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Team building

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Relationships between the parties involved in large-scale building projects have traditionally been less than constructive. Alliancing takes a different approach in order to head off trouble as well as force collaborative solutions when problems arise

DURING THE first few months of 1995, a group of influential construction industry specialists joined forces to build a challenging offshore oil platform called Wandoo B, destined for the waters off Dampier in northern Western Australia. The plan was to create a concrete platform in a hole in the ground beside the water at Bunbury Harbour on the south-west coast. When completed it would be like a giant upside-down table - 115 metres long and 75 metres wide, with four 70 metre-high legs - which would be put to sea and floated to the oilfield 1,700 km north. There the inverted table would be sunk to the bottom of the ocean and the working platform perched atop the four legs.

In the tradition of civil engineering projects of this type, its scale, ingenuity and audaciousness was not new. What was new in Australia was the relationship between members of the alliance: independent oil explorer Ampolex, offshore engineering specialist Brown & Root, offshore production system specialist Keppel Fels, construction contractor Leighton Contractors, and engineering designers Ove Arup & Partners.

Ask anyone in the construction industry and they will tell you that conventional construction relationships these days are hell. Their competitive and adversarial core often leads to a bitter falling out and months of battle in court. But under the alliance agreement, these members agreed to maintain a culture of collaboration, mutual respect and integrity in a relationship built around shared risks and rewards.

Importantly, they had agreed to a "no blame" culture in which court action against each other was not permitted.

This last point took on a new level of importance on April 29, about eight weeks before they were due to start casting concrete, when disaster struck. A wall collapsed, filling the hole with 280 million litres of water.

"We saw our casting basin turned into a marina in a few minutes," says Dr Robert Care, NSW State manager for Ove Arup & Partners. "People were talking about it like it was the biggest disaster of all time. And normally it would have been - under a traditional

contracting situation we'd all have been running for our lawyers and not coming out of the bunkers for months."

But the alliance agreement didn't allow that. The only way forward under the agreement was to take a team approach to solving the problem. Instead of looking for lawyers, the team started looking for solutions. Within two weeks the wall had been rebuilt. Within four weeks all the water had been pumped out.

Concrete casting began six weeks later - two weeks behind schedule, but months ahead of the likely six-month delay under a conventional, adversarial approach. "Until that point, we'd been working on the theoretical basis of alliancing - it sounded good, but the 'no blame' relationship is easier to talk about than it is to deliver," says Care. "That was the first real test of alliancing in Australia and it told us that it could work."

It could be that the Wandoo B disaster and subsequent recovery was a turning point for the Australian construction industry. Suddenly, alliancing is being hailed as a kind of New Age, enlightened approach to engineering and the solution to complex large-scale construction projects all over the country.

People who have been involved in alliance projects speak as though they have experienced some divine vision. Grown men, born tough and hardened on rough building sites, enthuse about "pain and gain" agreements, goal alignment, cooperation, information sharing and love for their fellow engineer. The success of Wandoo B and a handful of other alliance-driven private infrastructure projects in Australia - such as Western Mining's \$270 million East Spar offshore gas condensate project in 1995 - created a lot of interest in the process.

In 1997, the NSW Rail Access Corporation took the bold step of undertaking the world's first public-sector alliance project, a \$600 million maintenance contract. It was followed by another private sector alliance project, Sydney Water's \$375 million Northside storage tunnel. And last year, Canberra announced the world's first alliance-driven public building - the \$152 million National Museum of Australia.

"Alliancing is going to change the way construction businesses deal with each other, which - historically and endemic in the construction industry - has been a series of ritualised conflicts between the parties," says Professor Michael Keniger, head of the University of Queensland's School of Architecture and Planning. "It is significant that different members of the [National Museum alliance] team share a site office and meet in the same conference rooms. That alone is an amazing step forward."

To get some idea of the depth of concern about problems with the conventional approach to construction, the Australian Constructors Association - a grouping of 18 of the biggest construction companies in the country, representing 30 per cent of the nation's construction activity - conducted a survey of chiefs and senior executives from 34 of Australia's biggest construction clients. The survey found universal agreement that serious shortcomings exist in contractual relationships between clients and contractors which have a negative effect on project outcomes and that traditional contractual

relationships lead to adversarial behaviour between parties.

"Traditional forms of contract push the client and contractor in different directions," says ACA secretary Jim Barrett. "The contract has become a vehicle for creating an adversarial relationship instead of delivering the best project outcome."

It seems that the contract and threat of court action have become two of the most important implements in the construction industry tool box. But people in the industry are growing tired of the adversarial cycle - of winning a job, doing it well, earning a profit and then finding their relations with all the other parties involved are so strained that they can't work with that group for another five years.

"The conventional, litigious approach has been more than damaging - it is absolutely debilitating because it takes people's focus away from the reason they are really there, which is to do a good job," says Peter Wright, senior project manager for Lend Lease and project manager for the Acton Peninsula Alliance (the National Museum project).

"The client wants the best product delivered for the least amount of money and the contractor wants to deliver the project for a minimum, so he can put the rest in his pocket as profit - right from the beginning, you are setting up this vehicle where

everyone has totally crossed, non-aligned objectives."

So imagine the confusion of people involved in the construction industry for the first time - people such as Dawn Casey, the acting director of the new National Museum. The museum project was particularly daunting because not only are there tight time and budgetary constraints, but the building is expected to become an icon of great cultural and national significance.

From the moment the starting gun was fired in December 1996, project design, construction and occupation had to be completed in time to open in 2001 as flagship for the Centenary of Federation celebrations. Under conventional, contractual construction techniques, the project would have been impossible. "Initially, people told us to set up a joint venture, but our legal advice was that was not a good idea because if one of the JV partners went bankrupt, there'd be no one to sue," says a bemused Casey. "Everyone seemed to be coming at it from the point of view of: 'who do you sue?'"

Because of the unusual importance of diverse museum components - such as air-conditioning, humidity control, security and exhibition design - the development team decided to look at alternative delivery methods for the project. They needed all the major contractors to work with an uncommonly unified vision. When they started talking about using an alliance approach, the response was universal.

"Everyone in the industry, including the architects, thought we were absolutely mad because no-one had ever built a building this way before," says Casey.

It is the job of the University of Queensland's Professor Michael Keniger to oversee the design integrity of the museum project - to

compare

the list of gains with the items that have been cut back and ensure they maintain the original spirit of the project.

"The alliance team is jointly taking the initiative to improve the design as they go and each time I have seen it done it has either sustained the original intention of the design or strengthened it," says Keniger. "This is clear evidence of the sense in which this process can strengthen the quality of a project and the overall design. The design becomes a living, changing process - not a static document waiting to be outdated."

There is no doubt, says Casey, that the museum will be a better, more engaging place for having the addition of a rotating theatre - something that wouldn't have been delivered without the alliance. She also doubts the contractors could have completed the project within the budget and the timeframe any other way.

Sydney Water faced a similarly non-negotiable deadline for its Northside storage tunnel project. Under conventional project delivery mechanisms, it wouldn't have been completed until well into 2001, but Sydney Water wanted it ready in time for the Olympics.

"It became obvious that the only way the project could be delivered on time and within budget was if it was done under an alliance," says Charles Rottier, the managing director of Montgomery Watson Australia, a water and sewerage engineering specialist that is part of the Northside storage tunnel alliance.

The project has generated a significant amount of negative press from concerned community groups and an alliance approach was seen as a suitable way of addressing some of those other issues. While many of the issues remain controversial, the alliance approach does set out a new way of dealing with responsibility to the community.

Members of the alliance set five performance criteria against which the success of the tunnel project would be measured: time, cost, safety, environment and community. Benchmarks were set for each criteria to be scored and audited by independent third parties. The alliance agreed that if they failed to achieve success on any one of the criteria, they would lose 50 per cent of their potential profit.

"We structured the risk and reward arrangements so we have a balance between the various objectives," Rottier says. "That way we can't say: 'If we get caught out a few times on the environmental criteria, it is not a problem as long as we finish under budget.' If you finish under target on any criteria you lose half."

Rottier says that even though the legality of the tunnel project has been clearly established through a court hearing, the mission of the alliance does not allow it to wash its hands of its obligation to community groups.

"The community may have some fundamental objections to the particular project and under the alliance we have an obligation to deal with those issues under our control - we can't just ignore it," he says. "At the end of the day, it is no good if we build the tunnel on time and to budget if we leave behind a community unhappy because of the

way we delivered it."

Members of the Northside storage tunnel alliance - Connell Wagner, Montgomery Watson and Transfield - are already putting in combined bids for other water industry design and construction jobs. Clough Engineering, Kinhill and the Western Australia Water Corporation - members of the Woodman Point Environmental Enhancement Project alliance - are so impressed with the way they have worked together that they have established a business development unit to look for future work.

The Woodman Point project is the WAWC's biggest capital works project for years - a \$140 million upgrade of one of Perth's major sewage plants. The project director is Robert Jones, from Clough Engineering, who says WAWC's recent experience with difficult projects and cost and delivery overruns had led them to search for a new delivery system. A tour of the Northside storage tunnel site convinced them that alliancing was the way to go. The alliance is still in its early stages but already the working relationships are proving productive.

"We have broken down that feeling of working alongside the enemy," says Jones. "We're learning that you can't divorce business and private relationships - that a trusting personal relationship can drive business a long way. The relationships we have established through this project will change the way our companies do business."

Steve Knisely, of the US-based management consultants JMJ Associates has played an active role in pulling together some of the country's biggest alliance projects, including the National Museum, Northside tunnel and Woodman Point. From his Melbourne office, Knisely is largely responsible for the introduction of alliancing to Australia and stands to benefit more than anyone from the alliancing boom sweeping the country. But he is also the man responsible for the way the construction industry is turning into a giant mutual admiration society.

Tell Knisely the engineers are all beginning to sound like they've spent the weekend at a Christian retreat and he laughs. "Yeah, there's a lot of that - they come across as holy rollers," he says. "But you've got to remember these guys come out of an industry where they have to act in ways that are inconsistent with who they really are - in hard money contracts they are expected to be complete and utter pricks. These people have never had an opportunity to work in a collaborative relationship before and they find it a more fulfilling way to work."

JMJ brings together players for major construction projects, including traditional lump sum contracts, but it is in alliancing that Knisely is seeing the most growth. Two years ago JMJ had one Australian alliancing project worth \$200 million; today it has six active and two in the pipeline, with a total value of about \$1 billion.

The eyes of the engineering world are watching to see how alliancing works in public sector infrastructure and building projects in Australia. Knisely says it has captured the attention of US water and wastewater engineers interested in its applicability in the US. Woodman Point's project director, Robert Jones, has had similar

interest from Europe. "This all started in Europe and now I'm getting enquiries from people there interested to know how successful we have been using it in infrastructure work," he says.

However, the answer to enquiring foreign contractors may not be all black and white. First, it takes a lot of effort to make alliancing work, so it is really only suitable for large-scale projects - the time and expense of setting up an alliance for projects valued under \$20 million outweigh the benefits. Second, even for large projects, alliancing is not the answer for all situations - the conventional approach continues to be the method of choice for straightforward projects or those that are less time sensitive.

"It took a lot of effort to get the management of the four companies in our alliance to think the same way," says Rottier. "It sounds simple and everybody thought it was a good idea, but there is a considerable amount of management time and effort required to make an alliance work.

If you don't commit the time, it doesn't work. If you do commit the time, it is still hard work."

The Australian Construction Association's Jim Barrett says that just because alliancing is the current buzzword, people shouldn't assume it is ideal for every project or that it is a miracle cure for the industry. He points to ACA research showing the attitudes that make alliances work don't have to be restricted to alliances - those behaviours can be made to work under a traditional contract.

"Alliancing is not the next saviour of the world," he says. "The challenge for the industry in the new millennium is how we take the behaviours that make alliances work - things like trust, commitment and respect - and get them back into our more traditional delivery strategies."

LAYING THE FOUNDATION

ALLIANCING EMERGED from the gas and oil industry in the North Sea in 1992, where BP used the strategy of risk/reward sharing to keep down time and cost overruns. By the time the Wandoo B project was launched in Australia in 1995, alliancing was being experimented with - mainly for gas and oil infrastructure projects - across Europe and the US.

Alliancing is a fundamentally different approach to construction projects that is based around the concept of shared risks and rewards. Client, architect, contractor and service contractors form a virtual corporation in which everyone involved shares equal representation, authority and risk.

The single goal is the successful completion of the project to an excellent standard. Members of the alliance establish performance criteria and benchmarks for the measurement of project outcome. Success or failure is measured by an independent third party. If the project result is excellent, the contractor gets to share in a pool of money set aside to reward excellence. If the project is completed early, the contractor and the client get to share the savings.

Failure to perform in any area results in significant penalties - reduced profits and corporate overheads for the contractors

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Alliance approach:

1. Client outlines goals and calls for proposals. Also develops evaluation criteria to compare bidders.
2. Companies respond demonstrating technical skills, understanding of alliance culture and identifying individuals for alliance team.
3. Shortlist selected according to technical credentials of company and individuals and ability to work in alliance relationship. Money not a consideration at this point.
4. Companies take part in half-day interview with client, examining technical skills and compatibility. Second shortlist compiled. Money still not an issue at this point.
5. Two shortlisted companies participate in intensive two-day workshop with client. Preferred consortium identified.
6. Financial meeting - "risk/reward workshop" - between client and preferred consortium to set profit and corporate overheads. If agreement can't be established with preferred contractor, client goes to the remaining bidder.
7. Client, architect, head contractor and service contractors establish alliance. They agree to: operate within agreed principles; have open book; share savings/overruns; not sue each other.
8. Alliance proceeds in relationship where excellent results earn excellent rewards (bonus for contractor and lower price for client), average results earn average returns and poor results earn a poor return (reduced profits and corporate overheads for contractor).

Conventional approach:

1. Client gets architect or consultant to design project.
2. Client attempts to shunt risk by using fixed price and detailed contracts.
3. Project is put out to tender.
4. Tenderers compile bid - could take months and cost millions to compile.
5. Shortlist selected according to skills and price. Contenders go back to screw deal even tighter. Often, contractor bases price on perceived holes in the contract and the possibility of exploiting variations later.
6. Normally, project goes to the lowest bidder. Project details locked into contract. Because of competition process, margins are generally paper thin.
7. Every time client wants a change to the project, contractor charges an alteration fee - or variation - to make up for the thin margin - this is where the profits are.

8. Failure to meet time or quality measurements specified in contract results in litigation between client and head contractor, or head contractor and sub-contractor.