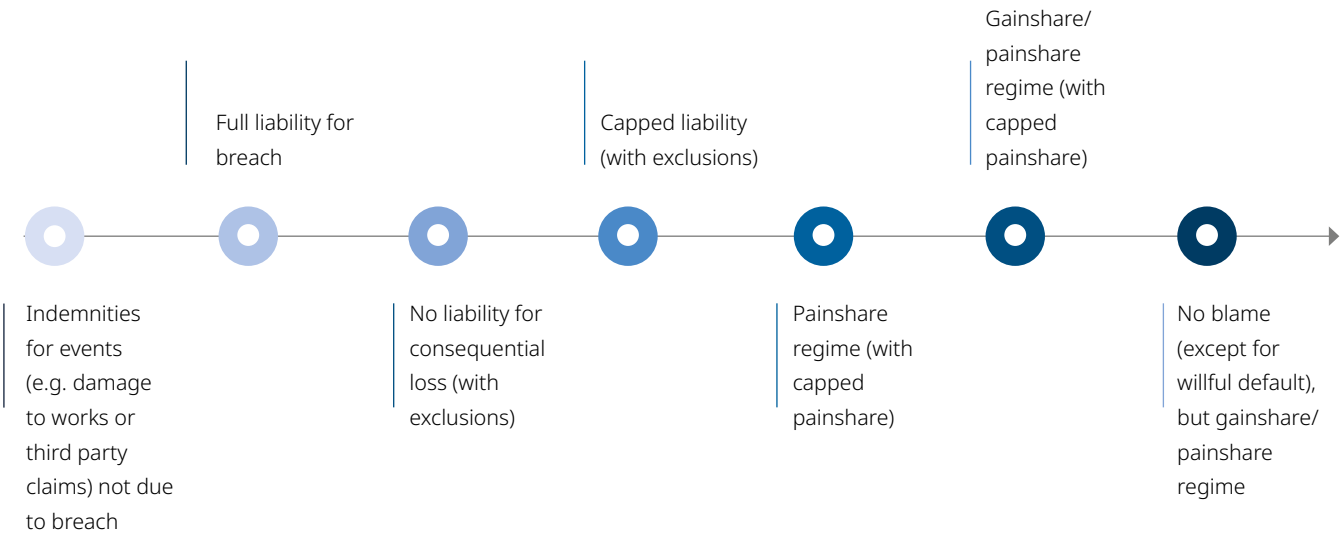
The inclusion of one or more quality KPIs in the gainshare/painshare regime can takes us further along the spectrum, with the owner sharing the gain or pain of the project's quality outcomes, as well as cost and time outcomes, with the non-owner participants.

Under the arrangements just discussed, the owner has the right to claim damages from its contractors for costs and losses arising from defects in the work or the relevant contractor. The next approach on our quality risk spectrum is the inclusion of a 'no blame' regime in the contract whereby the owner and each non-owner participant agrees to give up its right to sue a participant for losses arising from a defects in the participant's work. Instead, the owner and non-owner participants rely solely on the gainshare/painshare regime to financially motivate each participant to optimise the project's quality outcomes.

The adoption of a 'no blame' regime eliminates the ability of participant to reduce its loss by blaming one another when things go wrong. The only way a non-owner participant can reduce its exposure to painshare is by helping to solve the problem. Accordingly, the no blame regime has the effect of financially rewarding non-owner participants for joint problem solving, rather than finger pointing, when mistakes are made resulting in quality defects.

The final approach on the quality spectrum is to engage the non-owner participants to operate and/or maintain the asset in return for a performance based O&M fee which is calculated by reference to the operational performance (e.g. availability and reliability) of the asset. Doing so can financially motivate the non-owner participants to design, construct, operate and maintain the asset in a way that optimises trade-offs and whole of life costs and performance.

4.6 Liability regime



The diagram above shows the spectrum of approaches that can be adopted on liability. Again, more traditional are shown on the left, and we progressively move to greater liability sharing as we move to the right.

Starting on the left, we have the conventional approach of full liability for any breach of contract by the contractor, together with indemnities for events such as damage to the works or third party claims arising out of the works, regardless of whether the contractor is in breach.

Then we have contracts that include provisions that limit the contractor's liability for certain types of loss suffered by the owner as a result of the contractor's breach, such as loss of profit or revenue by the owner. Additionally,

some contracts cap the contractor's liability to the owner for loss resulting from the contractor's breach. To the extent the contractor's liability is excluded or capped, the owner bears the losses it suffers as the owner can't recover them from the defaulting contractor.

The next approach is a painshare regime where the owner's ability to be compensated by its contractors for losses arising from poor contractor performance is capped at the agreed painshare payment.

Owners can also motivate the non-owner participants to achieve the outcomes the owner is seeking by using 'carrots' as well as 'sticks'. The carrots can take the form of a gainshare payment (sometimes called an incentive payment) which is paid to the non-owner participants if specified outcomes the owner is seeking are met or exceeded.

The final approach is the no blame regime mentioned above in relation to quality risk. The no blame regime that is common in alliance contracts extends beyond claims arising from defective work. It usually applies to all claims arising from the project related activities of the participants other than wilful or deliberate default.

Coupled with the no blame concept is the collective sharing of project risks. If risks occur which result in the non-owner participants incurring additional costs, these additional costs are reimbursed by the owner.

However, the additional costs will cause the actual cost of the relevant work to exceed the target cost for that work, which will result in a reduction to the gainshare payment to which the non-owner participants would otherwise be entitled, or an increase to the painshare payment. Likewise, if the risk adversely affects the project's performance against time or other KPIs. In this way, the adverse consequences of the risk are shared between all project participants until the painshare caps are reached, at which point the non-owner participants cease to share in the pain the owner suffers.

Conversely, if a risk for which an allowance was included in the target cost can be managed for a lower cost, the benefit of this can be shared by the owner with the non-owner participants via that part of the gainshare regime that provides for the sharing of cost savings.

As already mentioned, this 'no blame' regime eliminates the ability of a participant to reduce its loss by blaming other participants when things go wrong or risks occur. It also allows the participants to take risks and be more innovative in the pursuit of outstanding project outcomes, without the fear of being sued if things go wrong.

4.7 Decision making/governance

Decision making also gives rise to a spectrum of potential approaches.

At one end of the spectrum we have the situation where the owner fully develops the design documentation itself, or directly engages a design consultant to do so. It then determines how the works will be packaged and tendered, and then evaluates the tenders and awards the contracts to the successful tenderers. The owner might do some or all of this itself, using its internal resources, or it may engage consultants or a construction manager to assist it with these tasks, but on the basis that the owner makes all the important decisions.

As we move to the right, the owner progressively hands various decision making functions to others. As already mentioned, the owner could engage a construction manager or a managing contractor to perform some or all of these activities, but on the basis that the construction manager or managing contractor is not permitted to carry out any of the construction activities, and owner continues to make the final decisions regarding the design, the size and scope of works packages, the tendering and award of contracts.

As you would expect, the owner will face challenges if it wishes transfer cost, time and quality risks to a construction manager or managing contractor in circumstances where the owner retains the ability to ignore the construction manager or managing contractor's recommendations and make its own decisions. Often the warranties provided by the contractor in these circumstances will be limited to exercising due care and skill and using its best endeavours to help the owner to achieve the cost, time and quality outcomes it seeks.

There are, however, examples of contractual arrangements where a so-called construction manager or managing contractor will accept more risk. For example, the managing contractor contract used by the Australian Department of Defence requires the managing contractor to provide a single point of accountability in relation to quality risk and a fit for purpose warranty.

As we have seen, the owner can also seek to share time, cost and quality risks with those it engages to help it manage the design, procurement and construction processes via gainshare/painshare regimes. The delivery partner model provides an example of this. But the entity so engaged will expect to have an ability to influence the outcomes for which it is sharing risk.

In the middle of our spectrum we have the situation where the owner engages a D&C or EPC contractor to complete the design and carry out the construction work. The contractor determines the final design, subject to it complying with the owner's performance specifications and the other contract requirements. Accordingly, the extent to which the owner can control the design turns on how prescriptive the owner is in its contract specifications. The owner can also direct a variation to the contractor's proposed design, but must bear the cost, time and quality consequences. The D&C or EPC contractor also determines the extent to which it will engage subcontractors to carry out the work, and accepts responsibility for the work performed by its subcontractors.

Finally, in the right hand side of this spectrum we have arrangements where some or all decisions are to be made jointly by the owner and other project participants. For instance, some alliance contracts require unanimity between the owner and the non-owner participants in the alliance on all project decisions. Less extreme are arrangements whereby certain decisions are reserved for the owner alone, but on the basis that the knock-on effect of such decisions is to be determined jointly.

4.8 Spectrum of collaborative contracting models

Many different forms of collaborative contracts are emerging. Some are really conventional fixed price contracts that are "dressed up" to look collaborative by incorporating contractual promises to co-operate and/or early warning mechanisms. But these contracts fail to address the real obstacles to greater collaboration that are inherent in "hard dollar" contracts. To address these issues and unlock the benefits of collaborative contracting, more radical approaches are required.

The spectrum of collaborating contracting models that are emerging in Australia is shown below.

The 'high-water mark' of collaborative contracting is alliance contracting. This model became very popular in Australia during the 2000s, before falling out of favour with various state treasury departments. More recently, the alliance contracting model has been discovered by the American construction industry, where it has been called 'Integrated Project Delivery' (IPD) and is increasingly being used with success.

The NEC suite is not shown on the spectrum because its place on the spectrum turns on the options within the suite that are selected. The contract becomes progressively more collaborative as one moves along the Main Option Clauses (which deal with the remuneration model), from Option A to Option F. There are also many Secondary Option Clauses which can make the contract more, or less, collaborative.

Public Private Partnerships (PPPs) are not shown on the above spectrum because Australian PPPs are very much hard dollar, fixed scope contracts. The raising of limited recourse debt finance by the PPP company further limits its ability to share risks and engage collaboratively with its contractors, independently of the government counterparty.

The order in which some of the contracting models are presented on this spectrum involves judgement calls. For example, the Incentivised Target Cost contract is more collaborative on cost risk than some of the contracting models shown to the right of it on the spectrum, but is less collaborative than other models on time risk, quality risk and other aspects.

The Appendices to this paper provide an overview of the main collaborative contracting models, and a summary table that compares the models across the key features discussed above.

4.9 Which model is best?

There is no 'one size fits all' when it comes to contracting strategies. The model which will best suit a particular project will depend upon a range of factors including the project owner's objectives, the characteristics of the project, and the state of the construction market. It's important that those who advise on or decide the contracting strategy understand the characteristics of the different contracting models, and how they can be tailored to create a model that best meets the project owner's objectives.

Long term collaborative contracts

The features of collaborative contracting can also be applied to relationships which endure beyond any single project. They can be also applied to a program of projects, standing offer arrangements and long term facility management/ maintenance arrangements.

The appeal is most apparent where the owner's requirements involve the performance of routine and ongoing work, or a series of similar or related projects or where there is impetus for the owner to decrease its engineering and/or maintenance departments. In such circumstances, work can be outsourced by the owner on a longer term or continuing basis, and on terms where the participants agree to invest in the relationship and share the benefits of doing so.

The benefits of long term collaborative contracts have recently been advocated by the Institution of Civil Engineers through its Project 13 initiative.[5]

Project 13 is specifically targeted at improving productivity in the construction industry. It advocates a transition from the traditional fixed time/fixed scope contracts to an 'enterprise' model with an integrated team who are commercially incentivised to deliver better outcomes. The enterprise is led by the owner, who has a direct contractual relationship with key suppliers and advisors. This is facilitated by an integrator who has responsibility for bringing together and integrating the key suppliers and advisors.

The key commercial principles of Project 13 are closely aligned to the alliance contracting model, including the no-blame concept. Where the enterprise approach differs is in terms of scale and time. Proponents say that the model yields the greatest benefits when applied across asset systems/portfolios, and over a longer time period, for example covering maintenance and operation of an asset rather than finishing at completion of construction.

The benefits of long term collaborative contracts can include:

- It is easier to develop the trust and cooperation needed to fully realise the benefits of collaborative contracting.
- For long term maintenance arrangements, the participants are encouraged to use foresight in planning, and there are incentives to invest in staff, equipment and the development of solutions to problems that may arise in the future.
- For projects involving repetitive tasks, owners should see the benefits of continuous improvements (and this can be built into the KPIs e.g. by ratcheting up the required outcomes year on year).
- The costs of tendering and transition are significantly reduced.

As the contractor under a long term relationship will typically be committing resources on a long-term basis, the owner will as compensation for this risk typically allocate or guarantee to the contractor a certain amount of work – a core workload – for the period of the relationship.

There are some unique risks faced by parties who enter into a long term collaborative contract. From the perspective of the non-owner participants the risks are:

- There may be a possible loss of business from other owner clients because of a perceived special relationship with participating owner.

[5] http://www.p13.org.uk/

- The margins are likely to be lower.
- If the core work programme does not materialise, or is too variable, the commitment of resources by the contractor may prevent it obtaining adequate return on its investment.

From the perspective of the owner the risks are:

- The absence of competitive bidding may reduce the benefit to be gained in the event of any market turndown, and remove the market pressure upon non-owner participants to keep costs down.
- There may be contractual uncertainty regarding the obligations of the non-owner participants as the program develops and evolves.

On the whole, a long term collaborative relationship requires a higher degree of trust from all parties than is required for a single project. The invitation to form a long term collaborative relationship is likely to come out of a situation where the parties have a history of working together harmoniously.

Organisational capability

The establishment and administration of collaborative contracts requires appropriate capability (i.e. leadership, skills, experience and behaviours) that will allow the organisation to effectively implement the commercial model. These 'cultural' elements can be just as important as the contractual and commercial elements.

More radical forms of collaborative contracting, like the alliance contracting model, require a major shift in thinking at all levels of the owner and non-owner organisations. This requires strong leadership, appropriate governance processes, and training of staff, alongside contractual solutions such as commitments to good faith and no blame.

The problem for many organisations – particularly government organisations or large bureaucratic corporates – is that they have deeply ingrained cultures around procurement and project delivery, based on competitively tendered 'hard dollar' procurement methods, which are not easy to change. For the leaders and staff administering these projects, it is quite a different proposition to lead and administer a collaborative contract as compared to a conventional hard dollar contract. Experience in leading and managing project alliances and other collaborative contract forms is thin on the ground, given the industry preference for conventional procurement over the last decade.

It is also important to personally align individuals with the outcomes that the parties are seeking to achieve. Personal remuneration arrangements, bonus schemes and job security can result in misalignment of interests.

It can take time for organisations to build the capability and culture required to realise the benefits of collaborative contracting. Investing in developing this capability and culture will assist in realising the benefits.

More collaborative dispute resolution

Dispute Resolution Boards (also known in Australia as Dispute Avoidance Boards or DABs) are no longer a new or novel concept. Their success in helping contracting parties on construction projects to resolve emerging issues consensually and avoid expensive and protracted disputes is well documented.[6] It is surprising therefore that they haven't featured more prominently in the collaborative contracting toolbox.

Usually three independent people are appointed to form the DAB by the owner and the contractor at the start of a project to solve problems that arise during construction. They'll typically have, between them, significant experience in delivering similar projects and project-related dispute resolution – a blend of engineering, project management and legal expertise.

Their first, and most important, function is dispute avoidance. DABs meet with the parties regularly during the delivery of a project to discuss emerging issues and help the parties to resolve them on a consensual basis. This is akin to proactive mediation, and has been highly successful in resolving issues on major projects before they become intractable disputes.

Alongside this is a decision-making function. Either party to a dispute can refer it to the DAB for a written determination. The DAB's determination can be binding, or non-binding, depending on what the parties agree when they establish the DAB.

There is, of course, a cost associated with having a DAB meet with the parties on a regular basis. But the cost is low relative to the value that DABs deliver. The base cost of a DAB in Australia is generally 0.1 – 0.2% of the total project cost for a project over AUD100 million. That equates to between AUD100,000 and AUD200,000 per annum for a AUD100 million plus project.

On the value side, the Dispute Resolution Board Foundation's website reports that just under 80% of DAB projects have been completed without a single referral to the DAB for a decision, compared with the industry norm of less than 40% completed without off-site dispute resolution processes being involved. It also reports that where referrals have occurred, DAB decisions have been accepted or led to party-to-party settlements in 98% of cases without further dispute resolution processes.

When one considers the legal costs alone of a full blown dispute, AUD200,000 per annum to avoid disputation seems a small price to pay for a process that can be viewed as 'insurance' against the costs of disputation.

[6] Michael Van Der Ende, *Dispute Boards in Public Private Partnerships: Best Practice or an Impossible Dream?*, (2016) 32 Building and Construction Law 300.

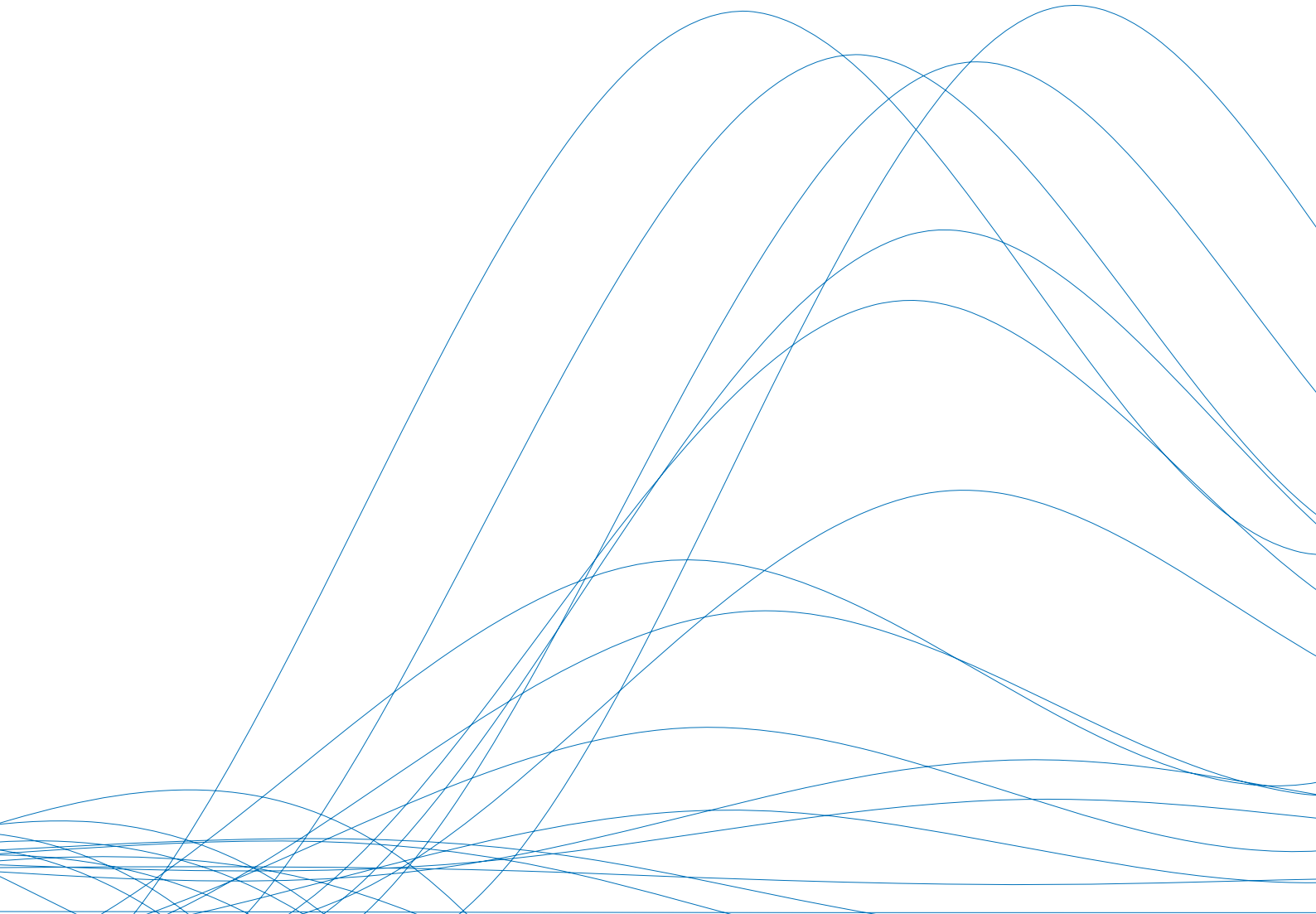
Bankability of collaborative contracts

Collaborative contracting is generally considered an unsuitable delivery model if the owner wishes to raise finance on a limited recourse project finance basis – where the financiers may only look to the cash flows and assets of the project to secure repayment, and not to the balance sheet of the owner.

Traditionally, project financiers have required the project owner/borrower to transfer the risk of cost overruns, delays to completion and quality to a creditworthy head contractor via a conventional fixed price, fixed time contract.

However, it is not impossible to raise project finance for a project delivered under a collaborative contract. To address the greater risks assumed by a project owner under collaborative contracting models, project financiers may require:

- the equity investors in the special project vehicle/ borrower to provide more equity upfront, together with binding commitments to provide additional equity in the event of delays or cost overruns. Completion guarantees from the sponsor equity investors may also be required;
- the establishment of separate cost overrun facilities with higher margins;
- that the contract itself includes certain features such as a well-structured gainshare/painshare regime, a prescriptive subcontracting regime, and the reserve power and deadlock breaking mechanisms discussed in Appendix 2;
- more extensive due diligence in relation to technical issues, project risks and the capabilities of the participants; and
- tailored insurance policies – see section 2.2 of Appendix 2.



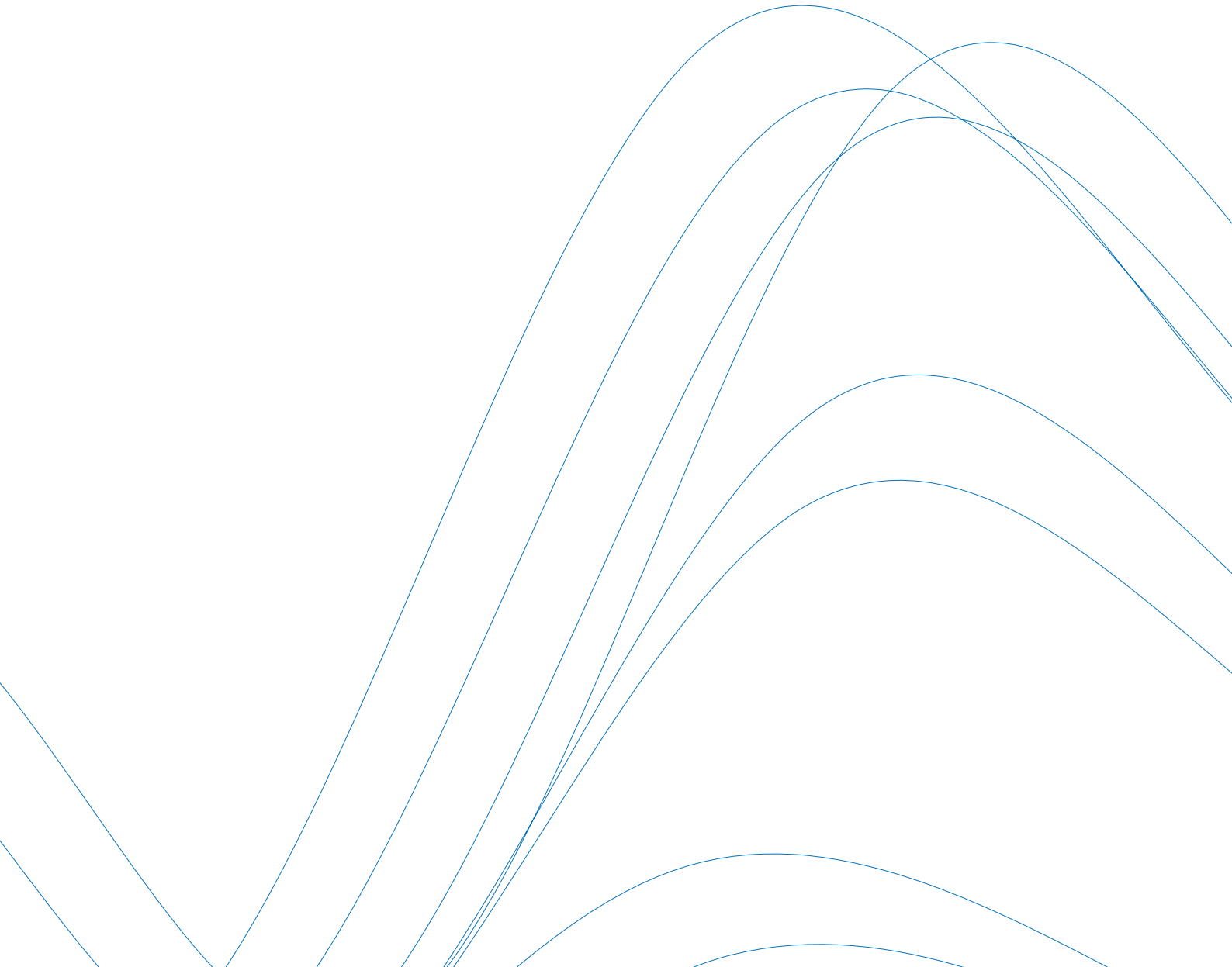
A bright future for collaborative contracting

Collaborative contracting, particularly alliance contracting, fell out of favour in Australia in the second decade of this century as the mining boom ended, and the negotiating position of buyers of construction and engineering services improved.

Ironically, this was contrary to the long term interests of most project owners, as the return to more conventional contracting models reinstated the misalignment of commercial objectives between project owners and non-owner participants that has long impeded improvements to construction productivity.

The uplift in government expenditure on public infrastructure on Australia's east coast over recent years has once again caused the construction and engineering market to overheat. This may require more project owners to adopt collaborative contracting approaches in response.

Couple this with governments turning to collaborative contracting as a way to quickly create jobs and stimulate the economy through infrastructure spending on 'shovel-ready' projects, and the future looks bright for collaborative contracting.



Appendix

Appendix 1: Partnering

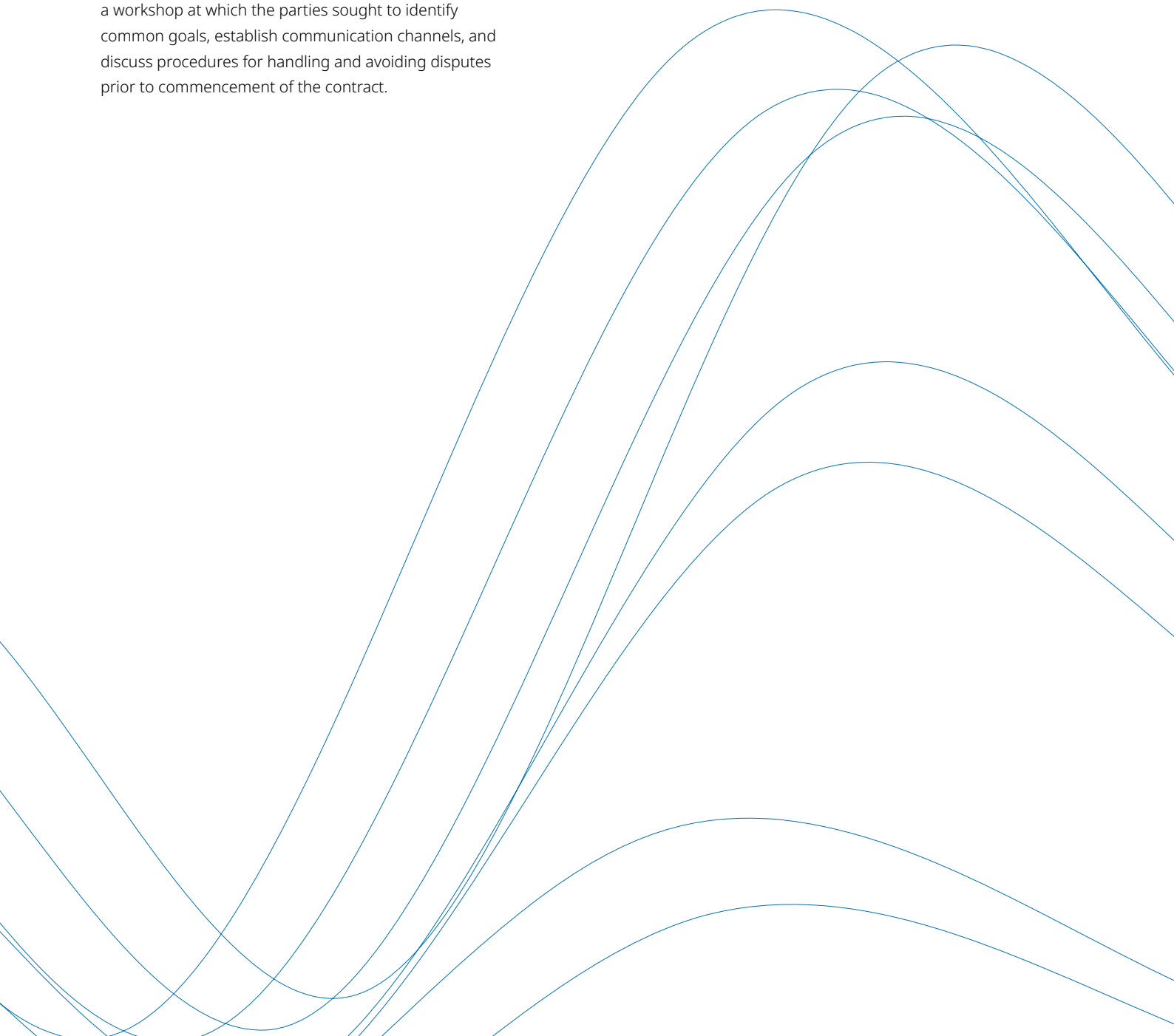
Initial attempts at collaborative contracting in Australia in the 1990s were known as 'partnering'. Although this form of collaborative contracting has fallen into disuse in Australia, it is useful to briefly describe it, to illustrate how collaborative contracting has evolved.

Partnering describes the situation where the parties to a conventional construction contract would set out in a separate document various guidelines as to how they would conduct themselves. The objective of partnering was to create an environment of trust and co-operation, to prevent disputes and facilitate the completion of a successful project.

The partnering process usually commenced with a workshop at which the parties sought to identify common goals, establish communication channels, and discuss procedures for handling and avoiding disputes prior to commencement of the contract.

At the conclusion of the workshop, the parties would sign a partnering charter which would 'sit behind' the conventional contract, and detail the mission and common objectives of the parties and demonstrate the commitment of the key people involved. The partnering charter would typically state that it had no legal force.

It was the non-binding nature of the partnering charter, and the absence of any attempt to alter the way in which the construction contract deals with the fundamental issues of risk allocation and remuneration, that puts it at the less collaborative end of the collaborative contracting spectrum.



Appendix 2: Alliance contracting and Integrated Project Delivery

It is useful to describe the other end of the collaborative contracting spectrum, before returning to models that sit between the two end points. At the most collaborative end of the spectrum we have alliance contracting. In the United States of America, where the model has been gaining in popularity, it is referred to as Integrated Project Delivery (**IPD**).[7]

There are 5 features which differentiate alliance contracting (in its purest form) from conventional construction procurement:

- Remuneration regime – alliance contracts fundamentally alters the remuneration arrangements and risk allocation found in conventional fixed-price contracts, by replacing the fixed price with a performance based remuneration regime that better aligns the commercial interests of the participants.
- Creation of a virtual organisation – the integrated project team or 'alliance' – comprising of the individual team members provided by the project owner and each non-owner participant.
- Continuous involvement of all non-owner participants from the moment the contractual relationship is formed – usually very early in the project scoping and design process until project completion.
- Unanimous decision making – all decisions are to be made by way of unanimous agreement between the owner and the other participants.
- No blame regime – each party agrees that it will have no right to bring any legal claims against any of the other participants, except in the very limited circumstance of a wilful default by another participant.

Some alliance contracts don't fully embrace all of these features. These are often referred to as 'hybrid alliances'. For example, there have been many project alliances in Australia that did not fully embrace the no blame concept, or which allowed certain decisions to be made other than by way of unanimous agreement. It is important to recognise, however, that these hybrids, whilst different to and departing from the 'pure' model, are no less valid. They simply reflect the fact that there is no 'one size fits all' when it comes to contracting strategies.

What is important is that the parties understand the nature and the limitations of the particular contracting model that they are adopting. For instance, if an owner wishes to adopt a hybrid model under which a non-owner participant assumes sole responsibility for particular risks and is held legally accountable for its work, the owner should not expect the same level of innovation and resultant cost savings as might be achievable under the pure model.

1. Radical new approach to remuneration and risk allocation

Under conventional construction contracts, the contractor is typically remunerated on a fixed price basis, subject to entitlements to an increase in the contract price for specified events. As already explained, this conventional approach sets the interests of the owner and the contractor in fundamental opposition to each other. Dissatisfaction and disputes are often inevitable.

The alliance model discards the traditional fixed price method of remuneration in favour of a 3-limb performance based remuneration regime. The 3 limbs are as follows:

Reimbursable Costs: the reimbursement of 100% of the non-owner participant's direct project costs on an open book basis;

[7] See, for example, American Institute of Architects, *Integrated Project Delivery: An Updated Working Definition*, Version 3, updated 15 July 2014, and University of Minnesota in collaboration with University of Washington, University of British Columbia, Scan Consulting, *Motivation and Means: How and Why IPD and Lean lead to Success*, November 2016.

- Fee: a fee to cover normal profit and (non-project specific) corporate overheads; and
- Gainshare/Painshare: a gainshare/painshare regime where the rewards of outstanding performance and the pain of poor performance are shared equitably among the owner and the non-owner participants.

The parties agree a target outturn cost (**TOC**), which is the estimate of the reimbursable costs of carrying out the project works to completion to achieve the minimum outcomes that the owner requires plus the fee. The TOC usually includes a contingency for risks that may arise and the project owner's own costs of participating in the integrated project team.

The TOC is the end product of the initial phase of the relationship, during which the participants firm up the scope of works. There is usually some level of negotiation of the TOC and scope adjustment, and often an independent validation that the TOC represents value for money.

1.1 REIMBURSABLE COSTS

Reimbursable costs are all direct costs actually and reasonably incurred by the non-owner participants (**NOPs**) in performing the project works, excluding profit and overheads. The owner pays the NOPs 100% of these direct costs, regardless of whether they exceed the TOC.

The participants commit to an 'open book' arrangement under which they each have broad rights to audit the costs that are reimbursed.

There are usually a number of agreed principles for the calculation of these including the demarcation between direct costs and corporate overheads, and the business as usual treatment of a number of specific costs, such as wages and salaries and plant hire. For consultants, there is often an agreed multiplier which is applied to the salaries of fee earners to determine the consultant's direct.

1.2 FEE

Before the contract is signed, perhaps the most significant issue for commercial alignment is the percentage fee the NOPs will be entitled to. The fee is intended to cover the profit margin and contribution to corporate overheads which the NOPs would expect to receive for 'business-as-usual' performance.

The fee may either be calculated on a fixed or variable basis. For constructors, the fixed model is generally used, which is the multiplication of the pre-agreed percentage by that part of the TOC which is attributable to the constructor's work. This avoids the situation where a constructor can earn a greater fee by incurring more direct costs. For designers, the fee is often calculated on the variable model, by applying the agreed percentage to the actual direct costs which the designer incurs. This avoids the designer being reluctant to take on additional scope after the TOC is set because it will not receive an equivalent increase in fee.

1.3 GAINSHARE/PAINSHARE

The object of the gainshare/painshare regime is, as the name suggests, to share with the NOPs the increase or decrease in the value to the owner of excellent or poor generated project outcomes and, by so doing, align the commercial objectives of the NOPs with those of the owner.

It does this by setting out gainshare entitlements or painshare liabilities of the NOPs by reference to the performance of the project against the owner's project objectives. The owner's project objectives almost always include time and cost, and usually include a range of other non-time or cost key result areas (KRAs) such as quality, sustainability, aesthetics, functionality, operational efficiency, whole of life costs, safety outcomes, community satisfaction and local industry participation. These are commonly referred to as performance KRAs.

Gainshare for the cost objective is usually the simplest with the NOPs sharing a proportion (typically 35-50%) of cost overruns or underruns against the TOC. Variations on this include varying the percentage for early cost underruns (to minimise the opportunity for the NOPs to make windfall gains by picking low hanging fruit) or setting aside part of the cost under-runs as a top-up to the pool available for gainshare for successful outcomes in time and performance KRAs.

Time is usually dealt with on a project specific basis as there is often significantly different value outcomes for early or late completion on different projects. For example if an asset is needed to link into an existing network and cannot be used before a particular date there may be little value in early completion, but significant loss in late completion.

Outcomes in the performance KRAs are often more difficult to measure. Often a points system is devised to measure the project's performance against these KRAs. There may be clear objective project outcomes that can be measured (such as road ride quality, in the case of a

road project) or outcomes may be more subjective such as community satisfaction with the project, which can often be measured by survey.

The total amount payable by each NOP as painshare is usually capped at the NOP's fee entitlement. This way, each NOP effectively puts 'at risk' its profit and contribution to overheads, but not its direct costs. Components of painshare are often capped at lower amounts than the overall cap, although cost overrun painshare is usually capped at the full amount of the fee.

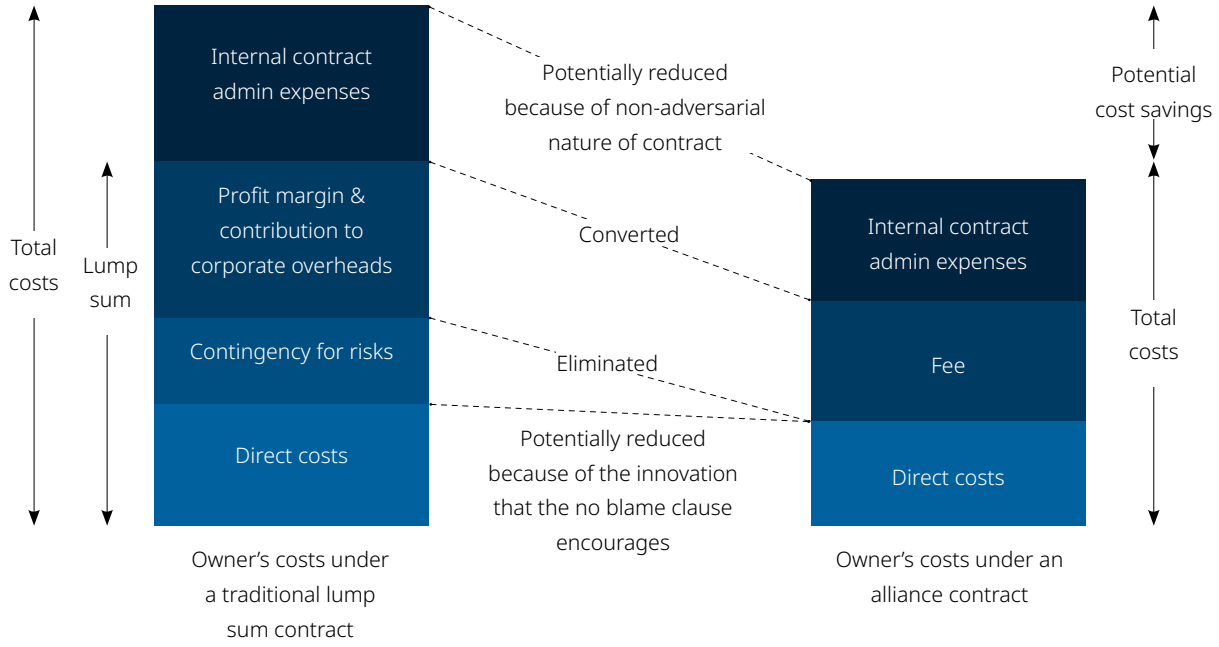
TOC gainshare is sometimes fully self-funded in that it is simply a portion of the owner's share of cost underruns. A downside of this approach, however, is the absence of any incentive to perform well in non-price KRAs if a cost overrun is expected. Accordingly, the pool available for distribution for performance gainshare usually comprises a seed amount provided by the owner (reflecting the additional value the owner expects to receive if project performance against the non-price KRAs is exceptional), which may or may not be topped up by a proportion of the owner's share of any cost underruns.

Importantly, the risk/reward regime is set up to cost or benefit each NOP according to project outcomes, rather than individual contributions of the relevant NOP. This aligns the decision making incentives – a decision that is best for the project will benefit all of the participants ("we all win"), and one that attempts to benefit one participant at the expense of the project will reduce profitability for all participants ("we all lose").

1.4 POTENTIAL COST SAVINGS FOR OWNERS

Alliances can deliver projects at a lower cost than would have been possible under conventional contracts. How is this possible? The potential for cost savings is attributable to the following features of alliance contracting:

- Firstly, the fixed price under a conventional contract will typically include an amount to cover costs which the NOP may incur if risks which it bears under the contract eventuate (commonly referred to as the 'contingency'). Under a fixed price contract, the owner pays this contingency amount, regardless of whether or not the risks which it is intended to cover materialise. Under an alliance contract, the NOPs are always reimbursed their direct costs, so there is no need to charge the owner a contingency on account of the risk of incurring unexpected direct costs. Although the TOC will typically include a contingency for 'business-as-usual' unexpected direct costs, the owner only pays these direct costs if the risk eventuates and the costs are incurred. Further, the total contingency amount included in the TOC can be less than the aggregate of the contingency amounts that each NOP would include in its fixed price under a conventional procurement model, for the reasons explained below.
- Secondly, there is a potential for a reduction in the direct costs due to the no blame clause. This clause allows the participants to innovate and take risks in the pursuit of cost savings and enhanced project performance without fear of legal claims if they fail. This no blame culture, coupled with each NOP's entitlement to share cost savings under the gainshare regime, should result in increased innovation and resultant cost savings which would simply not be achievable in a traditional, adversarial contracting environment.
- Thirdly, the collective sharing of all project risks, together with the no blame regime, creates an environment which facilitates good risk management practices. Everyone can talk openly without the need to protect their respective legal positions. In this environment, risks are more likely to be identified, and appropriate strategies put in place to mitigate and manage them. As a consequence, the financial impact of risks which do eventuate are likely to be less. This may (or may not) result in a lower actual outturn cost for the owner depending on:
  - whether such risks would have been allocated to a NOP under a conventional contract;
  - the additional payments the owner would have been required to make to the NOP under a traditional contract as a result of the risk (or the additional internal costs the owner would incur in defending claims arising from the risk); and
  - the contingency amount which the NOP would have included in its lump sum price on account of the risk.



- Fourthly, the owner's internal contract administration expenses may be less on account of the non-adversarial nature of the relationship which reduces the resources required for managing and defending claims and disputes. However, alliance contracts typically involve higher tender and contract establishment expenses, which may outweigh these cost savings.
- Fifthly, if there are variations to the scope of the project (particularly variations which would not justify an adjustment to TOC or performance targets – see section 4 below) the cost of such variations is likely to be less under an alliance contract than under a conventional construction contract.
- Finally, because the liability of the NOPs to the owner is capped at loss of its fee, the owner may consider that the fee should be set at a level lower than amount of profit and contribution to overhead which the contractor would expect to receive under a traditional lump sum contract where the risks borne by the contractor are much greater.

1.5 NO GUARANTEE OF A LOWER PROJECT COST

Although there is potential for the owner to derive cost savings, there is no guarantee that the adoption of alliance contracting will result in the delivery of the project at a lower cost than would have been achievable under a conventional procurement approach. Indeed, given that the owner is obliged to pay all of the direct costs incurred by the NOPs, the owner's cost exposure is potentially unlimited (subject to its right to terminate the contract).

1.6 OWNER PAYS FOR MISTAKES OF NOPS

Compounding the above issue is the fact that under an alliance contract, the owner is obliged to pay the costs incurred by the NOPs in redoing work which they fail to do properly the first time. Whilst such additional costs will be at the expense of each NOP's fee and gainshare entitlement, the direct costs of the NOPs are guaranteed. This is a feature of the alliance model which some owners have found difficult to accept and which has caused owners to explore variants to the no blame regime.

1.7 NEED FOR CARE IN STRUCTURING GAINSHARE/ PAINSHARE REGIME

In structuring the gainshare/painshare regime, it is important to try to avoid a situation in which poor performance against any single KRA will wipe out the entire fee; otherwise, having fallen behind in one area, the NOPs may have no financial motivation to achieve any of the owner's other project objectives. Of course, even in these circumstances the NOPs would not be free to 'walk away' from the project, as to do so would be a wilful default to which liability would attach.

2. No blame

Under the no blame clause found in the pure alliance model, each participant (including the project owner) agrees that it will have no legal claims against any of the other participants, except in the case of narrowly defined wilful default.

This creates a commercial framework in which there is no point in seeking to allocate blame for problems. Rather, the commercial interests of each participant are best served by helping to solve the problem in a way that maximises the performance of the project against the KRAs.

The no blame clause also encourages the participants to come out of their comfort zone, to take risks, and to accept stretch targets in the pursuit of extraordinary results, without fear of legal claims if they fail.

However, the ramifications when things go wrong can be far reaching.

2.1 NO BLAME MAY MEAN NO CLAIM AND NO REMEDY

For example, because the entitlement of each NOP to its fee and potential gainshare payment depends on the performance of the other participants, if any one of them fails to perform adequately then all of them will suffer – but none of them will have any claims against the non-performing participant.

Furthermore, the inclusion of this clause also means that the owner will have no remedy against any NOP for losses suffered by the owner as a result of the negligence, or inefficient or defective work practices, of the NOP.

Whilst the no blame clause applies to both the owner and the NOPs, it generally involves a greater concession on the part of the owner as it is usually the NOPs that carry out most of the work, with the owner's main obligation being that of payment (a breach of which is usually defined to constitute a wilful default).

2.2 DIFFICULTIES WITH TRADITIONAL INSURANCE POLICIES

Issues may also arise under typical insurance policies as a result of the no blame regime.

Traditional liability insurance products, such as professional indemnity insurance available to designers, are liability-based insurances under which the insurer will not pay unless the designer is legally liable for the loss or damage. Under a no blame clause, an alliance participant will only be liable to another participant for wilful default. Consequently, negligent design work by a participant will not trigger a right for the other alliance participants to make a claim under a traditional third party professional indemnity insurance policy.[8] This issue if often overcome by purchasing a tailored first party project-specific insurance, but such policies are (comparatively) expensive.

The no-blame regime can also affect the operation of a standard material damage insurance policy. Typically when an insurer pays a claim under such a policy, it has a right of subrogation such that it can step into the shoes of the insured party and seek recovery of that part of the claim that came about as a result of the negligence of another participant. However, because of the no blame clause, a participant that negligently causes damage to the property of another participant will have no liability for such damage.

Another approach to this issue is to draft 'carve-outs' from the no-blame clause that render an alliance participant that negligently causes loss to another participant liable to the other alliance participant for such loss, but only to the extent that it is insured for such liability. However, this approach is complex and can give rise to legal uncertainty.

[8] Note, however, that this concern only arises in terms of the operation of the insurance as between the participants. As discussed below, a no disputes regime does not prevent liability arising to third parties. Therefore the trigger of legal liability remains appropriate in respect of losses incurred as a result of damage caused to third parties by the professional negligence of alliance participants.

The NEC form of alliance contract (ALC4) deals with this issue by:

- allowing the owner or another participant to bring a claim against a participant for negligence;
- making the resultant liability, to the extent it is not insured, a reimbursable cost; and
- sharing the 'pain' of this additional cost between all participants in accordance with the gainshare/painshare regime.

2.3 COLLABORATIVE CONTRACTING WITHOUT A NO BLAME CLAUSE

Given these ramifications, some owners have adopted collaborative contract models without the no blame clause, or with a no blame clause providing for broader exceptions than those allowed for under the definition of wilful default.

Some will argue that the no blame concept is an essential ingredient of the alliance approach. Certainly, if the owner wants to achieve a high level of innovation from the NOPs (which necessarily involves risk taking), then the inclusion of a no blame clause will assist in achieving this objective. However, there does not seem to be any reason why some of the benefits of the alliance model, such as the ability of a carefully structured gainshare/painshare regime to align commercial interests and drive desired behaviour, cannot be obtained (at least in part) without such a clause.

2.4 LIMITS OF THE NO BLAME CLAUSE

Even if a no blame clause is incorporated into the contract structure, it will not have the effect of preventing any and all liability from being incurred by the participants.

Most obviously, the no blame clause only has effect between the participants, and cannot limit any rights which third parties might have to bring a claim against one or more participants arising out of the conduct of a participant. As with any contract, an alliance contract will only bind the parties to it. However, alliance contracts generally provide that uninsured liabilities to third parties will be treated as direct costs which the owner must reimburse.

Even as between the participants, there are some matters for which it is not legally possible to exclude or limit liability. An example of this is liability which a project participant might incur to another project participant under section 18 of the Australian Consumer Law, which prohibits corporations from engaging in misleading or deceptive conduct. Liability under section 18 cannot be excluded or limited by contract. Nor could one participant enforce a promise by another participant to waive any rights to commence proceedings arising out of a contravention of section 18.

3. Decision making and the requirement for unanimity

A unique feature of the pure alliance model is the establishment of joint decision making bodies, typically called the Alliance Leadership Team (ALT), comprising representatives of the owner and each NOP, and the requirement that all decisions be made by these bodies by unanimous agreement.

The ALT fulfils a high-level management and decision making function. Important decisions concerning the alliance contract, such as whether adjustments should be made to the remuneration regime following a major change to the scope of the works, are referred to the ALT for resolution. The ALT can also be required to consider and resolve any differences of opinion which cannot be resolved within the integrated project team.

Whilst the establishment of such a body is not unique to alliance contracts, the requirement for all decisions of the ALT to be made by unanimous agreement is. The requirement for unanimity means that each participant has a right of veto, and if unanimous agreement cannot be reached, no decision is made. The pure alliance model does not include a deadlock breaking mechanism. This arrangement is considered by many to be crucial to the success of the alliance approach. They argue that the need to achieve unanimity to proceed (and the absence of a deadlock breaking mechanism) forces the parties towards mutually acceptable solutions. The requirement for unanimity coupled with the no blame clause takes away the options of "I'll do it your way, but I'll claim it" or, "You'll do it my way, and if you don't like it, claim it".

On a practical level this may be correct. However it is in the interests of all parties that an alliance contract be a legally enforceable agreement. Contractors in particular have a lot to lose if the contract is held to be unenforceable as they would lose the benefit of the no blame clause. An inability to resolve a dispute which cannot be resolved by the ALT can bring uncertainty to the ongoing legal basis of the contract. A court will not enforce an agreement to agree. Accordingly, if an alliance contract is dependent upon the ALT

reaching unanimous agreement in relation to a matter which needs to be resolved in order for the project to continue, then the parties run the real risk that the agreement will be legally unenforceable in the event unanimity cannot be achieved. This risk can be minimised by including a deadlock breaking mechanism to provide a course of action if unanimous agreement cannot be reached.

The alternative view to those who argue that a deadlock breaking mechanism is contrary to the spirit of the alliance, is that having such a mechanism which is only to be used as a tool of last resort increases the incentive for the ALT to come to unanimous agreement. This is because it would be a matter of professional embarrassment for the individual members of the ALT if they had to resort to that mechanism.

The absence of an ability to quickly resolve deadlocks at the ALT level can also result in significant delays to the progress of the project, although this will have commercial ramifications for the NOPs where a schedule KRA is included in the gainshare regime.

Some owners have also made the observation that the requirement for unanimity has resulted in a loss of ownership and control over the project. It is for these reasons that some contracts incorporate variations to the pure alliance model involving:

- in some cases, the ability to resort to a deadlock breaking mechanism to resolve those deadlocks which can't be resolved within the ALT; and
- in other cases, the owner reserving the power to unilaterally make certain types of decisions, but on the basis that the 'knock-on' effect of the decision on, say, the remuneration regime will be determined by the normal decision making process.

One deadlock breaking mechanism that some Australian alliance contracts have adopted is the so called swing-man dispute resolution process. Under this process, deadlocks that cannot be resolved unanimously by the ALT are referred to an independent third party, and each participant submits to the third party its position as to how the deadlock should be resolved.

The independent third party must then choose which of the competing positions it prefers, having regard to the terms of the alliance contract. The independent third party is only entitled to choose between the competing positions submitted to it by the participants, and is not entitled to impose its own solution on them. The position chosen by the third party is treated as final and binding on the participants.

The theory behind this form of deadlock breaking mechanism is that the participants will be discouraged from putting extreme positions to the independent third party, for fear that the third party will prefer the position of another participant, and that this will assist in achieving a resolution which all participants can live with, minimising any ongoing damage to the their relationship.

4. Scope changes

Under the alliance model, the risk of the vicissitudes of the project which arise are to be shared by the participants. This means that a number of situations that would be treated as variations under a traditional contract are not cause for amending the remuneration regime under an alliance contract. If costs increase, or time blows out, the NOPs are paid their additional direct costs, but painshare and gainshare payments are calculated in accordance with the agreed regime. This includes alterations to the project works to deal with such vicissitudes.

However the owner retains the ability to require significant changes to the scope of the project works, and if the ALT unanimously considers that this has occurred, the remuneration regime (including the TOC) is adjusted. Typically, all modifications to the remuneration regime are to be determined by unanimous decision of the ALT.

The line between what is a 'significant change to the scope of the project works' and what is a vicissitude of the project can be a fine distinction, and often the participants will workshop possible examples in scope change benchmarking workshops during the selection process or when the TOC and other performance targets are being established.

5. Termination

The alliance model usually gives the owner the right to terminate the contract for convenience (that is, without cause), subject to the owner reimbursing the NOPs for all direct costs incurred by them prior to and as a consequence of the termination, together with a portion of the fee and gainshare/painshare payment based on the proportion of the works completed at the time of termination.

Also, if a NOP commits a wilful default or becomes insolvent, then the remaining participants acting together will typically have the ability to suspend any further payments to the defaulting NOP until the default is remedied, and/or to exclude the defaulting NOP from any further participation in the project and engage a third party to replace the defaulting NOP.

This right of exclusion for wilful default or insolvency is considered important given that non-performance by any one NOP will affect the gainshare/painshare payment, and hence the rewards, available to others.

Consistent with the no blame concept, the owner may not have the right to exclude a NOP from further participation for a breach which does not constitute a wilful default. However, some owners are adopting 'alliance-ish' structures that do not incorporate the full no blame concept. In these cases, owners may also consider it appropriate to include in the contract a right (perhaps with the agreement of all NOPs other than the defaulting NOP) to terminate for serious breaches falling short of a wilful default, with the defaulting participant forfeiting its entitlement to any fee or gainshare payment.

6. Sub-contracting

It remains common for subcontracting under an alliance to be done by conventional contracts.

It is in the interests of all participants that the financial interest of every participant that could have a material effect on the project outcomes is aligned. Accordingly, the best approach is for all key project participants to be parties to the alliance contract. If a material project participant is to be engaged is a subcontractor to an alliance participant it would be preferable for the subcontractor to be engaged under some form of performance based sub-contract that supports the KRAs in the main alliance contract.

It remains common, however, for most subcontractors to be engaged under conventional fixed price contracts. This can give rise to the problems associated with conventional contracting identified in section 2 of this paper. However, the benefits that could be obtained from performance based subcontract that better supports the upstream KRAs may not justify the additional costs of establishing and administering such a subcontract.

Further, for project participants who not be prepared to accept the open book scrutiny associated with being a participant in the alliance, a conventional form of subcontract may the most viable option.

7. The selection process and value for money

7.1 ESTABLISHING VALUE-FOR-MONEY (VFM)

As mentioned earlier, the challenges associated with establishing value for money are exacerbated with collaborative contracts where:

- The preferred tenderer is selected on the basis of non-price criteria; and
- The final TOC, and other performance targets which will ultimately influence the final 'price' paid to the NOPs, are not determined until after the preferred tenderer has been selected.

7.2 DEMONSTRATING VFM

Steps which can be taken to assist in demonstrating VfM where alliancing is used include:[9]

- the owner preparing a Business Case for the project that details:
  - the drivers and objectives for the project – what problem is the project seeking to solve;
  - the solutions considered, including why the proposed project is considered to be the optimal solution;
  - the project scope and deliverables;
  - a rigorous cost estimate for the project – sometimes referred to as the owner's comparative TOC);
  - the benefits that the project is expected to deliver;
  - why an alliance model is considered to be the optimum procurement model for the project.
- before commencing formal market engagement processes, the owner preparing a 'VfM Statement', that builds on the Business Case, that also details:
  - the amount of investment approved in the Business case;

[9] Further guidance on demonstrating value for money can be found at Australian Government, Department of Infrastructure and Regional Development *National Alliance Contracting Guidelines – Guide to Alliance Contracting and Guidance Note 4 – Reporting Value-for-Money Outcomes*, September 2015.

  - the time commitment for investment;
  - the primary risks to the success of the investment and proposed ownership of risks;
  - expectations regarding alliance governance;
  - proposed KRAs, KPIs and minimum outcomes;
- requiring tenderers to bid their fee, or the percentages and methodology for establishing it, and locking this in prior to selection of the preferred tenderer;
- alternatively, requiring tenderers to provide their expectation for the fee, evaluating this separately to the non-price criteria, but reserving the right to vary this fee during the commercial alignment process in light of the financial audit;
- engaging a financial auditor to audit the financial and cost accounts of each proposed NOP to establish a clear basis for direct cost reimbursement and the fee;
- asking tenderers to provide their proposed subcontracting and procurement strategy and explain how they will achieve best value for money outcomes for the project from subcontractors and suppliers. The alliance contract should require the participants to comply with the agreed subcontracting and procurement strategy;
- conducting scope change benchmarking workshops with shortlisted tenderers, prior to the selection of the preferred tenderer, to ensure reasonable alignment of understanding on what will and won't constitute a scope change justifying an adjustment to the TOC and other performance targets. This understanding should be recorded in 'interim scope change benchmarking guidelines', which should be validated with the preferred tenderer before the owner decides to proceed with the project;
- engaging an independent estimator to confirm that the TOC is a fair and reasonable estimate of the outturn cost;
- benchmarking the TOC to similar projects;
- reconciling the TOC with the owner's comparative TOC;
- preparing a report which explains why the agreed KRA/KPI targets represent value for money, and having this independently verified;
- engaging a financial auditor to confirm that all payments made to the NOPs are in accordance with the terms of the contract; and
- the owner preparing a detailed VfM Report during the project delivery phase and following completion which:
  - reconcile the proposed project scope (from the Business Case and VfM Statement) with what was delivered;
  - reconcile the actual outturn cost (AOC) with the TOC and the owner's comparative TOC;
  - assess the extent to which expected benefits have been realised; and
  - capture any lessons learned that can be fed into future projects.

7.3 COMPETITIVE BID PROCESSES FOR ESTABLISHING TOCS?

Most project owners now seek to address the value for money concern by:

- deferring the selection of the successful participants until after the TOC has been fully developed and bid by the competing teams; and
- factoring the TOCs bid by each team into the evaluation process.

Debate remains as to the potential downsides of this approach and whether it has the potential to undermine the foundation of a successful alliance project. Some NOPs may be tempted to underbid the TOC in order to win the job, knowing that the most they will lose is their fee. Gaming of this nature undermines the trust needed for a successful alliance.

If the owner funds the development of each TOC, a competitive TOC process adds to the owner's project costs. But these costs may be offset by the reduced need for independent auditing of the TOC and increased (competition driven) innovation during the TOC development process.

Also, even with a competitive TOC process, the TOC is likely to be adjusted in a non-competitive environment before the contract is signed. This is because in working up the TOC, each competing tenderer is likely to develop innovative, but different solutions. The owner may want to take advantage of at least some of the innovative solutions devised by the losing tenderer, which necessarily means a change to the scope of the winning team, and hence its TOC. To the extent this change is significant – and where the project is such that real innovation is available, it may well be significant – arguably undermines the competitive nature of the TOC.

8. Critical chain project management (CCPM)[10]

Projects comprise many tasks. The traditional approach to project management is to expect each task manager to manage the uncertainty in their task, and ensure the task is completed on time. When considering how long a task will take, we usually consider the shortest, the longest and the average duration for the task. When asked to commit to a duration, we don't want to be late, so we'll usually only commit to a duration much greater than the average task duration.

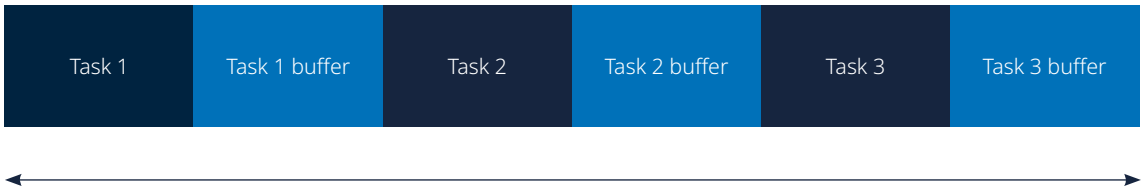
The same applies when we ask sub-contractors and suppliers to commit to completion deadlines for their tasks, and seek to impose liquidated damages for late task completion. This means most tasks are planned conservatively, even if the task manager is pressured to reduce their estimated duration. Giving the planner an 'average' duration is high risk, because by definition half the time you'll take longer than the average.

Building some safety into the duration of a single task is not significant by itself. But when a project consists of hundreds or thousands of task, it becomes a major issue, as far too much 'safety time' gets built into the overall program. This extra time leads to unnecessary cost, as we plan to have resources on site longer than necessary.

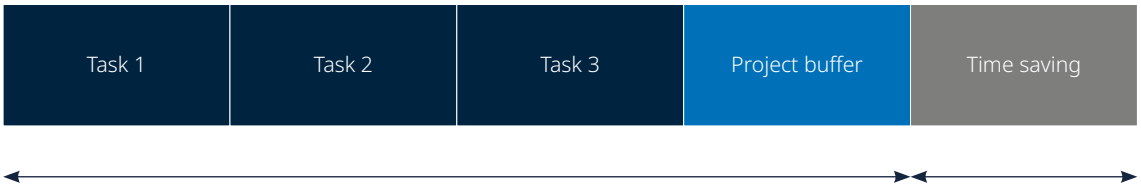
This traditional approach to project planning also means we fail to benefit from tasks that finish early, as we aren't ready to commence subsequent tasks early. If each task estimate contains sufficient time to complete in 90 per cent of situations, then there is an 89 per cent chance that the task will be completed earlier than planned.

If we remove the safety buffer from the estimated duration of each task, and instead put it in a pool that can be used by those tasks that actually need it, then the total time needed in the safety pool can be much less than the total time that is removed from each task.

Traditional programming



Critical Chain programming



By agreeing to share the safety pool with each project participant, rather than requiring each participant to manage the time uncertainty in its tasks, the project owner can reduce the planned duration of a project (and the time related costs). This is precisely how time risk is allocated among project participants under an alliance contract. All non-owner participants share in any gain-share payment from the owner arising from early completion, and any pain-share to the owner arising from late completion. Under an alliance, it is not possible for any one participant to benefit from early completion of its task, if the project is completed late.

However, if the project owner separately contracts with each project participant and requires the participant to commit to a deadline for completion of its tasks, then it's simply not possible for the project owner to adopt the CPPM approach and share a time safety pool with each participant. A project owner cannot access the benefits of the CPPM approach under conventional procurement models.

The same logic also applies to contingencies or allowances that task owners include in their cost estimates to manage uncertainty. The alliance

[10] This section draws on the innovative idea of combining IPD with CCPM first published in T*he Executive Guide to Breakthrough Project Management* by Ian Heptinstall and Robert Bolton, Denehurst Publishing, 2016. See www.BreakthroughProjectManagement.com for further information.

remuneration model allows a pooled allowance for cost overruns to be shared between all project participants, thereby reducing the total quantum of the allowances that would otherwise be incorporated into the fixed prices charged by each participant.

9. Building information modelling (BIM)

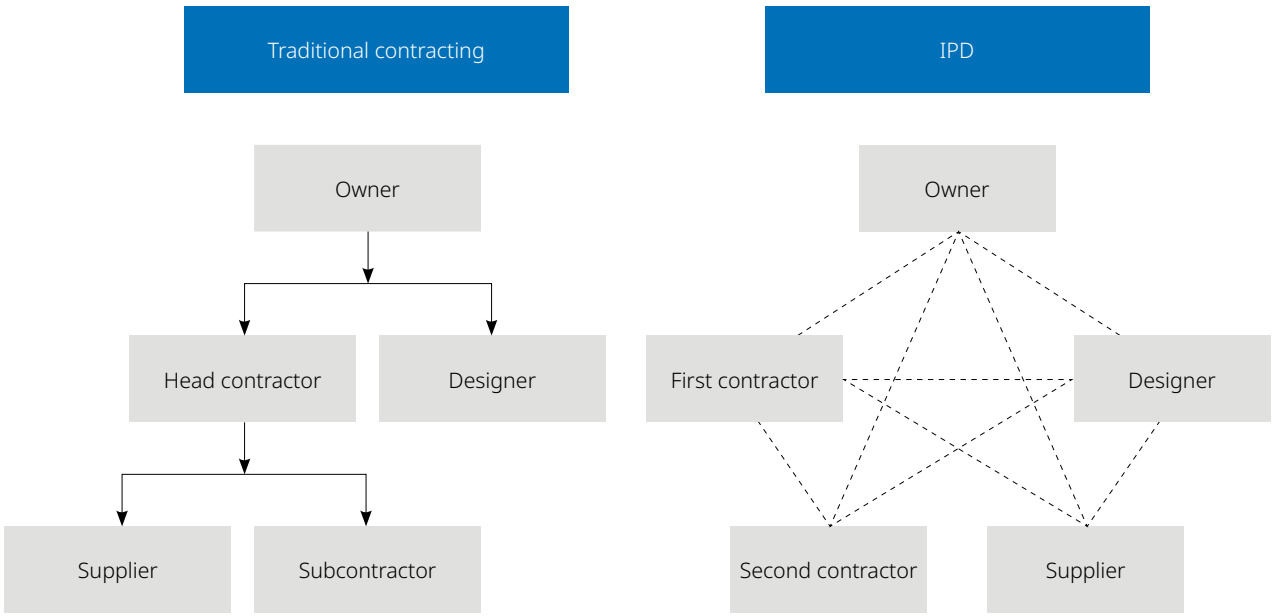
Most readers will be familiar with BIM – systems that create digital three dimensional building models, intended to provide more accessible and versatile design data. By allowing project participants to access and share this data, BIM enables them to more effectively plan, design, construct and manage buildings.

For BIM to fulfil its potential, each project participant that uses the model needs to be able to rely on it. This means they need to be able to rely on:

- each other participant providing its inputs to the models to the agreed level of definition by the agreed deadlines, at each stage of the design and construction process; and
- the accuracy of the data added to the models by each participant.

While conventional contracts may require non-owner participants to commit to the timely provision of model inputs, and to warrant the accuracy of the data that they provide under the contract, these contractual obligations are only owed to the counterparty to the contract, and it is common for non-owner participants to exclude liability for certain categories of loss, and to cap their liability for all other loss. This can leave a participant that has relied on incomplete or inaccurate BIM information without an effective remedy.

A more effective solution to this problem could be provided by the gainshare/painshare regime found in many collaborative contracts. If reliance by one or more participants upon incomplete or inaccurate information will lead to additional costs and/or delays that result in a painshare payment (or a reduction to the potential gainshare payment), all participants will be motivated to help solve the problem as quickly and cost effectively as possible. A gainshare/painshare mechanism also provides a good solution for sharing the pain of additional work required to resolve any BIM clashes.



The use of BIM also requires a complex web of mutual intellectual property licences between project participants. For conventional procurement models, the intellectual property licences would typically involve:

- the project owner obtaining from each project participant directly engaged by the owner:
  - a licence to use model information prepared by the participant for the construction, operation and maintenance of the project, together with
  - a right for the project owner to grant equivalent sub-licences to each project participant engaged by the owner, and for such project participants to grant sub-sub-licences to their sub-contractors;
- the project owner granting to each project participant directly engaged by the owner:
  - a licence to use model information for the agreed-project related purposes, together with
  - a right for the project participant to grant equivalent sub-licences to its sub-contractors;
- the exclusion from the above licences of:
  - the right to amend the model information except for the agreed project-related purposes; and
  - the right to reproduce model information for the purposes of project extensions; and
- mutual obligations on the project owner and on each project participant directly engaged by the owner to use its best endeavours to procure licences from third parties, as required in order to meet the above licence bligations.

This arrangement offers a balanced approach, but the absence of a direct contractual relationship between the designer and the main contractor, or between sub-contractors to the main contractor, creates an additional burden on the project owner to create and maintain the full suite of matching BIM model licences. It also leaves most non-owner participants without a direct remedy against each other in respect of any breach of these licences. A single collaborative contract, to which each key project participant is a party, can simplify the process of obtaining matching intellectual property licences, and more appropriately share the risk of the model infringing third party intellectual property rights.

Indeed, the American Institute of Architects advocates for the use of BIM as an essential feature of alliance model.

10. Projects suitable for alliance contracts

The alliance contract model is best suited to projects with the following characteristics:

- complex risks, interfaces, stakeholder issues and the like, that are difficult to allocate and price;
- the scope of work is not sufficiently defined to enable sensible pricing, or where the likelihood of scope changes is significant;
- significant scope for value adding through innovation;
- tight timeframes which require scope definition, design and construction to occur concurrently;
- the owner has unique knowledge, skills and capabilities that can best be contributed to the project through a joint approach to decision making and risk management during the development and delivery phases; and
- the scale of the project,[11] and the benefits which can be derived from using the model, is sufficient to justify the additional procurement and contract establishment costs associated with the model.

[11] The National Alliance Contracting Guidelines suggest that alliancing is generally not appropriate for simple procurement projects valued under $50 million.

Appendix 3: Managing contractor

The managing contractor model shares some of its characteristics with D&C or EPC contracts and others with the agency relationships and project management roles seen in the construction management models.

The model originated in Australia and has been used extensively by the Australian Department of Defence [12] as well as a variety of private-sector owners. The managing contractor assumes responsibility for the design and construction of the project from feasibility through to the commissioning stage. The arrangement usually involves the owner entering into one contract with the managing contractor, who then subcontracts out all of its design and construction obligations.

This differs from the project manager model where the owner contracts with a manager to provide project management services only, and then contracts directly with each of the other project participants. Under the managing contractor model, the managing contractor is legally accountable to the owner for the delivery of the project, not just for managing its delivery. A single point of accountability is provided.

The managing contractor can be distinguished from a conventional fixed price D&C contractor in two key aspects: role and risk.

Role

Although the managing contractor accepts legal responsibility for the design and construction of the project, its key role is project management, as it is usually obliged to subcontract out all of its design and construction obligations. The only services carried out by the managing contractor itself, using its own in-house resources, are the management and advice services provided throughout the project, and also the provision of on-site preliminaries such as hoarding, plant and sheds.

A key difference between this model and a conventional D&C contract is the degree of control that an owner retains over the selection of subcontractors. While a D&C contractor has autonomy to appoint subcontractors of its choosing, a managing contractor must undertake subcontracting in close consultation with the owner, who will retain the ultimate authority to approve or reject tenderers. This right is consistent with the owner's obligation to reimburse the managing contractor for costs incurred in the design and construction.

Another important difference between a managing contractor and a conventional D&C contractor is the point in the project development process at which they are engaged by the owner – the managing contractor is appointed much earlier.

The project would normally proceed as follows. First, the owner invites tenders from potential contractors for management services and defined common site facilities. Once a successful tenderer has been chosen as managing contractor, it will coordinate the feasibility stage of the project, including hiring any consultants required and providing advice to the owner where needed. If the project does not progress past the feasibility stage, the contract may be terminated.

The next stage is the design phase; this will be managed by the managing contractor, from design brief through to detailed documentation. Throughout this process, the managing contractor will consult closely with the owner, who has the final say as to all decisions made. First, the managing contractor will prepare a design brief that must be approved by the owner. Then tenders for the design subcontract will be invited. Although the managing contractor can recommend a candidate, once again, the final decision is subject to the owner's approval. When the successful tenderer has completed the design, this must again be approved by the owner before construction can begin. This procedure differs from a conventional D&C arrangement, under which the owner minimises its involvement in the design phase to avoid diluting the D&C contractor's design liability and affecting any warranty for fitness for purpose.

During the construction phase, the managing contractor has a variety of responsibilities. These will include:

- advising on the appropriate contract strategy for each package;

[12] The Managing Contractor Contract (MCC-1 2003) used by the Australian Department of Defence can be found at https://www.defence.gov.au/estatemanagement/Support/SuiteContracts/mccontract.asp

- managing the tender process and award of packages;
- engaging subcontractors to execute the construction work;
- programming and timetabling the construction work;
- supervising the construction to ensure it accords with design specifications;
- managing and administering the subcontracts;
- instituting a system of cost control;
- managing community relations; and
- managing industrial relations on the project.

The process of selecting construction subcontractors is performed by the managing contractor in close consultation with the owner. Again, the owner exercises significant control over the decision through its right to finally approve a nominated candidate; this procedure is identical to that used in the selection of a design subcontractor.

The final stage of the project in which the managing contractor is involved is the commissioning phase. During this phase, the managing contractor coordinates the handover of the project and ensures any defects that become apparent during the defects liability period are rectified.

Risk

The other feature distinguishing the managing contractor from a D&C contractor is the risk it bears. The managing contractor is exposed to lower risks in terms of both cost and time than a conventional D&C contractor.

In respect of cost, while a D&C contractor is normally remunerated on a fixed price basis, a managing contractor is generally remunerated on the basis of a combination of a fixed price and reimbursable components. The fixed price component is designed to pay for management services and site facilities, and allows the contractor to extract a profit. The owner separately reimburses the managing contractor for all amounts paid by the managing contractor to subcontractors and consultants. This remuneration arrangement shifts all of the project cost risks onto the owner, except those covered by the fixed price component. The managing contractor is only reimbursed for costs that it incurs reasonably. Costs incurred from unauthorised variations, rectification of defects, breaches of contract or wrongful acts by the managing contractor that give rise to liability to third parties are usually excluded from the reimbursement regime.

Time-delay risk is often also borne by the owner. The managing contractor will only have a 'soft' time for completion obligation in the sense that it will be required only to use its 'best endeavours' to achieve a target date. Accordingly, a failure to achieve timely completion will not expose the managing contractor to liability for liquidated or general damages, so long as it tries its best to achieve the target date. However, because the managing contractor is paid a fixed lump sum for its management services, it is clearly in its own commercial interest to achieve completion as early as possible so as to preserve its profit margin. The incentive for timely completion is achieved not through the threat of damages claims but instead through the alignment of commercial interests.

Benefits

The managing contractor model allows for early involvement of the contractor in the project, with close collaboration throughout. This means that the owner is able to achieve completion of the project in the manner it desires, using a spread of industry involvement and expertise but without the need for high-level management commitment. The owner can share some of the risks associated with a major construction project with a contractor and can achieve maximum flexibility in determining the elements to be included in a project and the design of those elements. At the same time, it provides the owner with the management expertise of a contractor organisation to assist and advise upon the design and construction of the project while planning for and remaining within a target time and cost for delivery of the project.

Appendix 4: Incentivised target cost contract

ITCC is the short-hand term given to an Incentivised Target Cost Contract, which is a hybrid of the D&C and managing contractor models, but with an alliance contract style payment regime. The ITCC enables the owner to obtain the rights and limitations on risk that it would otherwise receive under a standard D&C contract, while the contractor is incentivised by the remuneration structure to perform its obligations in a manner that best achieves the owner's objectives. It is being used by the NSW Government on various projects.

Similar to the managing contractor model, the ITCC arrangement usually involves the owner entering into one contract with the contractor, who is legally accountable to the owner for the delivery of the project (being the design, construction, and management/ advice components).

Whereas the managing contractor is typically required to subcontract out all of its design and construction obligations, the contractor must only do this for the construction component, and retains the option to self-perform the design. But, like the managing contractor, it is not entitled to autonomy over the selection process for subcontractors. Instead, the contractor may recommend a subcontractor for the construction and/or design, but the owner has the right to reject this and direct the contractor to accept the tender of a subcontractor of its preference. This process is one example of the large degree of control that the owner has over most project decisions.

The structural hybridity of the ITCC is exposed by the owner's minimal involvement in the design phase, which typifies a D&C contract. Under the ITCC, the owner has review and approval functions in relation to design, but assumes no responsibility for errors, omissions or non-compliance with regulations. The owner thereby avoids diluting the contractor's design liability and affecting any warranty for fitness for purpose, as per a traditional D&C contract.

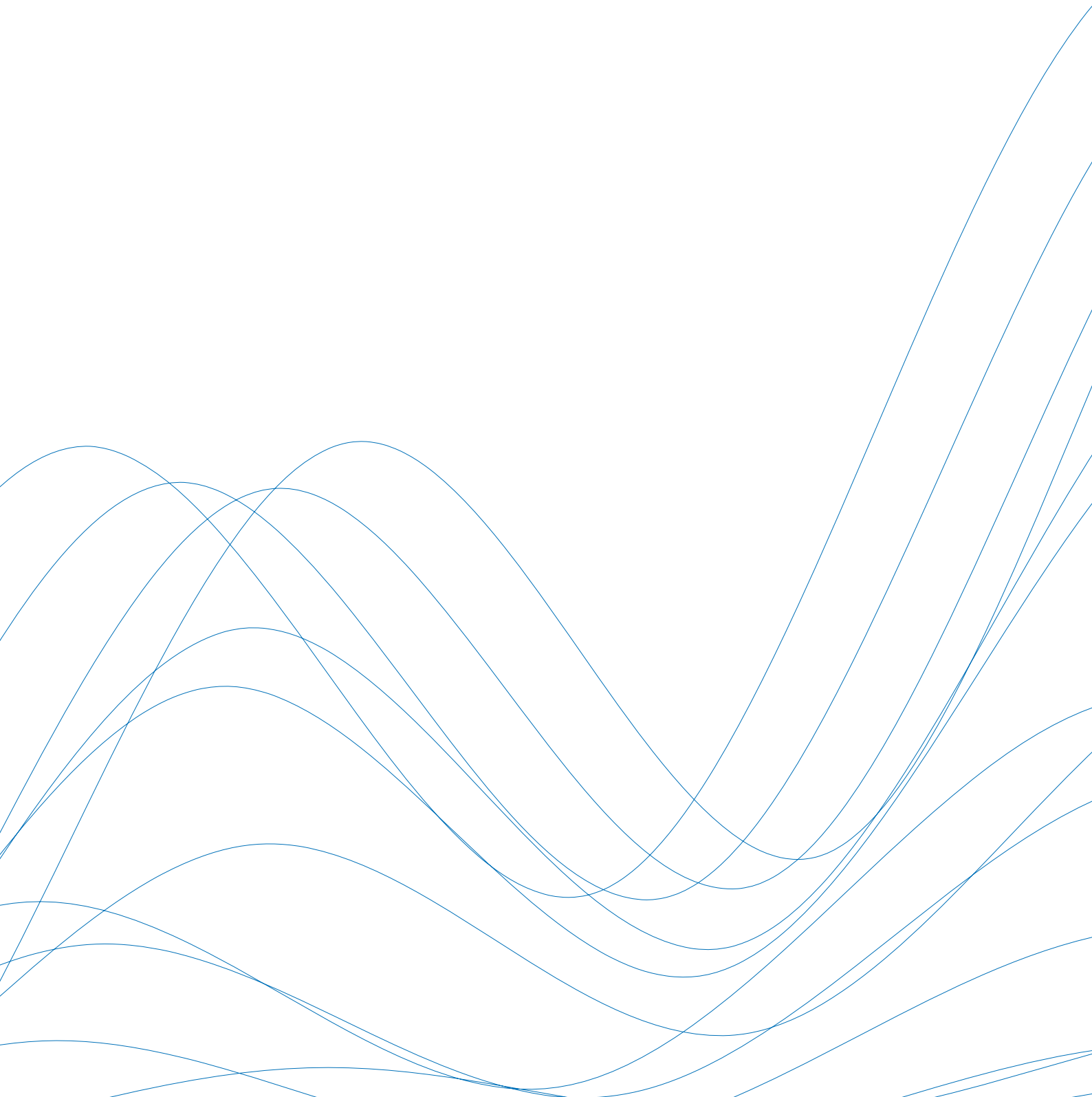
The owner also avoids bearing the risk of time-delay by negotiating a hard obligation to complete on time with the contractor. Breach of this obligation will make the contractor liable for liquidated damages. Thus, rather than a more collaborative approach to timely completion, the contractor is incentivised by the threat of a claim for liquidated damages.

More generally, the ITCC lacks some features that can contribute to greater collaboration. Although there is an express obligation to work collaboratively in a spirit of mutual trust and cooperation, the owner expressly negates any general duty of good faith that might be implied into the contract. The ITCC imposes an obligation on the contractor (but not the owner) to give early warning of any fact which may give rise to completion delay, impaired performance of the works in use, a claim by the contractor, or a party being in breach of the contract. But there is no obligation on the owner to do likewise, or to attend risk management meetings. Further, actions agreed at such meetings don't provide the contractor with any relief. Moreover, the contracts approach to time, quality and liability will encourage the contractor to protect its legal position by blaming others when things go wrong, rather than seek to solve problems in an open and transparent manner.

The ITCC tries to minimise the adversarial nature of the traditional time, quality and liability framework by instituting an independent dispute avoidance and resolution panel/process as a precondition to arbitration or litigation. But this itself is not unique, as it resembles a multi-tiered dispute resolution clause typical of most contracts (collaborative or not). While the abovementioned features of the ITCC typically sit at the lower end of the collaborative spectrum, what puts this model back in the game is that it adopts an alliance-style remuneration structure. Like the managing contractor model, the contractor's payment includes reimbursement of subcontract costs, a fixed price or schedule of rates for self-performed work, and a (usually) fixed price fee on account of profit

and contribution to corporate overheads. It also includes a regime for the sharing of cost savings or overruns (subject to a cap on the contractor's liability for cost overruns) , and an KPI incentive payment to reward outstanding performance against non-cost KPI incentives.

By sharing cost risk, the risk borne by the owner under the cost reimbursable scheme is mitigated since the contractor is incentivised to seek efficiencies, and therefore savings, in order to receive the a share of the savings (or to limit its liability for cost overruns. This re-aligns the interests of the contractor and owner in relation to costs and helps to stimulate innovation and collaboration on cost outcomes (until the cap on the contractor's liability for cost overruns is reached).



Appendix 5: EPCM

EPCM stands for Engineering, Procurement, Construction Management. The role of an EPCM contractor is often very similar to the role of a managing contractor, as described in Appendix 3.

The EPCM contractor is typically appointed by the owner early in the project development process, to coordinate the feasibility stage of the project, before progressing to manage the design/engineering, procurement and construction phases of the project. But as with the managing contractor model, the owner retains control over the design brief, the selection of design/engineering consultants, the scope of each construction contract, and the selection of subcontractors and equipment suppliers.

The feature that distinguishes EPCM from the managing contractor model, is the lower level of risk that an EPCM contractor is exposed to in terms of the quality of the work.

Cost and time risk is usually treated similarly to the managing contractor model, i.e.:

- the EPCM contractor is usually remunerated on the basis of a combination of a fixed price and reimbursable components. The fixed price component usually covers the management services and site facilities, and allows the EPCM contractor to extract a profit. The owner separately reimburses the EPCM contractor for all amounts reasonably incurred to subcontractors and consultants. Again, costs incurred from unauthorised variations, or wrongful acts by the EPCM contractor that give rise to liability to third parties, are excluded from the reimbursement regime. Sometime the remuneration model will also include gainshare/painshare regime, to better align the contractor's commercial interests with those of the owner, particularly in relation to quality and fitness for purpose; and
- the EPCM contractor will only have a 'soft' or 'best endeavours' time obligation, as per a managing contractor. Again, because the EPCM contractor is paid a fixed lump sum for its management services, it is financially motivated to achieve completion as early as possible to preserve its profit margin.

The EPCM model typically departs from the managing contractor model in terms of how it allocates the risk of design and construction defects. Whereas a managing contractor typically accepts responsibility for ensuring that the design is fit for purpose and the works are constructed free of any defects (same as a D&C contractor); the EPCM contractor usually only accepts an obligation to exercise due care and skill in the performance of the design and management services that it provides. In these cases, so long as the EPCM contractor exercises due care and skill in the performance of these services, it will not be liable to the owner if the works are not fit for their intended purpose, or are otherwise defective.

However, because the EPCM contractor typically engages the designer, the construction contractors and the equipment suppliers as the agent of the owner (or the owner engages such parties directly), the owner will have a contractual remedy against the relevant project participant if it has breached its contractual obligations. That said, it is most unusual for an owner to obtain a fit for purpose warranty from the designer or a construction contractor, and any fitness for purpose warranty from an equipment supplier will be limited to the item supplied, and not the entire project. If the owner wants a fit for purpose warranty for the entire project it typically needs to engage a contractor under a D&C/EPC model, or a managing contractor model.

Like the managing contractor model, EPCM allows for early involvement of the EPCM contractor in the project, with close collaboration throughout. The owner can progress the development of the project in the manner it desires, using a spread of industry involvement and expertise but without significant high-level management commitment on its part. The owner can utilise the management expertise of the EPCM contractor to assist it to manage some of the risks associated with a major construction project.

Appendix 6: Delivery Partner Model

The delivery partner model combines elements of the managing contractor, alliance and EPCM models. The delivery partner model enables a client to supplement its internal project management capabilities by engaging one or more delivery partners to assist the client with project planning, programming, design management and construction management services.

By engaging this expertise, the client is able, with the assistance of its delivery partners, to adopt a 'sophisticated-client' procurement strategy involving direct engagement of suppliers and subcontractors, as opposed to engaging a major contractor to manage this process. This can result in significant cost savings and other benefits for the project owner.

The remuneration regime for the delivery partners is similar to the three-limb remuneration model for alliance contracts, with:

- reimbursement of actual costs;
- a fixed fee covering profit and contribution to corporate overheads; and
- a gainshare or painshare payment.

As with alliance contracting, better than business-as-usual project outcomes (measured against pre-agreed KPIs) will result in a gainshare payment from the owner to the delivery partners, and poor outcomes will result in a painshare payment by the delivery partners to the owner. Again, the maximum potential painshare payment is usually capped at the amount of the limb-two fee, or a significant portion of it.

Like the managing contractor model, the delivery partners are precluded from performing design and construction services, which must be competitively tendered (unless the owner specifically agrees otherwise). The owner retains control over the appointment of suppliers and subcontractors, similar to the managing contractor model. But the delivery partners bear less risk in relation to poor performance by subcontractors and suppliers than a managing contractor. The delivery partner's liability to the owner for poor performance by subcontractors and suppliers is limited to any reduction in the gainshare payment (or the increase in the painshare payment) that occurs as a result of reduced performance against a KPI. The owner has the contractual relationship with each subcontractor and supplier, and looks to them directly if they breach their contractual obligations.

The model has been employed successfully in the context of publicly funded infrastructure projects and was first used by the UK government in the construction of infrastructure for the London Olympic Games, where the complexity of the project and time-critical date for completion meant a more traditional delivery model was considered unsuitable. A delivery partner enabled the Olympic Delivery Authority (ODA) to acquire the necessary expertise where the ODA did not have the time to find and engage personnel of the required calibre to meet the time requirements. A wide range of infrastructure was required – key Olympic venues such as the velodrome, aquatics centre, media centre and Olympic village, as well as 2km of new sewers and 265km of ducts for new utilities. The project was ultimately a success, being delivered three months early and under budget.

The first use of the delivery partner model in Australia was on the Woolgoolga to Ballina Pacific Highway Upgrade (W2B). Like the London Olympic venues, the W2B project was a time-critical major project. It involved the duplication of approximately 155km of the Pacific Highway to a four-lane divided road at an estimated construction cost of AU$4.9 billion.

The delivery partner model was chosen for the W2B project because it avoided the need for Roads and Maritime Services (RMS) to procure and deliver five separate packages of works sequentially. RMS's business-as-usual procurement models and internal resources would have necessitated the works being divided into five packages, which could be procured and delivered sequentially. It was considered that aggregating the works into a smaller number of larger packages would have resulted in a small field of potential tenderers and sub-optimal competition.

By adopting the delivery partner model, RMS expected to achieve significant time and cost savings through repackaging the works and tendering packages

on a trade or activity basis, responding to a logical sequencing of work across the entire project, unconstrained by package boundaries. Essentially, RMS was able to implement the sort of sophisticated-client procurement strategy that a major tier-one contractor would implement, without having to first engage such a contractor under a traditional D&C contract and pay the associated risk premium that such a contractor would build into its fixed contract price for the management of the procurement and integration risks.

The associated downside of this model, of course, is less cost and time certainty at the time the owner contractually commits to the project. The owner ultimately bears these risks without the protection that a traditional D&C contract with a tier-one contractor would provide. This risk is mitigated, however, by the model's alliance style gainshare/painshare regime, which financially motivates the delivery partners to help the owner manage these risks effectively. The margin paid to the delivery partners for their services is also less than what would have been charged by a tier-one contractor for wrapping the delivery risks, on account of the lower level of risk borne by the delivery partners.

Conversations with key participants on both sides suggest that it has been a challenge for both the delivery partner and RMS to adjust to the style of working that the model requires. In particular, we've heard that RMS's internal approval processes are not always well suited to allow the delivery partner to make significant decisions quickly. This has made it difficult for the delivery partner to improve its performance against the KPIs which would allow it to increase the gainshare payment (or reduce the painshare payment).

Even so, the model seems well suited to major infrastructure projects where the client wishes to achieve time and cost outcomes that cannot be achieved via traditional procurement models, and is prepared to embrace and manage integration and other risks to achieve these outcomes, with the assistance of capable delivery partners.

Appendix 7: Overview of collaborative contracting models

	PARTNERING	FIXED PRICE D&C WITH COOPERATION OBLIGATIONS	INCENTIVISED TARGET COST CONTRACT	MANAGING CONTRACTOR	EPCM	DELIVERY PARTNER MODEL	ALLIANCE/INTEGRATED PROJECT DELIVERY (IPD)
Contract structure	Owner engages partnering contractor. Partnering contractor may subcontract work to others.	Owner engages D&C contractor. D&C contractor may subcontract work to others.	Owner engages Contractor. Contractor may subcontract design work to others, but must subcontract construction work to others.	Owner engages managing contractor. Managing contractor must subcontract all design and construction work to others (with close Owner control).	Owner engages EPCM contractor. Owner separately engages design and construction contractors (or EPCM contractor engages as agent for Owner).	Owner engages Delivery Partner. Owner separately engages design and construction contractors (or Delivery Partner engages as agent for Owner).	Owner, designer and key contractors and suppliers enter into a single multi-party agreement.
Commit to co-operate and act in good faith	No, Partnering Charter gives way to traditional contract.	Yes, both parties.	Yes, both parties. But owner also excludes any implied duty of good faith.	Both parties to cooperate. Contractor to act in good faith.	Contractor only.	Yes, both parties.	Yes, all parties.
Time	Hard obligation to complete on time with LDs.	Hard obligation to complete on time with LDs.	Hard obligation to complete on time with LDs.	Soft (best endeavours) obligation to complete on time.	Soft (best endeavours) obligation to complete on time.	Soft (best endeavours) obligation to complete on time, supported by gainshare/painshare payment linked to time KPI.	Target date for completion is supported by gainshare/painshare payment linked to time KPI.
Cost	Generally fixed price lump sum.	Generally fixed price lump sum.	Reimbursement of subcontract costs + fixed price or % fee (for profit and contribution to overheads) + share of cost savings/overruns + incentive payment linked to KPIs. Fixed price or schedule of rates for self-performed work.	Reimbursement of subcontract costs + fixed price fee (for profit and contribution to overheads). Sometimes with an incentive payment linked to KPIs.	Reimbursement of subcontract costs + fixed price fee (sometimes with an incentive payment linked to KPIs).	Reimbursement of direct costs + fixed price fee + gainshare/painshare payment linked to KPIs.	Reimbursement of direct costs + fixed price fee + gainshare/painshare payment linked to KPIs.
Quality	Partnering contractor provides fit for purpose warranty and single point of accountability.	D&C contractor provides fit for purpose warranty and single point of accountability.	Contractor provides fit for purpose warranty and single point of accountability.	Managing contractor provides fit for purpose warranty and single point of accountability.	No single point of accountability. Each separate contractor responsible for their own defects. EPCM contractor provides due care and skill warranty.	No single point of accountability. Each separate contractor responsible for its own defects (but defects may mean more time + cost, affecting DP gainshare payment). DP provides due care and skill warranty.	All participants collectively responsible for defects. No warranties. The cost and time pain of defect rectification is shared via gainshare/ painshare regime.
Liability	Traditional liability framework.	Traditional liability framework.	Traditional liability framework. Painshare is usually capped at loss of profit and contribution to overheads.	Traditional liability framework.	Traditional liability framework.	Traditional liability framework. Painshare of Delivery Partners is usually capped at loss of profit and contribution to overheads.	No blame regime. Painshare is usually capped at loss of profit and contribution to overheads.

	PARTNERING	FIXED PRICE D&C WITH COOPERATION OBLIGATIONS	INCENTIVISED TARGET COST CONTRACT	MANAGING CONTRACTOR	EPCM	DELIVERY PARTNER MODEL	ALLIANCE/INTEGRATED PROJECT DELIVERY (IPD)
Early warning and risk management mechanisms	No, Partnering Charter gives way to traditional contract.	Yes, but traditional liability regime encourages blaming others, not problem solving.	Yes. Sharing of cost overruns encourages problem solving, but liability regime encourages blaming others.	Yes, but traditional liability regime encourages blaming others, not problem solving.	Yes, but traditional liability regime encourages blaming others, not problem solving.	Yes. Painshare regime encourages problem solving, but liability regime encourages blaming others.	Yes. No blame and painshare regime encourages problem solving.
Project control	Owner controls specifications, date for completion and variations. Contractor decides final design, construction methodology, program and subcontractors.	Owner controls specifications, date for completion and variations. Contractor decides final design, construction methodology and subcontractors.	Owner controls specifications, date for completion, variations and selection of subcontractors. Contractor decides final design, construction methodology and program.	Owner controls most project decisions, including final design, cost plan, construction methodology, program and selection of subcontractors.	Owner controls most project decision, including final design, cost plan, construction methodology, program and selection of subcontractors.	Owner controls most project decisions, including final design, cost plan, construction methodology, program and selection of subcontractors.	Joint control of all decisions.
Self Performance and competitive tendering of sub-contracts	Partnering contractor can self-perform construction work. No obligation to competitively tender subcontracts.	D&C contractor can self-perform construction work. No obligationto competitively tender subcontracts.	No self-performance of construction work without consent. Subcontracts must be competitively tendered. Pain of cost overruns is shared.	No self-performance of construction work without consent. Subcontracts must be competitively tendered.	No self-performance of construction work without consent. Subcontracts must be competitively tendered.	No self-performance of construction work without consent. Subcontracts must be competitively tendered. Pain of cost overruns is shared.	Participants may self-perform construction work. No obligation to competitively tender subcontracts, but pain of cost overruns is shared.

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