



Alliance Research Project 2012
2014



Longitudinal Study of Performance in Large Australasian Public Sector Infrastructure Alliances 2008-2013

Centre for Integrated Project Solutions

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December 2013

“Without the alliance approach, we would have ended up in litigation.”

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Executive Summary/Abstract

"It was considered to be one of the most complex projects for traffic management, and the results exceeded expectations by a long way, which really set a benchmark for future projects being constructed for traffic."

Since the late 1990s many Australian state, territory and federal governments have utilised Alliance Contracting as the project delivery structure for complex infrastructure projects. Alliance Contracting has been significantly employed in this market in an attempt to overcome a range of negative impacts associated with the traditional adversarial approach to delivering infrastructure developments. Alliances embody a cooperative and collaborative mode of project delivery that relies on the development of trust, sharing and aligning goals between project partners.

Consolidated results from three previous studies of alliancing undertaken in 2008, 2010 and 2012 based on 60 case study alliances (two of these from New Zealand) are re-analysed in this report as a longitudinal study of alliancing. Those results are supplemented by reflections and insights from several parallel alliancing studies recently undertaken by the researchers. Principal findings indicate that alliancing generally provides advantages over other project procurement forms. These include:

- More effective foreseen and unanticipated risk management;
- Improved management of uncertainty and ambiguity in complex contexts;
- Improved cost/time delivery performance;
- Ability to change and adapt design, scope and strategy to accommodate changing realities of a project context;
- Enhance opportunities for innovation and learning from experimentation;
- Opportunities for achieving wider social and environmental outcomes;
- Motivated and genuine team commitment for best for project outcomes; and
- No litigation and no 'finger-pointing'.

This report provides a state of the art reflection of alliancing. Our analysis provides considerable evidence of success in using this form of infrastructure procurement with the majority of alliances delivering highly successful results. While the pace of alliancing has slackened in recent years, along with a general decline in construction infrastructure activity, Australasia remains a world leader in alliancing. This leading role is evidenced by interest in the Australasian experience of alliancing by those engaged in alliances in Finland, The Netherlands and the UK. The report provides a historical view over a critical period of construction investment in infrastructure in Australasia that should be of interest to researchers and practitioners, project owners and non-owner project participants engaged in alliances.

Alliance managers consistently commented that alliancing requires sophisticated team engagement and collaboration with a considerable degree of hands-on involvement by the project owner's representative. The alliancing approach is one in

which all participants need to be committed to exercise far higher levels of relational competencies than business-as-usual (BAU) procurement approaches. Structural alliance components that define alliance relationships include: requirements for within and between team behavioural protocols; transparency and accountability; and incentivisation arrangements.

When citing this report, please cite it as:

Walker, D. H. T., Harley, J. and Mills, A. (2013). Longitudinal Study of Performance in Large Australasian Public Sector Infrastructure Alliances 2008-2013, Melbourne, RMIT University, Centre for Integrated Project Solutions: 48pp.

Abbreviations

Abbreviations are provided for terms used frequently throughout this book not all abbreviated words appear here as those words may be used only with a few pages of first being used.

3BL	Triple bottom line – financial, environmental and social bottom lines
AAA	Alliancing Association of Australasia
ALT	Alliance leadership team – the high-level board of alliance participant sponsors
AOC	Actual outturn cost
AM	Alliance manager
AMT	Alliance management team – the operational-level participant executive team
BAA	British Airports Authority
BAU	Business as usual
D&C	Design and construct
ECI	Early contractor involvement
IDP	Integrated project delivery
KPI	Key performance indicator
KRA	Key results area
KSAE	Knowledge, skills, attributes and experience
MCOS	Minimum condition of satisfaction
PVS	Project's Value Statement
NOP	Non-owner participants in an alliance
PO	Project owner
POR	Project owner representative
RBP	Relationship-based procurement
SA	Program service alliance
T5	Terminal five Heathrow - the BAA Terminal five Heathrow contract agreement
TOC	Target outturn cost – the expect cost that a project will eventually cost
UK	United Kingdom of Great Britain
VfM	Value for money

Introduction

The purpose of this report is to consolidate data and to make an holistic analysis of alliancing from the three individual project and program alliance reports conducted in 2008 (Blismas and Harley, 2008), 2010 (Mills and Harley, 2010) and 2012 (Walker and Harley, 2013). It provides insights into the findings also informed by our research into a range of alliancing studies that RMIT has undertaken since 2000.

This research provides deeper insights into the performance of alliances for the construction of road, rail and water projects. The principle objective of an alliances is to manage risk effectively and align team member expectations so that they work together for the benefit of the project. To date, this has been a challenge, and as such this makes alliances an innovative approach to procurement of infrastructure. The paper reports on a survey of 60 public infrastructure projects across Australia that utilised the alliance form of procurement. The results were based on alliance team interviews, which addressed the most critical management issues impacting on the performance of process. The researchers identified a sample of stakeholders from Alliance Leadership Teams (ALT) and the Alliance Management Teams (AMT) that had recently completed a major infrastructure projects. Results revealed that communication and trust between the ALT and AMT teams was a major factor contributing to the functioning of the alliance. Furthermore, the research identifies several key factors that were necessary preconditions for successful alliances.

The Department of Finance and Treasury Victoria describes project alliancing as, "... a method of procuring ... [where] All parties are required to work together in good faith, acting with integrity and making best-for-project decisions. Working as an integrated, collaborative team, they make unanimous decisions on all key project delivery issues. Alliance agreements are premised on joint management of risk for project delivery. All parties jointly manage that risk within the terms of an 'alliance agreement', and share the outcomes of the project" (2010, p9).

Globally, during the period since 2000 the majority of project alliances have been centred in Australia and New Zealand but this form of procurement has been 'exported' to countries such as Finland (Lahdenperä, 2012) and The Netherlands (Laan, Voordijk and Dewulf, 2011) with Railtrack in the UK also using project alliances. Alliancing in Australasia has also influenced the USA health services provider Sutter Health into using a similar arrangement called Integrated Project Development (IDP) (Cohen, 2010). Procurement arrangements developed by British Airports Authority for Terminal Five, known as the T5 Agreement, has also used many of the features of the Australasian model of alliancing but with greater supply chain management integration (Brady, Davies, Gann and Rush, 2007; Doherty, 2008). Clearly forms of alliancing has offered clients and the construction industry a forum of collaboration to deliver highly complex and risky projects - putting the spotlight on a viable alternative to opportunistic action – and which can be used to deliver genuine value for money.

Values and alliancing core principles that define these project procurement and delivery arrangements are:

- Sophisticated project owner 'hands on' involvement in all stages of the project as an engaged and contributing participant;
- A behavioural contract that distinctly specifies how alliance participants will engage with each other when considering and making decisions using a consensus-based no-blame approach, taking action on these decisions and interacting with stakeholders;
- A no-litigation contract clause with the sole exception of criminal or gross negligence behaviour by a participant;
- A sink-or-swim together culture reinforced by the consensus, no-blame, no-litigation; and
- An incentivisation agreement based on whole-of-project performance rather than any individual participant's performance that reinforces the sink-or-swim together mindset.

It is only by recognising the above behavioural values that sense can fully be made of research results from this longitudinal study.

A key advantage of the alliance approach is that it embeds collaboration, better facilitates innovation and demands transparency and accountability. The collaborative nature of the arrangements means that there is far more flexibility and effectiveness in coping with uncertainty than occurs with other procurement forms. This is because the partner organisations, being locked into the alliance with the Non Owner Participants (NOPs), allows priorities to be agreed and new ideas and innovations to be trialled very early in the project initiation and early design phase. It reduces, if not eliminates participants' energy expended in any paper-chase to cover potential liability for risk and subsequent litigation. This positive outcome of the no-litigation agreement is supported by a requirement for consensus decisions making by the AMT and ALT thus structurally undermining these grounds for litigation.

This procurement approach requires particular and rare knowledge, skills, attributes and experience (SKAE) of participants and team members. This demand for rare resources produces a structural challenge to widespread adoption of alliancing. Time and energy demands placed upon senior executives in the ALT has placed a limit upon the capacity of alliancing to become commonplace and makes it difficult to roll out alliancing globally or even extensively in any one country or region. Expansion of the alliancing concept is thus limited by the talent pool currently available and being developed.

Research Methodology

RMIT University has been undertaking research into alliances on a regular basis since 2008, with three major surveys being conducted in 2008 (n=30), 2010 (n=18) and 2012 (n=12). This work was undertaken with strong support and both a financial and in-kind contribution from the Alliance Association of Australasia (now incorporated into Infrastructure Partnerships Australia) resulting in gathering data from 60 projects, two of which were from New Zealand.

The project used a structured telephone survey technique to gather data on each of the cases. All projects had recently been completed in the previous year, and respondents were asked to provide actual data from the project, or reflect on their experience. Some respondents were unable to disclose or find data on several questions as they had moved on from those completed projects and so did not have access to that data any longer.

Participants for the survey were drawn largely from the membership of Alliance Association of Australia (AAA) and the AAA Chief Executive Officer provided introductions to the contacts. An email was sent to all potential participants, outlining the research approach, and attaching a Plain Language Statement consent form, and the list of questions. Participation in the survey was voluntary and responses were confidential to the interviewer, and no participant can be identified by his or her response. The research protocol followed all RMIT University research ethics requirements.

The research utilised a consistent survey instrument over this period, which sought responses to a range of questions regarding Target Outturn Cost (TOC), time and Key Result Areas (KRAs). However, new questions were added in 2010 to uncover issues in value, collaboration, workplace culture and innovation. For some questions, particularly related to the TOC, participants were unable to provide full information so that Figure 1 for example has results for 50 of the 60 participant responses.

Participants for the survey were drawn from the membership of AAA and contacts known to the Executive of AAA. The researchers and AAA Executive are confident that this survey presents the most reliable and representative survey of any undertaken within Australia or New Zealand of alliances and our review of the literature indicates that this longitudinal study represents the most realistic state-of-the-art situation and snapshot of alliance activity that could be obtained. It certainly contributes greatly to our appreciation of this project procurement form's evolution.

A copy of the final 2012 survey instrument can be found in the Appendix 1.

Findings

Size of Projects

Sixty projects are included in the longitudinal study.

The projects included in the study ranged dramatically in size and operations. Whilst there was one project that exceeded the billion dollar value, approximately a third were between \$200-600m and the remaining under \$200m.

Projects are represented from rail, road and water infrastructure sectors. Projects included rail duplications, water treatment plants, desalination plants, freeway bypasses, motorway extensions, electrification, sewer treatment projects, tunnels and dams. The common factor amongst all of these projects was a desire to work within an alliance delivery approach due to either uncertain scope, unknown conditions, pressing timeframes or a realisation that a collaborative relational methodology provided an opportunity for the project to deliver a more than satisfactory outcome.

"... wouldn't have got the project completed without the Alliance approach - the partners have been first class".

Cost

Of the total 60 organisations participating in the study, 50 were able to provide data on the initial Target Outturn Cost (TOC) (Figure 1). This has allowed some understanding of the difference between initial and actual outturn cost (AOC). Figures 2&3 provide details from all the projects (n=60).

The initial TOC may be influenced and amended through authorised scope changes (positive or negative) to arrive at a final authorised TOC. The actual difference between the final authorised and AOC will represent the extent of gainshare and painshare that will be applied as part of the incentive arrangements (Ross, 2013, p9). The AOC presents an interesting statistic. If the AOC is substantially less than the final TOC then critics may argue that the estimates and assumptions used to develop the TOC were 'soft' and too easy to achieve. This may be the case or it may well be a result of a combination of high levels of innovation, excellent management, excellent team work and good luck. If the AOC is greater than the final TOC then the reverse may be true.

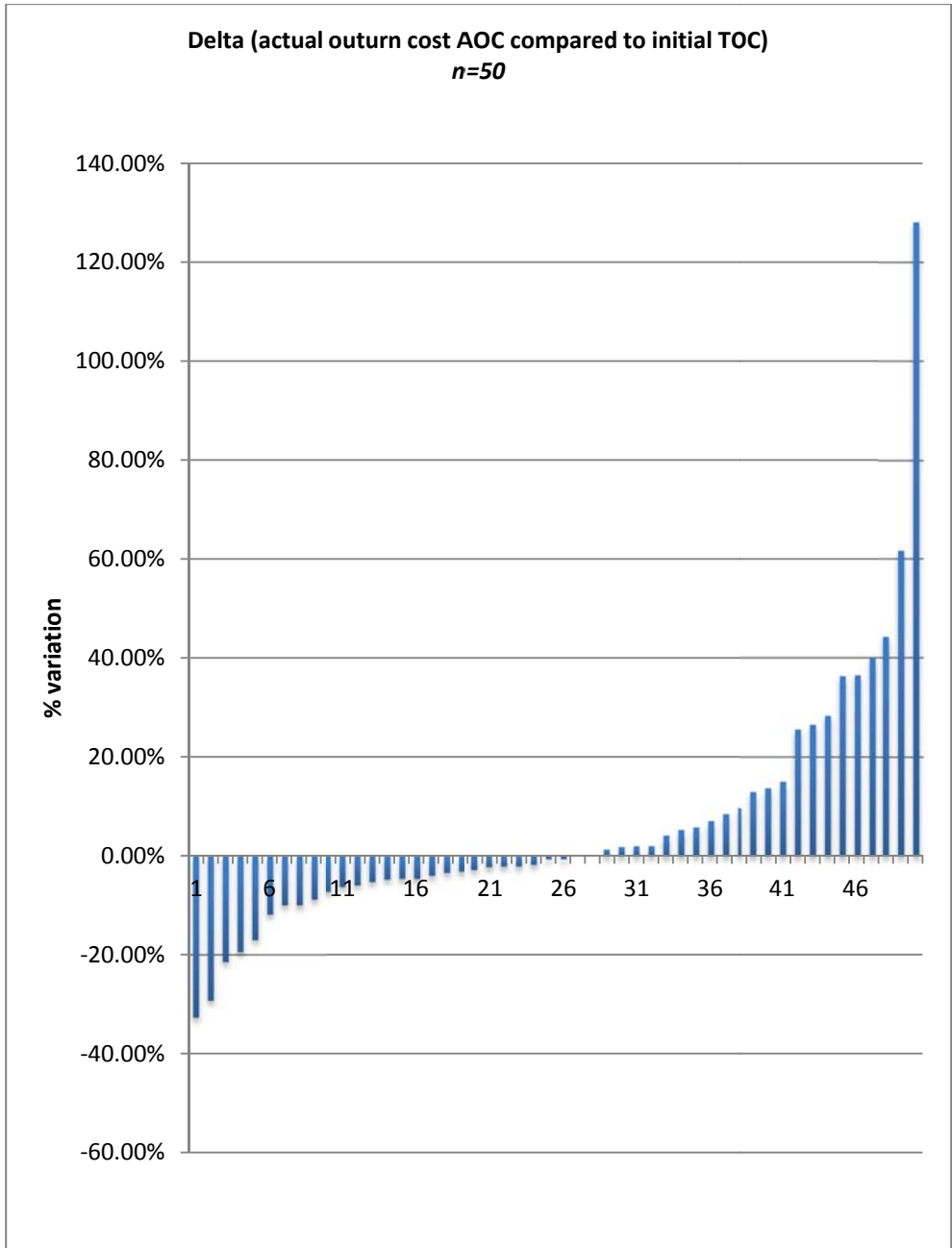


Figure 1: Delta (actual outturn cost AOC compared to TOC initial')

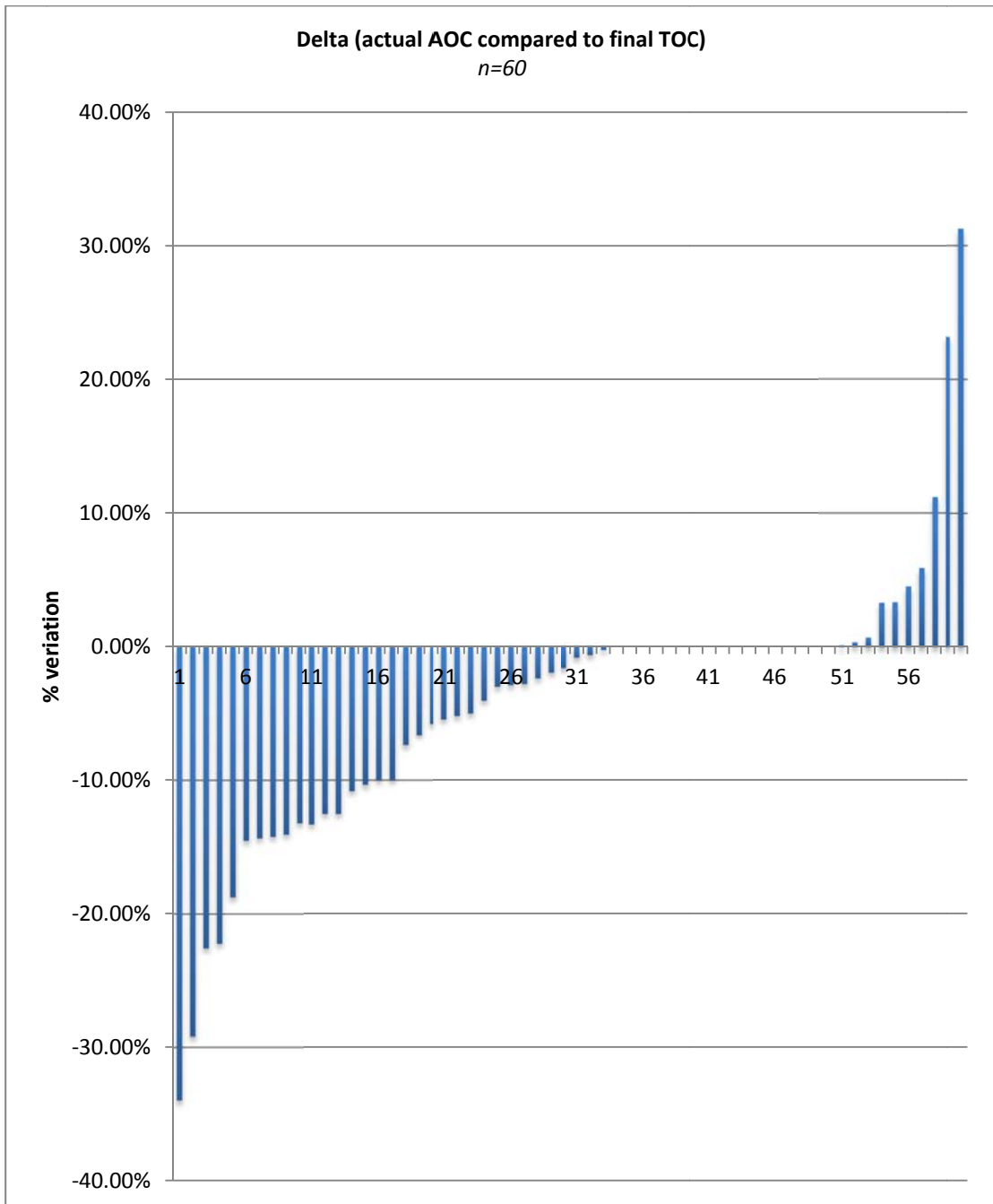


Figure 2: Delta (actual AOC compared to final TOC)

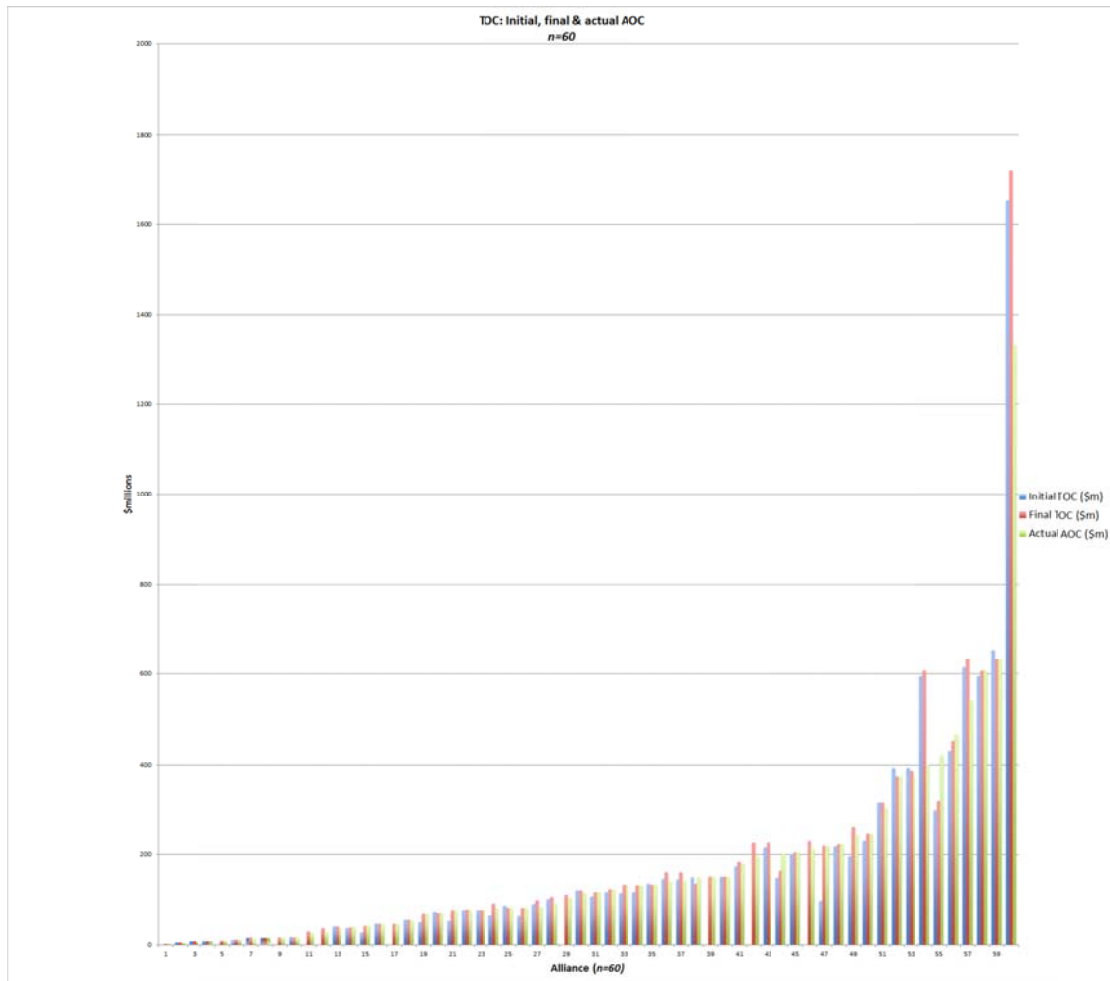


Figure 3: TOC (initial, final & actual AOC)

Observation

Some initial observations can be made about this data set.

Firstly, approximately half of the projects were completed with a AOC that was less than the initial TOC. Two out of the 50 came in on budget whilst the remaining 44% came in over the initial TOC.

Table 1 Actual to Initial TOC

	Under initial TOC	Even	Over initial TOC
number	26:50	2:50	22:50
percentage	52%	4%	44%

For those that came in *under* the initial TOC a change to the scope was cited as the primary reason for this result, innovation was cited as the second highest reason. Respondents also noted the following reasons for the change in TOC:

- Pre Global Financial Crisis – there were significant savings of about \$4-500M

- Savings achieved through risk management, accelerated processes and innovative practices
- Methodology improvements that were developed and which subsequently improved action on repetitive processes
- Risks not being realised
- Favourable weather conditions
- Improved quality assurance
- Minimal business interruptions
- Significant reduction in scope

Of note, is that the term innovation it is not consistently defined by the companies, with some referring to innovation as an improved processes or methodology, or in one instance, it was described as any idea that's put into action and that subsequently delivers value.

Alternatively reasons given for the AOC coming in *over* the initial forecast were due to many factors including:

- Increased scope
- Delayed costs
- Delayed or extended approval processes, especially when heritage issues were involved
- Additional elements included in the scope
- Project delivered during a period of market volatility and economic boom which resulted in reduced availability and higher prices for resources
- The design being more complex than originally considered
- Under-estimation of design effort
- Delayed inclusion of a KRA
- Separate portion of the contract negotiated after the commencement of the project and so was not factored into the initial TOC.

“It took some time early [on] to understand the boundaries of innovation that the owner was willing to accept. Working through this was frustrating for the team. When this was understood, we generated a wide and extensive range of innovations. Our innovation register had 396 items of which 179 were accepted and incorporated into the project.”

“One innovation went on to be awarded a State Safety Award.”

*“Innovation starts at the project level and has buy in from the AMT.
Definition: quicker, cheaper and easier.”*

A key point worth making here is that alliancing brings together varying perspectives on the project or program scope, scale and complexity. This should enhance the process of identifying potential difficulties, problems, risks ambiguity that are poorly

understood within and between system interdependencies and links. We would therefore expect the final TOC to be closer to the initial TOC. If the final AOC is significantly *under* the initial TOC then criticism may be levelled that the initial TOC was 'soft' or 'generous' that has unnecessarily boosted potential gainshare for participants. If the final AOC is significantly *over* the initial TOC then criticism may be levelled that the initial assessment of the situation was poor or inept.

Both forms of criticism may be unfair. The TOC is the basis for assessing costs not value. Deeper situational analysis and interpretation of the project's needs and brief may reveal alternative design and delivery solutions that can result in justifiably significant variances between the initial TOC and final AOC. This may be especially true in service or program alliances where a "best for network" rather than "best for project outcome" may increase (or decrease) a TOC but may also provide beneficial impact on the broader outcomes on road or utilities networks for example.

The projects ranged from 33% (ie. under) the TOC to 128 % above. The results showed that while some were over budget, interestingly only nine exceed the TOC by more than 10% (Figure 1). The stakeholders from these projects were probed to determine what occurred which may explain the over-expenditure. The respondents indicated that unsurprisingly the most popular a response was increases to scope (Scope change +). Scope increase was often resulted from an expansion of benefits demanded by the project owner (PO) or the project owner's representative (POR).

In instances where the final TOC came in *under* the initial TOC, the primary reason for this was as a result of innovation (identified through the construction phase) or as a result of accelerated processes. Other reasons included favourable weather conditions and having good quality assurance processes in place.

In those instances where the project came in *over* the initial TOC, the primary reason cited was as a result of (client directed) scope increase. Respondents noted that results associated with comparing initial TOC with final TOC did not necessarily tell the whole picture, and those projects with significant TOC overruns, also performed very well against the other performance indicators, such as Occupational Health and Safety performance.

The alliance delivery approach provides an opportunity for scope change and variation to occur without causing significant delays or requiring contractual renegotiation. This was noted in one alliance where the clients were given an opportunity to contribute to the concept design stage, without adversely affecting the final cost. The Design & Construct (D&C) approach would likely have incurred cost each time the design was changed, but in the alliance, bringing designer and constructor together early delivers continuing improvements. Scope changes advance through a process of ALT approval followed by submission to the PO who decides on whether or not approve them.

This highlights a fundamental difference between Alliance and other forms of contracting including D&C and Design Bid Build (DBB), where the former makes

decisions based on what is best for the project, whilst the latter necessarily makes decisions based on commercial/contractual arrangements.

Time

Approximately one third of the projects came in under the time allotted, while almost one half came in on time. The remaining quarter were delivered past the original timeline.

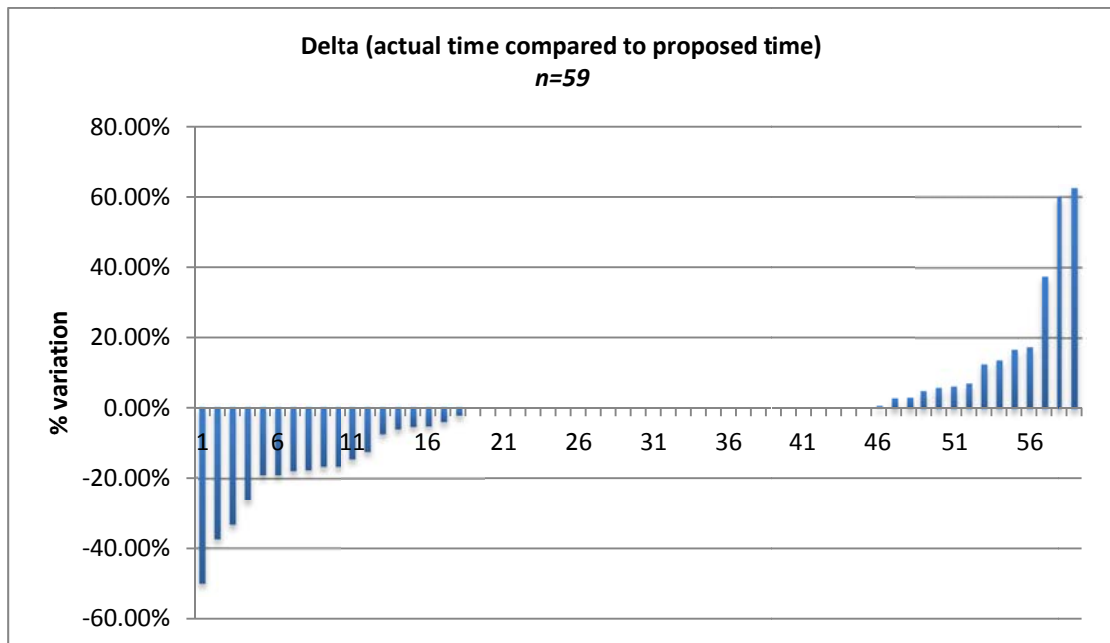


Figure 4: Delta (actual time compared to proposed time)

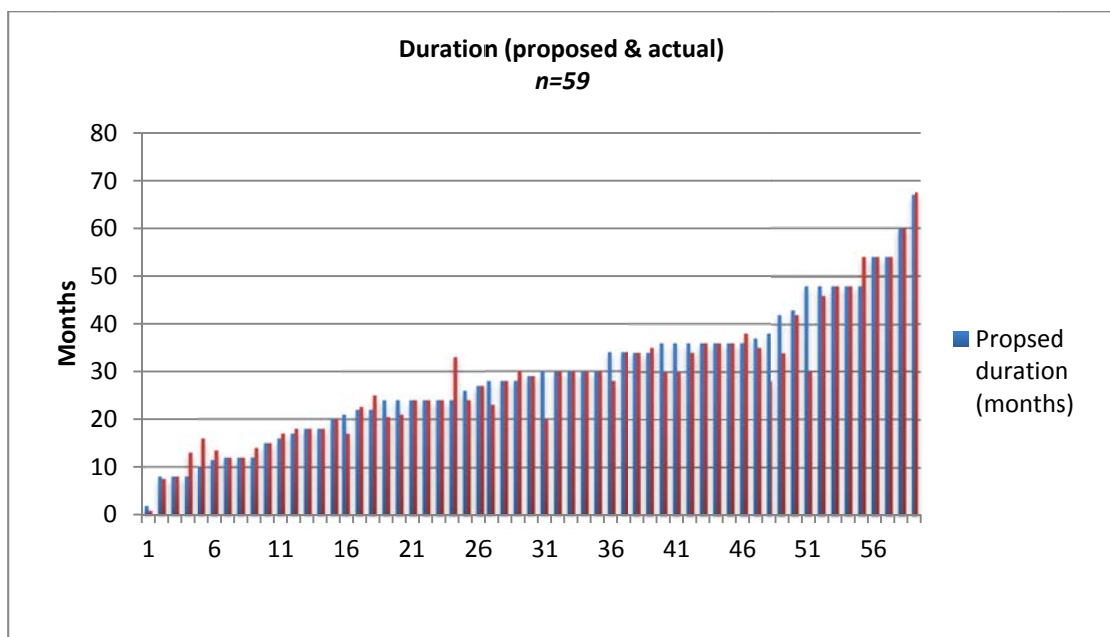


Figure 5: Duration (proposed & actual)

Observation

Alliance duration results provide a strong case for applying an alliance delivery approach to risky projects with complex interfaces to larger systems. Interfaces vary. In terms of road works for example, an interface could be realigning access ramps, minimising disruption of service delivery or responding to other complex unforeseen 'brownfield' conditions. Figure 4 and Figure 5 especially shows that the vast majority of projects were delivered either under or to-schedule, which is a significant result for projects that are often complex and which have associated large components of unknown or un-scoped factors.

This outcome is also convincing when viewed alongside the total duration of the projects. Seventy six per cent of the projects (n=45:59) were completed within 36 months, with only nine of these projects coming in outside of the time allocated; 61% (n=36:59) of the project's actual duration was less than the proposed.

The research shows that despite some increase in scope the projects were not excessively overtime. Respondents noted that approximately one third of the Alliance projects came in under time, and one third came in over time (Figure 4). The remaining third were on time.

The project participants were then asked to explain the major reason for the time overrun. In a similar way to the cost performance mentioned above, the principal reason for the time overrun was positive scope change, in other words, increases to the project scope. It also should be noted that in some instances where projects exceeded the estimated duration, this was not necessarily considered a failure, but rather a result of scope change that resulted in an improved and/or enhanced final product.

In the instances where projects came in under time, innovation (including accelerated processes) and project delivery procurement approach change were cited as the contributing factors. The Alliance delivery approach was considered by all respondents to be a process that has sufficient flexibility to address changes in scope in a positive manner. Additionally, as major decisions made by the ALT and AMT members are unanimous and embrace a no-blame mind-set, the operational flexibility is greatly improved. The project team has confidence in proposing and enacting innovation and to rapidly re-align deliverable priorities when required in response to threats or opportunities. Thus, benefits derived from scope changes or deliverable re-prioritisation can be greater than would occur in more rigid contractual forms of procurement.

The reasons given for projects coming in under (and over) the time allocated varied, however some themes emerged, included scope change, accelerated processes and innovation. The alliance delivery approach allowed for a fluidity of processes, which

subsequently enabled scope to be expanded without contact variation or necessarily an increase in the final TOC.

It may also be important to note that all respondents considered that their projects were a success. While the authors acknowledge that it may be difficult to be precise about what constitutes good or poor performance in construction. Most of the projects in this research clearly met their cost and time expectations, and on this limited basis, were considered successful.

Under an alliance delivery approach, projects may increase in scope without a variance in the TOC or timeframes. Similarly, projects reported the use of accelerated approaches to achieve stretch targets and as a result, subsequent innovations ensued. Accelerated processes were both a driver and a result of innovation, where innovations were described as process, product and/or methodological developments/enhancements. Innovation was considered a product or process that returned value back to the project and was often as a result of creative partnerships formed to resolve unexpected or unforeseen circumstances. This is consistent with the Oxford dictionary's definition that notes to innovate is to "make changes in something already existing, as by introducing new methods, ideas or products" (Concise Oxford dictionary, 10th edition, Oxford University Press, 1999).

As such, alliancing projects actively provide scope for the project team to be rewarded for innovation, and projects will often include incentives (and penalties) for meeting (and missing) targets that are shared across all parties, known as 'pain share-gain share' (Ross, 2013). Risk is shared and is pro-actively identified and managed as early as possible. The result is that the clients and contractors engage and share in very high levels of trust, which can be effective for projects with correspondingly high levels of uncertainty and that of scholarly studies of innovation (Slaughter, 1998; Winch, 1998; Slaughter, 2000).

In some instances a combination of elements contributed to an improved outcome, for example a project that cited accelerated processes and improved risk management resulted in a significant saving in the project risk allowance. In the same instance, the project's statistics showed the expenditure of man-hours as expected but output being significantly higher, resulting in high work efficiency and superior risk management control.

Respondents also noted that the formal arrangement between the client and partners defines alliancing. These are typified by relational agreements rather than contractual partnerships that mandate a shared approach to problem solving and risk mitigation. In collaborative contracting situations, it is the client who establishes the framework for the overall administration of the project (Martel, 2012).

The alliancing agreement counters the contractual transactionally bound approach. It exterminates the possibility of variations to the contract (or a likely foray into litigation), and setting out collaborative principles at the outset (Ross, 2003). The client and the contractor (which may be a consortium) act as one, to ensure that the

client and contractor have aligned drivers and goals and share responsibility for achieving the Key Performance Indicators (KPIs) (ibid). This work is often achieved as a result of everyone ‘coming together’ in a bid to identify workable solutions. This approach is not only an element of alliancing but is seen as an essential ingredient in the mix of a collaborative working environment, and one which is endorsed at the Alliance Leadership Team (ALT) level and operationalised through the Alliance Management Team (AMT).

Categories of Key Result Areas

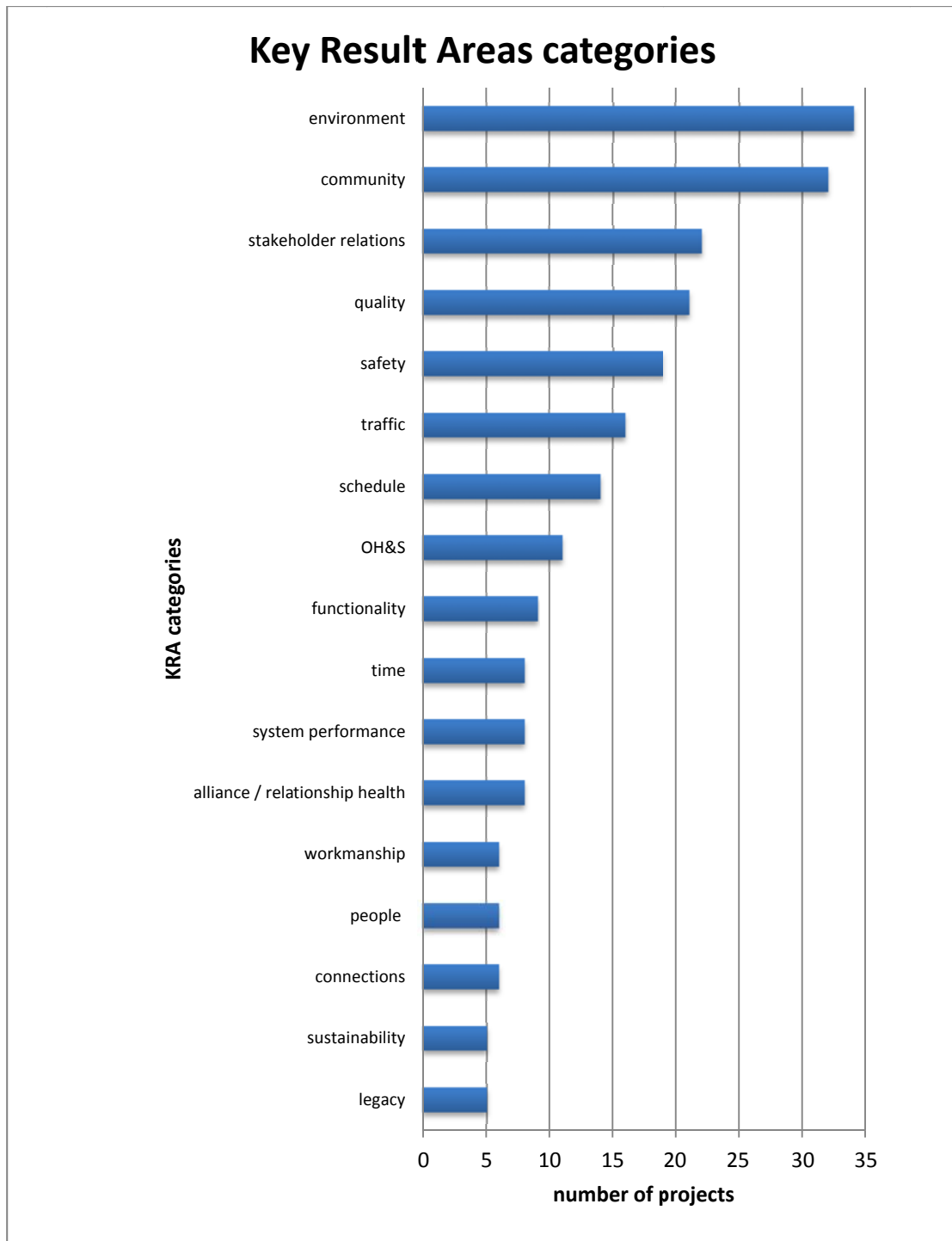


Figure 6: Frequency of KRAs

Observation

Table 2 Most frequent KRAs in study

Included in 5 to 10 projects	Included in >10 projects
<ul style="list-style-type: none">• Functionality• Time• System performance• Alliance/relationship health• Workmanship• People• Connections• Sustainability• legacy	<ul style="list-style-type: none">• Environment• Community• Stakeholder relations• Quality• Safety• Traffic• Schedule• OH&S

Table 2 lists these two groups to highlight the range and also to indicate that the alliance delivery approach still requires quantifiable outputs that also include an associated set of KPIs to detail the success or failure in meeting each individual KRA. The range of KRAs was charted across the total number of projects, with Figure 6 identifying the most commonly used KRAs. There were several that were used in more than 10 projects, including:

- Environment
- Community
- Stakeholder relations
- Quality
- Safety
- Traffic
- Schedule
- OH&S

Aside from traffic related KRAs, the inclusion of which most likely provides an indication of the number of traffic related projects included in the sample, these KRAs represent a core basis of project outcome definitions. If this list were extended to include those KRAs that were used in 5 projects or more in the study, then the range would also include areas that cover off on familiar project outcomes including:

- Functionality
- Time
- System performance
- Alliance/relationship health
- Workmanship
- People
- Connections
- Sustainability

- legacy

KRA categories that were present for less than five instances can be grouped into operational categories such as: operational effectiveness for example road smoothness, rail network and other similar aspects; social outcomes to communities; and recognition and branding aspects such as winning awards.

Quality, schedule, and safety are all present in this range. This is to be expected, however, the alliance delivery approach promotes other areas to a high level of importance including environment, community and stakeholder engagement. The inclusion of these KRAs demonstrates a focus on attaining an above average outcome for the project, and for identifying external factors or issues as being critical to the successful deployment of a project. Environment heads the list and should be seen as a new way of project clients and owners envisaging the outcome of a project as more than simply delivering on the physical requirements of the contract. It is interesting to note that cost does not appear in either of these lists, highlighting the difference in focus for alliance projects.

The inclusion of environment as a KRA demonstrates a commitment by the leadership team that the project will proactively consider and regard the importance of the environment and ensure that the project delivers benefits to the environment as a core outcome of the project. Similarly, the project's relationship with the community in which the project is being undertaken is elevated to a position where community consultation and stakeholder engagement are key factors in the design of the project and the methodology in which it is being delivered. There are instances where this engagement has resulted in innovations occurring in either improved processes or fresh applications of existing ideas.

We include several quotes over the three research periods that illustrate the broader range of perceived innovations that have resulted from project and program alliances.

"We used an innovation register: definition of an innovation was "any idea that is put into action and subsequently delivers value". A nice example was relocating a sole "spiny rice flower" that was in the way of the new alignment (in a D&C I suspect no effort would be made to successfully relocate a sole plant of a protected species if an approval is in place to remove it). (2012)

The Managing Director noted that "the greatest achievement was that the Alliance developed such an impressive piece of engineering with such an impressive safety record - it set a new standard for safety in engineering and construction projects." (2010)

Being able to deliver a highly complex project in such a short period of time (was the key). Scheduling was the innovation here, as well as being given an uninterrupted worksite. The project was scheduled down to a level of 15 minute intervals. (2008)

Finally, the health of the Alliance itself is considered a critical factor in the successful delivery of the project. Given alliancing is a form of relational contracting, the ALT and AMT are focussed on ensuring the human connections within the management team (and across the consortium of members) cascade to the broader operational environment. In these instances the ALT and AMT respectively have a role to lead-by-example and to quickly address any behaviours or actions that are detrimental to the collaborative spirit and values of the project and the ethos of alliancing.

Members of the ALT would generally be appointed responsibility for a single KRA. This would ensure the KRAs remained visible at ALT level, whilst providing an executive link between the KRA and management. Similarly the AMT would normally be responsible for defining the KPIs associated with each KRA, and thus close the loop between operations, management and leadership considerations. The AMT develops a set of KPIs related to each KRA at the beginning of the project (although there have been instances where this process takes much longer), in an effort to lock down the indicators and associated metrics. By clarifying these details early in the project, the ALT has a clear sense of the level of output expected and the equation for any pain-gain share scenario.

The use of the alliancing performance grading levels of unsatisfactory, poor, minimum condition of satisfaction (MCOS), stretch and gamebreaking has not been followed by all the projects, with some opting to use a percentage approach. Regardless, each KRA was assigned a value that would signify the point from which pain-gain share payments would be calculated.

KRAs also provided clarity and transparency on the project's core deliverables, which could be used to disseminate and communicate information on timeliness of the project's deliverables throughout the workforce. In many projects, ALT members are encouraged to attend as many onsite meetings as possible, serving several purposes including being exposed to the conditions onsite, providing an opportunity to share insights and comments from the ALT, and being identified as a champion of their specific KRA. The presence of the ALT members on the ground also perpetuates the alliance notion of trust and sharing of information, whilst allowing for individual ALT members to show support for the project in leading-by-example and operating in a transparent manner. ALT members are a vital link between the project/program alliance and their 'home' organisations. They generally in a position to quickly facilitate access to very high executive level in their home organisation and can therefore gain approval of ALT recommended solutions to complex problems requiring rapid and flexible commitment to action by those organisations. This is particularly relevant to matters relating to planned interruption of services in transport or water infrastructure projects to accommodate innovative approaches to access for construction or maintenance activities.

Survey results indicate that the projects performed well against the KRAs with the vast majority at MCOS and above, however as previously mentioned, concentrating exclusively on outcomes against KRAs does not necessarily demonstrate the total output of an alliance project. Factors such as team and workplace culture,

commitment to quality, best-for-project, collaborative and innovative work environment, and delivering a final product that is considered an excellent result are the driving factors behind a successful alliance project.

The survey data, including invited quotes from respondents, highlight a major differentiating feature of project and program alliances from BAU and other relationship based procurement forms. This feature is centred on the fact that most of the projects using this approach (within the Australasian context) can be classified as 'public good' projects. Their value is to support various communities and to be an enabler for regional and urban commercial, industrial and cultural development. It is not surprising therefore that these projects should have KRAs that are essentially triple bottom line (3BL) in nature. The 3BL concept means that simultaneous financial, social and environmental benefit should be recognised, measured and realised for a project to be considered successful (Elkington, 1997; Waddock, Bodwell and Graves, 2002; Office of the Third Sector, 2009). The balance of demands for measures and performance between the three 'bottom lines' vary with the aims and purpose of each project but the KRAs can be seen as consistent with a 3BL philosophy. Figure 6 highlights alliance outcome imperatives that can be contrasted with restricted KRAs as used in most BAU commercial projects. Alliances provide a vehicle for identifying, measuring and communicating project outputs and leading indicators of project outcomes through more holistic KRA and KPI measures.

Value

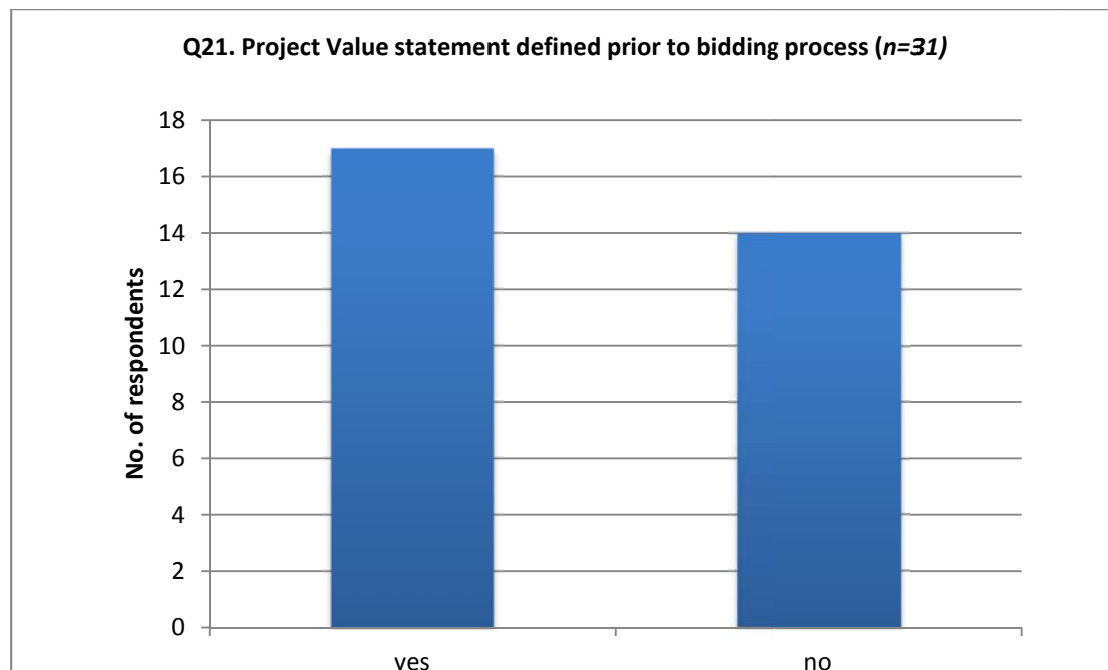


Figure 7: PVS defined prior to bidding process

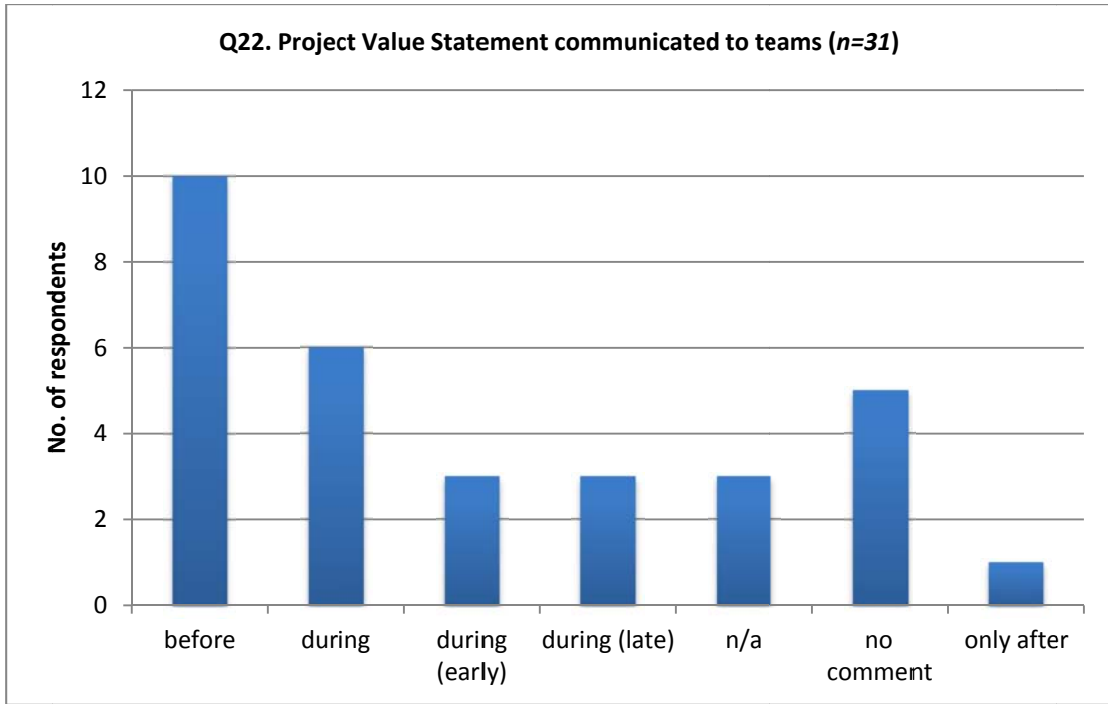


Figure 8: PVS communicated to teams

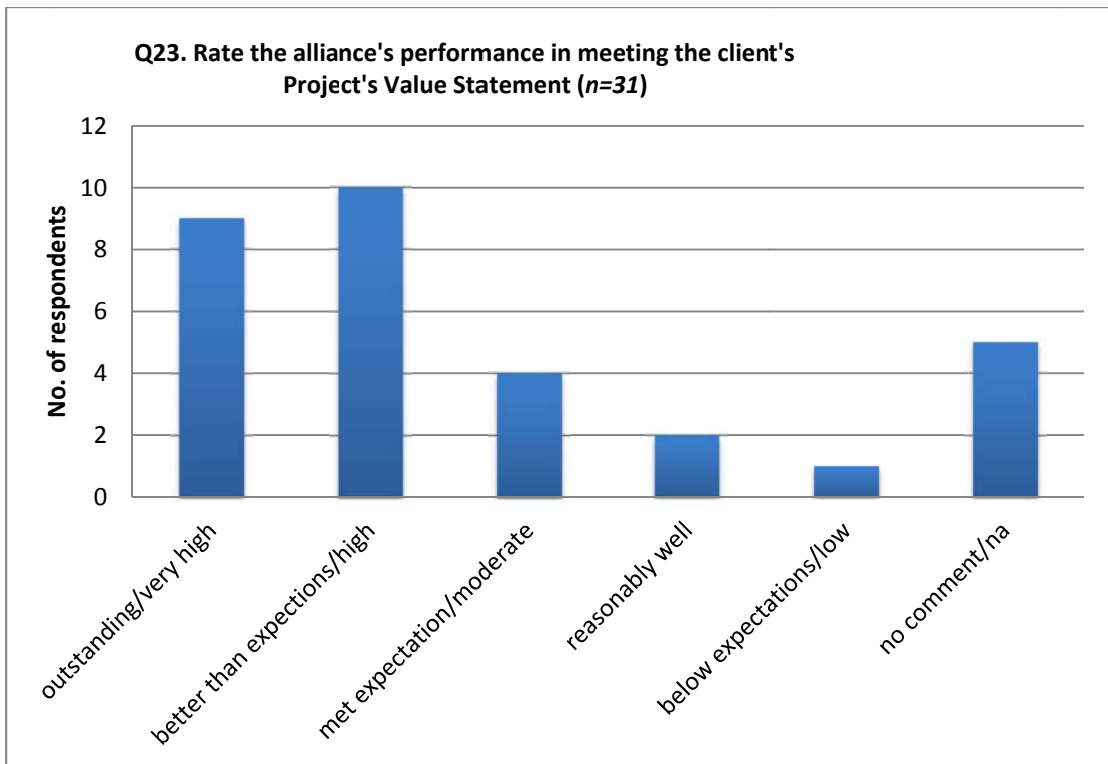


Figure 9: Rate the alliance's performance in meeting the PVS

Observation

In the surveys of 2010 and 2012, respondents were asked questions about the Project's Value Statement (PVS). These questions were designed to elicit information about the presence of a PVS, the timing of when it was introduced into negotiations, and how it met the client's own value statement. Some general observations can be made on the data available against these three questions: definition, communication and rating (Figure 7, Figure 8, and Figure 9).

PVS definition

The PVS was defined prior to the bidding process in the majority of cases. However, these results also indicate that almost 40% of respondents noted that the PVS was introduced after the bidding process had commenced. There are several factors contributing to this, which will be detailed when reviewing responses to the next question.

The PVS was defined for this research as representing the summary of the Value for Money proposition of the project to the specific government department or agency that justified the government investing in the project in the first instance.

This result implies that clients have been able to commence alliance engagement, through defining TOC and other constraints, without necessarily an articulation of what constitutes a value outcome. The data suggests that:

- Some respondents may not be sufficiently clear on how value for money (VfM) for social and environmental 3BL aspects can be articulated in a readily-understood manner through the project/program business case;
- Continued use and primacy of the term VfM instead of 'best value' or project/program value detracts from attention on what is critical and important in value terms and this undermines perceived project or program success because it is limited by monetary definitions of value;
- It was inevitable that some respondents were brought into the alliance teams after others had left and in this sense they may have 'inherited' KRAs without these being fully explained and justified; and
- Perhaps all project business case should include all three 3BL aspects (cost/commercial; environmental; and social) in a VfM template, while accepting that for many projects the cost/commercial leg of the 3BL concept often dominates for political and budget-constraint reasons.

Respondents note that in some cases the PVS wasn't produced in the strictest sense, but rather included as part of project proposal documentation. In some cases this appeared more like a value proposition that would provide the aims of a value statement. In other cases it was very clear that the VfM statement was included in the initial (RFP) documentation where the alliances needed to address VfM (as part of their submissions) to be approved prior to the agreement of the TOC.

PVS communication

Respondents were also asked to identify at what point in time, during the bidding process, the PVS was communicated to the bidders or alliance teams. Thirty per cent of respondents noted this communication occurred *before* the bidding process had begun; however for almost 40% of them, it was undertaken *during* the bidding process.

The PVS was included in the initial project documentation (such as a business case) or was included as part of the initial competitive alliance phase prior to the main alliance contract being awarded for those projects where communication of the PVS occurred before the bidding process began. In some instances it was included in the initial industry briefings to support the competitive tendering process.

The PVS may have been developed by the alliance team on formation of the alliance, or embedded in the definition of the KRAs which also were developed and confirmed post award of the contract for those projects where it was communicated *during* the bidding process. If the PVS was communicated early during the bidding process, this was because the terms of reference needed to be created in order to understand how value would be measured and the subsequent flow on effects to the alliances.

For those projects where the PVS was communicated later in the bidding process, there were several reasons cited for this timing. In one instance the PVS came at the end of the TOC period and after the alliance was selected, and in another the alliance had to respond to a client's statement and demonstrate how it would meet the targets. In this instance, the respondent also noted some confusion (from the client's perspective) regarding the interpretation of value, noting that;

"The client had difficulty in really expressing the interpretation of the statement; it was rather ambiguous and very difficult to quantify. I remember reading a guideline from the Department of Treasury at the time which offered little clarification."

Rating PVS

Approximately three quarters of respondents noted that the alliance, at a minimum, met the client's expectations of PVS. More than 60% of respondents rated the outcome as outstanding/very high or better than expectations/high against meeting the PVS. There does not appear to be a correlation between the ratings and when the PVS was communicated to the team, however across the two highest ratings, there were only two projects where the PVS was defined post-bidding process. Many respondents, in provided details to this question, cited examples where the project had received industry recognition awards, and high client and ALT satisfaction.

"The performance of the Alliance can best be described by the awards achieved at state and national level from various industry bodies."

“Superb. Recognition by industry peers of the excellence of the project is evidenced by the winning of three awards”

Alliance Delivery Approach

Figure 10 illustrates the rating of the alliance delivery approach as compared to a BAU D&C or traditional DBB approach.

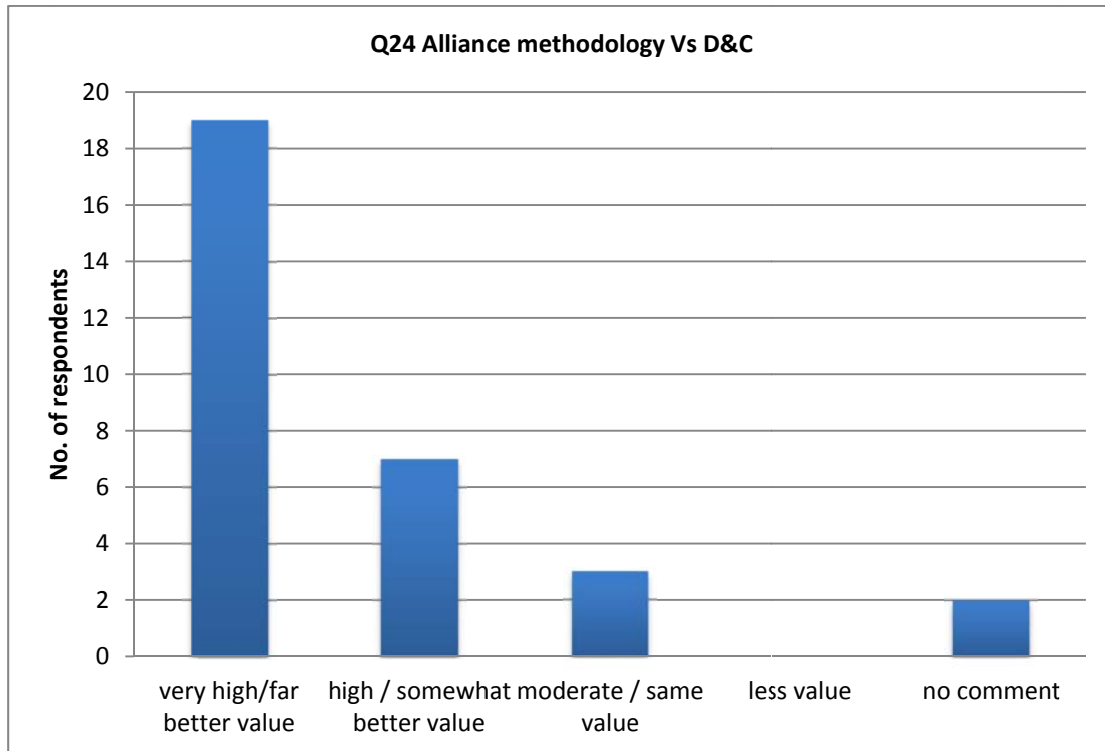


Figure 10: Rating alliance method against D&C

Observation

Respondents overwhelmingly considered the alliance delivery approach to be superior to the D&C or DBB. Reasons most often cited included an eradication of contractual variations and possibility of claims turning into litigious circumstances, and the minimisation of disputes and stoppages. Respondents also noted that due to the flexibility of project delivery approach that the alliance effectively allows, projects that are of high risk or have complex unknown factors, to be managed efficiently whilst also engaging in innovative practices.

“The alliance delivery method better addressed the complexities and risks associated with the design and construction. Previous endeavours on similar infrastructure projects had resulted in litigation.”

The alliance delivery approach was seen to be able to interconnect with community stakeholder requirements, whilst being aware of scope and cost factors; it has a focus on “best for project” and shared collaborative environment, and produces a

mutually cooperative environment that addresses the requirements of the project rather than the letter of the contract.

Collaboration

In the 2012 survey additional questions were included to include areas of team collaboration, workplace culture and innovation.

The majority of respondents noted that the Alliance Manager (AM) ensured training in inter-team problem solving, however a surprise in these findings is that there were projects where this did not occur at all (Figure 11). In one project, the client specifically refused this request.

However, the AM / AMT was considered successful in ensuring communication and collaborative problem-solving occurred. Respondents noted that the ALT was sufficiently informed in order to support the AMT in its role.

The flexibility of an alliance allows project participants to change the scope late in the procurement process, but it also implies that the team become innovative to achieve the project's key results. In particular, it relies on the ability of the ALT to work cooperatively with the AMT. Research by Love, Mistry and Davis (2010, p948) notes that the development of a leadership enriched culture "where people view the project as an extension of themselves and feel good about what they personally achieve through cooperation" was deemed necessary for the successful implementation of a price competitive alliance. One respondent from the study commented:

"The AMT was extremely focussed as a group on the project ... and continually challenged each other on how to achieve extraordinary outcomes by use of synergy and innovation."

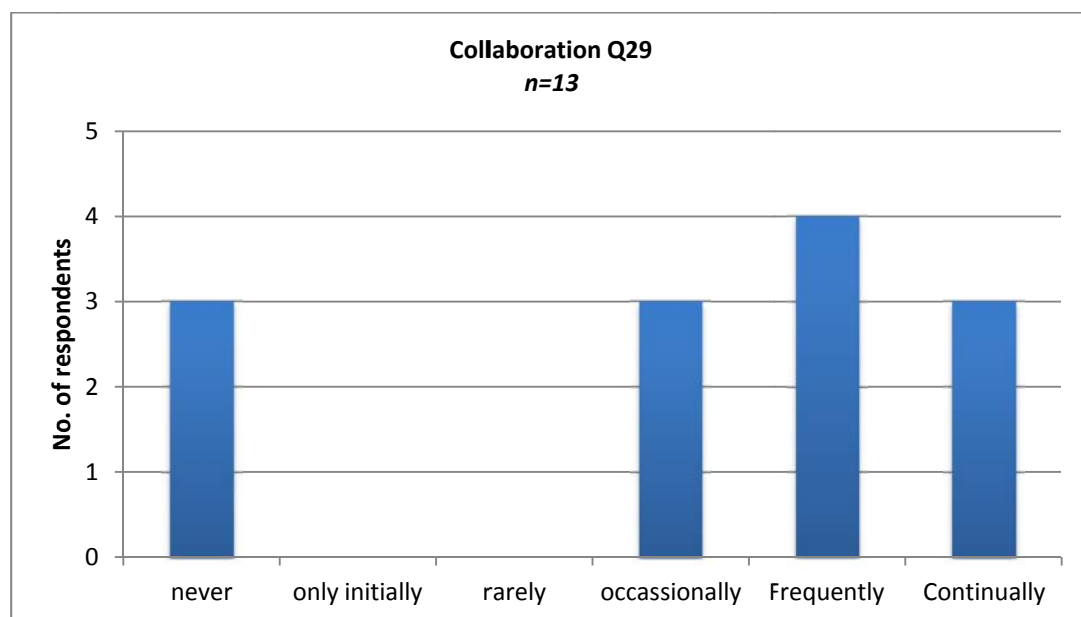


Figure 11: Collaboration Q29

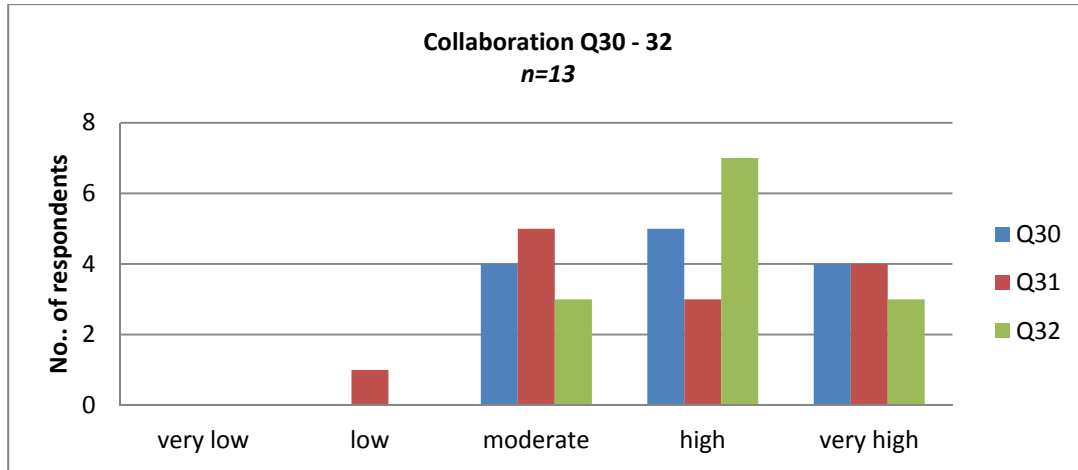


Figure 12: Collaboration Q30 - 32

Table 3: Team collaboration Q29 - 32

	Team Collaboration
29	How frequently did the AM ensure formal and/or informal AMT member training and development in inter-team problem-solving and decision-making?
30	How effectively did the AM ensure relevant formal and/or informal communication to support AMT problem-solving and decision-making?
31	How effective was the AMT in collaborative problem-solving and decision-making?
32	How effectively did the AM act as a bridge to communicate relevant formal and/or informal information to and from the ALT for providing leadership and direction to the AMT?

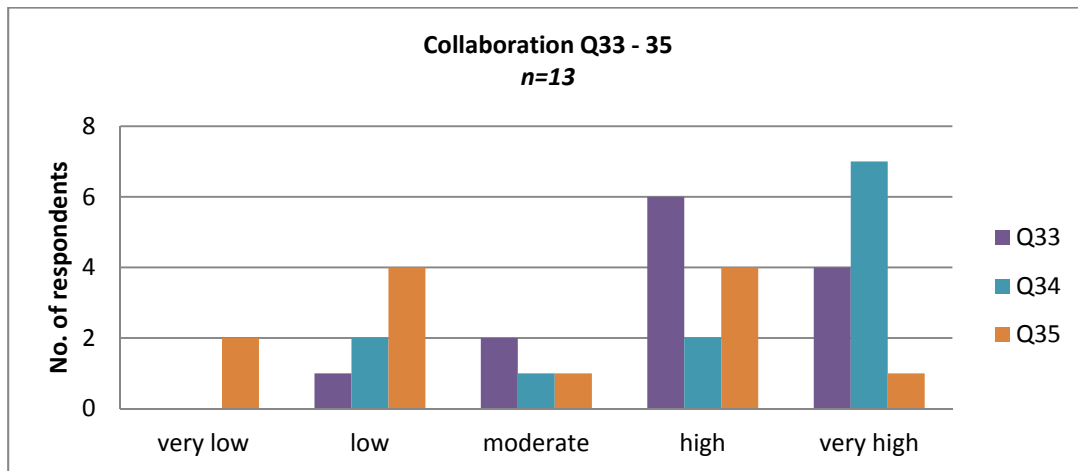


Figure 13: Collaboration Q33-35

Table 4: Collaboration Q33-35

	Team Collaboration
33	How effectively was the AMT/ALT relationship in supporting collaborative problem-solving and decision-making?
34	To what extent was the physical proximity of the AMT a contributor to supporting collaboration?
35	To what extent were the virtual (ICT) tools of the AMT a contributor to supporting collaboration?

“Team personalities were focussed on delivering the project rather than fostering egos.”

“Some of the most memorable moments were the hard meetings dealing with seemingly intractable challenges.”

“The AM regularly communicated and shared project information across the project team. The AM played an integral part in problem-solving on the project.”

“[The] ALT focussed on governance - clearly defining roles and responsibilities for the AMT - [it was] a strong relationship.”

“Everyone [was] all together - so it was very easy. We had some pretty high level people working [together] and they got things done.”

Observation

The AMT and ALT were rated very highly as being able to support collaborative problem-solving and decision-making. This is a key characteristic of alliancing. This feature still retains a strong focus in the projects reviewed. Respondents noted the importance of the competency of the AM and the make-up of the AMT/ALT, as these directly impacted on the ability for collaboration to occur. Interested readers should refer to the study undertaken on profiling professional excellence (Walker and Lloyd-Walker, 2011a;2011b;2011c) and key findings of that report are presented in Appendix 2 Table 9. Without a strong leadership and inclusive management style, barriers cannot be overcome and people resort to a silo approach in terms of knowledge sharing and transfer. Being co-located is also considered important as it assists with effective communication across teams and is necessary in order to deal with issues as they emerged. This might take the form of *ad hoc* AMT/ALT forums, or informal workshops to deal with a pressing matter.

The use of online tools to assist with document distribution and information management varied across the projects, although there were some positive experiences in using these tools to assist with document management and general project coordination.

Workplace Culture

Respondents rated the AMT high to very high in the perception that it understood the concept that ‘we all sink-or-swim together’ on the project. There was a sense amongst some respondents however, that the AMT may have at times acted in their own interests, even though in contrast they noted the AMT members stuck to their work commitments. The ALT and the AM are seen to be successful in leading the projects.

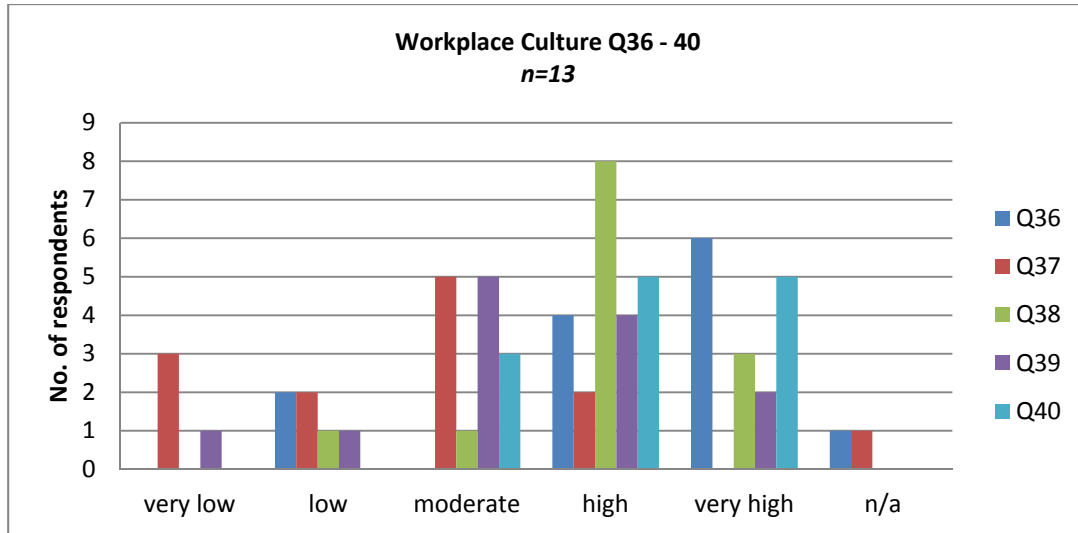


Figure 14: Workplace culture Q36-40

Table 5: Workplace culture Q36-40

	Workplace Culture
36	To what extent did the AMT perceive that 'we all sink or swim together'?
37	To what extent did AMT members protect their own interests at the expense of other AMT members?
38	To what extent did AMT members stick to their work and commitments?
39	To what extent did the ALT pursue a coherent course in leading the project?
40	To what extent did the AM pursue a coherent course in managing the AMT?

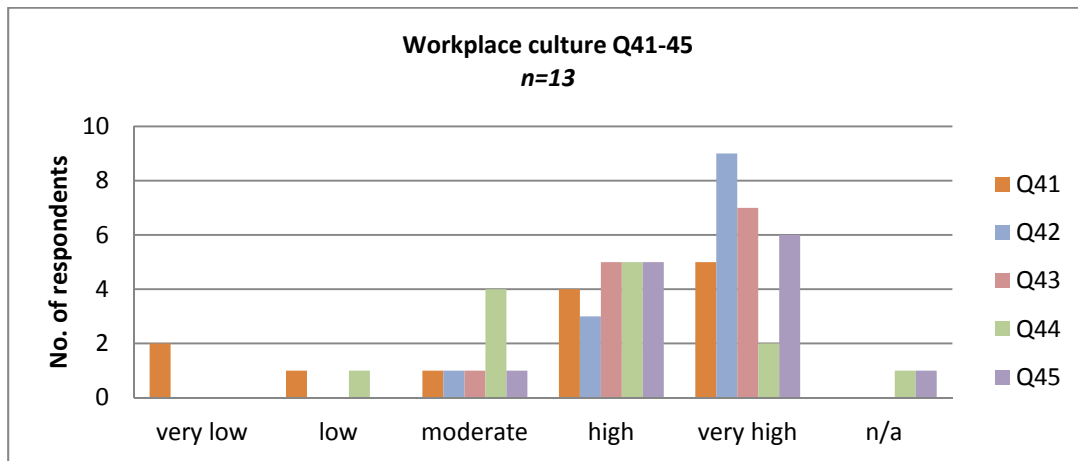


Figure 15: Workplace culture Q41-45

Table 6: Workplace culture Q41-45

	Workplace Culture
41	To what extent did you feel that the AMT and ALT had consistently aligned and clearly articulated overall project goals and expectations?
42	To what extent would you want to work on other project alliances after this one?
43	To what extent would you try to persuade qualified friends to work on PAs?
44	To what extent do you feel that PAs are more challenging than BAU projects?
45	To what extent do you feel that PAs are more personally satisfying to work on than BAU projects?

These results align with another recent study undertaken on alliance culture that offers insights into how it may feel to be part of an alliance, and to sense the ambience of an alliance (Walker and Lloyd-Walker, 2014a).

“A ‘one-team one-project’ mentality meant that we were all in this together – this led to many team members assisting others when the times got tough.”

“AMT members were initially very committed to their work. However as the delay and cost issues grew in stature AMT members started to isolate themselves and became non-committal.”

“The AMT brought the many versions of the ALT for the ride.”

“Every ALT meeting started with a safety inspection. [It] always looked at governance issues and included presentations from the alliance.”

“There was a high level of communication ... at the ALT meetings, in team briefings and on team development days. This was especially true when we had to deal with change. Getting the ALT members talking direct to AMT members supported us in moving through the change.”

“This style of project delivery (win-win culture) out performs adversarial contract styles.”

“Alliances are without a doubt the best model if you want to do things.”

“Alliances take effort to set up at the start of the project to make sure the correct culture is in place. You then need to constantly monitor the culture throughout the course of the project and take immediate action to address any negative behaviours – this often takes courage to have the challenging discussions.”

“The type of challenge is different, more about dealing with change and culture development in an alliance. BAU projects also are challenging, but in the sense of trying to perform with your hands tied behind your back (i.e. compared to what you know can be achieved in a more collaborative environment).”

Observation

Respondents rated the AMT and ALT highly when considering the extent to which the overall project goals and expectations were aligned and articulated. Alliances are seen as exciting professional experiences with all respondents noting they would work on another one if given the opportunity – some respondents had already multiple experiences with alliances. They would encourage others to consider working on project alliances, as alliances were more personally satisfying than other types of projects.

Innovation

Innovation occupies a central role in discussions about alliances. Respondents note that innovation can occur as a process or an idea or a change in how a problem is considered. Innovation in this sense is considered something that brings about a solution, and which adds value to the project, rather than necessarily as the result of a scientific methodology.

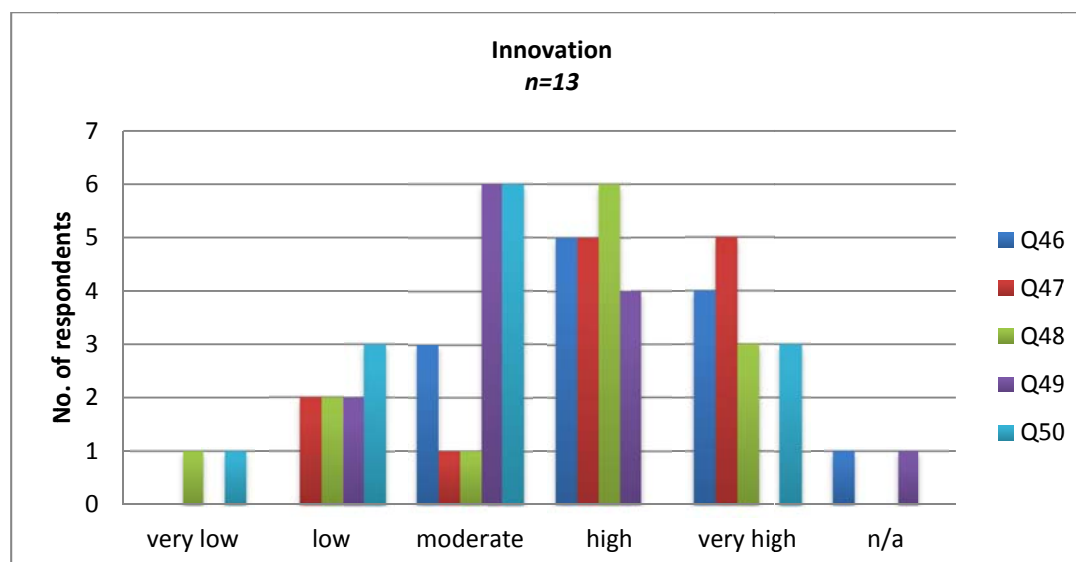


Figure 16: Innovation

Table 7: Innovation on the project Q46-50

	Innovation on the Project
46	To what extent did you feel that innovations were developed as a result of AMT collaboration?
47	To what extent could you demonstrate that innovations were developed as a result of AMT collaboration?
48	To what extent was innovations development celebrated formally or informally as a result of AMT collaboration?
49	To what extent were innovations developed as a result of AMT collaboration diffused back to AMT organisations?
50	To what extent were innovations developed as a result of AMT collaboration diffused back to the Project Owner's organisation?

"Innovation starts at the project level and has buy-in from the AMT. Definition: quicker, cheaper and easier."

"Every innovation came as a result of AMT collaboration – cannot think of one that had a single person's name against it."

"A reward program was set up to reward innovative thinking. It wasn't a high monetary value (usually \$50 gift voucher) but often a simple pat on the back goes a long way."

"Specific nature of innovation not always readily transferred to other projects."

Observation

Innovation registers were often maintained, with one project including 396 items, of which 179 were accepted and incorporated into the project. Innovations were celebrated both formally and informally across projects, ranging from team BBQs to award ceremonies. The outputs of innovation were felt across the organisations engaged in the alliances with some innovations used in other contexts more easily than others.

Trends

This report reflects on results from three separate but connected surveys across 2008, 2010 and 2012. It also benefits from insights gained from three parallel studies undertaken over this period.

The first of these is the Profiling Professional Excellence in Alliance Management study (Walker and Lloyd-Walker, 2011a;2011b;2011c) funded by the Alliancing Association of Australasia (now part of Infrastructure Partnerships Australia IPA) that resulted in a capability maturity model development for alliance managers (see Appendix 2). It provides useful guidance on trends for developing KSAE of alliance managers. This illustrates KSAE aspirations not only for alliance team leaders but also other alliance participants. The distributed and engaged collaborative leadership model can be developed to enable a leadership style and project workplace culture that results in high levels of project success.

The second study, Understanding Relationship-based Project Procurement, funded by the Project Management Institute (PMI) resulted in a book to be published by the Project Management Institute (Walker and Lloyd-Walker, 2014b). This book illustrates how project and program alliances fit into a global perspective and encompass a range of collaborative project procurement arrangements.

The third survey (currently underway) involves a survey of program alliances across three infrastructure contexts – road, water and rail. This study investigates (through semi-structured interviews with program alliance directors and alliance managers) program alliances for capital expenditure and on-going service maintenance functions. This survey provides additional insights that can be used to supplement our understanding of quantitative data gathered in the 2008, 2010 and 2012 surveys.

The data presented in this study from 2008, 2010 and 2012 together with the insights reflected upon from the three studies can be summarised as follows:

1. Changes in State and Commonwealth Government policy has influenced a change in the previous emphasis on demonstrating best value perceived within a 3BL context (cost/commercial; environmental; and social) to an emphasis and priority on the cost/commercial leg of the 3BL concept;
2. The trend in emphasising lowest cost has shifted from a single TOC concept based on a 'best team' selection process, towards a competitive dual TOC approach. The advantages for moving to a dual TOC are unclear as are the associated sacrifices that need to be made in adopting this approach.
3. The data and analysis of some 60 alliances, combined with insights from the other research projects cited above, strongly indicates (if not demonstrates) that the alliance approach is successful in delivering broader 3BL outcomes on 'public good' projects—those in which the outcome objective is not lowest cost delivery but wider social and environmental best value outcomes. This suggests that continued adoption and adaptation of this approach is an effective methodology to meet societal needs.

4. Other collaborative project procurement forms discussed and explored in the PMI study (Walker and Lloyd-Walker, 2014b), such as Early Contractor Involvement (ECI), integrated project delivery (IPD) and the BAA's T5 Agreement, may emerge more strongly in Australia over time for projects where the full alliance model is not deemed suitable, but where collaboration is essential. The level of close integration beyond the limited number of major Tier 1 contractors in the Australasian alliancing tradition can be contrasted with the greater involvement of UK Tier 1 suppliers (a nomenclature for both contractors and material suppliers in the UK). In the future, alliances may be able to extend deeper into Tier 2 and 3 suppliers.
5. Benefits of working on project and program alliances, as many construction and infrastructure companies have now experienced, has resulted in an increased recognition of the value of collaboration. Companies now seek to embed this collaborative aspiration into many BAU projects as a way to better understand how innovation is enabled through embedded project and program alliance concepts. A unique case study of an alliance being incorporated into a PPP project was recently reported (Jacobsson and Walker, 2013) that may be a world first as a future model to develop a more enhanced form of ECI that gains greater advantages as an alliance.
6. Respondents from this, and the other two studies cited, strongly indicates a valuable upskilling experience for small and medium sized firms in regional and rural areas, as a result of working in program alliances. This outcome provides a useful KSAE model for productivity enhancement of the construction industry workforce (refer to Appendix 2). We would expect the program alliance model to be attractive for public good service delivery in the future.
7. Australia holds a unique place in the world as being the most experienced country in delivering infrastructure alliances. Other countries such as Finland, The Netherlands and the UK have been experimenting with such alliances within a European Union context (Laan *et al.*, 2011; Lahdenperä, 2012; Walker and Lloyd-Walker, 2014b). There are commercial opportunities for major Australian contractors and design consultants to provide expertise to international alliances and to become global leaders in this project delivery approach. Some of the project owners who now have deep experience of alliancing are in a strong position to offer services to other international infrastructure project owners based on the KSAE they have gained through this period of intensive alliancing in Australia.
8. Finally, as more commercial organisations find it necessary to adopt corporate social responsibility measures, the 3BL KRA model may tip from its current dominance of a commercial outcome, towards the social and environmental poles, making alliancing more common in the private sector. Currently, the closest thing to project alliancing in the USA (through the Integrated Project Delivery as used by Sutter Health on hospital projects) (NASF, 2010) indicates interest from the commercial private sector in these forms of collaborative project delivery.

Conclusions

This report provides more than a consolidation of the 2008, 2010 and 2012 AAA Alliancing surveys. It includes reflection drawn from important research projects (undertaken as complimentary studies) from which we have been able to include insights and triangulate data.

It becomes obvious from the data, that only a minority of alliance projects in the survey did not meet time and cost expectations. It also seems clear from the survey that participants believe that project participants display the necessary trust and “best for project” attitudes that is a precondition to successful alliances.

One respondent commented that; “Because of the competitive alliance process, the AMT tended at times to revert to a D&C mentality”. This presumably meant that at certain times the team was motivated more by self-interest, than for “best for project”. This case in particular highlights preconditions necessary for a successful alliance.

Project alliancing is generally suitable for the delivery of projects with certain characteristics, such as; high-risk, tight timeframe, complex stakeholder issues and complex external environments (Chen, Zhang, Xie and Jin, 2012). Theoretically, alliancing is a promising delivery method in those situations, but there is no guarantee that it will lead to optimum outcomes in practice (Chen *et al.*, 2012). Instead, Ross (2003) suggests that some alliances are being undertaken by clients, and to lesser extent contractors, without sufficient commitment to underlying principles. In some cases, this may result in projects lacking the attitudes and leadership skills needed to establish and sustain a high performing alliance. At best this may lead to sub-optimal alliances, at worst a breakdown in corporate relationships and serious project failures that would damage the reputation of the alliance model.

To summarise the underpinning theory and literature that has informed this research, Alliancing represents a heightened level of project management where the project partners engages fully as a project leadership team and management in order to take on more demanding projects.

According to Mills, Walker and Lloyd-Walker (2012) relationship-based procurement, and alliancing in particular, is based on: collaboration through joint problem framing and solving; a model of success is wider than time/cost/fitness for purpose; and the driver for alliances being based on best-for-project needs and means. The **tangible** outcome of the project is the delivery of the expected benefit. This could be a functioning hospital, transportation infrastructure, water supply, or sewerage system. The **intangible** behavioural outcome of the alliance is demonstrated mutual respect, collaborative process and action, and trust and commitment.

Project and program alliances represent a world class and advanced procurement choice that has been demonstrated to achieve exceptional results and project outcomes. The approach has been subject to criticism (Wood and Duffield, 2009)

but this was based on a small sample of two cases of Dual TOC out of a total case study sample of 14 projects. However, as Clifton and Duffield has argued (2006) alliance principles could be of value if used within Public Private Partnerships (PPPs). This proposition was demonstrated as being viable in the case study reported upon by Jacobsson and Walker (2013). One conclusion to be drawn is that alliances have a future not only in the project and program context but may be embedded in other procurement forms.

From the data, which included three surveys and three parallel studies that entailed qualitative semi-structured interviews, we can claim from these discussions with approximately 100 respondents and alliance practitioners that it is clear that alliances require certain conditions to be applicable and successful. Alliances can be expensive to establish, include complex interfaces and are generally most suited to projects where there is a high level of uncertainty and ambiguity of scope. As such the choice of project procurement approach needs to be well understood by client and contractors alike.

Alliances also require high levels of relational skills within the project team (see Appendix 2) which includes a client representative. The alliance team must be able to work within a culture of mutual respect, trust and commitment. It needs to have the flexibility to modify plans in order to achieve project goals, without recourse to finger-pointing and litigation. This requires, as illustrated in Appendix 2, a special skill set that is generally uncommon and difficult to source.

We reach a stark conclusion that even if alliancing were to be massively increased (globally and within Australia) there would be a major shortage of requisite KSAE within the industry for all alliance parties. Continued involvement in alliancing needs to be maintained if we are to progressively grow the number of potential project participants with the necessary KSAE.

We can conclude from our survey and interview base, that alliancing has been successful across time, cost, functionality and broader 3BL measures. The data indicates that there is room for improvement and Appendix 2 illustrates how alliance teams may benchmark their KSAE to identify aspects for improvement. It is not the purpose of this report to probe into how such improvement could be achieved.

The contribution that this research makes is that it provides a comprehensive benchmark study of the state of play of project and program alliances. It has breadth and depth as a compendium of the 2008, 2010 and 2012 studies and adds through this, to the study undertaken by Wood and Duffield (2009), particularly in its access to insights of recent studies on alliances in Australia and overseas. We believe it provides the most current picture of the nature of alliances in Australia as at the time of writing at the end of 2013.

Finally, this research has investigated the performance of 60 alliances in order to critically examine the effectiveness of the procurement method to deliver successful

project outcomes. The results of the cases investigated show that the vast majority performed very well. The alliance teams adopted the required attitudes and behaviours, and also met time and cost targets. Overall, the alliance method of procurement is a positive influence on the projects in this study.

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Appendix 1

Survey instrument 2012

Table 8: Survey instrument

No.	Question
	Fundamental performance
1	What was the initial TOC of the project?
2	What was the final approved TOC of the project?
3	What was the actual TOC (at the end of the project)?
4	What were the reasons contributing to the change in TOC?
5	What was the proposed duration of the project?
6	What was the final approved duration of the project?
7	What was the actual duration of the project?
8	What were the reasons contributing to the change in duration?
9	What were the KRAs (and their weightings if applicable) for the project?
10	What was the actual alliance performance against the KRAs listed?
11	What affected the high and/or low performance of KRAs?
12	Did the team have any issues addressing each of the KRAs?
	Commitment to Best for project/client
13	The AMT was committed to performing above Business as usual
14	The AMT acted according to Best for project
15	The ALT demonstrated commitment to the AMT
16	The ALT provided an environment that supported the AMT to deliver against the KRAs
17	Thinking about the AMT, were there areas where it performed ABOVE expectations?
18	Thinking about the AMT, were there areas where it performed BELOW expectations?
19	Thinking about the ALT, were there areas where it performed ABOVE expectations to support the AMT deliver its KRAs?
20	Thinking about the ALT, were there areas where it performed BELOW expectations to support the AMT deliver its KRAs?
	Value Delivery
21	Was a Project Value Statement defined prior to the creation of the alliance?
22	When, during the bidding process, was the Project Value Statement communicated to the bidders or alliance teams?
23	How would you rate the performance of the alliance in meeting the client's Project Value Statement?
24	Comparing using D&C or design-bid-build methodology to deliver a similar project, how do you rate the alliance method in delivering value?
25	Was this project a 'pure' or 'twin-TOC' alliance process?
26	To what extent did you feel that VFM/best value was achieved?
27	To what extent could you demonstrate VFM/best value?
28	If the project was the result of a competitive alliance/competitive ECI procurement process, how did it perform in delivering: <ul style="list-style-type: none"> • speed of achieving team cohesion and integration to facilitate collaboration? • project team attitude to facilitate trust and performance during work delivery? • value for money?
	Team Collaboration
29	How frequently did the AM ensure formal and/or informal AMT member training and development in inter-team problem-solving and decision-making?
30	How effectively did the AM ensure relevant formal and/or informal communication to support AMT problem-solving and decision-making?
31	How effective was the AMT in collaborative problem-solving and decision-making?
32	How effectively did the AM act as a bridge to communicate relevant formal and/or informal

	information to and from the ALT for providing leadership and direction to the AMT?
33	How effectively was the AMT/ALT relationship in supporting collaborative problem-solving and decision-making?
34	To what extent was the physical proximity of the AMT a contributor to supporting collaboration?
35	To what extent were the virtual (ICT) tools of the AMT a contributor to supporting collaboration?
	Workplace Culture
36	To what extent did the AMT perceive that ‘we all sink or swim together’?
37	To what extent did AMT members protect their own interests at the expense of other AMT members?
38	To what extent did AMT members stick to their work and commitments?
39	To what extent did the ALT pursue a coherent course in leading the project?
40	To what extent did the AM pursue a coherent course in managing the AMT?
41	To what extent did you feel that the AMT and ALT had consistently aligned and clearly articulated overall project goals and expectations?
42	To what extent would you want to work on other project alliances after this one?
43	To what extent would you try to persuade qualified friends to work on PAs?
44	To what extent do you feel that PAs are more challenging than BAU projects?
45	To what extent do you feel that PAs are more personally satisfying to work on than BAU projects?
	Innovation on the Project
46	To what extent did you feel that innovations were developed as a result of AMT collaboration?
47	To what extent could you demonstrate that innovations were developed as a result of AMT collaboration?
48	To what extent was innovations development celebrated formally or informally as a result of AMT collaboration?
49	To what extent were innovations developed as a result of AMT collaboration diffused back to AMT organisations?
50	To what extent were innovations developed as a result of AMT collaboration diffused back to the Project Owner’s organisation?
	Early Contractor Involvement (ECI) on the Project
51	Did this alliance project proceed from an early contractor involvement (ECI) relationship? <ul style="list-style-type: none"> • if yes, whom can we contact to learn more about that relationship continuity?
52	Have you had any experience with ECI-type contracts? <ul style="list-style-type: none"> • If yes, how do these contract types differ from alliances? • If yes, what advantages and disadvantages do you think these contract types have?

Appendix 2

Three Experience and Seven Characteristics/Attributes Required of AMs (Source: Walker and Lloyd-Walker, 2011a, p12-15)

Table 9: Three Experience and Seven Characteristics/Attributes Required of AMs

Three skills and experience required of AMs - <i>Hard Skills</i>	<i>Foundational Aspiring</i>	<i>Nascent Recent</i>	<i>Developing Intermediate</i>	<i>Mature Experienced</i>
1. Technical Skills and experience	Recognised qualifications, training and experience in the project base technology.	Recognised qualifications, training and experience in the project base technology. Awareness of knowledge gaps and where to obtain expert advice to respond to these.	Recognised qualifications, training and experience in the project base technology. Awareness of complexities and knowledge gaps and analytical capacity to frame questions to obtain expert advice to respond to these.	Recognised qualifications, training and experience in the project base technology. Comfort with the sure existence of knowledge gaps and unclear, ambiguous or unknown technical issues and the ability to frame questions and knowledge of where and how to obtain expert advice to respond to these.
2. PM skills and experience	Knowledge of traditional PM approaches and methods for planning, control and team management to deliver projects.	Knowledge of traditional PM approaches and methods for planning, control and 'soft-skill' team leadership skills to deliver projects. Understands what causes projects to be successful or otherwise.	Advanced level PM skills to include engaging stakeholders and facilitating commitment through effective leadership by example. Has experience in project turnaround from distressed to 'back on track.'	Demonstrated embedded and natural authentic leadership that drives project performance through complimenting and combining judgement about the extent and use of hard and soft skills. Has been tested by difficult choices and decisions and learned from the experience as well as know to have sound judgement.
3. Business skills and experience	Awareness of business imperatives and the need for a coherent business case to frame project mission and objectives.	Understanding the fundamental values and business case for the project to be deliver benefits.	Participating in translating the business case into a project brief and supporting the project evaluation process at ALT level.	ALT and Board level experience of active engagement in translating and framing the business case into a project brief and evaluating project benefit realisation. Has direct experience of learning

				from mistakes (self or others) in business strategy and delivery.
Seven authentic leadership characteristics/ attributes of AMs - <i>Soft Skills</i>	<i>Foundational Aspiring</i>	<i>Nascent Recent</i>	<i>Developing intermediate</i>	<i>Mature experienced</i>
<p>4. Reflectiveness being a systems thinker, strategic think-aim-act V act-think-aim</p> <p>Reflectiveness level is high and knowing the context as crucial.</p>	<p>Highly reactive to challenges and dependent upon formal learning, textbook advice, manuals and established procedures.</p> <p>Demonstrates a sense of uncertainty and is restricted to highly traditional responses.</p> <p>Probably unaware of wider or deeper situational context. Sees challenges more simplistically.</p>	<p>Reactive to challenges, while somewhat dependent upon formal learning, textbook advice, manuals and established procedures; balances this with learning from recent experience.</p> <p>Demonstrates a sense of certainty based on traditional responses.</p> <p>Aware of potential complexity of the situational context. Unclear on how systems overlap or interface.</p>	<p>Contemplates and reflects before taking action to challenges based upon past experience and advice from others.</p> <p>May at times be overwhelmed and struck with ‘paralysis through analysis’. Values facts over hunches or intuition.</p> <p>May overcomplicate the context. Seeks explanatory patterns to justify action based on discussions and advice from experienced and trusted mentors.</p>	<p>Contemplates and reflects while taking action to challenges based upon embedded past experience and critiqued advice from others.</p> <p>Able to take decisive action-based heuristics and comprehensive repertoire of past experience.</p> <p>Values intuition over lengthy analysis of situations.</p> <p>Can simplify complexity in context through rapid pattern matching and holistic solutions. Influences framing of situations and solutions.</p>
<p>5. Pragmatism gets on with the job, is politically astute, works within constraints.</p> <p>Interpreting and re-framing rules to context and way in which action is justified as crucial.</p>	<p>Decision-making governed by ability to narrow options based on available knowledge and approaches.</p> <p>Frames problems and solutions to immediate resolution of issues.</p>	<p>Decision-making dominated by narrowing options based on available knowledge and approaches.</p> <p>Frames problems and solutions to short term resolution of issues.</p>	<p>Decision-making dominated by widening consideration of options based on available and potentially available knowledge and approaches.</p> <p>Frames problems and solutions to medium term resolution of issues.</p>	<p>Decision-making governed by screening many options based on a few narrow but salient criteria.</p> <p>Frames problems and solutions to medium/long- term resolution of issues while addressing immediate demands. Shapes and influences interpretation of the ‘rules’.</p>

<p>6. Appreciativeness understanding the motivations and value proposition of all involved (EI)</p> <p>Being able to judge the most effective response to teams and individuals about their value is the key in influencing others and being influenced by them.</p>	<p>Tends to be unaware of how contextual pressures influence the motives and actions of others.</p> <p>Has a passive approach to attempting to influence others with strong opinions. Lacks awareness of the need to probe to find out what others need or want.</p> <p>Lacks confidence to impose closure on decision making.</p>	<p>Grappling with how contextual pressures influence the motives and actions of others.</p> <p>Lacks confidence to negotiate an agenda when attempting to influence others with strong opinions.</p> <p>Tends to allow discussion to drift when decision making or closes off discussion too soon. Lacks self-justification to know when to enact closure on decision making.</p>	<p>Has a strong sense of personal identity and influence in leading the opening up or narrowing of discussions.</p> <p>Understands the agendas and value proposition of others and appreciates demands placed upon them.</p> <p>Yet to develop total confidence in defending their own agendas and preferred position as short cuts to action when facing strong opposition from others.</p>	<p>Has a strong sense of personal identity and expertly shapes the agenda in effectively opening up or narrowing discussions.</p> <p>Responds to the agendas, value proposition and demands upon others by crafting priorities.</p> <p>Transforms strong opposition from others into innovative proposals through resolving paradoxes via an uncompromising 'third way'.</p>
<p>7. Resilience adaptability, versatility, flexibility and being persistent. Able to effectively learn from experience.</p> <p>The repertoire of skills and attributes that can be drawn upon is crucial. This is related to absorptive capacity to learn and adapt. Attitude to how to deal with a crisis 'next time' is critical.</p>	<p>Shows great promise in rapidly absorbing new ideas and approaches and demonstrates examples of initiative and hard work.</p> <p>Is able to cope with disappointment and set backs as part of a learning experience.</p> <p>Actively seeks advice from others to make sense of experience, especially unexpected outcomes from action.</p>	<p>Readily absorbs new ideas and approaches and seeks out opportunities to apply them.</p> <p>Uses disappointment and set backs as part of a learning experience.</p> <p>Contributes to and shares with others making sense of experience, especially in developing explanations for unexpected outcomes from action.</p>	<p>Seeks new ideas and approaches and how to apply them.</p> <p>Assumes that the purpose of dealing with disappointment and set backs is to learn from experience.</p> <p>Leads a process with others to make sense of experience, especially unexpected outcomes from action and embeds lessons-learned as a personal continuous improvement initiative.</p>	<p>Proactively leads the implementation of new ideas and approaches and how to apply them.</p> <p>Champions the outcome of set backs and disappointment as learning experiences. Supports creation of learning repositories for those developing leadership skills.</p> <p>Leads a culture of transforming set-backs into positive results and leads others to find problem work-around solutions that lead to sustainable contextual learning.</p>

<p>8. Wisdom being the person with opinions and advice that is valued, consistent and reliable that others instinctively refer to.</p> <p>To be effective, the key is to be influential based on providing sound advice and being respected for that advice or being an effective broker of wise advice. Judgement of the person brokering advice is crucial.</p>	<p>Generally, advice and information is not sought of this person about technical or PM aspects unless in a narrow specialisation field.</p> <p>Seeks to become a 'goto' person by actively learning as much as possible about the 'system' project details etc. and offering to assist others in research or finding out about relevant issues.</p>	<p>Proactively and enthusiastically shares knowledge and insights to clarify context and gain confidence from others in their judgement and job-specific knowledge.</p> <p>Could be a sub-cultural representative that others seek their views from eg. as a 'younger' AM or as somebody with valuable outside-group perspectives.</p>	<p>Has highly respected technical and either business or PM knowledge/skills that others actively tap into.</p> <p>Knowledge and advice offered is consistently seen as valuable, reliable and influential.</p>	<p>Has highly respected technical, business and PM knowledge and skills from others actively tap into as being pivotal to sound outcomes.</p> <p>Often strong business knowledge is the crucial differentiator as well as strong understanding of the strength of other team members to action plans and decisions.</p>
<p>9. Spirit having the courage to effectively challenge assumptions</p> <p>Being confident in the value of refining knowledge of context through questioning the status quo or assumed realities is vital to better understand contexts.</p>	<p>Lacks confidence in getting others to openly discuss contentious issues or to 'rock' the boat.</p> <p>Assumes that prevailing assumptions must be correct for the context experienced.</p>	<p>Confident in getting others to openly discuss contentious issues or to be sceptical and question the status quo.</p> <p>Tests whether prevailing assumptions may be correct for the context experienced.</p>	<p>Adept in facilitating team members to be courageously sceptical when doubting the majority opinion. Challenges assumptions to inspire and facilitate innovation.</p> <p>Having the courage to make unpopular decisions when circumstances warrant it.</p>	<p>Provides stretch targets for interpreting the business case to arrive at an optimal solution.</p> <p>Encourages and demands 'devils advocate' positions and evidence-based challenges so that groupthink does not automatically prevail.</p>

<p>10. Authenticity approachable and trustworthy and being seen as open to ideas, collaboration, discussion and new ways of thinking.</p> <p>To be an effective broker and 'go to' person it is vital that this person must be open-minded and be available when needed. The must be collaborative, have integrity and being therefore perceived as trustworthy.</p>	<p>Having a reputation for being open to something new, adventurous and easy to collaborate with and to discuss ideas with.</p> <p>Being assumed to be trustworthy but not yet had the opportunity to demonstrate this in difficult situations.</p>	<p>Is good at collaborating with others, engenders trust and commitment. Having an 'open-door' policy, acknowledging the need for diversity in views when trying to understand issues.</p> <p>Being seen as somebody who will listen to 'bad news' without blame or cover up.</p>	<p>Being respected as somebody who has an open mind and is swayed by solid evidence or sound reasoning argument. Collaborates as a natural style and is trusted for the quality of judgement and integrity of approach.</p> <p>Holding several concurrent conflicting views of a situation and inviting challenges to any of these to obtain a clearer understanding.</p>	<p>Have high standards of integrity and a natural collaborator with others.</p> <p>People trust them and they are known for constancy of their action with their rhetoric.</p> <p>Having wide business and life experience to have learned how to resolve paradoxes through seeing complementarities (combines opposites through re-framing dimensions to accommodate pragmatic 'third way' perspectives).</p>
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