# Introduction to Project Alliancing
## (on engineering & construction projects)

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# 1 INTRODUCTION

## 1.1 General

All major capital works projects involve inherent risks (eg. political or economic change, climate, technology, ground conditions, engineering uncertainties, errors, industrial disputes, land issues, environmental issues and many more). In order to achieve optimal outcomes the project owner must select the most appropriate strategy for managing these risks.

From an owner's perspective the traditional "risk transfer" approach is still the best method for many projects – particularly where the scope is clear and the circumstances and risks are reasonably predictable. However, nowadays more and more projects have to be delivered in an environment of uncertainty – driven by diverse stakeholder interests, shifting business or political imperatives and rapid technological change. The traditional risk-transfer contracting models have increasingly been shown to be inadequate to deal with these circumstances.

In recent years a growing number of owners in Australia have turned to project alliancing to deliver complex projects in the resources, infrastructure and building sectors and the results so far have been very impressive.

## 1.2 Scope / aim of this paper

The primary purpose of this paper is to explain what project alliancing is and how it works in practice and to:

- give insights into the factors that drive the kind of success that has been achieved on alliance projects; and
- dispel some of the more common myths about project alliancing.

The author has written two previous papers on project alliancing[1,2]. While the information on alliancing in this paper is more up to date, the earlier papers discuss the historical context of project alliancing and provide more detailed information on some aspects of alliancing.

Alliancing is now being used widely for non project applications. For instance the author has been involved with the successful application of alliancing for:

→ roll-out capital works programs;
→ maintenance / asset management programs;
→ engineering upgrades;
→ mine operations;
→ in service support and upgrade programs.

While some of these are mentioned briefly in this paper, the scope of this paper is intended to be limited to the application of alliancing for capital works projects.

# 2 OVERVIEW

## 2.1 What is project alliancing?

In simple terms a "project alliance" is where one or more owners form an alliance with one or more service providers (designer, constructor, supplier, etc.) for the purpose of delivering a specific project. It should not be confused with other forms of collaborative relationships such as strategic alliances, joint ventures, partnerships, teaming agreements, etc.

Under traditional forms of contract, responsibilities and risk are allocated to different parties with commercial and/or legal consequences for the individual parties where they fail to manage their risks or properly discharge their contractual / legal obligations. Under a "pure" alliance the alliance participants:

(a) assume collective responsibility for delivering the project;

(b) take collective ownership of all risks associated with the delivery of the project; and

(c) share in the pain or gain depending on how actual project outcomes compare with the pre-agreed targets which they have jointly committed to achieve.

Under an alliance, risks are allocated in quite a precise manner - but this is done through the operation of the risk /reward arrangements, not through legal liability.

## 2.2 Does alliancing = Relationship Contracting?

In 1998 the Australian Constructors Association (ACA) interviewed the chief executives of 34 of the industry's major private and public sector clients to hear their views on how project outcomes could be improved. Based on that research and with widespread support from those client representatives the ACA concluded[3] that the way forward for the industry was "*Relationship Contracting*" which it defined as:

> "*a process to establish and manage the relationships between the parties that aims to remove barriers, encourage maximum contribution and allow all parties to achieve success*".

Based on that definition any type of contract could be (and perhaps should be) a relationship contract. The many projects that have been delivered under a "partnering" model (refer earlier papers by the author[1,2]) are clear examples of relationship contracting.

Project alliancing as discussed below in this paper is just one form of relationship contracting, albeit at the "top end" of the spectrum, since the participants take the ultimate step in "*removing barriers*" by eliminating the misalignment of commercial interests that exists in non-alliance contracts.

Some owners use the term "Relationship Contract" to refer to an alliance contract. The author dislikes this term as it gives little clue as to the true nature of the relationship. If the intention is to have an alliance then why not call it an alliance contract?

### 2.3 Risk-sharing vs. risk-transfer

The traditional contracting approach is for project owners to transfer as much of the risk as possible to others – eg. insurance companies, designers and constructors. Many of the more extreme examples of adversarial conduct under contracts occur because the owner, when setting up the contracting arrangements, attempts to transfer risks to parties who are not in the best position to manage those risks.

It is now widely accepted that risks under a contract should be borne by the party that is best able to manage those risks[4]. Where risks can be clearly allocated and kept separated without undue interference by the contracting parties then a conventional contract with appropriate allocation of risk is most effective. However where there are:

- numerous complex and/or unpredictable risks,
- complex interfaces,
- difficult stakeholder issues,
- complex external threats,
- very tight timeframes,
- high likelihood of scope changes (eg. due to technological change, political influence, etc),
- a need for owner interference or significant value-adding by the owner during the delivery,
- threats and/or opportunities that can only be managed collectively, etc.,

any attempt to allocate the risks to different parties, no matter how well intentioned, may be little more than an illusion and can give rise to an adversarial culture that may threaten the success of the project. Under these circumstances the project outcomes are more likely to be achieved (or exceeded) if all the key participants, owner and contractors, assume collective responsibility for delivering the project under some form of collaborative arrangement where they all win or all lose together depending on how the actual project outcomes compare to the agreed targets.

Section 13.3 below provides further guidance to owners on deciding whether or not to use an alliance.

### 2.4 Essential features of a project alliance

Many owners are looking to alliancing as a means of achieving the kind of outstanding results on their projects that have been reported on numerous project alliances. This has resulted in the recent emergence of many different forms of relationship based contracts – some characterised as "alliances". Many of these so-called alliance models lack some of the core features that are essential for ensuring a high performance alliance culture that will deliver outstanding project outcomes. While many of these have been / will be successful, in the author's view in order to be absolutely assured of success a project alliance should have <u>ALL</u> of the following features:

- ❑ Performance obligations are stated to be <u>collective</u> apart from certain obligations that inherently must rest with one party – eg. the requirement for the owner to reimburse project costs. [Accordingly the language of the Alliance Agreement will generally be "*…the Alliance Participants shall ….*" as opposed to the more traditional "*…the Contractor shall...*".]
- ❑ Reimbursement to the non-owner participants ("NOPs") is 100% open book and structured so that the NOPs receive an <u>equitable sharing</u> of gain / pain depending on how actual outcomes compare with pre-agreed targets in cost and non-cost performance areas – consistent with the guiding principle that "*all parties win or all parties lose*".
- ❑ The project is governed by a Project Alliance Board[A] ("**PAB**") comprised of 1 or 2 senior representatives from each participant. All decisions of the PAB must be <u>unanimous</u>.
- ❑ Day-to-day management of the project is by a streamlined <u>integrated project team</u>, headed by a Project Manager where all members are assigned to the team strictly on a "best-for-project" basis, without regard to which company they are employed by.
- ❑ There is an express commitment to resolve issues within the alliance with <u>no recourse to litigation</u> except in the case of a very limited class of prescribed "Events of Default". [Discussed further in section 9.3 below.]
- ❑ All aspects of project delivery from start to finish are brought within an <u>intense people management</u> process focused on high performance teamwork and "breakthrough" outcomes founded on an Alliance Charter that sets out the mission, objectives and behavioural commitments of the participants.

### 2.5 Core alliance principles

It is essential that each alliance is built "from the ground up". A key part of this process is the development of the fundamental principles upon which the alliance is to be founded. While each alliance must develop its own set of principles the following core principles seem to be common to most alliances (although not necessarily expressed in these words):

- A primary emphasis on business outcomes whereby all parties either win or all parties lose.
- Collective responsibility for performance with an equitable sharing of risk and reward.
- A peer relationship where all participants have an equal say.
- All decisions must be "best-for-project".
- Clear responsibilities within a no-blame culture.

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A The terms Project Leadership Team ("PLT") is sometimes used rather than Project Alliance Board, especially where the word "Board" could be confused with the corporate Board of one of the participants.

- Full access to the resources, skills and expertise of all parties.
- All transactions are fully open-book.
- Encouragement of innovative thinking with a commitment to achieve outstanding outcomes.
- Open and honest communication - no hidden agendas.
- Visible / unconditional support from top level of each participant.

The alliance principles become the philosophical foundation that underpins and drives all reasoning and behaviour for the project. In a well functioning alliance the participants will:

- respect each other
- support rather than blame each other; and
- go to extraordinary lengths to honour the commitments they have made, both corporately and individually.

The word "trust" is sometimes absent from the alliance principles. In the author's view trust in the competencies of each other is a fundamental pre-requisite and basic principle of alliancing. However trust, in the sense of trustworthiness, tends to be an outcome of an alliance rather than a pre-requisite to entering into an alliance.

> *The alliance principles become the philosophical foundation that underpins and drives all reasoning and behaviour for the*

### 2.6 Brief background to modern alliancing

The purer forms of project alliancing being used in Australia today are based on the models used on several successful oil and gas projects in the UK and follow the principles espoused in the CRINE[5] report on the UK oil and gas industry.

The CRINE report challenged the entrenched "master-slave" culture that traditionally existed between owners, suppliers, contractors and subcontractors and recommended a radical shift to peer relationships based on mutual respect, trust and equitable sharing of all risks and benefits.

Project alliancing has certainly challenged entrenched attitudes and practices in the industry in Australia and in doing so has delivered some outstanding project outcomes across a range of industry sectors, including:

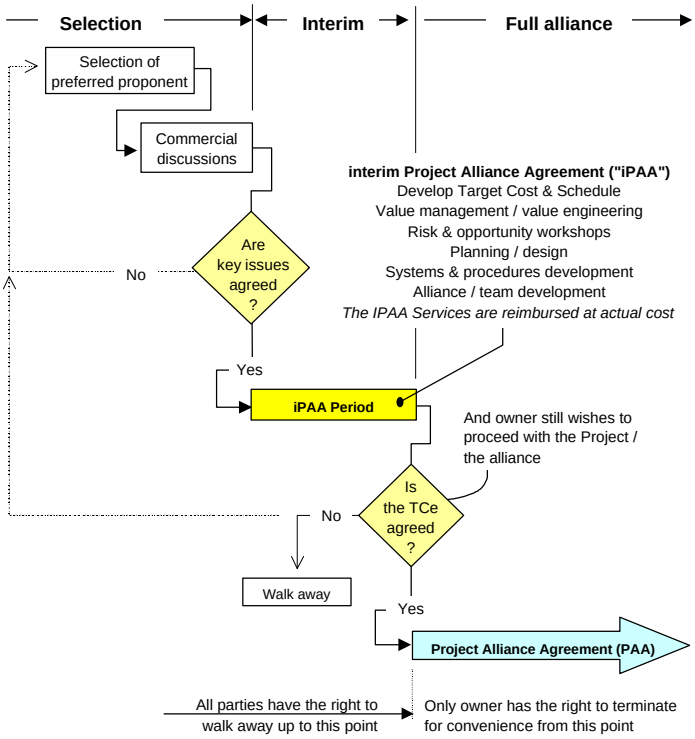
- off-shore and on-shore resource / mining projects;
- road, rail, waste, water, power infrastructure projects;
- Defence – build, upgrade and in-service support; and
- high profile building projects.

The author has been closely involved with most of the alliances listed in **Appendix 1**, which represent only some of the alliances completed or currently under way in Australia.

## 3 Establishment / Development of Alliance

### 3.1 Overview

Most of the alliances the author has been involved with have been established in accordance with the flowchart below (which only picks up the process from the time the owner makes the decision to adopt an alliance – refer further discussion in section 13.3 below on making that decision in the first place):




1. Selection — The owner must select the right partner(s) and then align on the overall framework and primary commercial parameters for the alliance. [For public sector projects this is likely to be a formal competitive selection process, perhaps along the lines suggested in section 7 below.]

2. iPAA — Once the primary parameters are agreed the participants enter into an interim Project Alliance Agreement ("**iPAA**"). This is akin to a simple consultancy agreement whereby the non-owner participants are reimbursed at cost to work in an integrated team on pre-construction activities including development of the Target Cost estimate ("TCe"), target schedule and other non-cost targets for the project.

3. PAA — Once the Target Cost and other targets have been agreed, and assuming the owner still wishes to proceed with the project under an alliance the participants enter into the full Project Alliance Agreement ("**PAA**"), with all the features described in section 2.4 above. [Some of the key legal aspects of alliance agreements are discussed in section 9 below.]

### 3.2 Alliance Auditor

It is normal practice, mandatory on public sector projects, for the owner to engage an experienced financial auditor ("the Alliance Auditor") to validate that all payments under the alliance are fully open book and in accordance with the terms of compensation. The author has found the following process to be most effective / efficient:

(a) In the first instance the owner engages the Alliance Auditor on the basis of a draft brief.

(b) Upon selecting the preferred proponent, the owner the preferred proponent and the Alliance Auditor align on the final form of the auditor's brief.

(c) The Alliance Auditor conducts detailed investigations on the financial records and costing structures of each of the prospective non-owner participants. This information is used as the basis for locking in on the primary commercial parameters for the alliance.

(d) The Alliance Auditor prepares a draft Audit Plan setting out the processes and procedures for on-going audits during the iPAA and PAA.

(e) The owner and the non-owner participants review the draft Audit Plan and align on the final Audit Plan.

(f) The owner engages the Alliance Auditor (ideally the same person /company who did the establishment audits, but not essential) to conduct audits throughout the iPAA /PAA in accordance with the Audit Plan.

### 3.3 Compensation under the iPAA

The iPAA period is usually one of intense activity and a most critical time for the alliance. In addition to the myriad of tasks required at the start of any project (which tend to be undertaken with greater intensity under an alliance) the participants have to develop and agree the Target Cost and other performance targets. The terms of compensation for the iPAA period vary from project to project. The following type of arrangement is typical:

(a) In the first instance reimbursement is limited to recovery of actual costs only (with no margin for corporate overheads or profit), on a full open book basis subject to validation by the Alliance Auditor.

(b) If the participants proceed into a PAA, then the non-owner participants retrospectively recover a margin on the work they did during the iPAA.

(c) If they do not enter into the PAA then the non-owner participants may still receive a margin on the iPAA work depending on the reasons they did not enter into the PAA – specifically:

- If they did not enter into the PAA because they were unable to agree on the Target Cost and other targets, then the non-owner participants receive no margin on the iPAA work.
- If they did not enter into the PAA for other reasons then the non-owner participants receive a margin on the iPAA work.

This approach ensures that all parties lose out if the parties are unable to achieve alignment on any of the targets.

Typically there is no risk:reward element during the iPAA period - although it is a period of very high innovation and value-adding. The introduction of incentives during the iPAA may be more of a hindrance than a help at this critical early stage when the eventual targets themselves are being developed.

## 4 COMPENSATION UNDER THE PAA

### 4.1 Overview

The non-owner participants are typically compensated in accordance with the following "3-limb" model:

*Limb 1* 100% of what they expend directly on the work including project-specific overheads.

*Limb 2* A fixed lump sum fee ("Fee$") to cover corporate overheads and profit.

*Limb 3* An equitable sharing between all Alliance Participants of gain/pain depending on how actual outcomes compare with pre-agreed targets in both cost and non-cost performance areas,

subject to the overriding principles that:

(a) all payments are 100% open book and subject to validation by independent audit;

(b) the maximum risk for the non-owner participants under limb 3 is the loss of their limb 2 fee – in other words the worst outcome would be that they recover limb 1 costs only without any margin at all.

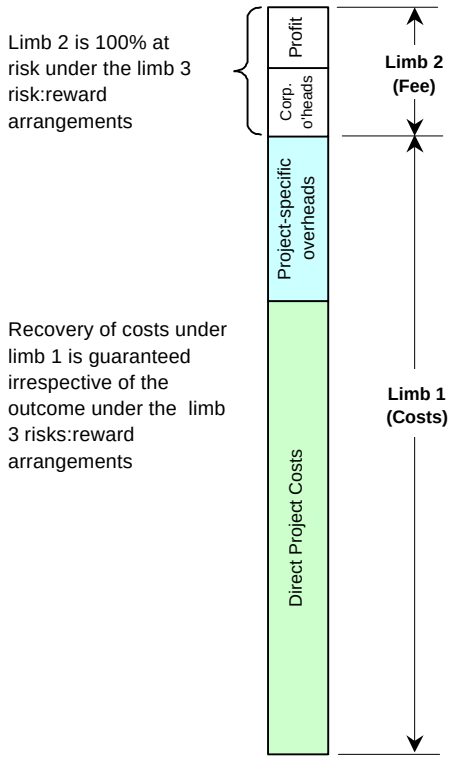



*Illustration only*
*Not to scale*

The author recommends that the entire limb 2 fee should be at risk (not just part of it) but also strongly favours capping the risk for the non-owner participants to the loss of their limb 2 fee – for the following reasons:

(a) An outcome where no margin at all is recovered would be a significant loss for any contractor – consistent with the principle of "*we all win or we all lose together*".

(b) On the other hand by limiting the exposure to the loss of the limb 2 fee only, the non-owner participants are willing to assume, as part of the alliance, risks that a contractor would normally not be prepared to accept because of the threat to its balance sheet. This principle of all-embracing risk is discussed further in section 6 below.

The additional comfort for an owner who insists on leaving the risk for the non-owner participants open-ended is likely to come at a price in the form of higher limb 2 fees and higher risk allowances within the Target Cost. The author can see little merit in paying for this extra comfort given that the downside under limb 3 has never even come close to wiping out the limb 2 fee on any of the many alliances the author has been involved with.

### 4.2 Limb 1 – reimbursement of project costs

The guiding principles for reimbursement under limb 1 are straightforward:

(a) Each non-owner participant is reimbursed its actual costs incurred on the project, including costs associated with rework. *[The sharing of pain:gain under limb 3 ensures that it shares equitably in the pain associated with wasted effort and rework.]*

(b) Reimbursement under limb 1 must not include any hidden contributions to corporate overhead or profit.

(c) All project transactions and costings are 100% open book and subject to audit.

It is usually left up to the alliance in conjunction with the Alliance Auditor to establish procedures that ensure that reimbursement complies with the above guiding principles. In practice this is relatively straightforward for constructors but more complicated for designers where the demarcation between project-specific and corporate overheads is less clear than for constructors, especially where the design staff continue to use head office amenities for carrying out project work. [Refer Ross[2] for a more detailed discussion.]

### 4.3 The Target Cost estimate

During the iPAA the participants jointly develop a Target Cost estimate for the project. The Target Cost lies at the heart of the compensation model as it is used:

(a) to determine the limb 2 lump sum fee ("Fee$") payable to each of the non-owner participants; and

(b) as the target against which the actual cost will be compared to determine the extent of under / overrun that is to be shared amongst the alliance participants.

The Target Cost is intended to be a reasonable estimate of what it should take to deliver the agreed scope of work taking into account:

(a) The outcomes that the alliance participants have committed to achieving (ie. the must-have outcomes, not the stretch goals), including:

- Delivery schedule
- Quality / performance specifications
- Performance in non-cost areas such as health & safety, environment, community, stakeholder satisfaction, etc.

(b) Current best practices around the world in the design, construction and commissioning of similar projects.

(c) The all-embracing nature of the risks being assumed collectively by the alliance participants. This is discussed further in section 6 below.

The following hypothetical example, shows a summary level Target Cost estimate for the simple case of 3 alliance participants – the owner, 1 x constructor (NOP1) and 1 x designer (NOP2). This sample is used further below to illustrate the methodology for determining the Fee$'s and calculating risk / reward under limb 3.

| | A | B | C | D |
|---|---|---|---|---|
| 1 | | **Element** | **Estimate $** | **Sub-total** |
| 2 | **NOP1 constructor** | Actual Direct Cost IPAA Services | 400,000 | |
| 3 | | Salaried Key Personnel | 2,000,000 | |
| 4 | | Own Equipment/resources | 4,000,000 | |
| 5 | | On site wages | 10,000,000 | |
| 6 | | Materials | 40,000,000 | |
| 7 | | External hired equipment | 5,000,000 | |
| 8 | | Subcontract | 24,000,000 | |
| 9 | | Site amenities and facilities | 2,000,000 | |
| 10 | | Other project specific overheads | 600,000 | |
| 11 | | Provisions for specific risks | 2,000,000 | 90,000,000 |
| 12 | **NOP2 designer** | Actual Direct Cost IPAA Services | 600,000 | |
| 13 | | Salaried Key Personnel | 3,000,000 | |
| 14 | | Geotechnical Testing | 300,000 | |
| 15 | | Expenses/disbursements | 500,000 | |
| 16 | | Provisions for risk | 600,000 | 5,000,000 |
| 17 | **Owner** | Salaried Key Personnel | 1,000,000 | |
| 18 | | Directly incurred external costs | 1,000,000 | |
| 19 | | Expenses/disbursements | 1,000,000 | |
| 20 | | Risks / un-allocated contingency | 2,000,000 | 5,000,000 |
| 21 | | | | |
| 22 | | **Initial Target Cost** ➡ | | **100,000,000** |

Sample

**Sample Target Cost estimate** (hypothetical)

Note that the initial Target Cost (cell D22) is not the full cost to the owner to deliver the project – specifically:

(a) It does not include any limb 2 fees, or risk /reward under limb 3.

(b) It is limited to the estimate of reimbursement under limb 1 and any costs expected to be incurred directly by the owner within the scope of the alliance.

On the face of it, it would seem to be in the owner's best interest to set the Target Cost as low as possible and in the interests of the NOPs to have it as high as possible. However there are several factors at work to counteract this apparent conflict:

(a) Transparency - the Target Cost is developed jointly by the alliance participants on a full open book collaborative basis. Nothing can be hidden.

(b) If the Target Cost is too high the project may not proceed. This will not be in the interest of any party.

(c) If the participants are unable to agree on the Target Cost, the alliance will not be able to proceed and the NOPs will lose their limb 2 fee for all work done under the iPAA.

For the future health of the alliance it is important that all participants are comfortable with the Target Cost estimate and the process by which it is derived. There is no place in a healthy alliance for unprincipled negotiation tactics.

On some projects, particularly those involving the public sector, it is normal practice to engage an "Industry Expert" to undertake an independent estimate or at least do a "sanity check" on the Target Cost estimate.

The development of the Target Cost estimate and the other performance targets is perhaps the first real test of a new alliance. The author's experience is that although it can be a difficult process, invariably the parties do reach agreement and the process, if conducted properly, serves to strengthen the relationships.

### 4.4 Limb 2 - Fee

The non-owner participants are paid a fee that reflects their "business-as-usual" margin for corporate overheads and profit. In practice, before entering into the iPAA, a % figure is agreed ("Fee%") for each of the non-owner participants on the basis that the Fee% will be used in the manner illustrated below to calculate a fixed lump sum fee (the "Fee$") once the Target Cost is locked in. This is illustrated below using the sample TCe from above, and assuming a Fee% of 10% for the constructor[B], and a Fee% of 20% for the designer[C].

| | A | D | E | F | G | H |
|---|---|---|---|---|---|---|
| 1 | | **Sub-total** | | | | |
| 10 | **NOP1 constructor** | | | **Fee%** | | **Fee$** |
| 11 | | 90,000,000 | X | **10.00%** | = | **9,000,000** |
| 15 | **NOP2 designer** | | | | | |
| 16 | | 5,000,000 | X | **20.00%** | = | **1,000,000** |
| 19 | **Owner** | | | | | |
| 20 | | 5,000,000 | | | | |
| 21 | | | | | | |
| 22 | **Initial Target Cost** | **100,000,000** | | | | |

Sample

The constructor's Fee% (cell F11) is applied to the constructor's component of the Target Cost (cell D11) to calculate the constructor's Fee$ (cell H11). The Fee$ for the designer is calculated in the same manner on row 16.

[B] The constructor Fee% of 10% is indicative only. The actual Fee% can vary significantly either side of 10% depending on the industry sector and the type and size of the project. The Fee% should be based on actual overheads and demonstrated profit record as verified by the Alliance Auditor – refer section 7.4 below.

[C] The designer fee% of 20% is indicative only. It could typically be anywhere in the range of ~15% to 45% depending on how the designer's office costs are allocated between limb 1 (directly reimbursable) and limb 2 (part of the Fee$).

In some cases a constructor / designer team will come to the alliance on the basis of a consolidated Fee%, having pre-agreed and declared how the Fee$ will be apportioned between them (eg. 85:15) regardless of their respective allocations within the Target Cost.

Some points to note regarding the Fee$'s include:

(a) The Fee$ is not subject to adjustment regardless of the actual costs expended. In other words it is not a "cost plus" arrangement.

(b) The Fee$ is only adjusted in the case of a Scope Variation, which as explained in section 6, would only occur in very limited circumstances, if at all.

(c) The Fee$ will be paid progressively, generally in proportion to the physical % complete of the participant's work.

## 5 LIMB 3 – SHARING OF PAIN AND GAIN

### 5.1 Overview / guiding principles

The risk:reward arrangements under limb 3 are intended to ensure that the non-owner participants assume an equitable share of the gain / pain along with the owner where the actual performance is better / worse than the business-as-usual ("BAU") targets pre-agreed by the alliance participants. In practice, BAU performance targets with associated measurable key performance indicators ("KPIs") are established by the alliance participants during the iPAA period - agreement on all such targets is a pre-requisite before the PAA can be entered into.

The risk:reward mechanisms should be developed in line with the following guiding principles:

(a) Risk:reward should be linked to outcomes which add to (or detract from) the value to the owner;

(b) When tested against all possible outcomes the result for all Alliance Participants should be either win:win or lose:lose. Under no circumstances should the project outcomes result in a win:lose, or even a win:neutral or lose:neutral, outcome amongst the alliance participants – ie. "everyone wins or everyone loses together";

(c) Performance by the alliance that is better than the agreed targets should lead to better-than-BAU returns for the non-owner participants while outcomes that fall short of the agreed targets should result in poorer-than-BAU returns;

(d) All of the limb 2 Fee$'s are at risk. While this means that the non-owner participants could lose all their Fee$'s as a result of the painshare under limb 3, no matter how bad the outcomes they will recover all their limb 1 costs.

By linking the commercial interests of all parties directly to best-for-project outcomes, the participants are encouraged to work collaboratively to identify, eliminate and/or mitigate all risks regardless of the source, including in some cases risks that no single party could manage effectively on its own.

## 5.2 Sharing of pain /gain amongst NOPs

Prior to entering into the PAA the alliance participants need to agree how any risk:reward that flows to/from the non-owner participants under limb 3 is to be shared between themselves. Unless there is good reason to do otherwise the author recommends that pain / gain be shared in direct proportion to their respective Fee$'s. Using the same hypothetical example from 4.4 above the constructor's share would be 90% with 10% going to the designer as illustrated below:

| | ΣFee$ | Share% |
|---|---|---|
| Constructor - NOP1 | 9,000,000 | **90.00%** |
| Designer - NOP2 | 1,000,000 | **10.00%** |
| | 10,000,000 | 100.00% |

These ratios could obviously vary significantly depending on the actual Fee%'s for the non-owner participants.

Once locked in, any pain or gain flowing to the non-owner participants is shared between them in the pre-determined ratios regardless of perceived relative performances on the project – ie. even if one performs very well and the other performs poorly, the sharing of pain:gain remains at the predetermined sharing rates. This approach underpins the fundamental alliance principles of collective responsibility and no blame and the concept that "*we all win or we all lose together*".

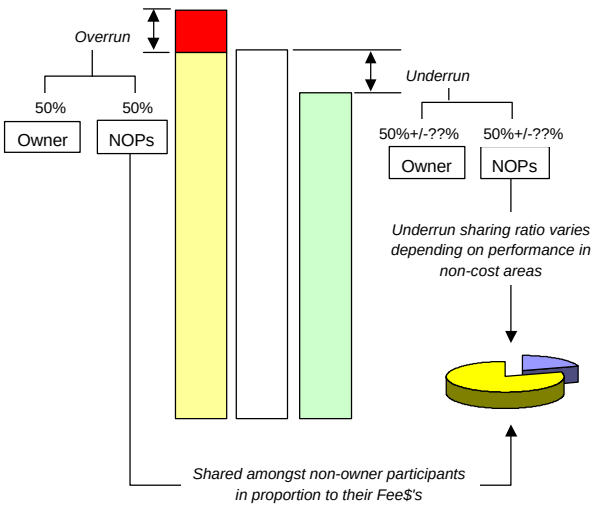
## 5.3 Sharing of pain /gain between owner and NOPs

The sharing of cost under / overruns is usually the primary component of the risk:reward arrangements. In practice the actual costs expended are compared against the Target Cost to determine the extent of cost underrun or overrun.

Subject to the overriding rule that a non-owner participant cannot lose more than its Fee$ as a result of limb 3, it is suggested that:

(a) cost overruns be shared 50:50 – ie. 50% to the owner with 50% to the non-owner participants.

(b) underruns be shared 50:50 where the performance in non-cost areas is BAU, but adjusted up or down either side of 50% where the performance in non-cost areas is better / worse than BAU.




The author has developed and adopted this methodology for several alliances because it is effective, relatively easy to understand and flexible enough to accommodate almost any kind of project. The methodology is explained in detail below.

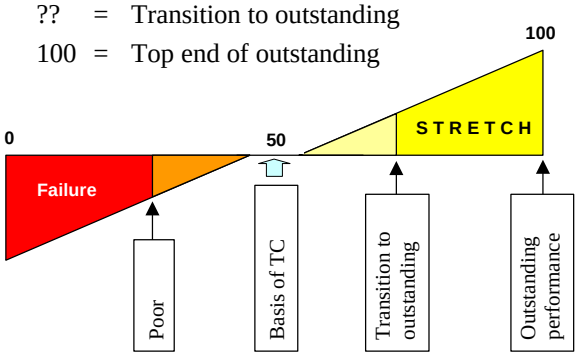
The risk:reward model includes KPIs for non-cost areas where good /bad performance is seen to add to /detract from the value to the owner (eg. as health & safety, environment, community, stakeholder satisfaction, etc.). This ensures that the non-owner participants share in the gain /pain depending on how actual performance compares with pre-agreed targets in these areas.

Performance in non-cost areas is expressed in terms of an Overall Performance Score ("**OPS**")[D], calculated as follows:

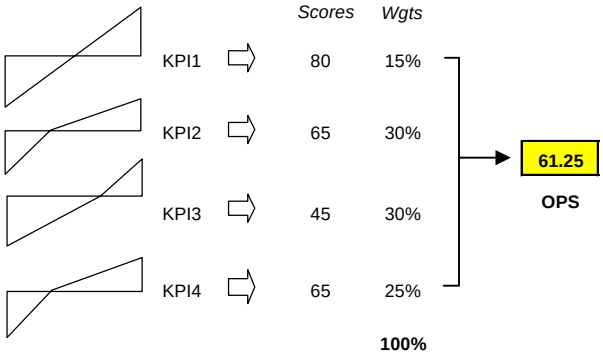
(a) In the first instance the owner declares what are the key areas of importance to it.

(b) During the iPAA period the alliance participants develop a detailed benchmarking and measurement system to determine a KPI performance score between 0 and 100 across a performance spectrum whereby:

| | | |
|---|---|---|
| 0 | = | Bottom end of failure |
| ?? | = | Poor |
| 50 | = | Basis of Target Cost (BAU) |
| ?? | = | Transition to outstanding |
| 100 | = | Top end of outstanding |




The OPS is calculated as the weighted average of the scores from the different KPI's (using weightings to be pre-agreed during the iPAA period), as illustrated below:




D Depending on how critical timely / early completion is to the owner, schedule may carry a very high weighting within the OPS system. Alternatively, the risk:reward for timely completion may be treated as a distinct mechanism rather than being contained within the OPS system.

The OPS is linked to 2 separate risk:reward mechanisms. Under the first mechanism a maximum amount is put at stake based on the OPS score, independently of the cost outcome. Specifically:

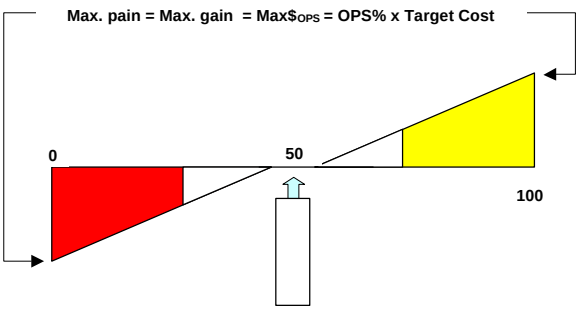
(a) If OPS is more than 50, then as a means of sharing the gains associated with the additional value that the alliance has delivered (compared to a BAU score of 50), the owner makes an extra payment to the non-owner participants on a sliding scale up to a maximum amount ("Max$\$_{OPS}$") of:

- OPS% x Target Cost,

where "OPS%" is a % figure to be agreed during the iPAA period.

(b) If the OPS is less than 50, then as a means of sharing the pain associated with the poor outcomes that the alliance has delivered, the amount otherwise due to the non-owner participants is reduced on a sliding scale – also up to a maximum of Max$\$_{OPS}$.

(c) If the OPS turned out to be 50 then there would be no payment either way under this mechanism since the non-cost outcomes would have been in line with the agreed BAU expectations upon which the Target Cost was based.




As a further (and additional) incentive to ensure that performance in non-cost areas is not compromised in pursuit of continuing cost savings, the non-owner participants' share of any underruns (if they occur) is modified up or down from the default 50% up to a pre-agreed maximum % deviation ("Sens%") on a sliding scale in proportion to the actual OPS.

For instance let's say that Sens% = +/-20%, ie. that the default underrun sharing ratio of 50% would be adjusted by +/-20% based on the OPS. On this basis the underrun sharing ratio would be as follows:

| For an OPS of | 0 | 25 | 50 | 75 | 100 |
|---|---|---|---|---|---|
| Deviation from 50% | *-20%* | *-10%* | - | *+10%* | *+20%* |
| NOPs' underrun share | 30% | 40% | 50% | 60% | 70% |

*Pain via reduced share of underrun* ← → *Gain via increased share of underrun*

The combined effect of the two OPS mechanisms is that, where there is no underrun the maximum amount at stake for non-cost performance would be Max$\$_{OPS}$ (ie. OPS% x Target Cost). However as you move further into an underrun situation the amount at stake on non-cost performance increases markedly. This will ensure that:

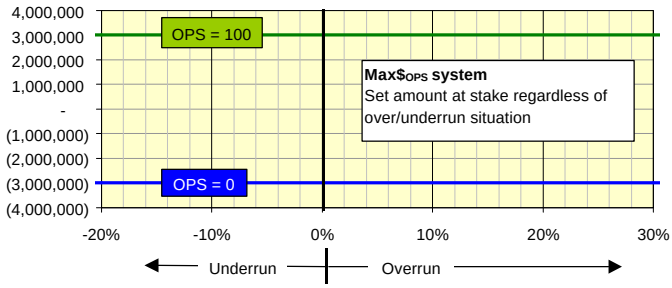
(a) there is always a significant amount at stake on non-cost performance regardless of the cost outcome; and

(b) continuing cost savings below the Target Cost are not achieved through compromises in non-cost areas.

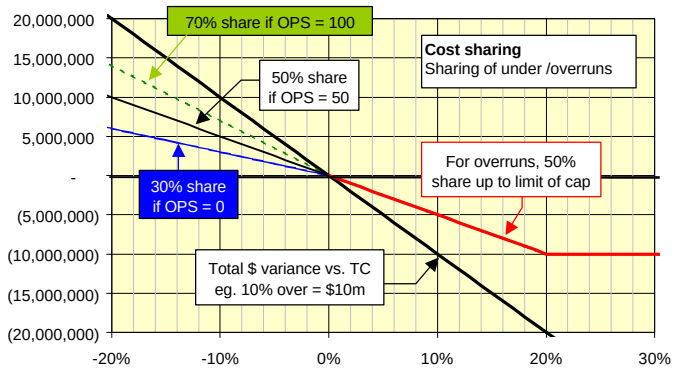
### 5.4 Graphs showing impact of limb 3 pain /gain

Using the sample Target Cost and assuming OPS% = 3% and Sens% = +/-20%, the potential impact of the limb 3 model described above is illustrated in the following series of graphs.

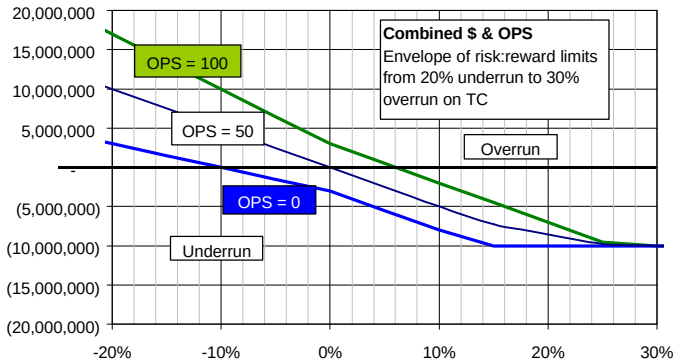
Under the Max$\$_{OPS}$ system +/- $3.0m (ie. 3% x the Target Cost) is at stake on non-cost performance regardless of the cost underrun / overrun situation, as illustrated below:



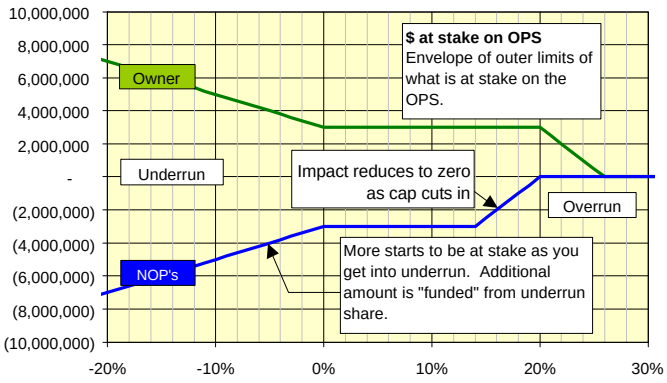

Overruns are shared 50:50 (up to the risk cap) while the sharing of underruns varies up to 20% either side of 50% depending on OPS, as shown below:




The combined effect of the two mechanisms is as follows:



The following graph shows the total envelope (between OPS = 0 and OPS = 100) of what would be at stake on non-cost performance for a cost outcome ranging from 20% under to 30% over:




## 6 MANAGING "CHANGE"

### 6.1 General principle

As a general principle, under a pure project alliance the alliance participants collectively assume all risks associated with the delivery of the project, regardless of:

(a) whether or not those risks are within the control of the alliance;

(b) whether or not they considered them in advance; or

(c) whether they could reasonably have been foreseen or not,

apart from any risks that are specifically agreed by the alliance participants to be retained solely by the owner.

This means that situations that would be treated as "variations" under a traditional contract are not variations under the alliance – rather they are just part and parcel of the delivery of the project. Accordingly the various cost and other targets have to include reasonable allowances consistent with this all-embracing assumption of risk.

### 6.2 Scope Variations

Certain situations would obviously have to be treated as "Scope Variations" – eg., such as the case where the owner wants to include an extra facility that was never contemplated to be part of the project or the owner changes the fundamental parameters upon which the design is based.

Since limb 1 costs are reimbursed at all times regardless of whether or not a situation is considered to be a Scope Variation the issue only impacts on the limb 2 Fee$ and the targets that underpin the operation of the limb 3 risk:reward mechanisms.

Typically the PAA provides a mechanism that enables the Target Cost and the associated Fee$'s to be adjusted as well as any non-cost targets that the PAB decides should be adjusted. However, given that the alliance participants, as a general principle, are embracing all risks, the number of Scope Variations is usually minimal, if any at all.

### 6.3 Scope Variation benchmarking process

To ensure that they are aligned in their understanding of the principle set out above, the author typically conducts a workshop with the alliance participants to test their understanding against a series of scenarios and documents their consensus views in a document entitled "Interim Scope Variation Benchmarking Guidelines".

Before the Target Cost is finalised, that document is revisited and finalised to include any additional scenarios that have become topical during the development of the Target Cost estimate and to ensure that all the key players are still fully aligned as they enter upon the PAA.

### 6.4 Adjustment to time and other non-cost targets

The Target Completion Date and any target milestones along the way are treated no differently to any of the non-cost objectives that the alliance participants commit to achieving, in line with the following rationale:

(a) The Target Cost is based on the achievement of the agreed "must-have" outcomes in each of the non-cost areas.

(b) There is no change to these targets unless a Scope Variation occurs. In the event of a Scope Variation it is up to the PAB to decide the extent to which each of the various targets will be adjusted.

For instance lets say the PAB agrees that the introduction of an additional facility justifies a Scope Variation. The PAB might decide to allow additional costs within the increase to the Target Cost so that the extra facility can be delivered within the same time frame without any change to the Target Completion Date.

Accordingly the author sees no reasons to have an express mechanism for "extensions of time", or for changes to any of the other non-cost targets.

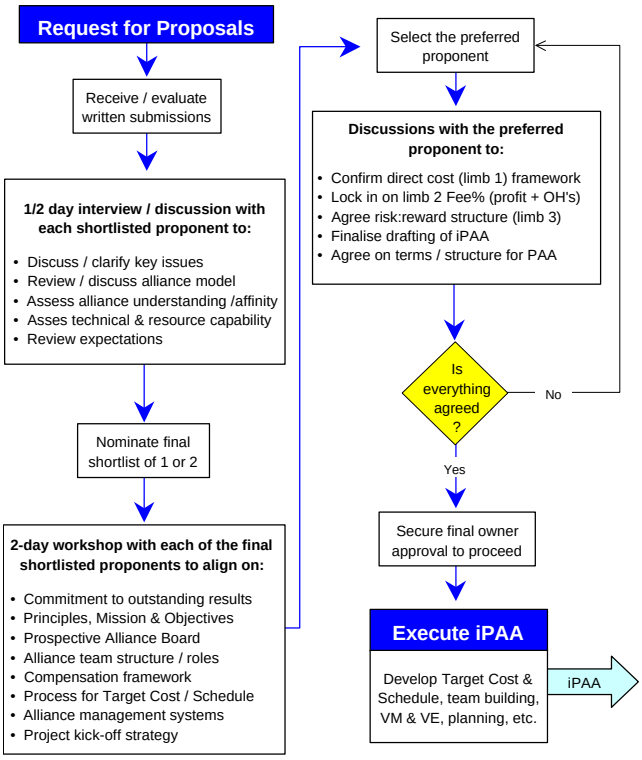
## 7 SELECTION PROCESS

### 7.1 Overview

Without any doubt, the most important step for the owner along the path to a successful alliance outcome is to choose the right participants (s) in the first instance.

While the iPAA and PAA typically provide a way out for the owner at any time, it would cause a serious setback to the project if the owner had to seek alternative participants, switch to a different form of delivery. So the selection process must be so robust that it is almost impossible for the "wrong" participant(s) to survive the process.

The process illustrated below is a modified form of the process understood to have been developed originally by JMJ Associates for the Northside Storage Tunnel Alliance. Based on experience with various alternative selection processes, for medium to large alliances the author now strongly favours this model for any project where the owner wishes to select alliance participants using a competitive process.




Some of the notable features of the process include:

a) Basic commercial parameters such as Fee% are not discussed or locked in until after the preferred proponent has been selected. This ensures that selection remains focused on the core selection criteria (see section 7.2 below) and is not inappropriately sidetracked by commercial issues.

b) Having conducted a half-day interview with the initial shortlist (of ~4 to 6 proponents) the owner's core team members participate in a full 2-day workshop with the final shortlisted proponents. [Typically 2 proponents are selected to participate in development workshops, unless the leading proponent ("No. 1") is so far ahead after the interviews that No. 2 has no chance of catching up unless No. 1 falters seriously at the development workshop.]

The overall aim of the process is for the owner to experience what it will be like to work with the final shortlisted proponents and establish which team has the most potential to deliver truly outstanding outcomes working in an alliance with the owner. Obviously this intent cannot be achieved if a proponent is represented by its business development team. The proponent must bring to the interviews and workshop the key team members that will deliver the project, along with appropriate corporate sponsors. The selection process itself is a key part in establishing the foundation for the eventual alliance.

The process can be "condensed" on small projects, to keep the cost consistent with the smaller scale of the project, without unduly compromising the integrity of the process.

For major projects the author recommends that the chief executives of the various participants meet during the early stages of the alliance for a brief eye-to-eye meeting and handshake.

## 7.2 Selection criteria

The selection process can be adjusted to suit the particular circumstances for each project. The important thing is to ensure that proponents are rigorously assessed against appropriate criteria, including:

1) Demonstrated technical, financial and management capacity to handle the scope of work.

2) Understanding of and commitment to the alliance way of doing business.

3) Track record and demonstrated capacity to deliver outstanding outcomes in safety, quality, environment, community relations, etc.

4) Preliminary ideas on innovations and execution strategies and the potential to deliver outstanding design and construction outcomes.

5) Willingness to commit to the project objectives and demanding "stretch" goals.

6) Track record / demonstrated ability of proponent companies to work with each other.

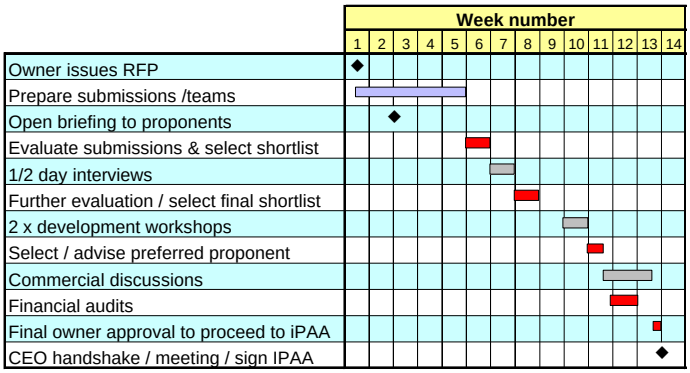
7) The quality of the key personnel and their affinity for working together as a high-performance team.

## 7.3 Selection timetable

Once an owner decides to adopt an alliance and declares that intention to industry then every move the owner makes from that point forward is an important step and/or symbol in the development of the eventual alliance. The manner in which the owner behaves through this period must demonstrate the alliance principles in action. For instance the owner should:

- always do what it says it is going to do, on or before the date it had foreshadowed;
- show respect and consideration to the needs and concerns of proponents;
- communicate openly, honestly and effectively; and
- send consistent signals at all times.

As a first step the owner should prepare a detailed schedule of the process, taking into account any internal approval and/or political constraints. Once the timetable is established the owner must ensure that it sticks to it. While the timetable will vary to suit the particular circumstances, in most cases the process can be accommodated comfortably within the following schedule:



### 7.4 Commercial discussions

The author has found that the most effective process to reach alignment on the primary commercial arrangements is a series of meetings over a period of ~2 weeks culminating with the signing of the iPAA. This process ensures that all key issues are identified, properly understood and tested and that no fundamental "roadblocks" are left to emerge during the iPAA period.

Typically one of the first tasks is to align on the brief for the Alliance Auditor so that the investigations of the financial records and costing structures of each of the prospective non-owner participants can proceed straight away. The Alliance Auditor reports back progressively with the findings of these investigations. This information enables the participants to be fully informed when locking in on the Fee%'s. The Fee% needs to be considered in 2 parts as follows:

*Overhead* The recovery of corporate overhead should be consistent with the actual corporate overheads of the organisation taking into account how the particular project fits into the context of the overall business.

The overhead % can usually be established with relative clarity and certainty based on the investigations by the Alliance Auditor.

*Profit* The appropriate % for profit may not be so easy to determine. It is often suggested that this should be the business-as-usual ("BAU") profit %. However this term can be misleading because:

- It is not clear whether it refers to BAU for the organisation or BAU for the industry;
- How do you establish what BAU is for an organisation whose actual profits have fluctuated significantly in recent years and where the current corporate target is not consistent with past performance?

In the author's experience the profit % is established through open discussion and informed negotiation, taking into account all the relevant factors, including:

- actual past profit performance
- current corporate expectations and actual trend
- differences in context and/or anomalies between the audited figures and the prospective alliance – such as risk profiles, nature of work, cash flow profiles, etc.

Benchmarking the Fee% against "industry norms" should be treated with caution / suspicion. If the organisation has a successful track record in the industry then by definition its margin levels as validated by the Alliance Auditor must be within the range of industry norms. It is not reasonable, nor consistent with alliance principles, for an owner to select a contractor on the basis of that contractor's proven high performance and then insist on an "industry" margin that reflects an industry (lower) standard of performance.

## 8 MANAGING PROBITY ON PUBLIC SECTOR PROJECTS

For publicly funded projects the government agency will normally engage a suitably qualified probity adviser to ensure that the contracting strategy meets the standards of probity expected of the government in its dealings with public funds - both in the establishment of the alliance and the on-going dealings of the alliance.

Although the attitude to probity varies between different jurisdictions, the strategy employed typically involves some or all of the following controls:

*Overall* The probity adviser reviews the proposed strategy and maps out the processes and controls that are necessary to satisfy probity.

*Financial audits* All financial transactions within the alliance are required to be 100% open book. In practice this is achieved in stages:

- Detailed investigations up-front by the Alliance Auditor to ensure that the proposed fee structure is appropriate and to establish clear procedures for the on-going program of financial audits.
- On-going financial audits on all payments under the alliance.

*Selection process* Monitoring of various aspects of the process by a probity auditor to ensure that selection is carried out in accordance with the published process.

*Validate targets* Engagement of independent expert(s) to validate the Target Cost, and in some cases non-cost targets also.

## 9 LEGAL / CONTRACTUAL FRAMEWORK[E]

### 9.1 General

It is beyond the scope of this paper to address the legal framework or legal issues in detail. Previous papers by the author contain a more detailed discussion of the legal aspects[1,2]. The purpose of this section is to give a brief overview of some of the key legal issues.

### 9.2 Is there a role for lawyers? – Yes!

Lawyers have an important role to play up-front in ensuring that the intention of the parties is enshrined in a properly structured and legally effective alliance agreement. There are a number of important legal issues, some of which are mentioned below, that must be properly understood and managed under an alliance agreement. Once the alliance is fully established and the PAA is executed there is unlikely to be any on-going role for lawyers in respect of issues between the alliance participants themselves. However the alliance as a whole may have a need for specialist legal support from time to time when dealing with outside parties.

[E] The author is not a qualified legal practitioner. Comments on legal issues in this paper should not be relied upon without advice from a qualified legal practitioner.

### 9.3 Typical features

Standard form design and/or construction contracts such as AS2124[6], AS4000[7] or AS4300[8] are not suitable as a starting point for drafting an Alliance Agreement. A number of different forms of alliance agreement have emerged including a suite of standard form iPAA and PAA documents developed by the author.

Some of the more notable features of the form of PAA used by the author that sets it apart from standard form contracts include:

| | |
|---|---|
| Collective obligations | Performance obligations are stated to be collective ("*the Alliance Participants shall….*") rather than individual ("*the Contractor / Designer shall…..*"), apart from those obligations that inherently must remain with one party such as the owner's obligation in the first instance to pay the NOPs. |
| Good faith | The PAA contains an express commitment by all parties to conduct their activities related to the project in "good faith". |
| Equal say | Consistent with the alliance principle of "*a peer relationship where all parties have an equal say*", all decisions by the PAB require the unanimous agreement of all PAB Members. |
| Very limited right of action | The intention is that liability between the participants is limited to the limb 3 pain-sharing arrangements, apart from a very limited class of breaches known as "Events of Default". This is reflected in the PAA where it says that:<br>" *A failure by any participant to perform any obligation or to discharge any duty under or arising out of this PAA will not give rise to any enforceable obligation at law or in equity whatsoever save and except to the extent that the failure also constitutes an Event of Default."*<br>Where, in addition to insolvency situations an "Event of Default" is limited to:<br>a) Wilful default – being "*an intentional act or omission carried out with disregard for the harmful consequences for another participant, but does not include any error of judgement, mistake, act or omission, whether negligent or not, made in good faith by a participant*".<br>b) Failure to take out / maintain a required alliance insurance policy.<br>c) Failure to make a due payment.<br>d) Failure to honour an indemnity.<br>e) Refusal of access for an audit. |
| No prescribed dispute resolution mechanism | A fundamental principle of alliancing is that all issues will be resolved within the alliance. In the author's view the inclusion of a prescribed dispute resolution process is unnecessary, illogical and inappropriate for several reasons. [Note that some lawyers argue that in the absence of a prescribed dispute resolution procedure the contract could be void for uncertainty.] |
| Owner's right to terminate | The owner retains the right to terminate for convenience. In such an event the non-owner participants would be reimbursed all limb 1 costs and an equitable amount in respect of limbs 2 and 3. |

### 9.4 Insurance issues

Under a project alliance each participant is assuming a share of certain risks that it would never have to bear in a conventional contract. One of the main strategies for managing these risks is of course insurances. Typically participants come to a project alliance with certain insurances already in place at a corporate level. It can be quite a complex task for the alliance to tap into the benefits of these pre-existing insurances and provide an appropriate continuum of insurance that covers employee, equipment, contract works, public liability and professional negligence.

In the author's experience the insurance industry is not very flexible when it comes to amending pre-existing policies to suit the needs of a project alliance. Professional Indemnity (PI) insurance is particularly problematic:

- It is necessary to make a legal claim against a design consultant to trigger a conventional PI insurance policy. If an alliance suffers an "internal" loss as a result of professional negligence by one of the alliance participants the alliance agreement prevents any legal claim between the participants and a conventionally worded PI policy will not respond.
- One of the key benefits of a project alliance is the ability to involve constructors, owners and suppliers in the design and planning process and to gain the intimate involvement of designers throughout the construction / commissioning stages. Conventional PI policies would need to be extended to name all the alliance participants as insured under the policy.
- Typically alliances have to take out a project-specific PI insurance policy including appropriate "run-off" cover (typically 5 years or more) even though the designer participant maintains its normal corporate PI policies throughout the whole period.

Although no expert in insurance matters the author cannot see how the risk profile for insurers is significantly increased under a project alliance. If project alliancing continues to gain acceptance as a delivery method the insurance industry should eventually develop products that suit alliancing and eliminate wasteful duplication of cover.

### 9.5 Other legal considerations

Each of the participants needs to properly understand the commercial and legal context of what they are committing to. This section gives an overview of some of the issues that may need to be considered:

1) The alliance agreement may need to be customised to meet the needs of individual legal jurisdictions.
2) Some may say that the "no dispute" provision is an attempted ousting of the jurisdiction of the courts or that the alliance agreement is void for uncertainty. In this respect:
   - If the PAA is properly drafted, enforceable rights will exist where there is an Event of Default and in those cases there is a right of action. In all other cases there is no right of action to pursue.
   - In the author's experience the finer legal point here is not relevant because if the alliance is properly established and maintained it will never become an issue. The intention is that the integrity of the participants in conjunction with the commercial drivers will force the participants to reach agreement in all events – they all have too much to lose by not reaching agreement! The author is not aware of any alliance where the participants failed to reach unanimous agreement.
3) Those participants who normally only have an arms-length involvement in site work (eg. owners, designers and suppliers) may, as a result of their participation in the PAB and the management team, have an increased exposure to prosecution under relevant legislation such as safety and environment. [Of course with involvement comes control and the protection that they assume they have as arms-length players under a conventional contract may be illusory in any case.]
4) There may be some concern that the alliance agreement gives rise to fiduciary obligations amongst the participants. Regardless of the finer legal points it seems to the author that a typical alliance agreement expressly imposes duties that would be imposed at common law in any case and that the participants fully understand and intend those obligations to exist.
5) The default provisions (where a participant has to be terminated for Wilful Default) need to be drafted carefully, especially where there are more than two parties to the agreement.

## 10 Human / Organisational Issues

### 10.1 General

More than anything else successful alliancing is about people and successful relationships. While it is very important to get the various commercial and legal structures "right", no matter how well they are set up a project alliance will not deliver outstanding outcomes unless there is an outstanding team of people working within a high-performance culture. [Note that this does not necessarily require a team of outstanding people.]

In a project alliance the relationship "is everything" and cannot be taken for granted. Even where the parties have established a close business relationship on previous projects (and this is highly desirable), it is still important to build the relationship "from the ground up" on each specific project.

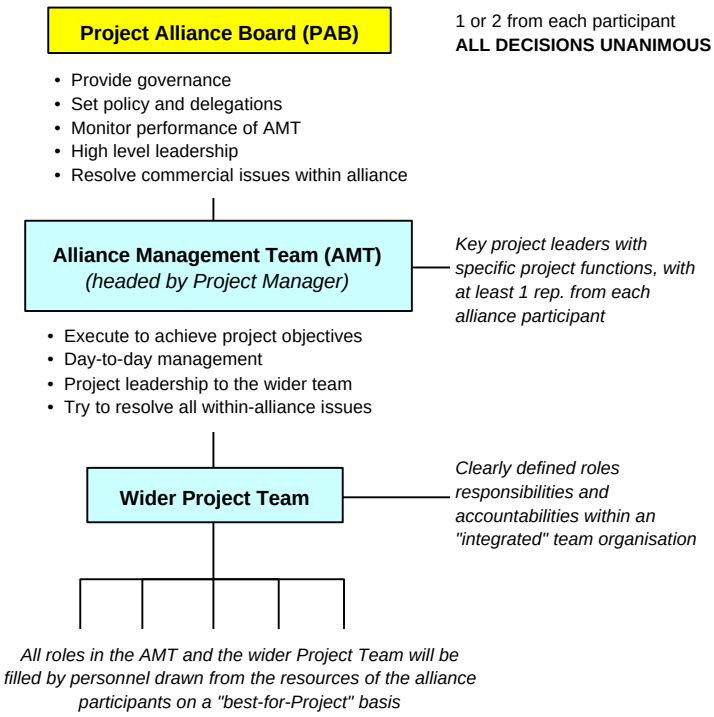
### 10.2 Governance / management structure

Organisation of the project team varies widely depending on the circumstances. On some projects all the alliance participants are well represented throughout the project leadership. On other projects the bulk of the leadership might come from the constructor with just a few key roles filled by owner or designer personnel. Each alliance must develop its own organisation structure to suit the circumstances.

Regardless of the mix of representation the organisation and culture must be such that no one within the wider team sees themselves primarily as "representing" their individual employer. Rather all personnel should see themselves as part of a "**virtual organisation**" where each person is confident that the interests of their own employer are best served by advancing the interests of the alliance.

Traditional-style contracts impose well defined and well proven responsibilities and lines of communication. Under a project alliance, in the absence of these traditional contractual roles and in the enthusiasm for a "no blame" integrated team culture there is a risk that accountabilities and responsibilities can become blurred. It is essential that accountabilities and responsibilities are clearly established throughout the team right from the start and underpinned by a culture where people at all levels do what they say they will do.

Typically alliances are organised along the following lines:



### 10.3 Alliance management programs

The single biggest risk facing any project alliance, assuming the right partners have been chosen, is that the relationship between some of the participants may unravel. Collectively the alliance participants have to ensure that a strategy is implemented to develop nurture and maintain a high performance team culture at all levels throughout the project. A well designed alliance management program can eliminate this risk. A typical alliance management program would seek to:

- Establish a foundation charter for the alliance incorporating the vision objectives and "alliance principles" that will form the philosophical basis for reasoning and behaviour throughout the project.
- Align and commit all project personnel to the alliance charter.
- Create a culture of innovation and "breakthrough" thinking where team members continually seek to "raise the bar" and pursue seemingly "impossible" targets with an expectation and a passion to succeed.
- Develop and enhance leadership skills and practices at all levels of the project team.
- Monitor and continuously improve the quality of relationships at all levels within the project team.

While it is beyond the scope of this paper to deal with alliance management processes in any detail, typically the alliance management will cover a whole range of different facets of project delivery within a framework that is focused on people and the way they relate to each other:

- Well established workshop processes, such as value management, value engineering, constructability and risk management can be taken to new levels of effectiveness in the context of a project alliance.
- Near seamless collaboration and communication across the interfaces between project teams is possible.
- Alliance champions, implementation teams, opportunity and breakthrough workshops can be used to turn passion and commitment into results.

The processes should not be restricted to workshops attended by engineers and managers. The alliance culture should be interwoven with normal field processes such as site inductions, toolbox meetings, work activity briefings, etc. so that all personnel are enrolled into the spirit of the alliance, feel part of the process and have the opportunity to participate in a tangible way.

### 10.4 Alliance facilitators

Although a significant cost, it is normal practice on successful alliances to engage a skilled facilitator to design and lead the alliance management program. Even on smaller projects an alliance facilitator should be used to establish the program and provide arms-length guidance to in-house resources on program implementation. There is no reason why companies should not develop high-level alliance facilitation skills in-house as project alliancing becomes more widespread, although there will probably always be a need for some external facilitation.

In the meantime there are several skilled alliance facilitators around Australia who have a demonstrated track record in the establishment and implementation of successful alliance management programs.

### 10.5 Team location / communication / website

Ideally the whole alliance team should operate from a project-specific alliance office. This makes it much easier to develop the "virtual company" spirit and develop seamless communication between all members of the team. However it is not always practical to consolidate the team into one location and in such cases one of the greatest challenges for the alliance is to establish communication systems that establish a cohesive project culture despite the physical separation of different parts of the team.

The use of a secure website as a communications and information portal can greatly enhance the management of information on an alliance.

It is important for the core alliance management team, having taken up the alliance challenge, to use its leadership skills to infuse project personnel at all levels with the same vision and enthusiasm, regardless of how widely the project team is scattered.

### 10.6 Staff gainsharing schemes

It may be appropriate to implement a staff gainsharing scheme. However, staff gainsharing schemes can easily backfire if not managed carefully. They need to be developed within a coherent set of guiding principles to suit the particular circumstances of the project. In the author's experience of major projects in general (not alliances) there are generally inadequate management processes in place to identify and deal with the complex issues associated with the development and implementation of worker gainsharing schemes. The result is that these schemes often fail to deliver the value that they should. The lesson for alliance participants is that they must either manage the process properly or not embark on it at all.

### 10.7 Management of subcontracts

It is up to the alliance participants to develop and implement appropriate subcontracting strategies based on the best-for-project principle. A detailed discussion of this topic is outside the scope of this paper. In general terms a subcontractor might be engaged under any of the following arrangements:

a) A "sub-alliance" arrangement intimately linked to the main alliance.

b) Some form of open-book incentive based contract linked to key performance indicators (KPIs) that mirror or support the KPIs in the main alliance.

c) A more traditional schedule of rates or lump sum type arrangement.

Regardless of the procurement method the alliance culture transcends subcontract interfaces and permeates all personnel working on the project.

## 11 KEY BENEFITS

### 11.1 Main benefits to the owner

In the author's experience, by adopting an alliance on complex projects an owner can expect:

→ much greater certainty of on-time or early delivery, especially in the face of adversity;

→ the project to be delivered very close to or under the agreed Target Cost;

→ more informed decisions on technical solutions / choice of equipment;

→ better balance between capital investment and whole-of-life costs;

→ outcomes that meet or exceed expectations in non-cost areas;

→ potential for real breakthroughs in some areas; and

→ much greater job satisfaction / professional development for all involved

as a result of the combined effect of the following factors:

- alignment of commercial interests – no time wasted arguing with each other;
- collaborative management / synergy;
- elimination of duplication – no person-marking or duplicated systems;
- faster decision-making;
- increased innovation;
- greater realisation / exploitation of opportunities;
- better / more holistic risk management through collective and aligned strategies to manage inherent risks and external threats.

### 11.2 Benefits specific to the non-owner participants

Alliancing is generally attractive to non-owner participants for the following reasons:

1) Potential for very good returns within acceptable limits of risk. [It is misleading to say "lower" risk. While the overall risk is capped, within that limit the non-owner participants lay-off some of the risks they would normally own completely but take on a share of risks they would normally never have to assume.]

2) Enhancement of reputation leading to increased prospects of repeat and referred work.

3) Strengthening of relationship with owner and the other participants – forming the basis for possible future strategic alliances.

4) Increased job satisfaction for staff with associated benefits to overall organisational culture.

5) Significant increase in communication and general project management skills.

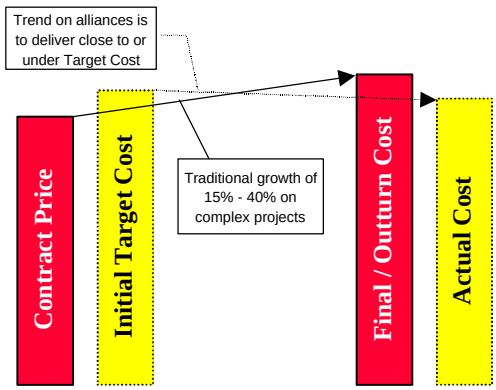
### 11.3 Best value for owner?

It may be difficult and perhaps inappropriate to "sell" project alliancing as a delivery method solely on the basis of capital cost reductions because it is difficult to conclusively demonstrate that the outcome will deliver cost reductions compared to a more conventional delivery method. More likely it is the assurance of better performance in all the non-cost areas combined with the likelihood of lower direct costs that should persuade an owner to adopt the alliance approach.

Under a traditional model the owner gauges the relative "value" of competing contractors by inviting tenders. In a mature open market economy like Australia, strong competition amongst contractors ensures that tendered prices are not artificially inflated. However, under an alliance the "price" is negotiated and the owner has no definitive way of testing the negotiated price against the open market. So the owner is entitled to question whether or not the alliance model will deliver better value than a traditional approach. Unfortunately there is no simple or short answer to this question – the owner must make a judgement based on an informed assessment of the many complex issues involved. However there are some points that the owner should take into account – specifically:

1) Using conventional contract forms the tender price is only the starting point. The contract provides express mechanisms by which the contract sum is adjusted to take account of variations, delays, latent conditions, etc. and contractors may also seek additional payment on other grounds (eg. damages for breach, or under statute or common law). The final "outturn" price can be substantially higher than the tender price. On complex projects the growth can typically be in the order of 15% to over 40%. In contrast the Target Cost is a true estimate of the outturn cost.

2) Few would argue that a group of aligned and dedicated people working in a high performance integrated team will deliver a project at a lower overall cost than an equivalent team operating in an adversarial environment under a traditional form of delivery. While this does not necessarily mean it will cost less for the owner (as the contractor might bear some of the extra cost as a result of underbid or other reasons) it is not unreasonable to speculate that the owner will end up paying the lion's share of costs expended on any project, in one way or another.



For situations where there is only one buyer, as in the case of much of government procurement, the additional amount expended on adversarial administration (no matter which party bears it in the first instance) should be of particular concern to the owner because almost any "wasted" effort / cost will eventually be borne by the buyer. In the case of infrastructure projects the result is likely to be less infrastructure developed for the limited funds available.

## 12 Downsides

### 12.1 General

There are some significant downsides to alliancing which must be fully understood if they are to be properly managed and controlled. Some of the main downsides include:

a) Perception of lack of certainty in cost outcome for the owner – owner still assuming 50% share of cost overruns.

*For the kinds of complex projects where it is being used, project alliancing seems to be providing much better cost certainty than traditional contracting models on similar type projects.*

b) Requires significant involvement and commitment of owner personnel and senior management to support the process.

*The owner should not embark on an alliance unless it is prepared to make the required level of commitment.*

c) Requires significant cultural shift – away from the traditional adversarial person-marking approach to one of integration, collaboration and high performance teamwork.

*The careful management and pursuit of this cultural shift is a fundamental requirement for the success of the alliance.*

d) Substantial costs to establish the alliance and develop and maintain the alliance culture.

*To do it properly the costs of establishing the alliance are unavoidable, although in time these should reduce as companies acquire some of the necessary skills in-house. The alliance participants have to decide how much to invest in on-going people / culture management. This is often a difficult call because development of "culture" is an abstract concept and there is no definitive way of proving just how much the inputs (workshops, coaching, etc.) are contributing to the desired /actual outcomes.*

e) For government projects, it raises potential probity issues that have to be managed carefully.

*Refer section 8 above.*

f) Relies very heavily on developing and maintaining strong personal and corporate relationships – with very serious consequences if these "fail".

g) Certain insurances are more difficult to procure for an alliance – refer section 9.4 above.

### 12.2 How could an owner get "ripped off"?

An owner should not be entering into an alliance with a participant that it thinks might rip it off. The selection process should set aside any such concerns.

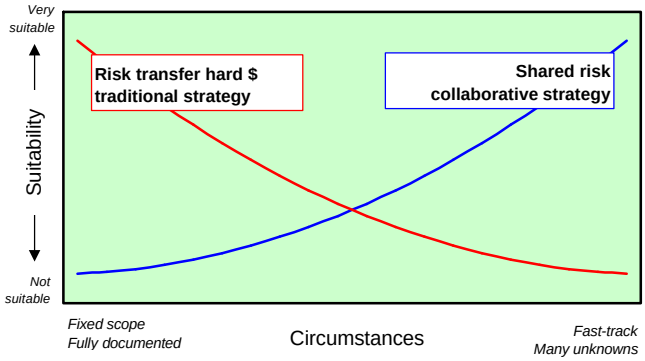
However it is not unreasonable for an owner in the first instance to satisfy itself that there are sufficient checks and balances within the alliance process to ensure that its interests are reasonably protected. In this respect the alliance processes described above should ensure that the more obvious areas of concern are covered – for instance:

| Concern | Addressed by |
|---|---|
| Target Cost inflated | • Open book / transparent<br>• Owner participation<br>• Industry Expert(s) |
| Fee% higher than BAU | • Up front investigations by Alliance Auditor |
| Hidden margins in limb 1 and/or fraudulent accounting | • Up front investigations by Alliance Auditor and agreed Audit Plan<br>• On-going audit program |
| "B" team, with "soft $" mentality | • Selection process<br>• Corporate and CEO commitment / reputation |
| Inappropriate pursuit of Scope Variations | • Benchmarking exercise<br>• Corporate and CEO commitment / reputation |
| Hidden agendas behind push for a particular technical solution or supplier | • Joint and open decision-making<br>• Corporate and CEO commitment / reputation |

## 13 Deciding Whether to use an Alliance

### 13.1 Risk transfer vs. risk sharing

In the first instance all the risks that are inherent in any project are "owned" by the owner. The success of the project depends upon how effectively these risks are managed by the owner. In broad terms the owner can choose from a "risk transfer" approach at one end of the spectrum to a "shared risk" approach at the other end, with a variety of risk sharing hybrids in between. It cannot be said that any particular model along this spectrum is the "right" one. The owner must choose a contracting model that is appropriate for the particular circumstances.



As a general guide, where the scope of work and the risks are well defined, the traditional risk transfer approach will generally deliver the best value to the owner.

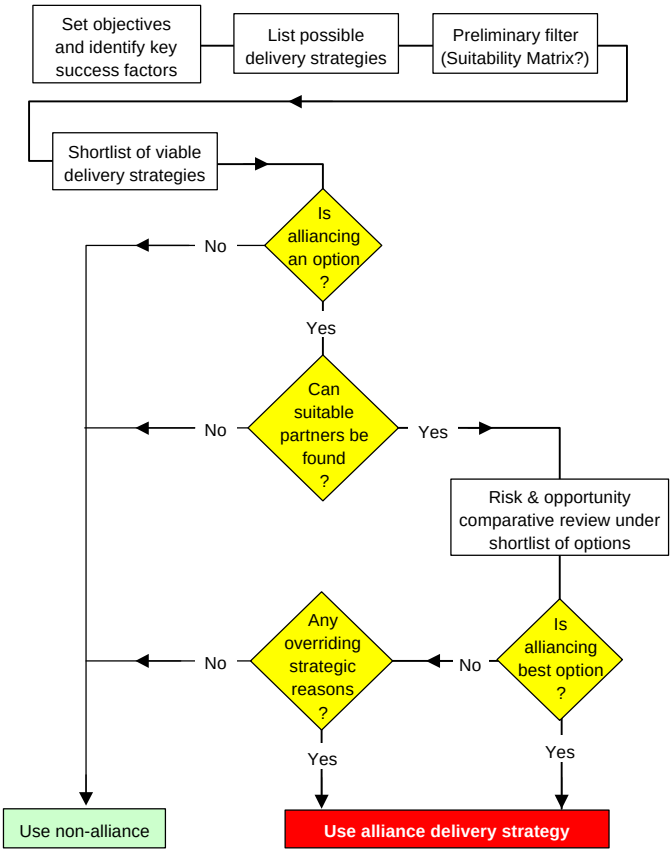
### 13.2 Can you have half an alliance?

A pure form of project alliance is starkly different to more conventional contracting strategies. Under an alliance virtually all risks are shared and the very foundation of the relationship is changed accordingly. Once you move away from the concept of full sharing of all risks, and start to allocate specific responsibilities /risks to individual parties then you no longer have all the essential features of a pure alliance and the potential for blame re-emerges.

### 13.3 Guidelines for owners making the decision

Section 4.0 of the ACA's Relationship Contracting publication[3] suggests that owners can use a "suitability matrix" to help them decide what type of delivery strategy to adopt[F]. While the author believes that such a tool may be helpful as a preliminary indicator it would be dangerous to assume that a such a complex decision can be reduced into such a simple matrix.

Rather the decision should be based on a critical and rigorous assessment of how risks and opportunities could be managed under the alliance compared with how they would be dealt with under a non-alliance model – using a process like that illustrated below:




[F] The suitability matrix in the ACA's Relationship Contracting publication was originally developed by the author.

## 14 Making Sure it Works!

### 14.1 The real cause of success

The most notable feature of project alliances is the manner in which the project team achieves consistently high performance in a culture that is typically characterised by:

- extraordinarily high levels of enthusiasm;
- achievement of "breakthrough" outstanding outcomes for all participants as well as external stakeholders;
- close personal relationships that tend to endure beyond the project; and
- very high levels of job satisfaction for all involved.

In the author's view, viewed in general terms the reason this occurs fairly consistently in project alliances is because of two primary factors:

1) The underlying commercial arrangements are set up in such a way that the commercial interests of the participants are aligned thus creating a virtual organisation where the prevailing and logical attitude is one of "all-for-one and one-for-all".

   This aligned commercial framework is an essential foundation for a high-performance alliance. However this factor alone is not sufficient to deliver the kinds of outstanding outcomes that have been achieved on many alliances.

2) What really delivers the "breakthrough" performance is the intensive focus on "people" issues, built upon a foundation of commercial alignment, based on a belief that people produce results, with accompanying leadership, processes and systems to manage people and the results they achieve.

These two factors go hand-in-hand – in order to achieve truly outstanding outcomes you cannot have one without the other. While it is possible to get excellent collaboration between the parties where commercial interests are not aligned (as has been demonstrated in many partnering projects) it is not realistic to expect the truly outstanding results that have been achieved by successful project alliances.

### 14.2 Strategies to ensure success

The author is not aware of any "pure" project alliance that has "failed". Even the HBI alliance (refer Appendix 1) is acknowledged by BHP personnel involved in the alliance to have been successful in the context of what was obviously a failed project overall.

However there are early warning signs that alliancing may be (unfairly) discredited as more and more owners, expecting the kind of "breakthrough" outcomes that have been achieved on some pure alliances, adopt lesser forms of "alliance" models that lack some of the features that are essential for achieving the outstanding outcomes they are hoping for.

Although there may never be a way to definitively compare the relative merits of various delivery models, the author believes that a pure alliance model is almost certain to deliver the best value outcome for the owner, provided

a) the owner, having acquired a good understanding of the principles underlying project alliancing, uses the alliance approach on projects where it is appropriate to do so (refer section 13 above); and

b) having decided to use the alliance approach, the owner ensures that the following keys steps are taken:

- Make sure the alliance model has all the mandatory features of a "pure" alliance

  See the list of essential features in section 2.4 above. In many cases it may be better not to embark on an alliance at all than to implement a lesser form that lacks some of the features that are essential for the alliance process to work as it should.

  Where there are good reasons for the owner to adopt a lesser form of alliance then it is important that all parties understand how behaviour drivers might be altered and have appropriate strategies in place to manage the relationship under those circumstances.

- Select the "right" partners using appropriate criteria

  Use a robust selection process along the lines described in section 7.2 above. On larger projects arrange for the CEOs, in an eye-to-eye exchange, to give their personal commitments that they will do their utmost to ensure that the alliance principles will be upheld.

- Put in place a comprehensive alliance management program to manage people, their relationships and the results they achieve.

- Ensure that all key stakeholders (including those outside the alliance) are enrolled into and committed to the achievement of the alliance objectives.

> ***What really delivers the breakthrough performance is the intensive focus on "people" issues based on a belief that people produce results…***

Note that this is not intended to be a complete list of "pure" project alliances carried out or underway. Although to the best of the author's knowledge the information is correct, all information should be checked with the relevant participant(s) before being relied on.

| Year(s) | Project Alliance / Owner | Non-owner Participants | Comments / source |
|---|---|---|---|
| '94 - '96 | **Wandoo B oil platform**<br>WA ~ $377m<br>Ampolex (Mobil) | Leighton Contractors<br>Dawson Brown & Root JV<br>Keppel Corporation<br>Ove Arup Pty Limited | Winner of 1997 engineering excellence award<br>Winner of 1998 Australian Construction Award<br>$13m < budget, 26.5 mths vs. norm of 34 mths<br>Refer "*Wandoo B Offshore Oil Platrform*" [9]<br>www.mobil.com.au/company/tcexwan.htm |
| '94 - '97 | **East Spar Project**<br>WA (oil & gas)<br>WMC Resources Ltd | Kvaerner Oil & Gas<br>Clough Engineering | Winner of the IEAust's highest national engineering excellence award - the Sir William Hudson Award<br>www.engaust.com.au/ea/1297coverstory.html |
| '96 - '99 | **Hot Briquetted Iron (HBI)**<br>WA (iron ore)<br>BHP | Various | 3 separate fabrication / construction alliances. Refer Thomson[10] |
| '97 – '00 | **Northside Storage Tunnel Project**<br>NSW ~$450m (water mgt)<br>Sydney Water | Transfield Tunneling<br>Connell Wagner<br>Montgomery Watson<br>Kilpatrick Green (sub-alliance) | Time: Completed on time despite ~ 9 month delay on critical work arising from external forces.<br>Cost: Cannot be finally determined until residual issues such as insurance claims finally resolved. Expect final net outcome to be close to budget.<br>Safety: Scored at "outstanding" (but suffered one fatal accident)<br>Environ.: Measured as Best Practice<br>Comm.: Measured as Best Practice<br>Refer paper by Henderson & Cuttler[11] and report by Wallis[12].<br>ww.engaust.com.au/ea/0998tunnelling6.html |
| '98 - | **National Museum Acton Point**<br>ACT - Building<br>Commonwealth Government | Ashton Raggatt McDougall, Robert Peck von Hartel Trethowan, Civil & Civic, Tyco International, Honeywell Ltd, Anway and Company | Opened on schedule and on budget in early 2001<br>Specific outcomes unknown to author but generally viewed as outstanding success.<br>www.nma.gov.au/aboutus/bustats.htm |
| '99 - | **Woodman Point Wastewater Treatment Plant Amplification**<br>WA ~$120m<br>WA Water Corporation | Clough Engineering<br>Kinhill Group | Scheduled for completion by end of March 2002<br>www.clough.com.au/latestnews.htm<br>www.awwa.asn.au/Branches/WAnews/WW/page11 |
| '98 – '00 | **Clean Fuels Project**<br>Qld ~$450m (oil & gas)<br>BP / BOC / Lend Lease /<br>Origin Energy /<br>ATCO Power Australia | Stork ICM<br>Kvaerner Processing Australia<br>Fluor Daniel Canada<br>JMW Consultants | Project completed in late 2000 – very successful in all respects. Winner of the ACA 2001 Construction Achievement Award. Refer article by Wilson[13].<br>Time: Finished on 18Oct00 compared to sanctioned target of 01Jan01 – 2.5 months early.<br>Cost: Actual cost = sanctioned / target cost (which was $80m < original budget)<br>Safety: LTIFR = 1.39; MTIFR = 7.76; AIFR = 9.07. Outcomes much better than industry averages.<br>Quality: Exceeded world class benchmarks<br>Environ.: 0 incidents<br>IR: 0 incidents; 0 lost time |

| Year(s) | Project Alliance / Owner | Non-owner Participants | Comments / source |
|---|---|---|---|
| '98 – '99 | **Penola West project**<br>SA ~$4m (electricity transmission)<br>ETSA - ElectraNet SA | Kilpatrick Green<br>Burns and Roe Worley | Completed Oct99 well ahead of schedule despite numerous externally imposed delays.<br>Time: Finished on 15Oct99 compared to target of 31Oct99 – 2 weeks early.<br>Cost: On budget<br>Safety: LTIFR = 0; MTIFR = 0 (20,000 hrs)<br>Env./Com.: Score of 7 out of 10 |
| '99 – '00 | **Pelican Point Project**<br>SA ~$22m (electricity transmission)<br>ETSA - ElectraNet SA | Kilpatrick Green<br>Burns and Roe Worley | Outstanding outcomes all round: –<br>Time: Finished on 14Jun00 compared to stretch target of 01Jul00 – 2 weeks early but months ahead of world best practice.<br>Cost: 10% underrun<br>Safety: 1 minor LTI<br>Quality: Score 9 out of 10<br>Env./com.: 10 out of 10 |
| '99 – '99 | **Norman River Bridge ~$5m**<br>QLD Department of Main Roads | Barclay Mowlem Construction | Completion on 22Nov99 - weeks earlier than the already tight target date prior to the 99-00 wet season, on budget and with outstanding support from the community. |
| '00 – | **Inner Northern Busway – Section 1**<br>Qld ~$100m (urban development)<br>QLD Department of Transport | Transfield Construction Qld<br>Henry Walker Eltin Contracting<br>GHD Pty Ltd<br>Halcrow Pacific Pty Ltd | Alliance terminated due to budgetary difficulties and apparently differences between state and local government agencies.<br>Against these difficulties the alliance was acknowledged by all to have performed exceptionally well and the alliance model provided QT with the flexibility to respond to rapidly shifting political / economic circumstances without suffering undue commercial loss<br>Alliance may be resurrected. |
| '00 – '00 | **Pacific Motorway Package 4**<br>Qld ~$60m (road infrastructure)<br>QLD Department of Main Roads | Thiess Contractors<br>SMEC Australia | Converted balance of "distressed" traditional schedule of rates contract to alliance in a bid to reach Practical Completion by October 2000 – 3 months earlier than the previously forecast trend.<br>Time: Finished on 02Oct00 – 5 days earlier than scheduled opening day despite many setbacks along the way (many months earlier than previous trend)<br>Cost: ~5% overrun |
| '00 – '02 | **Awoonga Dam Raising Project** Qld ~$100m<br>Gladstone area Water Board | SunWater<br>PPK Consultants<br>Thiess Contractors | Raising of the Awoonga Dam to AHD 40m and associated infrastructure relocation.<br>Alliance formed in August 2000 – proceeding very well, trending well under budget and almost 6 months ahead of schedule despite 5 months delay at the start on environmental approvals |
| '01 - | **Port of Brisbane Motorway** Qld ~$112m<br>Queensland Motorways Limited | Qld Main Roads Major Project Group<br>Leighton Contractors<br>PPK / Coffey & Partners | Initial cost estimates well above original budgets, requiring substantial value and scope management and re-assessment of project funding.<br>PAA signed in Oct01 with commitment to finish on original Target Completion Date (by the end of 2002) despite 5 months delay at the start. |
| '01 - | **Liddell Control System Upgrade** NSW ~$30m<br>Macquarie Generation | Yokogawa Australia<br>Ralph M Lee | Alliance proceeding – trending towards excellent outcomes all round |

| Year(s) | Project Alliance / Owner | Non-owner Participants | Comments / source |
|---|---|---|---|
| '00 – '01 | **Sydenham Electrification Project** VIC ~$34m<br>VIC Department of Infrastructure ("DOI") | National Express Group ("NEG")<br>Thiess Pty Ltd | Expected to finish in late 2001 – well ahead of schedule and trending towards ~10% underrun.<br>Project was mandated as part of the National Express franchise agreement. Thiess was originally contracted by NEG to deliver the project as a lump sum. However the introduction of the Very Fast Train project had a profound impact on the scope. Parties decided to convert project to a 3-way alliance. The PAA as signed can be viewed at:<br>*http://tenders.vic.gov.au/contracts/public/view.asp?contractID=801* |
| '01 - | **ANZAC Ship alliance**<br>Department of Defence | Tenix Defence Systems Pty Ltd<br>Saab Systems Pty Ltd | Not a project alliance as such. The ANZAC Ship Alliance has been established to facilitate changes to the ANZAC Class, both for ships still in build and those already in service with the Australian Navy.<br>Alliance is expected to handle all change from small changes to major projects up to $500m each.<br>Alliance commenced in June 2001 and is already working on several major upgrades. |
| '01 - | **Woodlawn Bioreactor Project** NSW ~ $12m<br>Collex Waste Management | Barclay Mowlem Construction<br>Maunsell McIntyre Pty Ltd | iPAA entered into mid 2001. Awaiting permits for development of Sydney site before project can proceed. |
| '01 - | **Grafton Gully Alliance**<br>Auckland ~NZ$65m | Fletcher Construction Company<br>Higgins Contractors<br>Beca Carter Hollings & Ferner | Believed to be the 1st project alliance in New Zealand.<br>iPAA signed Sep01. PAA expected to be executed prior to Xmas 2001. |
| '01 - | **Sydney Pump Station Upgrade Program "SPSUP"**<br>NSW ~$200m<br>Sydney water Corporation | Bovis Lend Lease<br>Tenix Alliance Pty Ltd<br>CH2M Hill<br>Sinclair Knight Merz<br>The Phillips Group | Not a project as such – rather a roll-out program of many smaller projects - ~330 pump stations upgrades – over 4 years, requiring a more complex compensation model. However it is established along a pure alliance model.<br>iPAA signed in October 2001. Expect PAA to be signed before Xmas 2001. |

| Myth or Fact? | Author's comment |
|---|---|
| Alliancing is easy | **Not really**<br>*Alliancing is easier if players start off with a good understanding of alliance principles and previous experience in high performance alliance processes. However even then alliancing is generally more demanding than conventional contracting because it requires so much people management / focus and in a properly managed alliance "there is nowhere to hide"– it requires a lot more energy. However while it may be more demanding it is invariably a lot more enjoyable / satisfying for everyone involved.* |
| It is a low risk option for contractors | The overall risk is lower but the risk landscape is more complex<br>*It is not really accurate to say that project alliancing is low risk for contractors. While the non-owner participants get to lay off more than half of the risks they would normally fully own, they have to take a share of risks that they would never have to assume at all. However within this more complex risk environment their overall risk exposure is less than under a conventional contract (because of the risk cap). The overall risk is therefore lower but the risk landscape is more complex.* |
| It's just a form of cost plus | Definitely not<br>*If set up as a true alliance as described in this paper, the compensation arrangements are definitely not cost plus.* |
| No cost certainty for owners ➡ more risky than conventional delivery model | On complex projects (that are suited to alliancing) the outturn cost is more certain.<br>*The supposed certainty of contract sum under a conventional contract is often merely an illusion, especially on complex projects. It is true that the owner has little certainty at the time the alliance is formed. Even when the Target Cost is developed and agreed there is no guarantee. However the Target Cost is a forecast of true outturn cost and is usually a reasonably accurate forecast, unlike the tender price in complex projects where the owner has no assurance of what the eventual outturn cost will be. The emerging trend is for pure alliance projects to finish close to, on or under the Target Cost, even in the face of great adversity (see Appendix 1)* |
| Can't do it for projects < $100m | It is suitable for projects <$100 million.<br>*This has been demonstrated on several projects as low as $4m where alliancing was used very effectively. However the alliancing processes need to be modified for smaller projects to ensure optimum value outcomes. There is obviously a point at which the project value is so low that the additional benefits of alliancing are not significant enough to justify the cost of establishing and maintaining the alliance.* |
| Can't do on building jobs | Can be used on building jobs.<br>*By all accounts project alliancing was used most effectively on the Acton Point National Museum project in Canberra (see Appendix 1). However while the alliance model can be applied to specialised building projects (eg. hospitals, airports, museums, etc.) the author believes it may be impractical at this stage to use a full blown alliance on smaller conventional building projects due to subcontracting structure of the building industry.* |
| You can't impose an alliance after a job has been tendered competitively | It can be applied to existing distressed conventional contracts<br>*While alliancing has been used as a strategy to rescue distressed projects there are great difficulties in doing so and, while great improvements can be realised, a mid-project conversion to alliancing is unlikely to achieve the kind of outstanding outcomes that have been achieved on "clean born" project alliances. Nonetheless in some cases (eg. refer Pacific Motorway Package #3 in Appendix 1) conversion to an alliance is the only chance of achieving the project outcomes.* |
| Decision-making is by committee ➡ slow and inefficient | Not correct (if properly managed)<br>*In a well organised alliance decision-making should be much faster than in conventional contracts. The decision-making protocols are clearly defined and it is usually only at Alliance Board and sometimes Alliance Management Team level that decisions have to be unanimous. Day-to-day operations run along normal (but more effective) decision-making lines.* |
| Suppliers can't be brought into an alliance | Yes they can, but…<br>*The author has not been involved in any major alliances where key suppliers were brought in as core alliance participants. It may not be practical for an equipment supplier to open up its manufacturing arm to open book scrutiny. However there is ample opportunity to have support / design / application services as part of the core alliance supported by pre-agreed preferential supply rates for equipment.* |
| There is no place for lawyers in the process | There is an important role, but one that must support the alliance process<br>*Lawyers have a key role to play in establishing an alliance – ie. to ensure that the intent of the participants is embodied in a precise and legally binding agreement. It is important to ensure that the lawyers understand and support the process and provide the necessary service rather than driving the process away from its true course.* |
| It cannot be done on public sector projects for probity reasons | Alliancing can be used in public or private sector jobs.<br>*For example - 9 of the projects listed in Appendix 1 are public sector projects.* |

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