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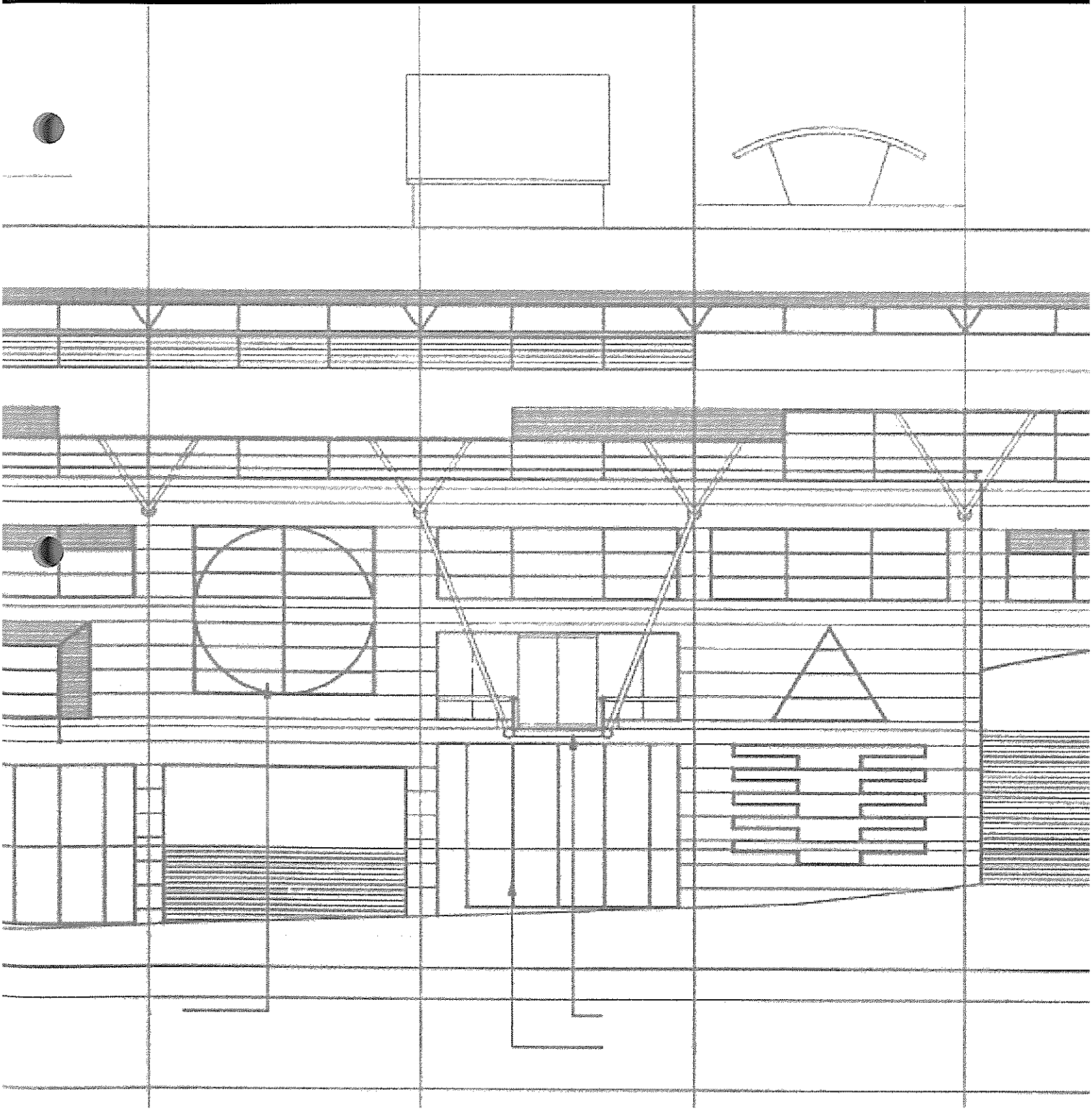

# 'MAKING THE RIGHT CHOICE'— STRATEGIC PAIRING OF CONSTRUCTION PROJECTS AND DELIVERY METHODOLOGIES

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## INTRODUCTION

The ever increasing demand for infrastructure in Australia has provoked the growth in the construction industry. The private sector has induced investments for instance, the $27 billion Gorgon Chevron gas project. On the public side, there have been large capital inputs into infrastructure; the government expenditure has almost tripled from 2003 to 2009.[1] The large scale of the projects inevitably leads to the increase of complexity in construction projects. The issue therefore becomes what is the best delivery methodology for construction projects. 'Delivery methodologies' in this essay refers to the various procurement options and their contractual arrangements. Unfortunately, there is not yet a 'one for all' delivery methodology for all construction projects.It is therefore important for the owner to carefully consider various available delivery methodologies and select the right mechanism. A mistake in the selection of delivery methodology may lead to failure of the project including accidents, delays, cost overruns, etc.

In contrast, successful procurement strategies will enable the project to be completed satisfactorily and decrease inputs such as time, cost and other resources. In order to find the right project delivery methodology, the owner needs to carefully match the elements of the project with elements of each delivery methodology, determine their compatibility, and finally couple the project with the most appropriate delivery methodology. To illustrate this process, this essay first explores the key elements in construction projects. It will then dwell into three of the most representative delivery methodologies: Design and Construct (D&C), Project Alliance and Early Contractor Involvement (ECI). D&C represents the conventional contracting method, alliance represents relationship contracting, and ECI is often considered as a hybrid of the previous two. Facets of each option will be matched with elements of construction projects, followed by a summary of compatibility. A further discussion will be made of future trends in the industry and possible reforms that owners desire in finding the right duo.

## COMMON ELEMENTS IN CONSTRUCTION PROJECTS

Generally, projects arise to solve a problem or service a group need.[2] Most of the projects often commence with some persons having an idea—'Why don't we do this?' It is this idea later the goals and objectives of the projects are derived from.

### Goals and objectives

Goals and objectives of projects may vary between public and private levels. Private projects often seek profit whereas public projects tend to address the community's particular needs. Overall, goals and objectives provide the framework of a project. Therefore, it is imperative for the chosen delivery methodology, through its contractual arrangement, to accurately reflect and achieve the goals and objectives.[3] On the other hand, the carrying out of the project depends on more specific elements, namely, the commercial drivers.

### Commercial drivers

Common commercial drivers in construction projects include scope, budget, quality, payment, time, disputes and relationship.[4] They often depend on complexity and risk allocation in the project. For complexity, the sources include project scale, duration, market, internal and external interfaces, technology, financial structure, and delivery risks. They greatly influence commercial drivers such

as scope, budget and quality. In some cases, the scope determines the budget. Other instances, especially large infrastructure projects, the scope is often vague and can therefore be determined by the budget.[5] The certainty of the scope and the accuracy of the budget are proportionate to the scale and sources of complexity. The quality of the project may also be affected if no proper solution is found to overcome the complexity of the project.

Another influencing factor is risk allocation. As Keynes commented, 'If human nature felt no temptation to take a chance, there might not be much investment as a result of cold calculation'.[6] In terms of payment, some contracts assign all the risks to contractor at a fixed price. Some share risks between parties and provide financial incentives to contractors. In the former case, the owner usually preserves the rights to sue for dispute, whereas in the latter such right may sometimes be given up. Moreover, risks such as site conditions can affect the timeline of the project, causing delays and pressures on the parties.[7] Relationship between parties may also be affected if the contract fails to allocate each party's obligations as to associated risks. A deteriorated relationship can destroy trust and confidence between parties. In real life, disputation inevitably results in litigation or other mechanisms where the parties' 'best people' devote an inordinate amount of time.[8] This will consequently affect other commercial drivers of the project.

In summary, the success of any project largely depends on the abovementioned elements. Therefore, choosing the right project delivery methodology is a process of matching the elements of the project with the available delivery methods and consequently finding the best match.

## MAKING THE RIGHT DECISION

The available delivery methodologies in the Australian construction market can be divided into three categories—conventional contracting, relationship contracting, and hybrids. This essay looks at the most representative methodology from each category, namely, D&C, Project Alliance and ECI. Each of the elements and their compatibility with construction projects will be looked at individually below.

## Design & Construct (D&C)

D&C is one of the conventional procurement options which assigns the contractor responsibilities for both design and construction of the project. Examples of D&C can be found in AS 4300[9] or AS 4902[10]. The elements of D&C are as follows:

### (a) Tender

A D&C contract requires the contractor to tender on the works described in the Design Brief prepared by the owner.[11] The owner then selects the winning tenderer based on their adequacy of design and price.

### (b) Remuneration Scheme

In most D&C contracts, the contract price is set out in the contract as a fixed lump sum or a set of fixed rates. There are usually limited grounds for the price to be adjusted. Such remuneration scheme is static, rigid, and often unrealistic. An example is the Sugarloaf Pipeline Project in Victoria.[12] Prima facie it is a simple project—construct a pipeline for 70km linking the Goulburn River near Yea to the Sugarloaf Reservoir.[13] However, in reality, the engineering and environmental complexity associated with the project is enormous.

It is extremely difficult for contractors to calculate the precise cost for the construction and quantify the associated risks in monetary terms before the commencement of work.[14] Therefore, in large projects such as Sugarloaf, what contractors will do under D&C is to set an unrealistically low price to win the tender and seek for any possible opportunities under the contract to adjust the price. In the end, the actual costs will exceed the winning tender price, or the contractor will simply reduce the cost at the expense of quality. Therefore, when choosing the delivery methodology, owners should carefully consider whether the remuneration scheme under the contract is compatible with the proposed project. As emphasised earlier, a mismatch between the project and its delivery method can lead to the breakdown of the whole project.

### (c) Risk Allocation

On a spectrum of risk allocation, the contractor bears most of the risks in D&C. This is a result of the principal allocating the risk to the contractor through their contractual agreement. This form of methodology is a 'one-stop shop' for liability for the owner.[15] In most construction projects, the defects involve both design and construction elements.[16] Therefore in cases where defects arise, the owner under D&C can simply sue against the contractor instead of multiple parties.

However, this type of risk allocation ferments the dilution of the owner's control over the project since the contractor has the discretion in terms of design and construction.[17] In cases whereby projects are large and complex, the lack of control from the owner may lead to disastrous outcomes such as the West Gate Bridge disaster in 1970.[18] A 112m span collapsed during construction, killing 35 workers.[19] A key finding by the Royal Commission was that the owner failed to vet the engineers' and the contractors' available resources, their site personnel

and their appropriateness to the design and construction of the project.[20] If the owner had consistent control over the design and construction instead of leaving them to the consultants and the contractors, risks can be diluted and the ultimate disaster would be prevented. Therefore, D&C's contractual arrangement of assigning all the risks to the contractor can be problematic and in some circumstances by doing so can lead to grave consequences on the owner.

### (d) Summary of Compatibility

By examining the compatibility between the particular delivery methodology and various construction projects, an owner will be able to determine whether a right choice of methodology have been made for its particular project. Overall, D&C is an appropriate method for owners who want their projects to be completed in minimum time for a defined price.[21] The scale of projects suitable for D&C is likely to be capped at $10 millions.[22] Project under $10 million usually has smaller project scope and less complex project environment. Hence it is relatively easier for project owners to successfully identify the project risk and accurately allocate them to the assigned contractor.

In terms of goals and objectives of a project, D&C works well if they are small and precise. In terms of commercial drivers, it is suitable for projects with a clear scope which is unlikely to vary as the project progresses. The tender price under D&C is static, focusing almost exclusively on the instant of contract formation, rather than on dynamic progress and the evolution of a contractual relationship.[23] Hence the fixed price under D&C will only be well enforced by the contract in simple and small–scale projects with clear scope.

Moreover, fixed price procurement also affects the project quality. The lowest tender price generally restrains the profit margin. The contractor is unlikely to invest resources on innovation of design or upgrade of technology; neither will it take into account any stakeholders' concerns. In order to profit, the project is likely to be proceed with limited means. Hence, for complex infrastructure projects where concerns of the community and novel mechanical or process engineering are required, D&C will be inadequate. Further, the limited input from the contractor may also cause time pressure. In the West Gate Bridge disaster, inappropriate time pressures from a desire to keep the work progressing provided insufficient time for properly considered decisions that can lead to errors of judgment.[24]

In terms of relationship between contracting parties, the lump sum scheme sets the interests of the contracting parties in fundamental opposition, causing adversarial relationship.[25] The contractor's objective to maximise profit through minimising project performance is in direct conflict with the owner's interest of securing maximum project performance.[26] Consequently, disputes and dissatisfaction are almost inevitable. Generally, the dispute resolution mechanism under D&C contracts is to call in outside experts such as lawyers and arbitrators. The issues that have led to the initial conflict are often lost as parties move externally into court system or external ADR process.[27] As seen in *Kane v Sopov*,[28] the litigation process can be long and the cost often exceeds the damages received at the end.

Despite its limits, D&C is nevertheless an easy and viable method for project owners. As a 'one–stop shop' for liability, D&C provides clear allocation of risks and makes risks certain. However, in delivering projects especially large infrastructure projects, owners should be aware of the problems likely to arise from D&C—ranging from minor delays to grave disaster. Therefore, alternative procurement options such as Project Alliance may be considered.

## Project Alliance

In essence, Project Alliance is a commercial and legal framework between an 'owner participant' and one or more non–owner participants (NOPs) for the delivering of a capital works project. The first successful Project Alliance experience was from the Andrew Project undertaken in the early 1990's by British Petroleum (BP). In an effort to reduce the development costs, BP first considered the traditional approach similar to a D&C, that is, to select contractor with the most competitive tender and enter into a standard commercial agreement which assigns all the risks to the contractor.[29] However, this procurement strategy provided only minimal reductions in development costs—failing to make the project economically feasible. As a result, BP decided to shift away from the competitive bidding and traditional risk allocation contracts and explore a complete departure which required a step change in behaviour towards relationship development.[30] Consequently, BP developed a new 'painshare/ gainshare' compensation program ultimately named Project Alliance, which led to successful completion of the project with cost saving of around $160 million.[31] Following the success, there has been an increase in the use of Project Alliance and its variations such as hybrid alliance. While a distinction is sometimes made between 'pure' or 'hybrid' alliance, 'Project Alliance' in this essay is concerned only with 'pure alliance', which

is alliance on a project basis, as opposed to 'hybrid alliance' which sometimes includes long term strategic outsourcings. The elements of Project Alliance are as follows:

**(a) The Alliance Team**

The alliance team usually consists of an alliance board, an alliance management team and several NOPs. The alliance board usually provides strategic management whilst the project management team is in charge of administrative duties.[32] The NOPs are companies selected by the owner based on non–price criteria. Money is excluded from the tender, and the NOPs are required to demonstrate the quality of their personnel and their ability to work in a high performance team culture, hence a high level of probity is required in the selection process.[33] In public sector contracting, it is vital that the alliance contract shows transparency of the contracting process, for public accountability reasons.[34] In practice, there have been various methods taken to bond the team. For example, most Australian public infrastructure alliances provide alliance uniforms for every team member. Some alliances also have newsletters distributed around to provide updates on the project.

**(b) Remuneration Scheme**

Unlike the fixed price under D&C, Project Alliance adopts a 3–limb open book compensation model based on the principle of 'gainshare/painshare', which effectively aligns the parties' interests and prevents the development of any adversarial relationship. Under this scheme, limb 1 fees are all direct project costs, such as rework, and project overhead incurred by all the NOPs in the alliance team.[35]
Limb 2 fees are the corporate overhead and profit, often paid in lump sum set as a percentage of the target cost. Limb 3 fees refer to predetermined gainshare/painshare arrangements depending on how the final cost compares to the target cost.[36] NOPs' gainshare payment is usually measured against certain key performance indicators (KPIs). If all KPIs are achieved, the owner must make the full gainshare payment. On the other hand, if one or more of the KPI is not met, the gainshare payment and hence the contractors' profit is reduced. This scheme provides financial incentives to the NOPs to maximise their profit through enhancing project performance, pushing the project a step closer to the success.

**(c) No blame, no dispute clause**

Another unique element of project alliance is the no blame, no dispute clause which enables parties to manage conflict within the commercial relationship.[37]
It provides that each alliance participant agrees that it will have no legal claims against any of the other alliance participants, except in the case of wilful default. The meaning of wilful default is narrowly defined as an intentional act or omission by an alliance participant carried out with utter disregard for the harmful consequence for another participant.[38] It does not include any error of judgment, mistake act or omission made in good faith whether negligent or not by an alliance participant.[39]

The benefit of such a clause is threefold. First, in terms of project delivery, such clause encourages participants to come out of their comfort zone, to take risks and to accept stretch targets in the pursuit of extraordinary results without fear potential legal claims if they fail.[40]

Secondly, issues and conflicts in projects can often reveal valuable insight into the workings of a team.[41] External dispute resolution mechanism sometimes hides

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the issue at heart of a particular conflict. Lastly, the restriction of legal claims to wilful default also saves the parties any potential legal costs that may occur. In fact, the Australian litigation system for construction claims is problematic because of the availability of appeals.[42] It may take several years for a case to get its final decision.[43] Thus, the restriction on litigation compels the parties to incorporate issue-solving into the day-to-day management of the project. It encourages communications between echelons and increases efficiency of the team. Therefore, by promoting some of the key ingredients to a successful project such as innovation and teamwork, the no blame, no dispute clause is certainly an advantage the owner should be aware of when considering Project Alliance as an option.

However, despite the strengths of the no blame, no dispute clause, it potentially places the owner at a position where legal remedies are limited. Prima facie, it affects the quality of work carried out by NOPs due to owner's limited cause of actions. Nevertheless, this can be partially saved by the rise of fiduciary obligation and the duty of good faith from alliance agreements.

**(d) Fiduciary obligations and good faith**

The law in Australia relating to good faith and fiduciary obligation is still unsettled.[44] Courts are generally reluctant to find that fiduciary duties exist in the context of commercial dealings.[45] However, there has been authorities indicating that duty of good faith and fiduciary obligations may be found in Project Alliances. *In Thiess v Placer*,[46] the court recognised duty of good faith contained in a 'partnering agreement'. Thiess had entered into a schedule of rates mining contract and the agreement contained an express obligation of good faith. Thiess falsely represented that certain plant costs were a genuine estimate where in fact they contained elements of profit.[47] Consequently, Thiess was held in breach of a duty of good faith contained in the partnering agreement. Applying this to Project Alliances, the owner may be able to sue for wilful default on the basis of contractor's deliberate misrepresentation if an express obligation of good faith is contained in the alliance agreement.

Furthermore, in *Aqua Max v MT Associates*,[48] Gillard J concluded that where there is a degree of control over one part of the project by another party, which meant that each party relied upon the other party to perform its role in good faith and for the common good, a fiduciary obligation will arise.[49] Therefore, a key criterion to the identification of fiduciary obligation is the element of control by each party over a part of the project, and their agreement to seek common objectives and mutual reliance in good faith for the common good.[50] Essentially, that is what in the heart of Project Alliance. Accordingly, there are strong grounds for the rise of fiduciary obligation and the duty of good faith in alliance agreements. This will effectively offset the owner's risk of limited remedies under the no blame, no dispute clause, making Project Alliance a more attractive option for owners.

**(e) Summary of compatibility**

Compared with conventional methodologies such as D&C, Project Alliance is more suitable for delivering large-scale projects with high complexity, especially where residual risk during the construction or implementation phases cannot be quantified or allocated accordingly.[51] In terms of goals and objectives, because of the team-based approach, Project Alliance can be used where goals

and objectives are illusive. In fact, the owner does not have to set a specific goal with detailed objectives before choosing the participants. They can be worked out during the alliance in a team–based approach.

With respect to commercial drivers, the scope of the project can be unclear. It can be defined as the project progresses and modified when necessary. In terms of budget, the three–limb accounting method is an efficient way to spend the budget. It provides financial incentives to parties to come up with innovative technologies and process methods, which ultimately shortens the construction period without compromising the quality of the project. Moreover, the alliance team is more equipped at delivering 'value for money' compared to individual contractors under conventional delivering methods. For example, in Sugarloaf, the alliance team collectively developed a remote controlled bedding machine to mechanically bury the pipelines in the trench. It is based on a rubber–tracked loader with a modified laser controlled, automated grader attachment. This innovation removes the need for personnel to enter the trench, reducing the overall project risk.[52] Sugarloaf is overall a sweet success—not only it was completed on time, but also no adverse relationship arose from the team.

Furthermore, Project Alliance gives owners more control throughout the project life time. If alliance existed in 1970 and was adopted in West Gate Bridge project, the disaster would have been prevented. The contractual arrangement under alliance would have diluted the risks among participants and given the owner more control over the construction. By working in teams with NOPs, the owner could have constantly monitored the project, spotted any potential problems and solved them within the team. Alliance would also reduce any pressures on individual contractors and share them along the team. This example again highlights that the right choice of delivery methodology is paramount in any construction project.

### (f) Applying Project Alliance

When adopting Project Alliance as the delivery methodology, there are two things owners need to be aware of. Firstly and most importantly, the owner should constantly vet the team for any groupthink symptoms. Groupthink is 'a mode of thinking that people engage in when they are deeply involved in a cohesive in–group, when the members' strivings for unanimity override their motivation to realistically appraise alternative courses of action'.[53] In an alliance model where the team strives for unanimous decisions, members may adopt a soft line of criticism, even in their own thinking.[54] This may lead to close mindedness and overestimation of the team's invulnerability.

Consequently, accidents may occur due to the misjudgement of the group.[55] Legally, the owner is restricted from any remedies by the no blame, no dispute clause.

Any costs flowing from the accident will therefore be borne by the owner. To reduce the risk of groupthink, the alliance team may improve the process by which the group makes decisions, including quality risk assessment and encouraging members to raise objections and concerns.[56]

At alliance meetings, a lawyer may be appointed to play devil's advocate, challenging the testimony of those who advocate the majority position.[57]

Secondly, the fact that each NOP is paid on a three–limb remuneration scheme regardless of whether the project comes in under or over budget means the owner solely bears the risk of increased or unforeseen costs.[58] If the owner is particularly concerned about the budget and does not wish to take the possible risk of painshare, another delivery method such as ECI may be considered.

## Early contractor involvement (ECI)

ECI is a new and trendy form of project delivery methodology.[59] It involves inviting contractor in the early phase of the project to assist in the evolution of the design for the project.[60] The key elements of an ECI include:

### (a) The Tender

Compared to conventional methodologies such as D&C, an ECI process generally has a shorter tender process, which reduces contractors' pre–tender costs.[61] Tenders are called on a competitive basis, and are selected with the aim to form the 'best team'. Similar to alliance, tenders in ECI have to demonstrate experience and track record of key personnel with their team, together with the experience and track record of that team as a whole.[62] The winning tenderer then goes through to the first stage of the ECI process.

### (b) Stage 1

Contractors are provided ample time and resources to design and document the project and identify the risks. This process is similar to an interim 'Project Alliance Agreement' which is the preliminary stage of the alliance where the project scope is defined and where the target cost and schedule is defined.[63] It is during this pre–feasibility stage of a project that the greatest influence on the capital costs and project outcomes is possible.[64] It enables a more robust identification of risk and a realistic project schedule and price to be defined, which leads to a better contractual arrangement.[65]

### (c) Stage 2

Stage 2 of the ECI varies considerably between projects. The parties can either adopt one contract for both stages or have a separate contract for the actual construction. For the formal approach, the contract document is varied at the end of the first stage to take account of the risk profile agreed between parties during stage 1.[66] For the latter approach, the separate contract is finalised as part of the stage 1 work. The contract terms incorporate the deliverables from the first stage and reflect the agreed risk profile. This contract will then be put out for tenders. During the second stage, construction can commence with negotiated risks. This allows for the establishment of a guaranteed maximum price or guaranteed construction sum for the project. It is very suitable where the owner is on an extremely tight budget.

This also avoids the likely variation and excessive project 'contingency' fees that are normally associated with traditional procurement options.[67]

### (d) Remuneration Scheme

The price for an ECI is usually called the 'Risk Adjusted Price' (RAP), calculated considering all the potential risks within the project. Once the owner accepts the RAP, the work will be carried out under relatively conventional D&C terms and conditions in the second stage. The payment methods vary between projects. In some projects, the parties agree to a fixed price for the construction. In other projects, Key Performance Index (KPI) incentives, as seen in Project Alliance, are incorporated in an effort to provide appropriate commercial alignment drivers for the parties.[68]

### (e) Summary of compatibility

To some extent, ECI models have features of both traditional procurement such as D&C and alliance. It can be seen as a middle ground approach by engaging a soft dollar approach to the first stage and then a hard dollar approach to the second stage where all risks are identified and priced.[69] In terms of goals and objectives, the involvement of contractors and their expertise in the early stage will inevitably give more assistance as to the possible methods of realising the goals and objectives. In terms of scope, ECI removes the onus on the owner of defining the scope and share it between the owner and the contractor in the first stage of the model. It enables cooperative planning and quicker decision making, which ultimately leads to better definition of the scope. However, ECI may not be suitable for large and complicated projects.

This is because the second stage of ECI is similar to the static arrangement under D&C which does not cope well with any dynamic changes.

In terms of budget, ECI reduces the cost of tender. Contractors may save up to millions in preparing detailed design and construction plan. Reducing the cost for tender effectively reduces the overall cost for the project. Moreover, the RAP worked out by both the owner and the contractor will be a more realistic price. Therefore it can be better enforced by the contract.

In terms of parties' relationship, the ECI model is relationship-based and usually contains express acknowledgements that the parties will act collaboratively in delivering the project.[70] However, similar to alliance, the owner in ECI also needs to be aware of any groupthink symptoms which may lead to grave outcomes.

On a spectrum of risk allocation, the risk allocation in D&C is certain, giving the owner full legal rights to sue. Alliance provides control of the project through an enormous assumption of risk by the owner such as limited legal remedies. ECI is in the middle where the owner has sufficient control over the design of the project whilst preserving the right to sue in stage two.[71] Overall, ECI is suitable for relatively large-scale projects in industries such as mining, road, and rail.[72] It is best used where the work done in the first stage will enable the risks to be adequately identified so that it is adequate to move to affixed contract for the second stage.[73] However, the owner's lack of control in stage 2 means that ECI may be unsuitable for large-scale projects with extreme complexity and high level of stakeholder management.

This again proves there is not a 'one for all' delivery methodology. Finding the correct match between project and delivery methodology is therefore vital for the success of any project. In the mean time, it is worthwhile exploring the future trend of delivery methodologies in the construction market and possible reforms.

## TOWARDS THE FUTURE

By looking at the compatibility of delivery methodologies with construction projects, it is evident that conventional options such as D&C are suitable for relatively small clear-cut projects. Large projects especially public infrastructure projects are likely to be delivered dominantly by Project Alliance. Following the success in Andrews Project, Australia has shown an increase in the use of Project Alliance in various public infrastructure projects. The proportion of government spending on Project Alliance has increased from 0% to 29% during past decade.[74] On the other hand, as an emerging delivery methodology, ECI is likely to continuingly gain its popularity in medium projects. The success of Project Alliance through its team approach indicates that the future trend in

the construction industry involves a major cultural shift towards global teamwork rather than competitive behaviours.[75]Accordingly, more assistance from the public is desired to guide owners through the major cultural change and to assist them in making the right selection of delivery methodology. To respond to this concern, I suggest reforms to be made on three levels: the government, the industry and the lawyers.

The changes to be made by the government are at the broadest level. The State Treasuries may collaborate to develop a comprehensive Procurement Selection Guide and training materials for owners on procurement options.[76] They may also provide policy planning of future trend in public infrastructure projects with respect to their type, scale and complexity. Given the strengths of Project Alliance over conventional methods, governments are encouraged to promote alliance and help the owners to correctly implement the method. For instance, governments may take a greater role in ensuring that alliance best practice is captured and disseminated, and also take a greater oversight role on individual alliance projects to ensure that principles such as 'value for money' is optimised at whole of government level.[77]

Unlike governments' strengths in policy planning, the industry's strengths lie within its expertise and insights to projects. It has the ability to disintegrate the complexities in projects and scale them according to their sources and their importance to the project. Therefore, it is best for the companies in the industry to collaboratively come up with detailed practical guidelines.These guidelines can be prepared for main types of construction works including building, heavy/civil, and industrial constructions.

Each project in the categories can then be divided to sections including geotechnical, structural, electrical, environmental, etc. A risk profile for each section and possible solutions can then be combined by the experts in the industry. When choosing the delivery methodology, owners can refer to industry guidelines for sources of risk and requirements of control. In fact, several large engineering consulting firms have started building their own knowledge banks, detailing potential risks and problems associated with each type of project, and possible solutions based on successful past experiences. If companies in the industry are willing to share their experiences and insights to project in a form of guidelines, this sort of industry input can assist owners to better define the scope of the project, identify risks and balance the risks with control.

This ultimately leads to a correct selection of delivery methodology, and hence a more effective and enforceable contractual arrangement. Moreover, the collaboration process in providing the guidelines will also help the companies prepare to embrace the cultural change in the construction industry towards global teamwork.

Lastly, lawyers' role in supporting the owner making and implementing the right selection is also significant. Instead of being an independent legal advice provider, lawyers are encouraged to work within a relationship based culture where individual rights and responsibilities are merged into the collective responsibility of the group as a whole.[78] For example, a good alliancing lawyer acts as a facilitator who has an inherent understanding of alliance principles.The lawyer also needs to understand the wishes of each participant, facilitate consensus and then promptly implement

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what are quite often innovative ideas.[79] To reiterate, the right choice of delivery methodology in any construction project is vital. The choice is more likely to be a right one with the support from the government, the industry and the lawyers.

## CONCLUSION

In the absence of a 'one for all' delivery methodology, it is vital for project owners to carefully consider various options of delivery methodology. This is ultimately a process of matching the elements of the project with elements of various delivery methodologies and couple the most compatible match. In an era where teamwork is important, the selection process will certainly benefit from the collaborative inputs from the government, the industry and the lawyers. In hindsight, selection and implementation of the appropriate delivery methodology can be a tedious task. However, through utilising the decision-making strategies as discussed above, a sweet success will be reached.

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25. Owen Hayford, 'Ensuring your alliance contract is legally sound' (2004) 99 *Australian Construction Law Newsletter* 45

26. Ibid

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28. *Cole Sopov & Anor v Kane Constructions Pty Ltd (No 2)* [2009] VSCA 141

29. Ronney, above n 27, 3

30. Matthew Sakal, 'Project Alliancing: A Relational Contracting Mechanism for Dynamic Projects' (2005) 2(1) *Lean Construction Journal* 69

31. John Gallagher and Andrew Hutchinson, *Project Alliancing—Some Answers* (2001) 16.

32. Trevor Thomas, 'Alliance Contracts: Utility and Enforceability' (2007) 17 *Building and Construction Law* 329

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34. Andrew Chew, 'Alliancing in Delivery of Major Infrastructure Projects and Outsourcing Services in Australia—An Overview of Legal Issues', *International Construction Law Review* 21 (3), 356.

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36. Sakal, above n 30, 72

37. Thomas, above n 32, 331

38. Chew, above n 34, 351

39. Jim Ross, Introduction to project alliance, presentation to the Institute of Engineers 17 August 2000 Brisbane Australia

40. Hayford, above n 25, 45

41. Ronney, above n 27, 3

42. Matthew Croagh, 'Construction Litigation' (Presentation at Principle of Construction Law, University of Melbourne, 21 May 2010)

43. As seen in *Kane v Sopov*, the dispute started in 2000 and it was not until 9 years later the High Court refused special leave by Sopov, making the judgment by Victoria Supreme Court of Appeal the final judgment for the parties.

44. Sally Roe and Jane Jenkins, *Partnering and Alliancing in Construction Projects* (2003) 198.

45. Lisa Zhou, 'Fiduciary law, non-economic interests and amici curiae' (2009) *12 Melbourne University Law Review* 28

46. *Thiess Contractors Pty Ltd v Placer (Granny Smith) Pty Ltd* (2000) WASCA 102.

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48. *Aqua Max Pty Ltd v MT Associates Pty Ltd* (unreported, Supreme Court of Victoria, 19 June 1998)

49. Ibid 64

50. Chew, above n 34, 349

51. Queensland Government, 'Relational Procurement Options—Alliance and Early Contractor Involvement Contracts' (2008), 7

52. Pipe and Civil, 'Sweet Success: The construction of the Sugarloaf Pipeline' (2010) 1 *The Australian Pipeliner News* 16

53. Irving Janis, *Victims of Groupthink* (1972) 9

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56. Irving Janis, 'Groupthink' (1986) 3 *Philosophers Today* 24

57. Ibid

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60. Julie Whitehead, 'Early contractor involvement—the Australian experience' (2009) 4(1) *Construction Law International* 20

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63. Victorian Government, 'Project Alliancing Guide' (2006) 27

64. Eddie and O'Brien, ECI—Providing Greater Certainty for Projects, CGI Consulting

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66. Whitehead, above n 60, 20

67. Queensland Government, above n 51, 11

68. Whitehead, above n 60, 22

69. Ibid 24

70. Ibid 20

71. Jones, above n 58, 10

72. Whitehead, above n 60, 26

73. Ibid

74. Department of Treasury and Finance Victoria, above n 1, 7. In 2009, a third of government expenditures on infrastructure projects have been on project alliance.

75. Ronney, above n 27, 9

76. Department of Treasury and Finance Victoria, above n 1, 19

77. Ibid

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79. Graham Thomson, 'Project Alliance' (Paper presented at the 21st AMPLA Conference 24 July 1997) 8