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Introduction to Project Alliancing (on engineering & construction projects) April 2003 update

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1 Introduction	1	9.3 Is there a role for lawyers? – Yes!	12
1.1 General	1	9.4 Notable legal features	12
1.2 Scope / aim of this paper	1	9.5 Insurance issues	13
2 Overview	1	9.6 Other legal considerations	14
2.1 What is project alliancing?	1	10 Human / Organisational Issues	14
2.2 Spectrum of “Relationship Contracting”	1	10.1 General	14
2.3 Risk-sharing vs. risk-transfer	2	10.2 Governance / management structure	15
2.4 Essential structural features of a project alliance	2	10.3 Alliance culture management programs	16
2.5 Behind the label “alliance”	3	10.4 Alliance facilitators	16
2.6 Core alliance principles	3	10.5 Team location / communication / website	16
3 Establishment / Development of Alliance	3	10.6 Staff gainsharing schemes	16
3.1 Overview	3	10.7 Management of subcontracts	17
3.2 Alliance Auditor	4	11 Benefits of Project Alliancing	17
3.3 Compensation under the iPAA	4	11.1 History & track record	17
4 Compensation under the PAA	4	11.2 Understanding the reasons for success	18
4.1 Overview	4	11.3 Key benefits	18
4.2 Limb 1 – reimbursement of project costs	5	12 Does Alliancing Offer Value For Money?	19
4.3 The Target Outturn Cost	5	12.1 General	19
4.4 Limb 2 – Fee	6	12.2 What about price competition in alliances?	19
5 Limb 3 – sharing of pain and gain	7	12.3 The way ahead	20
5.1 Overview / guiding principles	7	13 Downsides	20
5.2 Sharing of pain /gain amongst NOPs	7	13.1 Overview	20
5.3 Limb 3 pain: gain – generic model	7	13.2 How could an owner get “ripped off”?	21
6 Managing “change”	9	14 Deciding Whether to Use an Alliance	21
6.1 General principle	9	14.1 Risk transfer vs. risk sharing	21
6.2 Scope Variations	9	14.2 What kind of an alliance?	22
6.3 Right /obligation to direct /implement change	9	14.3 Less than pure alliances	22
6.4 Scope Variation alignment process	9	14.4 Alliances with a guaranteed maximum price?	23
6.5 Adjustment to time and other non-cost targets	10	15 Making Sure Your Alliance Works!	24
7 Selection Process	10	15.1 General	24
7.1 Overview	10	15.2 Key steps to ensure success	24
7.2 Selection criteria	11	Appendix 1 – limb 3 worked examples & graphs	25
7.3 Selection timetable	11	Appendix 2 – Options for dealing with professional risk	35
7.4 Commercial discussions	11	Appendix 3 – Selected List of Alliance Projects	37
8 Managing Probity on Public Sector Projects	12	Appendix 4 – Alliance Myths	40
9 Legal / Contractual Framework	12	References / Bibliography	42
9.1 General	12		
9.2 Is there a need for an iPAA?	12		

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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 Australasia have turned to "project alliancing" to deliver complex projects in the resources, infrastructure and building sectors and the results so far continue to be very impressive.

1.2 Scope / aim of this paper

The term "alliancing" is used to describe various types of collaborative ventures, from longer-term strategic business relationships to short-term arrangements where owners and service providers come together to deliver a single project, with all kinds of applications in between. For instance the author has been involved with the successful application of alliancing for:

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

This paper only deals with the application of alliancing to once-off complex engineering and/or construction capital projects. While the underlying principles are much the same for other types of projects (IT, business re-engineering, etc.) and for longer-term applications (eg. asset management services, mining operations) the mechanics are generally quite different.

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

This paper is an update on previous papers by the author on project alliancing (Ross 1999, 2000, 2001) covering substantially the same material with some updated information. Some of the earlier papers discuss the historical context of project alliancing in more depth and provide more detailed information on some aspects of alliancing.

2 OVERVIEW

2.1 What is project alliancing?

A "project alliance" is where an owner (or owners) and one or more service providers (designer, constructor, supplier, etc.) work as an integrated team to deliver a specific project under a contractual framework where their commercial interests are aligned with actual project outcomes.

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 (and opportunities) 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 that they have jointly committed to achieve.

Under a pure 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 Spectrum of "Relationship Contracting"

Worldwide research by senior representatives from across the Australian industry in the late 1980's (Barrell, T. et al, 1988 p.1) concluded that "*.....claims and disputes have now become an endemic part of the construction industry... the problem of claims and disputes in the construction industry is a world-wide phenomenon....*".

During the 1990's there was a significant push towards "relationship contracting". The Australian Constructors Association (1999) defined relationship contracting 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 (CIDA and Master Builders Association, 1993) are clear examples of relationship contracting. However project teams working under traditional risk-transfer arrangements can come under intense strain as individuals are under pressure to protect the commercial interests of their employer. Typically this limits the ability to develop powerful relationships.

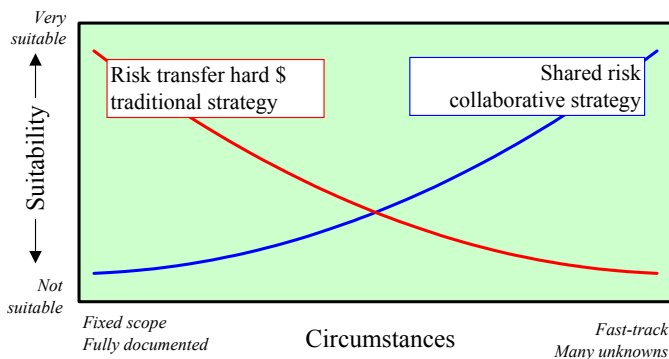
Project alliancing as discussed below in this paper is just one form of relationship contracting, albeit at the “top end” of the spectrum, since the participants take the ultimate step in “removing barriers” by eliminating the misalignment of commercial interests that exists in most forms of non-alliance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

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 (NPWC/NBCC Joint Working Party 1990). 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 generally most appropriate. In such circumstances, while an alliance will still deliver the project effectively, it is likely that any relative advantages of alliancing will be outweighed by the costs associated with establishing and maintaining the alliance. 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, or
- 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.



2.4 Essential structural features of a project alliance

There are different views on how an alliance relationship should be structured. In the author’s view, in order to be assured of success a project alliance should have all of the following features:

- (a) The parties are collectively responsible for performing the work and generally assume collective ownership of all risks associated with delivery of the project.
- (b) The owner pays the non-owner participants (“NOPs”) for their services in accordance with the following “3-limb” 100% open-book compensation model:
 - Limb 1 Project costs and project-specific overheads reimbursed at cost based on audited actual costs.
 - Limb 2 A fee to cover corporate overheads and “normal” profit.
 - Limb 3 An equitable share of the “pain” or “gain” depending on how actual project outcomes compare with the pre-agreed targets which the parties have jointly committed to achieve – based on the guiding principle that “we all win or we all lose”. Typically the downside risk to the non-owner participants is limited to the loss of their entire limb 2 fee.
- (c) The project is governed by a joint body (typically called the Project Alliance Board (“PAB”) or the Alliance Leadership Team (“ALT”) where all decisions must be unanimous.
- (d) Day-to-day management of the project is by a seamless integrated project team where all members are assigned to the team on a “best-for-project” basis, without regard to which party they are employed by.
- (e) The parties agree to resolve issues within the alliance with no recourse to litigation except in the case of a very limited class of prescribed “Events of Default”.

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 the “pure” alliance model favoured by the author as outlined above, uninsurable risk is not “allocated” in the traditional legal sense, but is shared through the operation of the pain-gain model. In this way these risks are shared equitably and quite precisely under the painshare arrangements up to the point where each non-owner participant’s fee has been lost. Beyond that point the risks are borne solely by the owner.

Under this model, designers constructors and other service providers can participate with full confidence that, apart from certain insurable risks or an Event of Default, their liabilities to each other are limited to the pre-agreed painsharing arrangements. The author has found this approach to be the most effective and perhaps the only way to completely remove the barriers to total and seamless collaboration.

However it is not always possible or appropriate for an owner to adopt “all-out” alliancing, or in some cases owners are simply not willing to “go all the way”. Section 14.3 below discusses some of the issues to be considered by an owner contemplating a less-than-pure alliance.

2.5 Behind the label “alliance”

The term “alliance” is increasingly being used to refer to a wide range of contracting models, and it is important to get behind the label of “alliancing” to look at the essential features and true nature of the relationship that each so-called alliance is attempting to create.

Collaborative arrangements that are “less than pure” alliances may be appropriate and effective contracting models and the author encourages their use - as long as the parties have realistic expectations of what they can achieve and put in place relationship management strategies that are suited to the particular model. It is a concern when owners adopt collaborative models, often labelling them as “alliances”, with expectations that they can deliver alliance-like outcomes when in fact the models are not structured to create a true alliance environment or drive alliance behaviours

2.6 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):

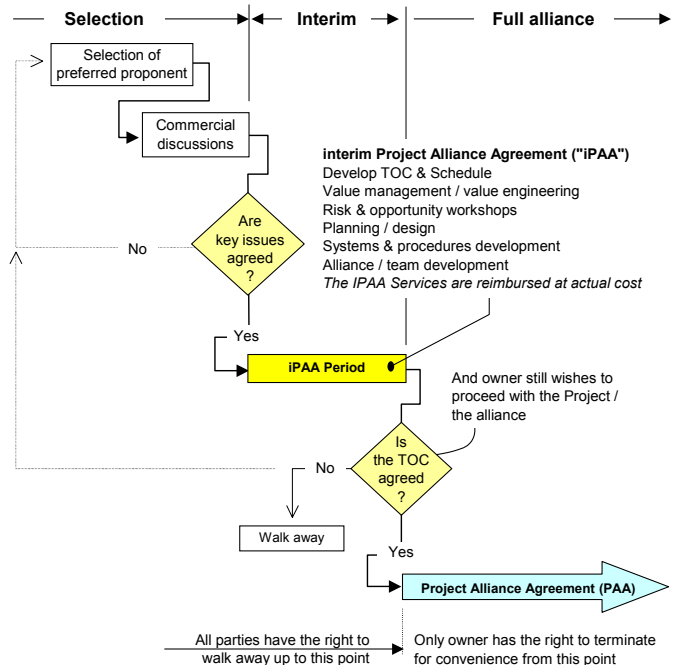
- A primary emphasis on business outcomes whereby all parties either win or all parties lose.
- Collective responsibility for performance with an equitable sharing of risk and reward.
- A peer relationship where all participants have an equal say.
- All decisions must be “best-for-project”.
- Clear accountabilities and responsibilities within a no-blame culture.
- 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 all decision-making on the project. 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 behaviours and performance, tends to be an outcome of an alliance rather than a pre-requisite to entering into an alliance.

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 to the discussion in section 14 below about 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 Outturn Cost (“TOC”), target schedule and other non-cost targets for the project.
3. **PAA** Once the TOC 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 (although many different arrangements are used):

- (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 pain:gain 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 fee (“Fees”) 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 cost and various non-cost key result areas (KRAs),

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.

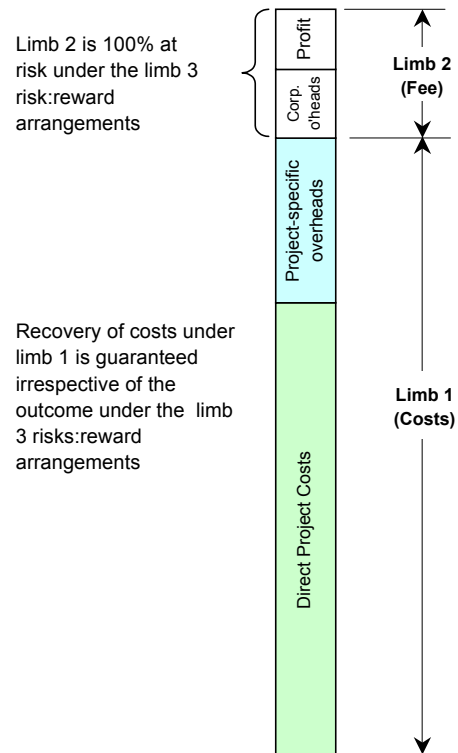


Illustration only
Not to scale

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 each NOP 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.

4.3 The Target Outturn Cost

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

- (a) to determine the limb 2 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 TOC 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 minimum conditions of satisfaction, not the breakthrough outcomes), 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 TOC for the simple case of 3 alliance participants – the owner, 1 x constructor and 1 x designer. 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
		Element	Estimate \$	Sub-total
1				
2	Owner	Salaried Key Personnel	1,000,000	5,000,000
3		Directly incurred external costs	1,000,000	
4		Expenses/disbursements	1,000,000	
5		Risks / un-allocated contingency	2,000,000	
6		Actual Direct Cost IPAA Services	400,000	
7	Constructor	Salaried Key Personnel	2,000,000	90,000,000
8		Own Equipment/resources	4,000,000	
9		On site wages	10,000,000	
10		Materials	40,000,000	
11		External hired equipment	5,000,000	
12		Subcontract	24,000,000	
13		Site amenities and facilities	2,000,000	
14		Other project specific overheads	600,000	
15	Provisions for specific risks	2,000,000	90,000,000	
16	Designer	Actual Direct Cost IPAA Services	600,000	5,000,000
17		Salaried Key Personnel	3,000,000	
18		Geotechnical Testing	300,000	
19		Expenses/disbursements	500,000	
20		Provisions for risk	600,000	
21	Target Outturn Cost (TOC)			100,000,000

Sample Target Outturn Cost (“TOC”) - hypothetical

Note that the initial TOC (cell D22) is not an estimate of the full cost to the owner to deliver the project – specifically:

- (a) The TOC does not include any limb 2 fees.

Note that some alliances include the limb 2 fee as part of the TOC, with the actual limb 2 fee included as part of the actual costs for calculation of overrun /underrun. The net effect is the same – although under the alternative definition, if the limb 2 fee is paid as a % (rather than fixed as a lump sum) then the TOC cannot be fixed definitively until the actual outturn cost is known. For this reason the author prefers to exclude the limb 2 fee from the definition of TOC.

- (b) The TOC does not make any allowance for gainshare under limb 3.

The owner may wish to set aside a provision within its own overall project budget for some gainshare payment in respect of performance in non-cost areas.

The TOC is therefore limited to the estimate of reimbursement under limb 1 plus any costs expected to be incurred directly by the owner within the scope of the alliance. The owner will typically have other project costs (eg. land acquisition) that remain outside the scope of the alliance and the ambit of the TOC. In summary the owner’s total project budget would therefore be the sum of the following items:

- the TOC,
- the sum of the limb 2 fees to the NOPs,
- provision for non-cost gainshare payments; and
- other project related costs incurred by the owner.

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

- (a) Transparency - the TOC is developed jointly by the alliance participants on a full open book collaborative basis. Nothing can be hidden.
- (b) If the TOC is too high the project may not proceed. This will not be in the interest of any party.
- (c) If the alliance does not proceed because the participants are unable to agree on the TOC, depending on the commercial arrangements in place, the non-owner participants may forfeit any limb 2 fee for all work done under the iPAA.
- (d) The non-owner participants have a lot to lose in terms of reputation and future business relationships with the owner (and beyond) if the owner develops the perception that the non-owner participants have in any way conspired to artificially inflate the TOC.
- (e) The sheer momentum of people working in a high performance team makes it almost impossible to dampen innovation and inventiveness even if senior management wanted to.

On some projects, particularly those involving the public sector, it is normal practice to engage an “Independent Estimator” to undertake an independent estimate or at least do a “sanity check” on the TOC.

The development of the TOC 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. Alliancing as practised to date in Australasia remains open to the criticism that the TOC, in the absence of price competition, cannot assure value for money for the owner. This concern is discussed further in section 12 below.

4.4 Limb 2 – Fee

The non-owner participants are paid a fee that recovers a fair contribution to their corporate overheads plus a “business-as-usual” margin for 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 to calculate the limb 2 fee - either:

- (a) as a fixed lump sum (“Fee\$”) by applying the Fee% to appropriate elements of the TOC in the manner illustrated below once the TOC is locked in; or
- (b) as a % of actual costs by applying the Fee% to appropriate components of actual costs as incurred.

The author generally prefers to fix the fee as a lump sum (the former approach). This is illustrated below using the sample TOC from above, and assuming a Fee% of 10% for the constructor¹, and a Fee% of 30% for the designer².

	A	D	E	F	G	H
1		Sub-total				
5	Owner	5,000,000				
15	NOP1 constructor	90,000,000	X	10.00%	=	9,000,000
20	NOP2 designer	5,000,000	X	30.00%	=	1,500,000
21						
22	TOC	100,000,000				

Sample

The constructor’s Fee% (cell F15) is applied to the constructor’s component of the TOC (cell D15) to calculate the constructor’s Fee\$ (cell H15). The Fee\$ for the designer is calculated in the same manner on row 20.

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 TOC. Some points to note regarding the Fee\$’s using the fixed lump sum approach illustrated above:

- (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.

¹ 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.

² The designer fee% of 30% is indicative only. It could typically be anywhere in the range of ~15% to 55% depending on how the designer’s office costs are allocated between limb 1 (directly reimbursable) and limb 2 (part of the Fee\$).

For simplicity the designer’s Fee% is shown here as a single % applying to all designer elements of the TOC. It is more normal however to have the designer Fee% apply to salary components only with a lesser % (or no mark-up at all) for sub-consultants and other out-of-pocket expenses.

5 LIMB 3 – SHARING OF PAIN AND GAIN

5.1 Overview / guiding principles

The pain:gain 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 pre-agreed targets upon which the TOC is predicated. In practice, specific outcomes with associated key performance indicators (“KPIs”) are agreed by the alliance participants during the iPAA period for each of the non-cost key result areas (“KRAs”). Agreement on all such targets is a pre-requisite before the PAA can be entered into.

The pain:gain mechanisms should be developed in line with the following guiding principles:

- (a) Pain:gain should be linked to outcomes that add to (or detract from) the value to the owner - this is almost self-evident.
- (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 superior returns for the non-owner participants while outcomes that fall short of the agreed targets should result in inferior 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 as an integrated team 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 pain:gain that flows to/from the non-owner participants under limb 3 is to be shared between themselves. Preferably the arrangement should be agreed before the start of the iPAA. As a starting point for discussions the author normally suggests that the constructor /designer consider sharing pain:gain in direct proportion to their respective Fee\$’s. Using the same hypothetical example from 4.4 above the sharing on this basis would be as illustrated below:

	ΣFee\$	Share%
Constructor	9,000,000	85.71%
Designer	1,500,000	14.29%
	10,500,000	100.00%

These ratios could of course vary significantly depending on the actual Fee%’s for the non-owner participants.

It is sometimes a concern that the designer % using this formula is disproportionately low compared to the influence that the designer is seen to have on the final outcome. However designers are often quite risk averse and reluctant to take on a higher share if it means having to assume an increased share of the downside risk. The author has been involved with several alliances where, at the suggestion of the constructor, the designers were given an increased share of the gainshare (upside) while the pain was shared in direct proportion to the Fee\$’s.

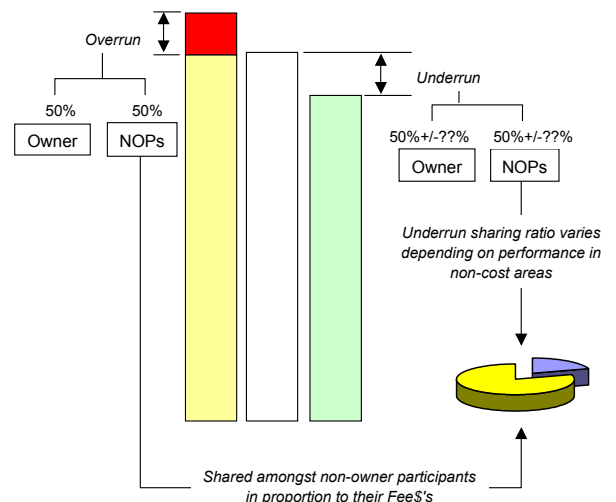
Regardless of the methodology used to determine the sharing ratios, once locked in, any pain or gain flowing to the non-owner participants is shared between them in the pre-determined ratios regardless of perceived relative performances on the project – ie. even if one performs very well and the other 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 Limb 3 pain:gain – generic model

The sharing of cost under / overruns is usually the primary component of the pain:gain arrangements. In practice the Actual Outturn Cost (“AOC”) is compared against the TOC to determine the cost underrun or overrun.

While there are many different ways to structure the pain:gain arrangements, the author has found that the model developed by PCI as set out below provides a very useful framework and that can be easily customised to suit most project alliances. 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:

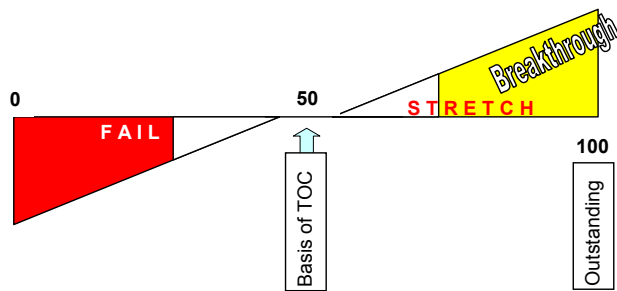
- (a) cost overruns are shared 50:50 – ie. 50% to the owner with 50% to the non-owner participants.
- (b) underruns are shared 50:50 where the performance in non-cost areas is “neutral” (ie. in line with the outcomes upon which the TOC was predicated) as expected, but adjusted up or down either side of 50% where the performance in non-cost areas is inferior or superior to what was allowed for in the TOC.



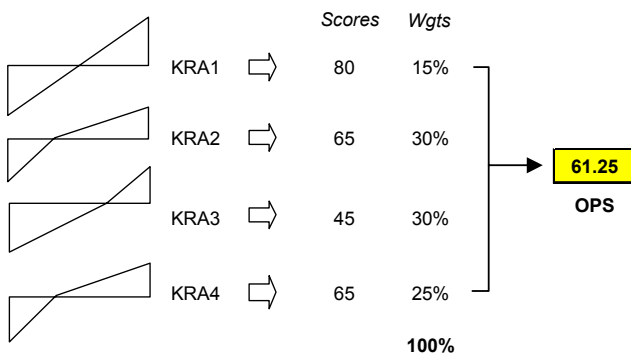
The pain:gain model requires measurable KPIs to be established for each of the non-cost KRAs where inferior /superior performance is seen to add to /deduct from the value to the owner (eg. social, environment, stakeholder management, etc.). This ensures that the non-owner participants share in the gain /pain depending on how actual performance compares with pre-agreed targets in these areas.

Performance in non-cost areas is expressed in terms of a single figure – the Overall Performance Score (“OPS”)³ – between 0 and 100⁴, 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 score between 0 and 100 in each KRA across a performance spectrum whereby:
 - 0 = Bottom end of failure
 - ?? = Poor
 - 50 = Basis of TOC
 - ?? = Transition to outstanding
 - 100 = Top end of outstanding



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

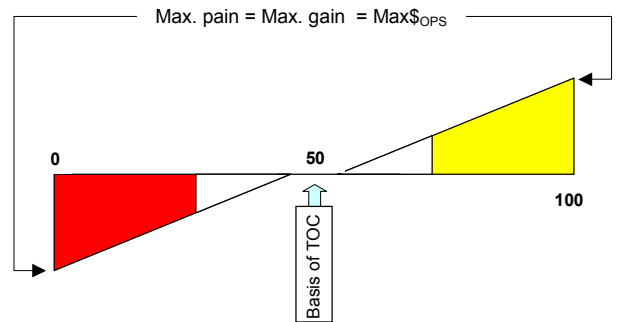


³ Depending on how critical timely / early completion is to the owner, schedule may carry a very high weighting within the OPS system. Alternatively, the risk:reward for timely completion may be treated as a distinct mechanism rather than being contained within the OPS system.

⁴ Any scale can be used. For instance, some alliances use a scale of -100 to +100, which perhaps better reflects the +/- nature of the mechanism.

The OPS is linked to 2 separate pain:gain 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 “neutral” 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 outcomes upon which the TOC was based.



As an 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 $\text{Max}\$_{\text{OPS}}$ (ie. $\text{OPS}\% \times \text{Target Cost}$). 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 TOC are not achieved through compromises in non-cost areas.

The operation of the PCI pain:gain model is illustrated in **Appendix 1** by worked examples and graphs.

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 have 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 functional and/or design requirements of the project.

Since limb 1 costs are reimbursed under all circumstances, whether or not a situation is considered to be a Scope Variation only impacts on the limb 2 Fee\$ and the targets that underpin the operation of the limb 3 pain:gain mechanisms. Put another way, a “Scope Variation” is the mechanism under an alliance for adjusting the cost and other performance targets when circumstances arise that go beyond what the alliance participants bargained for when they embarked on the alliance. Typically, where the limb 2 fee is a fixed lump sum, if the TOC is adjusted as part of a Scope Variation there is a corresponding adjustment (up or down) to the limb 2 Fee\$.

However, given that the alliance participants, as a general principle, are embracing all risks, there are usually very few, if any, Scope Variations under an alliance.

6.3 Right /obligation to direct /implement change

Typically the owner retains the right to unilaterally direct changes to the scope or fundamental functional requirements of the project and the alliance participants are obliged to implement any such directions. In practice any such directions would normally be issued via the PAB⁵.

However it is up to the PAB to decide whether or not any changes constitute a Scope Variation and normally a Scope Variation cannot occur unless the PAB agrees it is a Scope Variation.

6.4 Scope Variation alignment process

Given that they may be called upon to decide whether or not a situation constitutes a Scope Variation, it is important that the members of the PAB are reasonably aligned up front on the principles for what is and is not a Scope Variation. Similarly since it will generally be the Alliance Management Team (“AMT”)⁶ that makes any recommendations to the PAB regarding Scope Variations the AMT members should be reasonably aligned in their understanding of the underlying principles.

The author’s experience is that although groups may appear to be fully aligned on the principles for Scope Variations as outlined above, upon closer examination people within the team typically have different interpretations of how these principles would be applied in practice. To minimise the potential for misalignment it is recommended that the following process, used successfully on most of the alliances set up by the author, be followed:

- (a) During the early formation of the alliance, the prospective PAB and AMT members (and perhaps some others including the Independent Estimator) are asked to give their individual opinion on a series of hypothetical scenarios as to whether or not they think it should /would be a Scope Variation.
- (b) The various responses are consolidated into a single document to highlight all areas of misalignment.
- (c) A workshop is conducted to review all responses and reach alignment on each scenario. The outcome of this workshop is recorded in an “Interim Variation Guidelines” document.
- (d) During the iPAA period, before the TOC is finalised, the Variation Guidelines document is revisited and finalised to include any additional scenarios that might have become topical during the development of the TOC and to ensure all the key players are still fully aligned as they enter upon the PAA. The alignment reached at this further workshop is recorded in the final Variation Guidelines document.

⁵ The term PAB (for Project Alliance Board) is used in this paper. The term ALT (for Alliance Leadership Team) is also commonly used.

⁶ The AMT is the name typically given to the group of senior leaders of the project execution team. Refer section 10.2 below.

The Variation Guidelines document does not normally form part of the PAA. Rather it is intended as an informal reference for those who participate in the alignment process and as a primary guide for the members of the AMT when deciding whether or not to recommend a Scope Variation and for the PAB when making a decision on a Scope Variation.

6.5 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 TOC must be consistent with 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 TOC so that the extra facility can be delivered within the same time frame without any change to the Target Completion Date. Alternatively the PAB may decide to extend the Target Completion Date, or even make the additional facility a separable portion with its own Target Completion Date with associated pain:gain arrangement.

Accordingly the author sees no reason to have an express mechanism for dealing with “extensions of time”, just as there is no need for any express mechanisms to deal with adjustments to any of the other non-cost targets.

7 SELECTION PROCESS

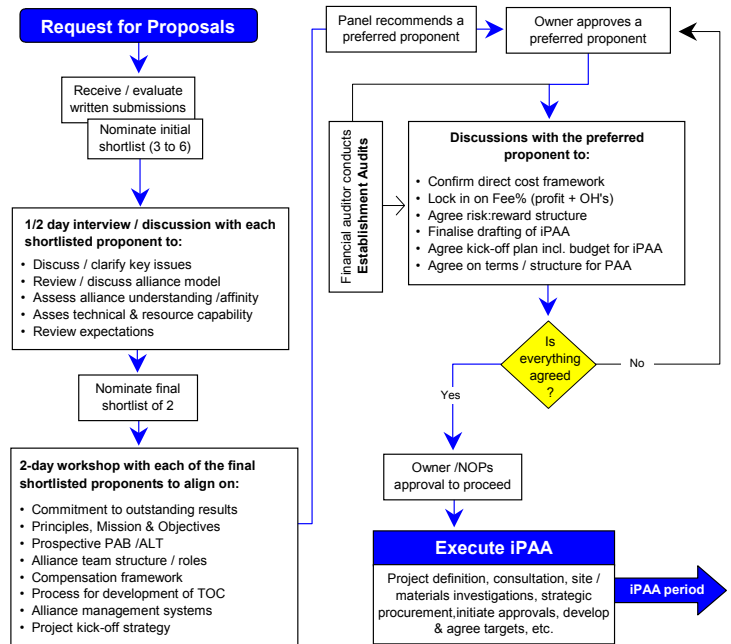
7.1 Overview

Without any doubt, the most important step for the owner along the path to a successful alliance outcome is to choose the right participant(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 or 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 with Sydney Water for the Northside Storage Tunnel Alliance. The process has now been used on many public sector and some private sector alliances throughout Australasia. Based on experience with various alternative selection processes, for medium to large alliances the author strongly favours this model for any project where the owner wishes to select alliance participants using a competitive process.

It should be noted that the selection process described below has been criticised by those who say that value for money cannot be assured in the absence of price competition. An alternative model using price competition is discussed in section 12.2 below.



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.

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 (if the CEOs are not already on the PAB).

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 pursue “breakthrough” outcomes.
- 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 and with the owner’s personnel 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:

	Week number													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Owner issues RFP	◆													
Prepare submissions /teams														
Open briefing to proponents		◆												
Evaluate submissions & select shortlist														
1/2 day interviews														
Further evaluation / select final shortlist														
2 x development workshops														
Select / advise preferred proponent														
Commercial discussions														
Financial audits														
Final owner approval to proceed to iPAA														
CEO handshake / meeting / sign iPAA														◆

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:

O’head 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 (ie. best in class) and then insist on an “industry” margin that reflects an industry average 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 an Independent Estimator to validate the TOC and in some cases other suitably qualified experts to validate the non-cost targets.

9 LEGAL / CONTRACTUAL FRAMEWORK⁷

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 (Ross, 1999, 2000). The purpose of this section is to give a brief overview of some of the key legal issues.

9.2 Is there a need for an iPAA?

The author has generally structured alliance agreements in two parts as described in section 3.1 above – an interim Project Alliance Agreement (“iPAA”) where payment is limited to limbs 1 and 2 only followed by the full Project Alliance Agreement (“PAA”) with limb 3 in operation based on the TOC and other targets agreed during the iPAA. Other alliance practitioners such as Hutchinson and Gallagher (2003) usually achieve the same net effect using a single consolidated Alliance Agreement, where the agreement is terminated if the participants are unable to reach agreement on the TOC and other targets.

⁷ 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 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. The author’s experience is that lawyers who understand and support alliancing provide excellent support to all the participants during the formation of an alliance.

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 establishing sub-alliances and/or dealing with outside parties.

9.4 Notable legal features

Standard form design and/or construction contracts 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.....*”)⁸, 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 the PAB.
- 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.

⁸ The draft alliance agreement for a major alliance currently being formed in New Zealand (Meridian Energy’s Project Aqua) takes the notion of collective responsibility a step further by stating most obligations in the first party – ie. “*we will...*” and “*our Alliance Agreement...*”, etc. This language certainly sends a clear message of the intention of collective responsibility.

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 number of enforceable defaults. This would typically be reflected in the PAA with words along the following lines:

The Alliance Participants agree that actions or omissions committed or allowed by an Alliance Participant in performing the work under the PAA that amount to:

- (a) *a Wilful Default;*
- (b) *a failure to pay within seven days of demand moneys payable to another Alliance Participant pursuant to the terms of the PAA, or*
- (c) *a failure to take out or maintain an insurance policy that Alliance Participant is obliged to take out and maintain under the PAA,*
- (d) *a breach of the confidentiality undertakings set out in clause []; or*
- (e) *a failure to honour an indemnity expressly provided under the PAA,*

will give rise to enforceable obligations at law and in equity, but any other actions or omissions committed or allowed by an Alliance Participant in performing the work under the PAA will not give rise to any enforceable obligations at law or in equity.

Where, in addition to insolvency situations, “Wilful Default” is defined as “*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*”.

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. Hutchinson and Gallagher (2003, p. 13) say that the “no dispute” provision is “*at the heart of project alliancing*”.

Note that some lawyers argue that in the absence of a prescribed dispute resolution procedure the contract could be void for uncertainty. The author has worked on an alliance where a deadlock breaking mechanism in the form of a final and binding expert determination was prescribed.

Under that model each Participant must submit its case in writing to the expert including a proposed resolution. The expert must then chose the proposed resolution that most closely honours the Alliance Principles set out in the PAA. While the author prefers not to have any prescribed dispute resolution mechanism, if there has to be a mechanism then this model perhaps is the least offensive to the alliance process.

In the author’s view 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 “pure” alliance where the participants failed to reach unanimous agreement.

9.5 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. The procurement of suitable insurances is one of the key strategies for managing some of these risks. 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.

Generally the procurement of these insurances for an alliance is not that much different than for projects delivered under traditional contracting models, except for professional indemnity (“PI”) insurance which is very problematic under an alliance. Box (2002) explains the underlying issue with PI insurance in some detail. Specifically, using the case of an owner and a designer:

- (a) Typically under a traditional risk-transfer contract a designer will be liable to the owner for losses sustained by the owner as a result of the designer’s negligence. Such losses can be very large and most reputable designers maintain a company-wide PI policy of insurance that covers that liability (subject to the terms and limits of the policy). This type of PI policy is triggered by the owner making (or foreshadowing) a claim against the designer.
- (b) Under a “pure” project alliance the PAA precludes any liability arising between the alliance participants themselves in respect of design errors. Since no liability arises, the designer’s standard PI policy cannot be triggered and therefore cannot be called upon to protect the alliance participants against “internal” losses arising from breaches of professional duty.

One way to overcome this problem is to procure a project-specific “no-blame” or “1st party” PI insurance policy including appropriate “run-off” cover (for a set period after completion of the project), where the insurer covers the loss without any liability arising and without any right of subrogation against any of the alliance participants. However this kind of policy has become very difficult to procure in Australia⁹, and when available is usually so expensive as to make it unaffordable. Recent alliances in Australia have had to consider options for managing professional risk (eg. design error) in the absence of a project-specific PI policy. Typically the following options are considered:

- 1) The alliance participants work in the absence of any cover for internal losses arising from design error.
- 2) Same as option 1, but any losses above a pre-agreed threshold would be treated as grounds for adjusting the limb 3 performance targets (ie. as though it was a Scope Variation). This means the alliance participants collectively assume the risk up to the threshold but the owner assumes 100% of the risk beyond the threshold.
- 3) Allow liability to arise between the alliance participants but only in relation to breaches of professional duty.
- 4) Same as option 3 but only to the extent that a participant has coverage under its normal corporate PI policy.

By allocating the risk between the participants in different ways these options may create different behaviour drivers that may alter the dynamics of the alliance. The advantages and disadvantages of each option are explored in **Appendix 2**. All the alliances the author has been involved with (operating in the absence of a project-specific PI policy) have adopted either option 1 or 2.

The above discussion relates only to “internal” losses arising from design error and breaches of professional duty (ie. does not involve any losses by or claims from an outside party). The alliance participants may need to insert specific provisions in the PAA to ensure that their normal corporate PI policies will still respond appropriately to claims from 3rd parties associated with breaches of professional duty by one of the alliance participants.

The author’s experience is that the participants under an alliance, because they are sharing all risks collectively, tend to have an increased awareness of all risks and implement more effective risk management practices than parties under more traditional forms of contract. With the continuing spread and growth of project alliancing the author feels that there may be an opportunity for insurers to develop policies suited to the unique needs of project alliances without needless duplication of cover. For instance a specially developed PI policy for alliances might be structured as follows:

⁹ The situation may be different in New Zealand. The author is aware of an alliance project in Auckland that has been able to arrange a suitable project-specific PI policy as recently as 2002

- Relatively large excess (eg. \$1m).
- Mandatory risk assessment and management practices.
- Insurer to have appropriate representation within the alliance at key stages.

Such a PI policy at a reasonable cost would probably attract many buyers from alliances across Australasia, not to mention the potential to sell contract works and public liability policies into the same projects.

9.6 Other legal considerations

Each of the participants needs to properly understand the commercial and legal context of what they are committing to under a project alliance. 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. In this respect if the PAA is properly drafted, enforceable rights will exist but will be very limited as discussed in sections 2.4 and 9.4 above. Thus there is no intention to oust the jurisdiction of the court, only an express commitment to limit what rights are enforceable. It would still be within the jurisdiction of the appropriate court to interpret the intentions of the participants in the event of dispute, including what rights are enforceable.
- 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 the PAA can be terminated or a participant expelled) need to be drafted carefully, especially where there are more than two parties to the agreement.

10 HUMAN / ORGANISATIONAL ISSUES

10.1 General

The structural features of a project alliance as explained in this paper are essential prerequisites for success because they align the interests of the participants and remove the barriers that normally prevent the development of powerful relationships and powerful teams. This alone will usually ensure a collaborative environment and deliver a reasonably successful project outcome.

However to achieve truly outstanding outcomes the alliance participants must implement strategies that ensure that the whole alliance team is operating as a peak performing organisation. It is beyond the scope of this paper to delve into the organisational psychology underlying outstanding alliances. The organisational model described by Gibson, C. et al (2003 pp.368-399) based on their empirical research on some of the world's greatest sporting organisations has relevance to alliance teams seeking to achieve "gamebreaking" performance. Hutchinson and Gallagher (2003 pp.10-13) give an overview of how "gamebreaking" can be applied in practice in an alliance environment.

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 NOPs with just a few key roles filled by owner personnel. Each alliance must develop its own organisation structure to suit the circumstances.

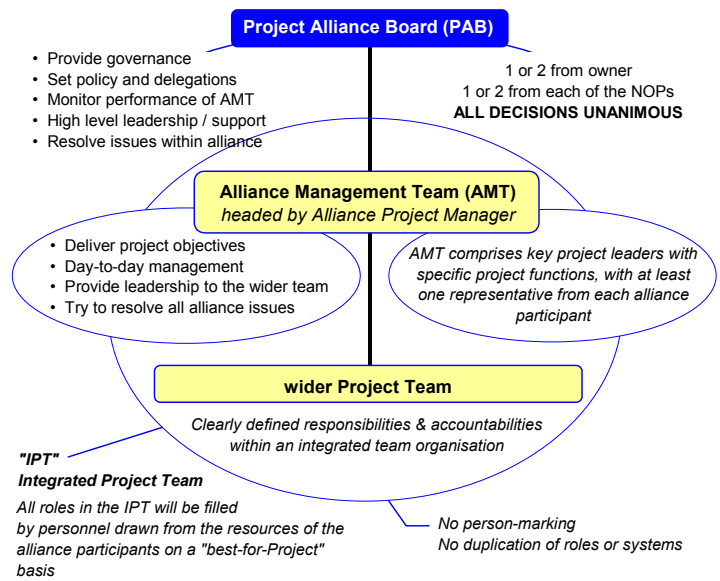
Regardless of the mix of representation the organisation and culture must be such that no one within the wider team sees themselves primarily as "representing" their individual employer. Rather all personnel should see themselves as part of a "virtual organisation" where each person is confident that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

- "Chinese walls" may develop between the alliance and the wider organisations of the participants. This can be a particularly significant problem where people within the wider owner organisation who have an important but part-time contribution to make become alienated from the goals and aspirations of the alliance.
- The successes of the alliance may be associated with the "alliance", with the connection to the owner lost in the enthusiasm to promote the alliance as an organisation. This can be a real disappointment for an owner who may have adopted an alliance in order to enhance its reputation with its stakeholders.

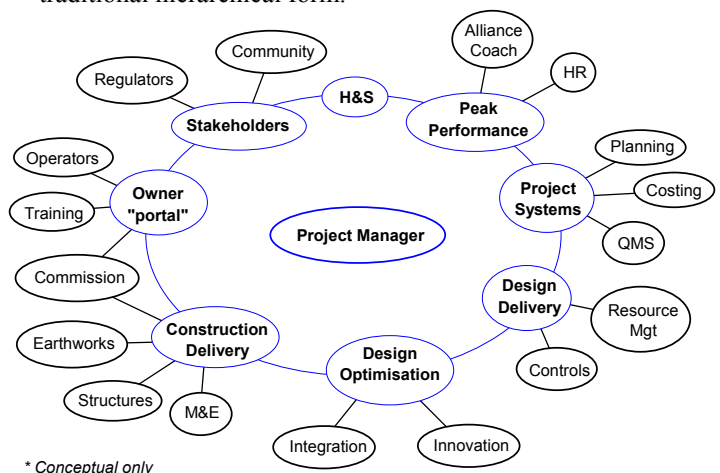
Some owners, seeking to go beyond the "virtual organisation" model, prefer to characterise the alliance as an extension of the owner's organisation.

An emerging challenge perhaps is for alliance participants to set out with the express aim of using specific alliances as catalysts to drive their wider organisations towards peak performance.

Typically alliances are organised along the following lines (lines of reporting and accountability back to parent organisations are not shown):



Traditional-style contracts impose well-defined and well-proven responsibilities and lines of communication. Under a project alliance, in the absence of 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. However high performance alliances tend to function more fluidly and flexibly than traditional hierarchical organisation structures. The author finds it better to depict the organisation of the senior project leaders /managers (ie. AMT and next levels of leadership) of a project alliance as a "planetary" chart with the various specialist functional teams below this depicted in more traditional hierarchical form.



* Conceptual only

This is more in line with the author's experience of high performance alliance teams and the findings of Gibson et al (2000, pp.390-392) in peak performing organisations that information flowed seamlessly between traditional teams of functional specialists without the need for "management-inspired cross-functional teams".

In this kind of organisation it makes more sense to define accountabilities in terms of the measurable outcomes that a specific role is accountable for achieving, rather than focus on whom a person is accountable to.

10.3 Alliance culture management programs

To get the best out of their alliance the alliance participants must ensure that a strategy is implemented to develop nurture and maintain a high performance team culture at all levels of the alliance organisation. A typical strategy would aim to:

- Establish a clear vision and purpose for the alliance. In the peak performing organisations they studied Gibson et al (2000, pp.368-377) found that the members of the peak performing organisations they studied shared a common “*inspirational dream*” and were very focused on the actions needed to achieve their “*greatest imaginable challenge*” within that broader purpose.

Typically the PAB, AMT and other members of the project team develop an “Alliance Charter” setting out the principles, mission, objectives and behavioural commitments for the alliance.

- Ensure that all team members understand and empathise with the purpose of the alliance and are committed to the behavioural commitments and objectives set out in the charter.
- Establish near seamless collaboration and communication across the interfaces between project teams.
- Develop and nurture a culture of innovation and “breakthrough” thinking where team members continually seek to “raise the bar” and are willing to commit to conceivable but unprecedented outcomes without necessarily knowing how they can be achieved
- “Gear” all project personnel and systems towards the achievement of these breakthrough outcomes.
- Establish clear and focused action plans at all levels.
- Monitor and continuously improve the effectiveness of the alliance culture management strategy.

Typically the strategy will involve 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:

- Facilitated workshops to launch the alliance at various levels, turn challenges into focused action plans and to reset the bar to the next level once initial challenges have been achieved.
- A comprehensive induction program for all newcomers to the team.
- 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.
- Alliance champions, implementation teams, opportunity and breakthrough workshops can be used to turn passion and commitment into results.

- Personal training and development for personnel in leadership positions (to supervisor level) to help them overcome any subconscious barriers that inhibit innovative thinking and the achievement of breakthrough outcomes.

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 alliance facilitator /coach to design and lead the alliance culture 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 high level external facilitation and coaching.

In the meantime there are several skilled alliance facilitator /coaches around Australasia 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 organisation” 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 designed and 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.

The decision on what model to adopt should not be that different to the rationale used by the owner to use an alliance in the first instance – ie. the alliance should consider how the various risks, opportunities and interfaces would be managed under the different options and choose the sub-contracting approach that is most likely to optimise project outcomes. Regardless of the procurement method the alliance culture should transcend subcontract interfaces and permeate all personnel working on the project.

11 BENEFITS OF PROJECT ALLIANCING

11.1 History & track record

Project Alliancing was first used in the early 1990's by BP and others to achieve remarkable performance improvements in the delivery of offshore oil & gas projects in the North Sea. An alliance between BP and seven contractors reduced the estimated cost to develop the Andrew field from an untenable £450 million to £373 million to enable the project to receive sanction to proceed.



The project was then delivered 6 months ahead of schedule for a final outturn cost of £290 million – an achievement previously thought impossible.

According to Knott (1996 pp.156-157)

“Andrew stands as a remarkable tribute to what can be achieved, indeed brought into the realms of possibility, by the sheer enthusiasm and commitment of individuals once they are freed from the constraints of traditional behaviour.”

The table in **Appendix 3** contains a list of selected Australasian projects¹⁰ that have been delivered using a pure alliance model. The author's understanding, mostly from first-hand knowledge, is that the owners of each of these projects are very pleased with the performance of the alliances on their projects, perhaps with the exception of the HBI project¹¹. The results on these alliances speak for themselves:

Cost On most of the alliances completed to date the actual outturn cost (“AOC”) has been below the agreed target outturn cost (“TOC”). In alliances established by the author the worst outcome has been ~5% overrun, with all others under budget up to a best outcome of ~13% under.

While this track record is impressive, it is difficult to prove that the outturn cost under an alliance is lower than it would have been under a traditional form of contract. A 10% underrun is hardly a value-for-money outcome for the owner if the TOC was 15% “too high” in the first place! The issue of value for money is discussed further in section 12 below.

Schedule Performance against schedule for these alliances has consistently been outstanding, with many finishing months early despite enormous challenges and obstacles along the way.

Other Performance in other areas has ranged between best practice to outstanding. Of particular note is the ability of alliances to deal far more effectively with key stakeholders than is possible under traditional forms of contract.

Alliances have been very innovative in getting local communities, often hostile at the outset, to become involved and take ownership of initiatives and solutions that bring significant and enduring enhancements to the local environment and habitats.

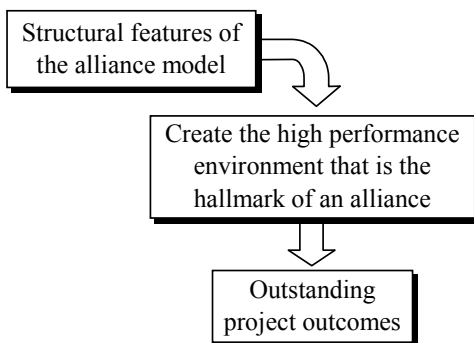
¹⁰ The table in Appendix 3 only includes project alliances that are completed or nearing completion. The table lists only a sample cross section of project alliances that the author is aware of or has been involved with and no doubt there are some that the author is not aware of. The author is involved with numerous other project alliances that are underway where it is too early to declare them to be successful although in all cases the trends are very promising.

¹¹ In the case of the HBI project the construction alliances were introduced when the project was in distress and owner representatives contacted by the author acknowledge that things would have been even worse without the construction alliances.

11.2 Understanding the reasons for success

The success achieved by these pure alliances is hardly surprising – the alliance construct creates a single seamless organisation, focused on specific project outcomes, totally free from the barriers that traditionally inhibit collaboration and limit the development of powerful relationships (under risk-transfer forms of contract). It would be both a surprise and a great disappointment if an alliance, used in the right circumstances and set up properly, failed to deliver a very good outcome for the owner.

In broad terms, as illustrated below, the pure alliance model is designed to enable the development of a high performance alliance environment that in turn delivers outstanding results.



The structural features of alliances that enable the development of the high performance environment are as described in section 2.4 above.

As discussed in section 10.3 above the high performance team does not emerge all by itself but must be systematically developed, nurtured and sustained. Some of the characteristics of high performance alliances that produce the outstanding outcomes include:

- A single cohesive team without any “us and them” attitudes.
- High performance culture amongst the project team - characterised by:
 - A clear understanding of the purpose /mission of the alliance.
 - Unequivocal commitment to meet or exceed demanding objectives.
 - Willingness to commit to targets without knowing how they can be achieved.
 - People who mean what they say, and do what they say they will do.
 - Individuals who are willing to accept responsibility for their actions.
 - Open and effective communication.
 - Successes are acknowledged and celebrated.
 - Strong, supportive and appropriate leadership at all levels of the organisation.
 - Development of close personal friendships that endure beyond the project.

- Very close collaboration between designers and constructors – collaboration that never stops, right up to final completion.
- All energy focused on optimising project outcomes – no time at all wasted on position protecting or case-building.
- Very fast “integrated” decision-making.
- Superior relationships with key stakeholders. The owner being part of the team adds credibility and influence when dealing with key stakeholders.
- Much better appreciation of project constraints by the project team (issues that would normally come under the owner).
- More holistic consideration and management of risks – ability to mitigate or turn into opportunities. Very flexible approach to emerging issues /out-of-left field challenges and opportunities, and management of “brown-field” sites.

11.3 Key benefits

Outstanding project outcomes are typified by:

- On time or early completion – every time – even in the face of great adversity.
- Optimum outturn cost at or below the Target Outturn Cost. [However see the discussion on value for money in section 12 below.]
- Much more effective management of stakeholder issues.
- Best practice (or better) management of health & safety, environment, community.
- Skills transfer, professional growth and development for project staff.
- Enhanced reputations all round – owner, contractors and other stakeholders.

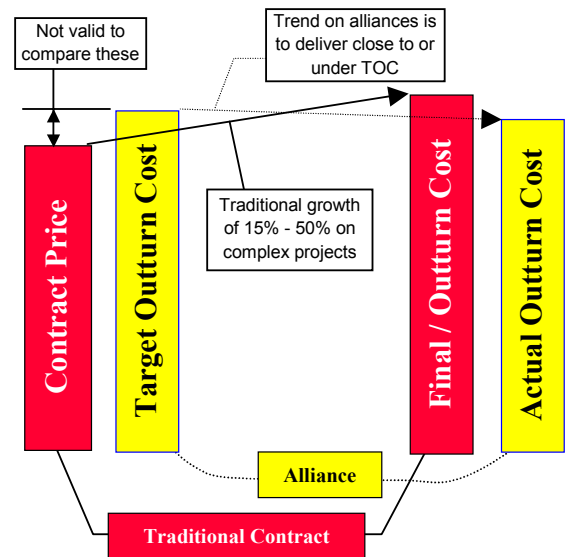
Each of the above outcomes obviously is of great benefit to the owner. Furthermore in the author’s experience, by adopting an alliance on complex projects an owner can expect:

- more informed decisions on technical solutions and choice of equipment;
- better balance between capital investment and whole-of-life costs;
- potential for real breakthroughs in some areas; and
- opportunity to use the success of the alliance as a catalyst to improve the performance of the wider owner organisation.

Alliancing is attractive to the 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) Greater insights into project delivery from an owner perspective, enabling constructors and designers to better understand and service their clients.
- 5) Increased job satisfaction for staff with associated benefits to overall organisational culture.
- 6) Significant increase in communication and general project management skills.
- 7) Opportunity to use the success of the alliance as a catalyst to improve the performance of their wider organisations.



12 DOES ALLIANCING OFFER VALUE FOR MONEY?

12.1 General

Section 4.3 above outlines the various factors that give assurance to an owner that the TOC represents value for money. However some commentators argue that value for money cannot be assured in the absence of price competition. They point to cost underruns of 10% and more as evidence that the TOC must have been inflated to begin with. While there may be some basis for these concerns, senior owner representatives on those projects listed in Appendix 3 that have achieved substantial underruns have confirmed to the author that they believe they have received excellent value for money through their alliances.

Under a traditional model the owner gauges the relative “value” of competing contractors by inviting tenders. In mature open market economies like Australia and New Zealand, 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 can really deliver value for money without price competition. 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 50%. In contrast the TOC under an alliance is a genuine estimate of the final 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.
- 3) 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.

12.2 What about price competition in alliances?

Some owners are currently trying to address the value for money concern by introducing TOC competition into the selection process for alliances. Under these arrangements two separate teams (each including different owner personnel) develop a TOC under separate interim alliance agreements. Each team “bids” its TOC, and the TOC is a major factor in deciding which team is selected to go on and deliver the project under the full alliance.

In the author’s view this “competing TOC” model is fraught with potential downsides. Aside from the obvious additional costs involved in establishing the alliance, it shows a lack of understanding of the underlying factors and motivators that have enabled alliances to achieve such outstanding results.

For instance:

- (a) Under the purist approach the early development of a high performance alliance culture, with all the characteristics described above, typically delivers extraordinary levels of innovation and savings during the TOC period before the TOC is agreed. The effective development of this culture of innovation relies on the absolute commitment of everyone to the alliance process, from the PAB through to all members of the team. It is difficult to see how the same level of commitment, collaboration and leadership can be developed with two competing teams, particularly where the senior leaders from the owner (who would normally be providing crucial leadership through the interim PAB) have to avoid showing favouritism to any one team.
- (b) It may be difficult to ensure an “apples versus apples” comparison of the TOCs. For instance section 6.4 above describes a process for ensuring that the participants are aligned in their understanding of what risks are being assumed collectively by the alliance and the principles underlying Scope Variations. This is an important step in clarifying the basis of the TOC and in ensuring that everyone in the team takes ownership of the target outcomes. It is difficult to see how a similar level of assurance and ownership can be achieved under the competing TOC model.
- (c) Alliances have worked so well to date because all the parties have accepted full ownership of the targets they have jointly developed, with open and full acceptance of the risks they have collectively assumed. There have been few if any Scope Variations on the alliances with which the author has been involved. Selection on the basis of a TOC that has been developed with a view to “winning” rather than with the aim of getting it “right”, unless managed very carefully may result in a lesser sense of ownership and lead to arguments over target adjustments.

As noted in section 7 above the most important risk management step for the owner is choosing the right participant(s) in the first instance. An owner introducing competing TOCs will need to take great care not to lose sight in the selection process of the less tangible factors that ultimately determine the actual outcome – people, understanding, corporate and individual commitment, value of reputation, affinity for alliancing, teamwork, compatibility, etc. Time will tell if the competing TOC methodology can achieve value for money (or the perception of value for money) without corrupting the selection process and undermining the very foundation of the alliance.

12.3 The way ahead

In the author’s view the industry will be better served – owners and contractors – by improving the current processes, with additional checks and balances if necessary.

Initiatives could include:

- (a) Better education of all parties before embarking on the development of the TOC.
- (b) More emphasis on having owner personnel involved hands-on in the detailed development of the TOC.
- (c) More focused access to the contractors’ previous estimates and outturn costs against which to benchmark relevant elements within the TOC.
- (d) Better facilitation of the TOC development process to ensure all parties are fully involved, informed and satisfied.
- (e) More rigorous analysis of AOC versus TOC to determine and record the real reasons for underruns (or overruns).

For owners who are still not convinced, a further initiative - not necessarily favoured by the author but a better option than competitive TOCs - could be to put the sharing of any underruns beyond a pre-agreed threshold (eg. 10%) under a different arrangement, for example:

- a reduced sharing, and/or
- some or all of the sharing beyond the threshold becomes subject to the owner being satisfied that the gains have come about through demonstrated alliance innovations and efficiencies rather than merely as a result of a “soft” TOC.

13 DOWNSIDES

13.1 Overview

There are significant downsides associated with alliancing and a prudent owner will only adopt an alliance model for a project after a careful analysis of the available options has shown that the potential benefits outweigh the risks and downsides (see section 14 below for guidance on deciding when to use an alliance). Some of the main downsides include:

- (a) Perception of lack of certainty in cost outcome for the owner.

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.

While cost overruns are shared with the non-owner participants up to the point where the NOPs have lost their limb 2 fee, beyond this point the risk rests entirely with the owner, who must be capable of carrying the risk on its own balance sheet. This factor continues to be an obstacle to the use of alliancing on financed projects where the financiers generally insist that the risk of cost overrun is transferred off the owner’s balance sheet onto others (although the track record of risk-transfer contracts on complex projects suggests that such risk transfer is illusory in any case).

- (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) To establish the right commercial foundation for the alliance the parties need to waive legal rights that they would normally have to pursue each other in the event that things go wrong - refer sections 2.4 and 9.4 above. Furthermore, as discussed in section 9.5 above when the parties agree that they will have no right of action against each other they effectively deny themselves access to each other’s normal professional indemnity insurance policies.

To establish the right commercial foundation for the alliance the parties need to waive legal rights that they would normally have to pursue each other in the event that things go wrong!

13.2 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.

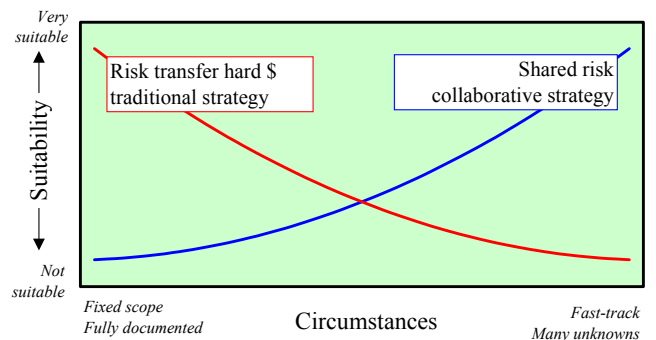
In this respect the alliance processes described above should ensure that the more obvious areas of concern are covered – for instance:

Concern	Addressed by
Target Outturn Cost inflated	<ul style="list-style-type: none"> Open book / transparent Owner participation Independent Estimator(s)
Fee%’s inflated	<ul style="list-style-type: none"> Up front investigations by Alliance Auditor
Hidden margins in limb 1 and/or fraudulent accounting	<ul style="list-style-type: none"> Up front investigations by Alliance Auditor and agreed Audit Plan On-going audit program
“B” team, with “soft \$” mentality	<ul style="list-style-type: none"> Selection process Corporate and CEO commitment / reputation
Inappropriate pursuit of Scope Variations	<ul style="list-style-type: none"> Alignment process Corporate and CEO commitment / reputation
Hidden agendas behind push for a particular technical solution or supplier	<ul style="list-style-type: none"> Joint and open decision-making Corporate and CEO commitment / reputation

14 DECIDING WHETHER TO USE AN ALLIANCE

14.1 Risk transfer vs. risk sharing

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 generally appropriate. In such circumstances, while an alliance will still deliver the project effectively, it is likely that any relative advantages of alliancing will be outweighed by the costs associated with establishing and maintaining the alliance.



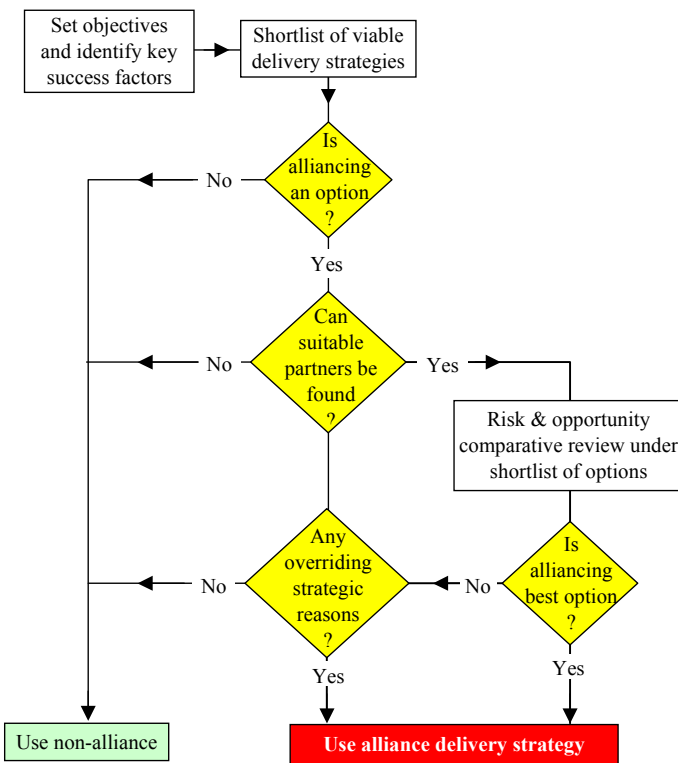
However as discussed in section 2.3 above, under certain circumstances the project outcomes are more likely to be achieved (or exceeded) if all the key participants, owner and contractors, assume collective responsibility for delivering the project under some form of alliance arrangement.

In some cases the circumstances may be such that it is clear that the only practical way to deliver the project is under an alliance. More likely the decision will be less clear and the owner must choose a contracting model that is appropriate for the particular circumstances based on a critical and rigorous assessment of how risks and opportunities could be managed under an alliance compared with how they would be dealt with under a non-alliance model.

Although the project itself may be a stand out case for an alliance, circumstances may preclude the use of an alliance – for instance:

- (a) Constraints within the owner’s organisation or imposed on the owner that prevent the use of an alliance or would undermine its effectiveness.
- (b) Lack of suitable alliance partners or the only available contractors do not meet the required criteria for a successful alliance.

For example, it should be a pre-requisite that the contractor places a very high value on its reputation with the owner and within the industry in general. In this respect one might question the wisdom of an owner entering into an alliance with an overseas contractor who has little to gain from developing a long-term relationship (beyond the project) with the owner or in the region.



14.2 What kind of an alliance?

A pure form of project alliance is starkly different to more conventional contracting strategies and is fundamentally different to other forms of relationship contracting. Under a pure 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 changes the dynamics and potential of the alliance.

As discussed in section 2.5 above some so-called alliance models lack some of the core features that are essential for ensuring a high performance alliance culture that will consistently deliver outstanding project outcomes. When considering what kind of alliance to adopt, an informed owner will look behind the “alliance” label to the underlying features of the model in order to assess:

- (a) The key structural features of the proposed model, and the kind of delivery environment that it will create. [A pure alliance model will have all the features listed in section 2.4 above and will enable the kind of environment described in section 11.3 above.]
- (b) The likely /potential benefits to the owner from such an environment – ie. what kind of outcomes will be delivered. For instance how will risks be managed and opportunities be exploited /optimised.
- (c) What are the risks and downsides associated with the model – tested against the particular circumstances of the project. In particular what is the best way to select partners and establish the alliance so as to ensure the alliance will not fail.
- (d) What constraints exist that might limit or prevent the use of a particular approach. For instance, in the case of an alliance model:
 - The requirements of project financiers may insist that project delivery risk is transferred off the owner’s balance sheet (and thus preclude the use of a pure alliance) even on a project that clearly should otherwise be delivered under a pure alliance.
 - The alliance concept may not be adequately understood or supported by the senior levels of the owner’s organisations (CEO and Board level). There may be senior people (corporate risk managers) who are unable or unwilling to support a pure alliance and without the commitment from the very top, they are likely to undermine the entire process.

14.3 Less than pure alliances

Collaborative arrangements that are “less than pure” alliances are often appropriate and very effective contracting models and the author encourages their use - as long as the parties have realistic expectations of what they can achieve and put in place relationship management strategies that are suited to the particular model.

It is a concern when owners adopt collaborative models, often labelling them as “alliances”, with expectations that they can deliver alliance-like outcomes when in fact the models are not structured to create a true alliance environment or drive alliance behaviours.

Perhaps the single factor that most distinguishes pure alliancing from other forms of collaborative contract is the fact that nearly all risks are shared rather than allocated. Some owners seem to believe that they can get the benefits of alliancing while still retaining the right to blame the non-owner participants if things go wrong. Thus we see so-called alliances, structured in all other respects like a pure alliance, but where the owner retains the right to sue the non-owner participants if things go wrong. This creates a conundrum of sorts for the owner – specifically:

- (a) If the owner wishes to be assured of the full benefits of alliancing then the project will need to be governed and managed as a seamless integrated team¹². In this case it will become almost impossible to separate the actions (and thus liabilities) of any one party from the actions of the integrated team, and the owner's right to sue will prove to be just an illusion.
- (b) If the owner is serious about retaining its right to blame the other participants in the event that things go wrong, then it must keep sufficient separation within the governance and management of the project to be able to do so. This of course would hinder or remove many of the key alliance characteristics that the owner is relying on to deliver the outstanding outcomes – defeating the very purpose of adopting an alliance.

Some owners are inclined to “have a bet each way” by having an integrated project team while still retaining the right to blame if things go wrong. While this may seem to give the owner extra protection, the author's view (supported by experience) is that it is not in the owner's interest to do so. Insistence on retaining an open right to sue:

- Shows that the owner has a less-than-total commitment to the alliance principles;
- Creates an environment where the non-owners have no certainty that their exposure is limited to the loss of their fee through the operation of the painshare arrangements under limb 3.
- May incline the non-owner participants to exercise caution in the relationship as one day they may need to defend themselves against the owner. Although the prospect of a serious failure may be remote the non-owner participants cannot treat the owner as a true team mate.

All this is likely to stifle or at least limit innovation and true collaboration, encourage position-protecting and undermine the foundation of the alliance. And what benefit does the owner get from this – a theoretical right of action that it will never be able to enforce in practice in any case. The “*have your cake and eat it too*” approach is neither logical nor sensible from either a legal or alliance management perspective.

¹² The Alliance Project Manager, as is sometimes the case, may even be an employee of the owner.

14.4 Alliances with a guaranteed maximum price?

Recently some alliance models have appeared with the downside “cap” under limb 3 applying to the owner rather than the NOPs - so that the ultimate risk in the event of a catastrophic cost overrun rests on the balance sheet(s) of the NOPs. This guaranteed maximum price (“GMP”) approach is not recommended by the author as it may undermine the alliance relationship in a number of ways. For instance:

- (a) Under a pure alliance the NOPs are willing to assume a share of all potential risks, including:
 - risks completely outside the control of the alliance participants (but which still have to be managed); and
 - errors and omissions by the owner,without needing to insist on huge contingencies within the TOC because their downside risk is limited to the loss of their limb 2 fee. Under a GMP approach the risk for the NOPs is open-ended and owners using this GMP model should expect:
 - to have much higher contingencies for risk in the TOC; and/or
 - much greater pressure for Scope Variations when /if these risks unfold notwithstanding the commitment to “no variations”.
- (b) Under a pure alliance, if gross overruns were to occur such that it was evident the NOPs' caps would be reached¹³ the need for the NOPs to protect their relationship with the owner (and their reputation in the industry generally) would remain a very powerful driver to ensure they adopt a balanced approach to PAB decisions. If the corresponding situation occurred under a GMP model, there may not be any equivalent driver for the owner to be reasonable and the relationship may break down at PAB level.
- (c) The GMP approach tries to place the ultimate burden of risk for delivery onto contractors when it is the owner who stands to gain most from the ultimate success of the project through its operational life. Shifting the risk back to the NOPs is a shift back to the kind of traditional risk-transfer contracting strategies that have been shown to be problematic on very complex projects.

Some owners are considering using this GMP approach in conjunction with the competing TOC selection model discussed in section 12.2 above. In the author's view this would amount to a “traditional design and construct contract where no variations are allowed” masquerading as an alliance and is very unlikely to generate peak performance and the kinds of outstanding outcomes achieved on pure alliances.

¹³ This has not even come close to occurring on any of the project alliances with which the author has been involved. Worst overrun has been ~5%.

15 MAKING SURE YOUR ALLIANCE WORKS!

15.1 General

The track record clearly demonstrates that project alliancing can consistently deliver superior outcomes for owners and all project stakeholders when used properly in the right circumstances.

However, as noted by Jones (2000 p.15) it is necessary to take a balanced approach to the delivery method, and critical to regard alliancing as a valuable instrument, but nevertheless only one of a number of instruments, in the toolbox of “relationship contracting”.

When used correctly project alliancing will enable the parties to power through virtually any adversity. However, while the basic construct of alliancing seems simple enough the reasons for its success are complex and easily misunderstood.

15.2 Key steps to ensure success

In the author’s view a pure alliance model is almost certain to deliver the best value outcome for an owner provided certain guidelines are adhered to – in summary:

- (a) In the first instance the owner must have a good understanding of the principles underlying alliancing and why it has succeeded on other projects. If the owner decides to use an alliance it should be for the right reasons and only on projects that clearly justify the use of an alliance.
- (b) If practical, the alliance model should have all the features of a pure alliance (refer section 2.4 above).

If the owner adopts a “lesser” form of alliance, the owner should understand that it might not generate the same high performance environment and outcomes as a pure alliance.

- (c) Select the “right” partners using appropriate criteria. (refer section 7.2 above).
- (d) Put in place a comprehensive program to manage people, their relationships and the results they achieve.

The strategies for managing behaviours and relationships may need to be modified for a less than pure alliance.

- (e) Ensure that all key stakeholders are enrolled into and committed to achieving or exceeding the project objectives.

APPENDIX 1 - LIMB 3 WORKED EXAMPLES & GRAPHS

Preamble

The generic limb 3 pain:gain model described in section 5 of the main text is illustrated below through the use of worked examples and graphs. The examples, which are all hypothetical and based on the Sample Estimate set out in section 4.3 of the main text, show the net outcomes for different scenarios based on varying:

- The budget performance factor (PF – ie. actual cost as a factor of the amount allowed in the TOC); and
- The Overall Performance Score OPS.

The bottom-line result for each of the participants is shown separately.

While it is appropriate for each participant before embarking on an alliance to consider how its bottom line can be affected by the “performance” of the other participants, once an alliance kicks off it is neither meaningful nor appropriate to consider the performance of one participant as distinct from the performance of the alliance as a whole. This kind of analysis is designed to be used prospectively to help the participants understand the implications of a proposed pain:gain model. It should not be used retrospectively once an alliance is up and running.

All examples below are based on the following general assumptions / parameters

- Target Cost as per hypothetical example (**row 2**)
- Limb 2 Fee\$ (**cells E7 and F7**) calculated as fixed lump sum
- Sharing ratios between NOPs (**cells E8 and F8**) based on Fee\$ amounts for both upside and downside
- Sens% = +/-20% (impacts on **cell D12**)
- %Max_{OPS} = (2% x Target Cost) (**cell I11**)
- The owner sets aside 50% of the maximum OPS “pool” as a provision against payments for better-than-expected performance (**cell I13**).
- No Scope Variations occur

Example 1 – everything as per target.

- Actual Outturn Cost = Target Outturn Cost (ie. exactly on budget)
- OPS = 50 (ie. on balance outcomes match the basis of the TOC)

Each of the NOPs participants would return the exact same gross margin that they targeted (row 20 versus row 18). The total outturn cost for the owner including limb 2 and limb 3 (cell I19) would be less than it planned (cell I18) because the reserve it set aside against OPS payouts (cell I13) would not have been used at all.

	A	B	C	D	E	F	G	H	I	J	K
1				Owner	Constructor	Designer	ΣNOP's		Total		
2	Target Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
3	PF (AOC / TOC)			1.00	1.00	1.00	1.00		1.00		
4	Actual Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
5	Savings (over)			-	-	-	-		-		
6											
7	Limb 2	Fixed amount \$			9,000,000	1,500,000	10,500,000				
8	Fee\$'s	Sharing ratios			85.71%	14.29%	100.00%				
9											
10	Limb 3	From OPS directly			-	-	-				
11	pain:gain	Overrun share			-	-	-				
12		Savings share			-	-	-				
13		Total limb 3 (before cap)			-	-	-				
14		Max. limb 3 downside			(9,000,000)	(1,500,000)	(10,500,000)				
15		Limb 3 (cap applied)			-	-	-				
16											
17	Actual margin (limb 2 + limb 3)				9,000,000	1,500,000	10,500,000				
18	Target Margin %				10.00%	30.00%	11.05%				
19	Actual margin as a % of Target Cost				10.00%	30.00%	11.05%				
20	Actual margin as a % of actual cost				10.00%	30.00%	11.05%				

\$Max _{OPS}	2,000,000
OPS\$ _{Reserve}	1,000,000
OPS achieved	50
Plan \$	111,500,000
Actual \$	110,500,000
	0.9910

Example 2 – very good performance all round.

Suppose actual costs were 5% under target for all participants and the OPS came in at 75 – a very good outcome. As seen in the example:

- The actual margin for each of the NOPs (expressed as a % of its actual costs – cells E20 & F20) would be significantly higher than targeted (cells E18 & F18)
- The NOPs’ share of underruns would be 60% (cell D12).
- The owner pays the NOPs participants \$1,000,000 (cell G10) directly based on the OPS – exactly what the owner had set aside in reserve (cell I13).
- The owner’s total actual cost (cell I19) is only 98.2% (cell I20) of the planned cost (cell I18).

	A	B	C	D	E	F	G	H	I	J	K
1				Owner	Constructor	Designer	ΣNOP's		Total		
2	Target Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
3	PF (AOC / TOC)			0.95	0.95	0.95	0.95		0.95		
4	Actual Outturn Cost			4,750,000	85,500,000	4,750,000	90,250,000		95,000,000		
5	Savings (over)			250,000	4,500,000	250,000	4,750,000		5,000,000		
6											
7	Limb 2	Fixed amount \$			9,000,000	1,500,000	10,500,000				
8	Fee\$'s	Sharing ratios			85.71%	14.29%	100.00%				
9											
10	Limb 3	From OPS directly			857,143	142,857	1,000,000				
11	pain:gain	Overrun share			-	-	-				
12		Savings share 60.00%			2,571,429	428,571	3,000,000				
13		Total limb 3 (before cap)			3,428,571	571,429	4,000,000				
14		Max. limb 3 downside			(9,000,000)	(1,500,000)	(10,500,000)				
15		Limb 3 (cap applied)			3,428,571	571,429	4,000,000				
16											
17	Actual margin (limb 2 + limb 3)				12,428,571	2,071,429	14,500,000				
18	Target Margin %				10.00%	30.00%	11.05%				
19	Actual margin as a % of Target Cost				13.81%	41.43%	15.26%				
20	Actual margin as a % of actual cost				14.54%	43.61%	16.07%				

\$Max _{OPS}	2,000,000
OPS\$ _{Reserve}	1,000,000
OPS achieved	75
Plan \$	111,500,000
Actual \$	109,500,000
	0.9821

Example 4 – outstanding performance

Suppose actual costs were 15% under the TOC allowances for all participants and the OPS came in at 80 – an outstanding performance. In this event:

- The actual margin for each of the NOPS (expressed as a % of its actual costs – cells E20 & F20) would be more than double what was targeted (cells E18 & F18)
- The NOPS’ share of the underrun would be 62% (cell D12).
- Despite paying out \$1,200,000 on the OPS (cell G10) the owner should be very happy with the outstanding outcomes in non-cost areas and an actual cost outcome (cell I19) that was ~5% lower (cell I20) than its planned total costs (cell I18).

	A	B	C	D	E	F	G	H	I	J	K
1				Owner	Constructor	Designer	ΣNOP's		Total		
2	Target Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
3	PF (AOC / TOC)			0.85	0.85	0.85	0.85		0.85		
4	Actual Outturn Cost			4,250,000	76,500,000	4,250,000	80,750,000		85,000,000		
5	Savings (over)			750,000	13,500,000	750,000	14,250,000		15,000,000		
6											
7	Limb 2	Fixed amount \$			9,000,000	1,500,000	10,500,000				
8	Fee\$'s	Sharing ratios			85.71%	14.29%	100.00%				
9											
10	Limb 3	From OPS directly			1,028,571	171,429	1,200,000				
11	pain:gain	Overrun share			-	-	-		\$Max _{OPS} 2,000,000		
12		Savings share 62.00%			7,971,429	1,328,571	9,300,000		OPS\$ _{Reserve} 1,000,000		
13		Total limb 3 (before cap)			9,000,000	1,500,000	10,500,000				
14		Max. limb 3 downside			(9,000,000)	(1,500,000)	(10,500,000)				
15		Limb 3 (cap applied)			9,000,000	1,500,000	10,500,000		OPS achieved 80		
16											
17	Actual margin (limb 2 + limb 3)				18,000,000	3,000,000	21,000,000				
18	Target Margin %				10.00%	30.00%	11.05%			111,500,000	Plan \$
19	Actual margin as a % of Target Cost				20.00%	60.00%	22.11%			106,000,000	Actual \$
20	Actual margin as a % of actual cost				23.53%	70.59%	26.01%			0.9507	

Example 5 – Good cost performance with poor OPS.

Suppose costs came in at 5% under but performance against the non-cost KRAs was poor as reflected in an OPS of 40. In this event:

- In addition to the \$400,000 painshare under the \$Max_{OPS} system (cell G10) the NOPs’ share of the underrun would be reduced to 46% (cell D12) because of the poor OPS.

	A	B	C	D	E	F	G	H	I	J	K
1				Owner	Constructor	Designer	ΣNOP's		Total		
2	Target Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
3	PF (AOC / TOC)			0.95	0.95	0.95	0.95		0.95		
4	Actual Outturn Cost			4,750,000	85,500,000	4,750,000	90,250,000		95,000,000		
5	Savings (over)			250,000	4,500,000	250,000	4,750,000		5,000,000		
6											
7	Limb 2	Fixed amount \$			9,000,000	1,500,000	10,500,000				
8	Fee\$'s	Sharing ratios			85.71%	14.29%	100.00%				
9											
10	Limb 3	From OPS directly			(342,857)	(57,143)	(400,000)		\$Max _{OPS}		
11	pain:gain	Overrun share			-	-	-		2,000,000		
12		Savings share 46.00%			1,971,429	328,571	2,300,000		OPS\$ _{Reserve}	1,000,000	
13		Total limb 3 (before cap)			1,628,571	271,429	1,900,000				
14		Max. limb 3 downside			(9,000,000)	(1,500,000)	(10,500,000)				
15		Limb 3 (cap applied)			1,628,571	271,429	1,900,000				
16											
17	Actual margin (limb 2 + limb 3)				10,628,571	1,771,429	12,400,000				
18	Target Margin %				10.00%	30.00%	11.05%				
19	Actual margin as a % of Target Cost				11.81%	35.43%	13.05%				
20	Actual margin as a % of actual cost				12.43%	37.29%	13.74%				

OPS achieved	40
Plan \$	111,500,000
Actual \$	107,400,000
	0.9632

Example 6 – mixed performance

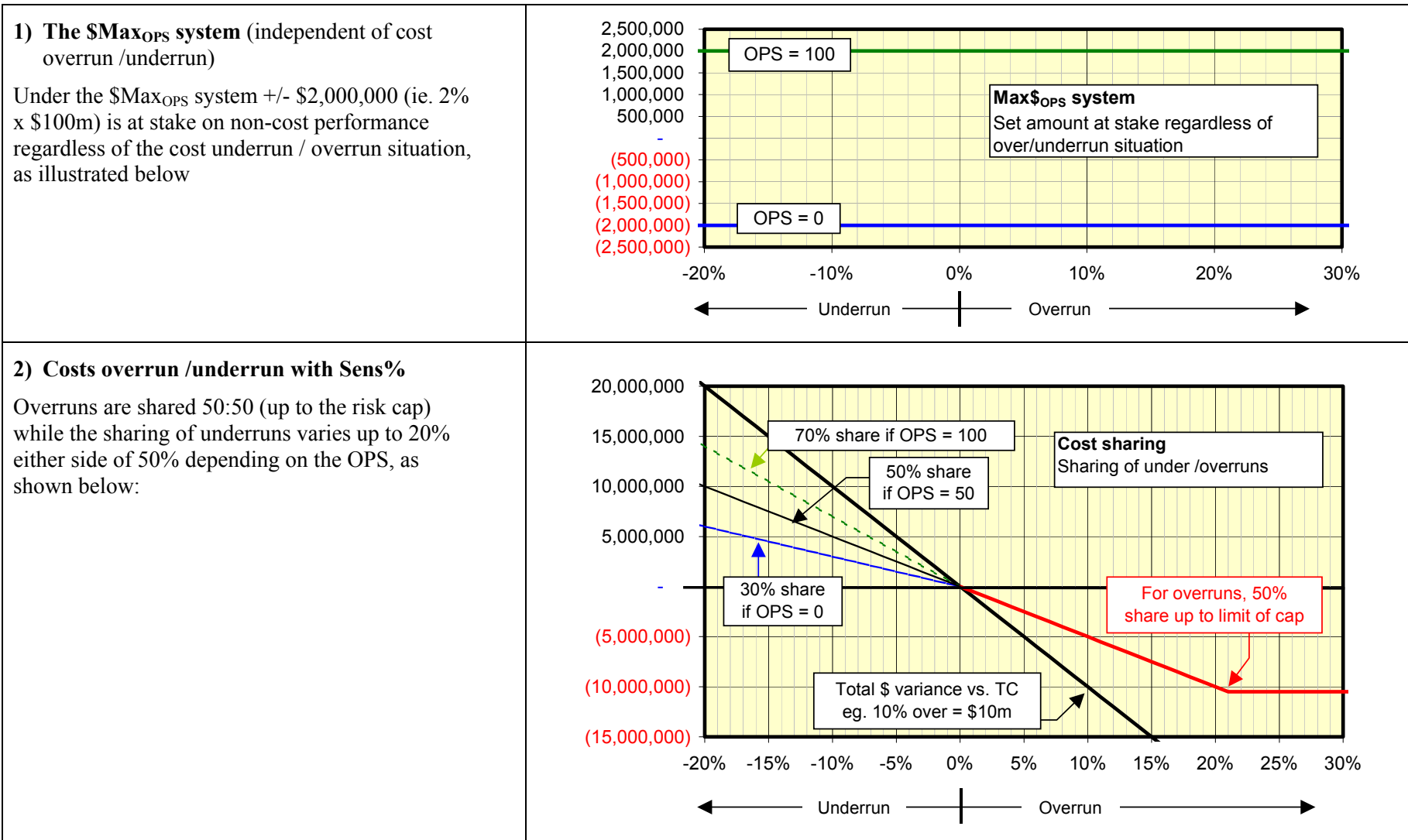
Suppose the constructor’s costs overran by 40% with the owner and the designer underrunning by 5%, with an OPS of 60. In this case:

- The downside under limb 3 would wipe out the NOPs’ limb 2 Fee\$’s and the “caps” cut in – ie. the caps are exceeded (row 13 exceeds the maximum downside shown in row 14).
- The designer would end up with no net margin despite the fact that the alliance performed reasonably well in non-cost areas and the designer itself came in at 5% under the TOC budget.

	A	B	C	D	E	F	G	H	I	J	K
1				Owner	Constructor	Designer	ΣNOP's		Total		
2	Target Outturn Cost			5,000,000	90,000,000	5,000,000	95,000,000		100,000,000		
3	PF (AOC / TOC)			0.95	1.40	0.95	1.38		1.36		
4	Actual Outturn Cost			4,750,000	126,000,000	4,750,000	130,750,000		135,500,000		
5	Savings (over)			250,000	(36,000,000)	250,000	(35,750,000)		(35,500,000)		
6											
7	Limb 2	Fixed amount \$			9,000,000	1,500,000	10,500,000				
8	Fee\$'s	Sharing ratios			85.71%	14.29%	100.00%				
9											
10	Limb 3	From OPS directly			342,857	57,143	400,000		\$Max _{OPS}		
11	pain:gain	Overrun share			(15,214,286)	(2,535,714)	(17,750,000)		2,000,000		
12		Savings share			-	-	-		OPS\$ _{Reserve}		
13		Total limb 3 (before cap)			(14,871,429)	(2,478,571)	(17,350,000)		1,000,000		
14		Max. limb 3 downside			(9,000,000)	(1,500,000)	(10,500,000)				
15		Limb 3 (cap applied)			(9,000,000)	(1,500,000)	(10,500,000)				
16					<i>Capped</i>	<i>Capped</i>					
17	Actual margin (limb 2 + limb 3)				-	-	-				
18	Target Margin %				10.00%	30.00%	11.05%		111,500,000	Plan \$	
19	Actual margin as a % of Target Cost				0.00%	0.00%	0.00%		135,500,000	Actual \$	
20	Actual margin as a % of actual cost				0.00%	0.00%	0.00%		1.2152		

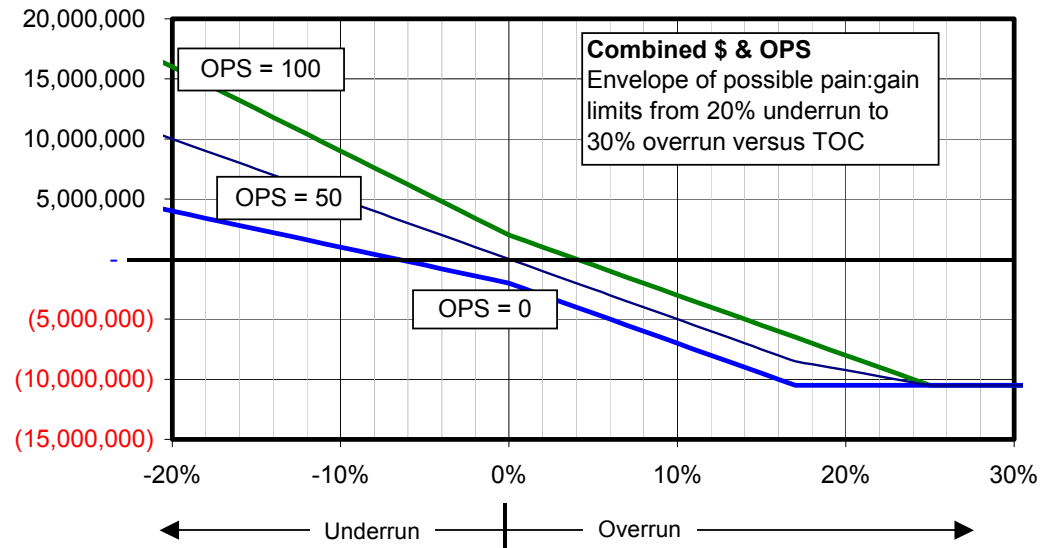
Illustration by graphs

Considering the NOPs collectively, the pain:gain model is illustrated by the following series of graphs:



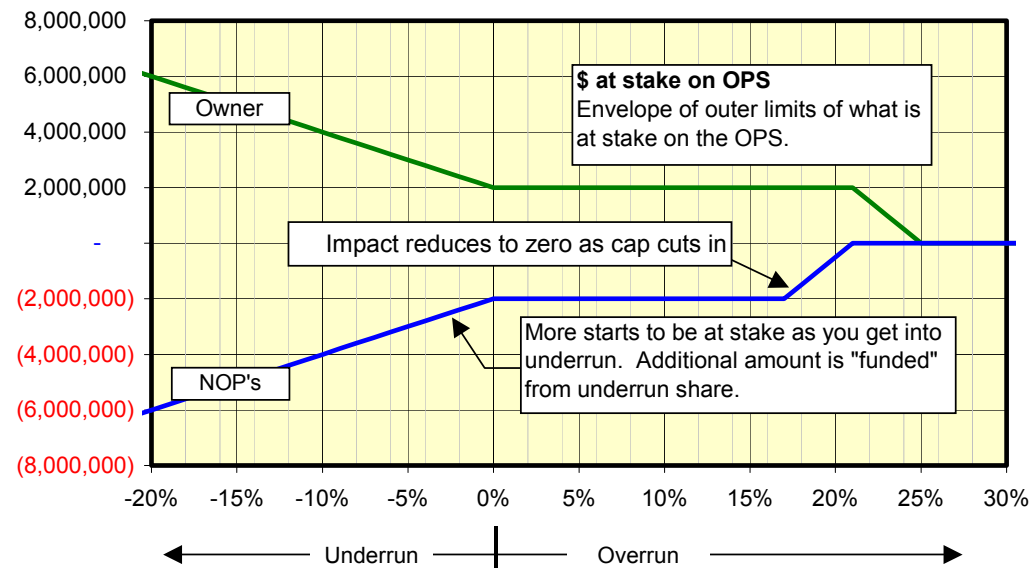
3) Combined effect of \$Max_{OPS} and Sens%

The combined effect of the two mechanisms is as follows:



4) What is potentially at stake on the OPS

The following graph shows the theoretical 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 the TOC:



APPENDIX 2 – OPTIONS FOR DEALING WITH PROFESSIONAL RISK

Option	Advantages	Disadvantages	General comments / clarifications
<p>1. No cover against internal losses</p>	<p>Easy – nothing special to put in place. Fully supports the alliance principles – the risk is shared across the Alliance Participants (“APs”) (Note 1). Forces the APs to focus on effective risk management and direct all their energies towards impact mitigation where an error does occur. No additional premiums for PI insurance.</p>	<p>The risk may be too great for some or all of the APs. In particular those APs who have little input or control over the design inputs may be concerned at the amount of risk that is outside their control. [Note 2] Puts upward pressure on the TOC (because the risk has to be borne collectively without recourse to insurance).</p>	<p>Note 1 Under this option the risk is being assumed by the APs in proportion to their sharing ratios up to the risk limit (loss of limb 2 fee). Beyond that point, the risk is being assumed 100% by the owner. Note 2 It is inherent under a pure alliance that the outcome for a non-owner participant will depend to a large extent on the performance of others and aspects outside its control. However an AP might lose its appetite for risk sharing where there is no insurer to underwrite losses arising from design error. However given that the absolute risk for the non-owner participants is capped at the loss of limb 2 fee, in most cases the risk should be within the capacity of the non-owner APs to accept.</p>
<p>2. No cover against internal losses – but performance targets (and fee) adjusted for major losses</p>	<p>Easy – nothing special to put in place. Can be accommodated within the normal “variation” process. Largely supports the alliance principles – the risk is shared across the APs except for major events. Reasonable prospect that the level of intimacy and collaboration on a day-to-day basis would remain undiluted. Forces the APs to focus on effective risk management and direct all their energies towards impact mitigation except where a major error occurs - in which case the focus may tend to be on demonstrating that the loss should (or should not be) grounds for adjusting the performance targets (and fee).</p>	<p>Where a major event occurs, or there is any concern that a major loss might arise, the principles of total integration and collaboration may be undermined. Energy may be directed towards demonstrating that the loss should (or should not be) grounds for adjusting the performance targets (and fee). If the threshold is too high the risk may be too great for some or all of the non-owner APs. Puts upward pressure on the TOC (not as much as option 1, but still requires some provision because the risk up to the threshold has to be borne collectively without recourse to insurance).</p>	<p>The impact of this option in practice will depend on where the threshold is set, specifically:</p> <ul style="list-style-type: none"> • If the threshold is set very low, the risk for the non-owner participants will be reduced but the tendency for non-aligned behaviours will be increased. • If the threshold is set very high, the risk for the non-owner participants will be increased but the risk of non-aligned behaviours will be reduced.

Option	Advantages	Disadvantages	General comments / clarifications
<p>3. Allow liability to arise between APs</p>	<p>Easy to put in place.</p> <p>No need to buy any extra insurance or pay additional premiums.</p> <p>Derives value from the pre-existing PI insurance policies of the individual participants.</p>	<p>May undermine the integrity of the alliance.</p> <p>Promotes a “blame” culture that is fundamentally at odds with the alliance principles.</p> <p>Difficult to generate full intimacy and collaboration within the alliance where the prospect is always present that one participant may end up shouldering the blame. APs may feel the need to protect themselves against the possibility that they may be blamed by one of the other APs.</p> <p>The unanimous decision-making concept may be compromised where one of the parties may be held to account for collective decisions.</p> <p>Audit trail of responsibility may be clouded, making pursuit of any claim very complex.</p> <p>Possibility of very complex arguments on liability amongst the different insurers.</p>	<p>The impact of this approach is likely to lie somewhere between the following extremes:</p> <ul style="list-style-type: none"> • The APs take “appropriate” due diligence steps to protect themselves from possible liability to the other APs thereby undermining the integrity and effectiveness of the alliance relationship. • The APs adopt a fully collaborative approach, ignoring the prospect of liability to each other. While this will be ideal for teamwork and effectiveness, the audit trail of responsibility may be very blurred, thereby undermining and possibly invalidating the PI insurance policies that the APs were hoping to rely on.
<p>4. Allow liability to arise between APs but only to the extent that it is covered by PI policy</p>	<p>Easy to put in place.</p> <p>No need to buy any extra insurance or pay additional premiums.</p> <p>Aims to remove the prospect of APs blaming each other. Reasonable prospect that the level of intimacy and collaboration on a day-to-day basis would remain undiluted.</p> <p>Aims to derive value from the pre-existing PI insurance policies of the individual participants (although insurance may not respond – see disadvantages).</p>	<p>Audit trail of responsibility may be clouded, making pursuit of any claim very complex, where the staff of the AP making the claim worked in total collaboration with the other APs.</p> <p>The level of collaboration that the strategy is designed to preserve may give the insurer a valid basis for denying any claim and undermine the very PI insurance that the participants are seeking to rely on. The AP making a claim may have a conflict of interest between its obligations under the alliance and its obligations under its PI policy to mitigate the liability of the insurer.</p> <p>The AP making a claim may suffer increased premiums in future years.</p>	<p>This option should only be adopted after careful review of each of the relevant PI policies to ensure that:</p> <ul style="list-style-type: none"> • The proposed approach does not in itself breach any terms of the insurance policy. • There is a reasonable prospect that the policy will respond where the AP has worked in a collaborative environment. • No conflicts of interest will arise in the event of a claim that could invalidate the policy.

APPENDIX 3 – SELECTED LIST OF ALLIANCE PROJECTS

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 details / owner	Non-owner participants (NOPs)	Comments / source
'95 - '97	Wandoo B oil platform WA ~ \$377m Ampolex (Mobil)	Leighton Contractors Dawson Brown & Root JV Keppel Corporation Ove Arup Pty Limited	Winner of 1997 engineering excellence award Winner of 1998 Australian Construction Award \$13m < budget, 26.5 months vs. norm of 34 months <i>“The Wandoo Alliance is an exceptionally successful project and demonstrates dramatically its achievements when compared to similar projects undertaken by traditional contracting and technical methods throughout the world.” (Wandoo Alliance, 1997 p.42)</i>
'94 - '97	East Spar Project WA (oil & gas) WMC Resources Ltd	Kvaerner Oil & Gas Clough Engineering	Winner of the IEAust's highest national engineering excellence award - the Sir William Hudson Award
'96 - '99	Hot Briquetted Iron (HBI) WA (iron ore) BHP	Various	3 separate fabrication / construction alliances introduced into a deeply stressed overall project. Overall project was a serious failure for BHP. <u>Thomson</u> (1999) reported on the alliances.
'97 – '00	Northside Storage Tunnel Project NSW ~\$450m (water mgt) Sydney Water	Transfield Tunneling Connell Wagner Montgomery Watson Kilpatrick Green (sub-alliance)	Time Completed on time despite ~ 9 month delay on critical work arising from external forces. Cost Some insurance issues yet to be finally resolved. Expect final net outcome to be close to budget. Safety Scored at “outstanding” (but suffered one fatal accident) Env/Com. Measured as Best Practice Reported by <u>Henderson & Cuttler</u> (1999), <u>Wallis</u> (1999) and <u>Northside Storage Tunnel</u> .

Year(s)	Project details / owner	Non-owner participants (NOPs)	Comments / source
'98 – '00	Clean Fuels Project Qld ~\$450m (oil & gas) BP / BOC / Lend Lease / Origin Energy / ATCO Power Australia	Stork ICM Kvaerner Processing Australia Fluor Daniel Canada JMW Consultants (facilitators and alliance coach)	Project completed in late 2000 – very successful in all respects. Winner of the ACA 2001 Construction Achievement Award. Reported by <u>Wilson</u> (2001). TimeFinished on 18Oct00 compared to sanctioned target of 01Jan01 – 2.5 months early. Cost Actual cost = sanctioned / target cost (which was \$80m < original budget) Safety LTIFR = 1.39; MTIFR = 7.76; AIFR = 9.07. Outcomes much better than industry averages. Quality Exceeded world class benchmarks Environ. 0 incidents IR 0 incidents; 0 lost time
'98 – '01	National Museum Acton Point ACT - Building 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. Generally reported as an outstanding success. Reported by <u>Walker and Loosemore</u> (2003), <u>Walker et al</u> (2002).
'99 – '99	Norman River Bridge ~\$5m QLD Department of Main Roads	Barclay Mowlem	Completion on 22Nov99 - weeks earlier than the already tight target date prior to the 99-00 wet season, slightly under budget and with outstanding support from the community.
'98 – '99	Penola West project SA ~\$4m (electricity transmission) ETSA - ElectraNet SA	Kilpatrick Green Burns and Roe Worley	Completed Oct99 well ahead of schedule despite numerous externally imposed delays. Time Finished on 15Oct99 compared to target of 31Oct99 – 2 weeks early. Cost Overrun (in the order of 10%) due mostly to unfavourable ground conditions (*corrected from earlier editions of this paper which indicated on-budget outcome) Safety LTIFR = 0; MTIFR = 0 (20,000 hrs) Env/Com. Score of 7 out of 10
'99 – '00	Pelican Point Project SA ~\$22m (electricity transmission) ETSA - ElectraNet SA	Kilpatrick Green Burns and Roe Worley	Outstanding outcomes all round: – Time Finished on 14Jun00 compared to stretch target of 01Jul00 – 2 weeks early but months ahead of world best practice. Cost ~10% underrun Safety 1 minor LTI Quality Score 9 out of 10 Env/com. 10 out of 10

Year(s)	Project details / owner	Non-owner participants (NOPs)	Comments / source
'00 – '00	Pacific Motorway Package 4 Qld ~\$60m (road infrastructure) QLD Department of Main Roads	Thiess Contractors SMEC Australia	Converted balance of “distressed” traditional schedule of rates contract to alliance to reach Practical Completion by October 2000 – many months earlier than the previously forecast trend. Time Finished on 02Oct00, 5 days earlier than scheduled opening day, a feat thought impossible by many when the contract was converted to the alliance in March 2000. Cost ~5% overrun
'00 – '02	Awoonga Dam Raising Project Qld ~\$105m Gladstone area Water Board	SunWater PPK Consultants Thiess Contractors	Raising of the Awoonga Dam to AHD 40m and associated infrastructure relocation. Alliance formed in August 2000. Completed ~6 months ahead of schedule despite 5 months delay at the start on environmental approvals, and >15% under the Target Outturn Cost.
'01 -	Port of Brisbane Motorway Qld ~\$105m Queensland Motorways Limited	Qld Main Roads Major Project Group Leighton Contractors PPK / Coffey & Partners	Initial cost estimates well above original budgets, requiring substantial value and scope management and re-assessment of project funding. Completed months ahead of schedule despite delayed start, with ~10% cost underrun including additional scope included without target adjustment.
'00 – '01	Sydenham Electrification Project VIC ~\$34m VIC Department of Infrastructure (“DOP”)	National Express Group (“NEG”) Thiess Pty Ltd	Thiess was originally contracted by NEG to deliver the project as a lump sum. However the Very Fast Train project profoundly impacted on the scope. Parties converted to 3-way alliance. Completed months ahead of schedule with ~12% underrun. Post mortem by alliance participants concluded that the actual outturn cost was significantly lower than the outturn cost would have been without the switch to an alliance and identified superior stakeholder management under the alliance model as the most critical factor in achieving that success.
'01 -	Grafton Gully Alliance Auckland ~NZ\$65m	Fletcher Construction Company Higgins Contractors Beca Carter Hollings & Ferner	Believed to be the 1 st public sector project alliance in New Zealand. Scope of alliance has been twice expanded to include portions of Central Motorway Junction. Currently trending ~3 months ahead of schedule and ~10% under budget.

APPENDIX 4 – ALLIANCE MYTHS

Myth or Fact?	Author’s comment
Alliancing is easy	<p>Not really</p> <p><i>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.</i></p>
It is a low risk option for contractors	<p>The overall risk is lower but the risk landscape is more complex</p> <p><i>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.</i></p>
It’s just a form of cost plus	<p>Definitely not</p> <p><i>If set up as a true alliance as described in this paper, the compensation arrangements are definitely not cost plus.</i></p>
No cost certainty for owners ➔ more risky than conventional delivery model	<p>On complex projects (that are suited to alliancing) the outturn cost is more certain.</p> <p><i>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 3)</i></p>
Can’t do it for projects < \$100m	<p>It is suitable for projects <\$100 million.</p> <p><i>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.</i></p>

Myth or Fact?	Author’s comment
Can’t do on building jobs	<p>Can be used on building jobs.</p> <p><i>By all accounts project alliancing was used most effectively on the Acton Point National Museum project in Canberra (see Appendix 3). 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.</i></p>
You can’t impose an alliance after a job has been tendered competitively	<p>It can be applied to existing distressed conventional contracts</p> <p><i>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 3) conversion to an alliance is the only chance of achieving the project outcomes.</i></p>
Decision-making is by committee ➡ slow and inefficient	<p>Not correct (if properly managed)</p> <p><i>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.</i></p> <p><i>Accountabilities need to be clearly stated and accepted in terms of what measurable outcomes each role is accountable for achieving.</i></p>
Suppliers can’t be brought into an alliance	<p>Yes they can, but...</p> <p><i>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.</i></p>
There is no place for lawyers in the process	<p>There is an important role, but one that must support the alliance process</p> <p><i>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.</i></p>
It cannot be done on public sector projects for probity reasons	<p>Alliancing can be used in public or private sector jobs.</p> <p><i>For example – 10 of the projects listed in Appendix 3 are public sector projects.</i></p>

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