

# DRO

Deakin University's Research Repository

## This is the published version

Mills,AJ, Mendex,J and Nalewaik,A 2014, Alliance skills and cultures : addressing project management behaviors in construction alliances, in PAQS 2014: Proceedings of the 18th Pacific Association of Quantity Surveyors Congress, The Hong Kong Institute of Surveyors, Hong Kong, pp. 187-198.

## Available from Deakin Research Online

<http://hdl.handle.net/10536/DRO/DU:30072899>

Every reasonable effort has been made to ensure that permission has been obtained for items included in Deakin Research Online. If you believe that your rights have been infringed by this repository, please contact [drosupport@deakin.edu.au](mailto:drosupport@deakin.edu.au)

**Copyright:** 2014, Pacific Association of Quantity Surveyors

# **ALLIANCE SKILLS AND CULTURES: ADDRESSING PROJECT MANAGEMENT BEHAVIOURS IN CONSTRUCTION ALLIANCES**

Dr. Anthony J. Mills<sup>1</sup> and Mario A. Mendez<sup>2</sup> and Dr. Alexia Nalewaik<sup>3</sup>

*<sup>1</sup> Chair of Construction Management  
School of Architecture and Building, Deakin University, Australia  
Email: Anthony.mills@deakin.edu.au*

*<sup>2</sup> Post-graduate Master of Construction Management (Research)  
Deakin University, Australia  
Email: mamen@deakin.edu.au*

*<sup>3</sup> Principal, QS Requin Corporation  
Altadena, California, USA  
Email: alexian@qsrequin.com*

## **ABSTRACT**

The purpose of this paper is to engage in a comprehensive understanding of alliance skills, cultures, and management behaviours in construction alliances. Alliance Contracting has been introduced to overcome some of the challenges caused by adversarial contracts, by: aligning the incentives of the partners, clearly defining their rights and responsibilities, and providing the means for resolving disputes when they arise.

A qualitative technique of semi-structured in-depth interviews was used to gather primary data in response to a series of research questions. The responses were analysed by means of a code-based content analysis. The results show that the key contributor to the success was the development of a supportive culture within the alliance. In addition, the alliance benefited its members by providing learning experiences, which contributed to the success of future projects. This created benefits beyond the life of the alliance, and transferred knowledge back into the partner organisations involved.

Managers at all levels are being challenged to undertake complex projects that are common in Alliances. The findings reveal that the appropriateness of the relationship among alliance members enables them to function with increasing competency on future projects. This type of procurement holds the promise of creating more positive working relationships, especially for smaller firms, that can lead to better outcomes on both current and future projects.

Keywords: Australia, alliancing, complexity, project management, procurement.

## **INTRODUCTION**

Australian state, territory and federal governments have utilised Alliance Contracting since the late 1990s as a project delivery structure for complex public infrastructure projects. This procurement approach has been significantly employed in the construction sector in an attempt to overcome a range of negative impacts associated with traditional adversarial approaches. Alliances embody a cooperative and collaborative mode of project delivery that relies on the development of trust, sharing, and alignment of goals between project partners.

At all operational levels, and across functional, cultural, and physical limitations, alliance partners must define common goals, agree on strategy and tactics, and tackle tough issues as they arise. Lambe, Spekman, and Hunt (2002) cite that alliance partners must consider carefully when to partner and with whom, as well as how best to structure and manage the partnership. Alliance partners who have developed the capability to leverage information and knowledge across each stage of the alliance process will find that such a knowledge-based approach is very critical to the success of any partnership (Lambe et al 2002).

Research by Twombly and Shuman (2010) found that, over the last two decades, alliances have increasingly captured the interest of both stakeholders and academic researchers in the field of project management, with firms dedicating more time, resources, and senior management attention to alliances. This was supported by Walker and Hampson (2003), who described complex projects as requiring significant management skills, coordination of a wide range of people with different expertise, and techniques to ensure completion within the parameters of proposed deadlines, cost targeting, and stakeholder expectations.

The paper is based on a case study of a self-funded Australian alliance used to deliver a water treatment program. The project was funded by residents through a levy that applies to local users. The AUD\$370 million program comprised the construction of more than 120 individual infrastructure projects over an 8,000 square kilometre area in Geelong, Australia. The infrastructure program was set up as an alliance between a water authority (Gee 1), an international network of professional consultants (Gee 2), and one of Australia's largest construction firms (Gee 3). The next section of the paper introduces past literature on the nature and culture of alliances.

## **CHANGING CODES: AN ALLIANCE PROCUREMENT MANAGEMENT SYSTEM**

In choosing a procurement method for any construction project, the objective is to optimise the balance between resource inputs and the certainty of outcomes. A key factor in the development of an effective alliance between the client, designer, and contractor is the development of a strong working relationship. Although considerable research has investigated the impact of alliancing on project outcomes, little research has yet considered the effect of this alliance on the development of capacity of stakeholders within the context of an alliance project.

Although alliances have existed for some time, it was in the early 1990s in the construction industry in Australia that there occurred a rapid increase in the application of this type of procurement method, a move towards standardization of scope, and refinement of its coexistence with other organisational relationships. A key element of alliancing is collaboration between all partners involved in the project lifecycle. It is based on open and cooperative relationships between agencies and contractors that incorporate the sharing of risk and opportunity between the participants. Under an alliance, there is a no-blame culture, which means that risks are not assigned to any one partner but are instead the responsibility of all (Mendez 2012).

Alliancing is governed by an agreed set of alliance principles. The alliance management structure is combined between clients and participants. Figure 1, below, illustrates a typical alliance structure.

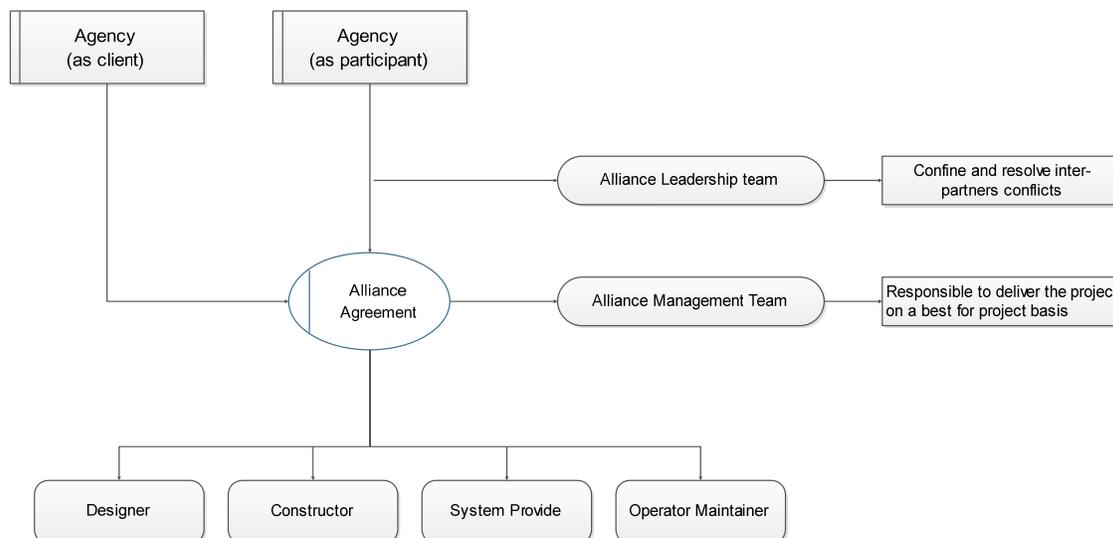


Figure 1. Typical Alliance structure.

According to Mills et al (2013), this type of agreement has been widely used in complex infrastructure projects, and seems to have a proven history of effecting the reduction of investment and improving return deadlines by sharing sources, capabilities, and risk among partners. The last decade of the 21<sup>st</sup> century is recognised by the authors as the “era of alliances”, since the construction industry environment already has a complex relational architecture, both formal and informal, which cannot exist without the presence of alliances, many of them with strategic meaning, which provide competitive advantages to partners.

However, the building process in Victoria is slowed by stakeholder phobia of problems and risk. With this obsession comes a never-ending exhaustive search to find solutions that both minimise team participants’ potential liabilities and maximise project outcome. Alliancing, with its emphasis on a culture of teamwork, open communication, stakeholders’ championing behaviours, and trust, has been touted as a potential solution to this issue. Yet, some state governments (specifically the Victorian government) in Australia remain doubtful of its workability.

### Managing Complexity in the Early Stages of an Alliance

The traditional procurement option for clients is now a problem even for the best-resourced firms, when it comes to managing complex alliance projects. Based on research conducted by Mills et al (2013), alliancing relationship-based models have emerged, whereby key success factors (such as open communication, trust, cooperation, risk sharing, and sharing of both sources and capabilities) are recognised as essential elements of an alliance agreement.

Managing complex infrastructure and construction projects involves and generates a number of interfaces between the various partners, as these entities work and innovate together to deliver the successful output. Kelly, Schaan, and Joncas (2002) note that the manner in which collaboration is conceived and its early development are important. Decision-making and inter-connection at initial stages play an important role in the ultimate overall project performance. In addition, Kelly et al (2002) suggest that firms need to have an ability to effectively manage relationship issues, as the relationship is key to achieving and maintaining a successful alliance.

The initial stages of alliancing can be a challenging experience for most firms, because the initial context of an alliance rarely focuses on encouraging cooperation. In cases where initial uncertainties, conflicts, and tensions are not handled carefully, mistrust and suspicion might arise between the partners, which will later create an “us versus them” mindset among the partners involved (Kelly et al 2002).

According to Bacarini (1996), the subject of complexity has been linked to other non-technical project aspects such as: communication, social, culture, behaviour, and inter-connectivity. Baccarini (1996) pointed out that complexity is one of the critical project characteristics that requires appropriate actions to achieve successful project outcomes, with infrastructure and construction projects continuously displaying higher levels of complexity. Other researchers have supported Baccarini’s (1996) view that project success is dependent on the level of complexity of a project, with complexity having a direct effect on overall project performance (Walker and Hampson 2003; Mills 2001).

The key to improving project outcomes is the development of management “soft skills” by the project team, such as communication, team-building, and trust. Alliancing has unique potential for encouraging the development of those attributes for each partner to the alliance. The next section reviews literature on knowledge transfer as it applies to alliances.

### **Knowledge Management: the Best Practice for Firms**

Bektas et al (2008) state that competitive advantages can be achieved by developing existing and creating new resources and capabilities to respond to rapid changes in the construction industry market. Among these resources and capabilities, knowledge management (KM) is recognised as a core element. In line with that, this section aims to examine the relationship between KM processes and competitive advantage in construction firms and project teams.

Infrastructure and construction have a tendency to move projects into a more complicated, dynamic, and interactive state. The success of complex construction processes relies on effective communication and collaboration between clients, designers, contractors, and other project team members and stakeholders. KM tools represent a key platform to support innovation and the sharing of lessons learned within a multi-disciplinary team working under a collaborative alliance concept (Bektas et al 2008).

The space of knowledge structure below presents that these categories of knowledge are all interconnected (see Figure 2, subsequent to the definitions below). The given view to this KM model in complex construction projects is generalised by distinguishing three important knowledge management spaces including: collaboration, KM, and actors (Ben Yahia et al 2012).

*Collaboration space:* concerns the management of co-operative elements and includes communication, co-ordination, co-production, and awareness. These elements are strongly present during all project phases, including: conception, planning, design, procurement, construction, and closeout

*KM space:* concerns the management of shared knowledge in relation to personalisation and codification of project processes. According to Ben Yahia et al (2012), through KM a firm’s intangible assets can be better exploited to create value, with both internal and external

knowledge leveraged to benefit the firm. In complex projects, KM can improve communication between partners and provide more informed knowledge by sharing best practice documentation, lessons learned, and project management tools.

*Actors' space*: concerns the management, representation, roles, and objectives of different partners. This is a classic “agency” relationship where one individual (group of individuals) depends on another for some action. Muller and Turner (2005) refer to a principal-agent relationship as one in which a party (the principal) engages another (the agent), via a contract, to perform some service on their behalf. This typically involves delegating some decision-making authority to the agent. In the classic definition of the principal’s dilemma of asymmetric information, there are qualities and characteristics unknown to the principal regarding the agent’s skillset, integrity, goals, motives, work methodology, and more. The traditional solution to the dilemma is monitoring. In principle, alliancing reduces this knowledge and power gap and eliminates the need for monitoring by encouraging equality, transparency, knowledge sharing, and communication between the alliance partners.

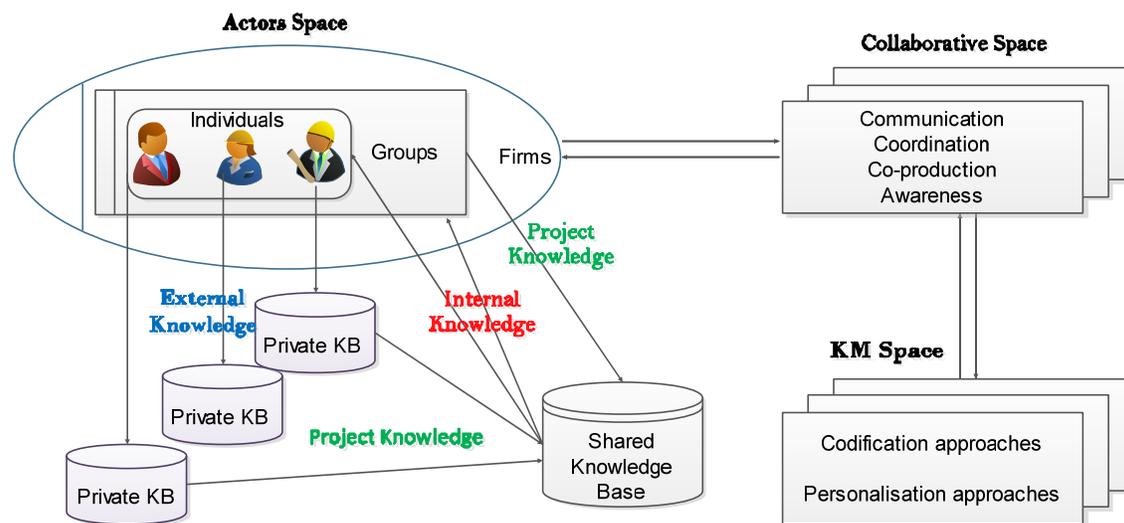


Figure 2. Knowledge management model for complex construction projects

Source: Adapted from Ben Yahia et al (2012)

It should be noted that information and knowledge must be gathered from and shared between all different partners and firms participating in the project (e.g. clients, designers, contractors, consultants, and others), because communication within and among these professionals is often problematic.

Alliances on the other hand, allow the development of a shared knowledge base, which has the effect of improving the partners that have the least capabilities in the team. This has the effect of levelling the management capacity across the alliance so that each partner’s skillset can be applied with maximum effectiveness. Research by {Bouncken, 2011 #2118} has shown that smaller, less capable firms benefit the most from an alliance with more sophisticated management processes. In the case a construction projects, it applies to issues like quality control, risk management, value improvement, and occupational health and safety.

## **The Impact of Culture between Alliance Partners on Alliance Performance**

Over the past two decades, researchers have witnessed an extreme upheaval in the number of external modes such as: project alliances, program alliances, and strategic alliances. A large part of extant literature has already reported on the benefits of these modes (for example, the sharing of costs and risks, the learning of new skills, collective opportunities, and technology advancement within a firm). However, previous record of these external modes has shown that, despite these benefits, many alliances do not prove to be a value for money success (Department of Treasury and Finance 2006).

Kelly et al (2002) noted that researchers tended to focus on hard elements, like financial and strategic factors, for describing the success or failure of an alliance. However, in recent times research into more soft or qualitative factors (such as resources-linked issues, stakeholder analysis, and integrated teams) have increased in importance. This has led to a growing and emergent body of literature on the importance of culture for the success of an alliance.

The authors of this paper note that culture, and its perception and behaviours across complex construction projects, have changed considerably since the early 2000s. The concept of a formal construction agreement, in which various partners are not just agreed in principle but are contracted to trust each other, might have seemed like an alien concept to industry stakeholders in the late 1980s. However, an increased proportion of stakeholders from those firms involved in complex construction projects now understand the business case for working collaboratively. The next section identifies the methodology used and results obtained; the paper concludes by discussing the findings of the study.

## **RESEARCH AND METHODOLOGY**

The research adopted a qualitative approach; this was done in order to gain an in-depth understanding of the situation and its meaning for those involved. The primary interest of the research is in the process rather than outcomes. Past research on alliances identified that the main issues were skills, cultures, and behaviours. These themes were used to form the research questions in the paper.

A qualitative approach was the appropriate method as the research was aimed at developing a detailed understanding of project management, views, attitudes and experiences of participants. Semi-structured interviews were carried out with three key stakeholders over a six month period between July and November 2013. A face-to-face interview approach was used to explore participants' opinions about the importance of project management behaviours, skills, and cultures in construction alliance. The target participants for the study were stakeholders utilising alliances, and their learning and development managers, as these were the individuals directly responsible for team cross training/development and assessment of competence.

For reasons of confidentiality, the participants wished to remain anonymous, therefore no names or personal details were printed in this research. However, permission was given to use general information in relation to the project and partner firms. The data for this paper comes from detailed examination of the interviews with stakeholders from a variety of functions.

In June 2009, the Alliance was formed to improve the water network in Geelong. The water authority (Gee1) together with a leading professional and technical firm (Gee 2) and a major national construction firm (Gee 3) were appointed to deliver the capital work program alliance. The authors interviewed three key stakeholders from the Alliance (Gee 1, Gee 2 and Gee 3) that had extensive knowledge utilising construction alliances. The water authority's use of alliancing highlights how effective this procurement process can be at pulling together a locally and globally diverse set of firms and apply their development, resources, and knowledge management capabilities to common goals and objectives.

## RESULTS AND DISCUSSION

The structure of the alliance helps to define its goals and objectives, and to ensure the incentives of the partners are aligned to achieve it. That is achieved from the outset by structuring the alliance in such a way that roles and responsibilities are clear and the processes for interaction are clearly understood. Furthermore, the alliance approach should involve all stakeholders in the negotiation alliance charter development and alliance contract negotiation processes, where the size of firms allows it (refer to Figure 3). The operational management team establishes the details of the partners' contributions to the alliance, its structure, management, and so on. The early participation of stakeholders, and collaboration at an early stage of development, also help pave the way for the alliance to be implemented quickly. However, if the people who are involved in the implementation of the proposed alliance are uncomfortable with some aspects of it, the chance of success may be greatly diminished.

The process contains three steps (shown in Figure 3):

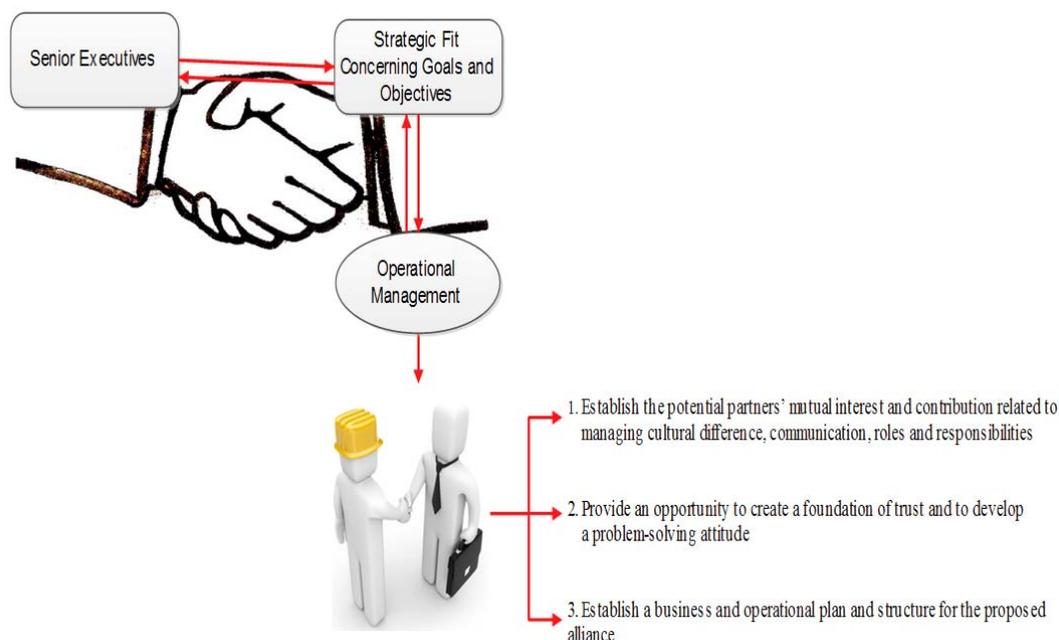


Figure 3. Roles of the negotiation partners

The first step is to establish the partner's mutual interests, including identifying the skills that are necessary to complete the project. The process involves more than just the selection of

firms to undertake construction work. The process objective is to align the skills with and the motivations that lead to a collaborative culture.

The second step is to provide and opportunity to create trust and develop a problem solving attitude amongst the team. It starts by structuring the alliancing in such a way that roles and responsibilities are clear and that the processes for interaction are clearly understood. The alliance approach involved all stakeholders in the negotiation process.

Finally (step three), once the above steps are completed, the partners align their goals, the alliance is formalised, and the business objectives are articulated into Key Results Areas (KRAs).

The alliance not only describes what ‘performance’ means in terms of the KRAs but also specifies behavioural conditions that comprise the Alliance principles. These contain agreement for a no-blame collaborative culture based on consensus decision-making, so that parties cannot sue each other unless there has been demonstrable illegality or gross negligence.

The operational management team works out the details of the partners’ contributions to the alliance, its structure, management, and so on. The participation of and early stage of collaboration also help pave the way for the alliance to be implemented quickly. However, if the people who may be involved in the implementation of the proposed alliance are uncomfortable with some aspects of it, the chance of success may be greatly diminished.

Interviewee Gee1 made the point that partners choose a specific alliance form not only to achieve greater control, but also for more operational flexibility and realisation of market potential. The strategic motives for firms to engage in alliance formation vary according to firm-specific characteristics and the multiple environmental factors. As the results reveal in Table 1 (below), this diversity has triggered the development of several motives to enter an alliance. Interviewee Gee1 commented:

The set-up of the alliance was to be able to deliver our capital program. So we had a large number of water resource projects to do, what I call them more traditional water projects, pump stations, pipelines, tanks, etc. both for the replacement of existing assets but also to service new growth. And we looked at the various mechanisms (procurement selection), and how we were going to deliver that expanding program, and landed on the fact that the alliance was the best way to go.

<i>Motives to enter an alliance</i>	
<i>Reasons</i>	<i>Benefits</i>
1	Acquiring means of safety performance and environment
2	Gaining access to new technology
3	Learning and internalisation of tacit, shared and embedded skills (the skill up of our staffs and out local contractors)
4	Alliance, is a very effective tool for delivering project consistently
5	Market seeking
6	Pooling of resources and sharing risk
7	Co-specialisation
8	Restructuring and improving performance
9	Develop technical values
10	Embracing and sharing the platform for communication in alliance

Table 1. Owner Motives to Enter an Alliance

The Water Authority chose an alliance methodology for an anticipated AUD\$370 million in complex projects, whereas previously projects of this nature (although smaller in scope) would typically be delivered through a more traditional procurement method. An alliance partnership was adopted and the data revealed that the partners' motives to engage in alliance (listed in Table 1, above) were centred on two key reasons: efficiency gains and alliance benefits.

### ***Alliance and the efficiency gains***

Respondents (Gee1 and Gee2) commented:

“Water Authorities’ capital works program alliance highlighted efficiency as a key outcome in the delivery of any capital works program. To achieve this gain, a change was required in the way that projects were delivered, which led to projects being bundled into large programs of work. Consequently, the focus changed from small projects being delivered under a traditional fragmented method, to delivering large number of projects in a structured program manner under an alliancing procurement approach.”

The two interviewees went on to say that:

“After delivering a number of water upgraded projects using a traditional approach, in small AUD\$40 to \$50 million segments, the Water alliance made the decision to leverage the efficiencies that could be gained by bundling the capital projects into one AUD\$370 million parcel of work.”

The participants believed that the alliance route was a means for the water authority to improve in term of safety an area where in past projects had not performed well. As stated by one interviewee:

“So in term of safety that is where the safety part kicks in. it was a deliberate strategy to raise the bar in term of our safety requirements, and it is fair to say there was some pushback from some contractors on that, they though we are going over the top. However, that’s been a huge focus for us in term of safety. And that’s been a big part of the alliance is also developing those areas that we can bring back to the rest of our parent firms. But no only are we bringing stuff back into the water authority in terms of different safety aspects, the contractor that we are with John Holland, they actually use a lot of the stuff to develop alliance throughout their parent firm as well.”

### *Alliance benefits*

Participants believed that working together as an alliance could provide efficiency gains in planning and the allocation of resources, sharing knowledge, skills, and ideas, and an increased impetus in working towards the common goals and objectives. Above all, participants articulated the benefits to their partners, not only from the new technological gains and improved skillsets of staff, but from the support offered in its delivery through the alliance. The respondent (Gee1) stated the alliance certainly delivered a lot of benefits in terms of the up skilling of our employees:

“I’d have no hesitation and if you talk to any of the Barwon Water people in terms of what it’s meant, I think all of them would say it’s been a very rewarding experience. They will say, ‘I thought I was a project manager beforehand, but now I realise I wasn’t, and now I know what is means to be a real project manager’.”

The participant went on to say that:

“...whilst we have an alliance together, we do some what we call ‘self-performed work’. Therefore, self-appraisals offer numerous benefits to the process including greater accuracy, fairness, and improved understanding of the demands and expectations of all involved. So whilst the focus has been about developing our people, developing our skills and knowledge and bringing it back into Barwon Water, I think it is also been a very positive experience for both John Holland and the design consultants, GHD.”

The interviewees expressed the view that communication is a huge issue and is key to the efficiency and effectiveness of partnering and integrated teams in an alliance.

Interviewee Gee1 indicated that embracing communication is certainly part of it, and being able to engage all those aspects together. For example, whilst early and efficient dissemination of information (such as roles, responsibilities resolution process, and workshops) is a sound basis for communication within the team, a raised awareness of the significance of effective listening and the potential for misunderstanding will enable the partners to be positive, self-confident, and supported in their communication.

Participants agreed that along with the alliance comes learning from other partners. They believed that it was the internalisation of new knowledge that benefits the participant firms. Alliances have many advantages. As an example, the alliance structure can serve as a channel for the transfer of knowledge, information, and up-skilling of staffs, also enabling other kinds of managerial learning. The participants indicated that learning from their partners by accessing critical information, sharing know-how, and up-skilling of capabilities is one of the most important motivating factors for forming an alliance. They indicate that a partner's capacity to learn is determined by a combination of factors:

- Up-skilling transferability
- Receptiveness of partners to new skill and
- Possession of necessary competence to understand and absorb the new knowledge

One participant (Gee1) suggested that one of the main reasons an alliance was formed was to develop their own staff. Similar comments came from another interviewee. Responding to questions related to the local SME contractors, the interviewees commented that they believed the skills and technology necessary for success in the construction business today many times mandate that small enterprise contractors work with other firms that possess complementary skills, to achieve mutual benefits. Regardless of the alliance partner or how the alliance is structured, alliances can bring significant benefits to the partnering firm, especially small contractors.

The participants stated that:

“When large and small firms form an alliance, they develop a common bond so each becomes more efficient and more profitable. Especially, small contractors improve market access and gain entry into markets they would otherwise not be able to accomplish. In addition, alliance can help reduce external threats, help achieve firm objectives and build core competencies.”

The interviewees went on to state that:

“Alliances bring together complementary skills from partners that small local contractors may lack. Due to the smaller scale in which many small contractors operate, they may not have all the skills required to be successful and secondly by partnering with large firms.”

It became clear through these interviews that small contractors can learn and take advantage of implementing an enhanced communication and feedback approach to encourage, recognise, and celebrate innovative ideas from any stakeholder. Those alliances took place mainly with local small contractors.

## **CONCLUSION**

Alliancing has offered clients and the construction industry a form of collaboration to deliver highly complex and risky projects, putting the spotlight on a viable alternative to opportunistic action. A key advantage of the alliance approach is that it embeds collaboration and develops skills, knowledge, and experiences in the stakeholders.

Barwon Water has spent the first two years of the alliance successfully learning to innovate. By adopting alliancing as an alternative route of procurement, Barwon Water has improved itself as a firm and learnt to overcome challenges along the way. While doing so, steps have been taken to establish an alliance process which is sustainable, and which promotes a culture of collaborative working and continuous improvement. The findings from this research indicate that the role of stakeholders and the selection of procurement method can help to promote alliance skills, cultures, and project management behaviours in construction alliances.

This procurement approach requires particular and rare knowledge, skills, attributes, and experience of the participants and team members. Owners have much to gain in using alliances when their objectives are to improve the capabilities of contractors in their regions. Many firms in local regions lack the sophisticated management skills to take on bigger and more complex projects. Alliances are a form of procurement that can provide an opportunity for knowledge transfer between firms on the project. This has the effect of improving the development of those firms for the benefit of the clients, owners, and stakeholders on future projects.

## REFERENCES

- Baccarini D. (1996) The Concept of Project Complexity - A Review. *International Journal of Project Management* Vol. 14 No. 4 pp 201-204, Printed in Great Britain.
- Bektaş, E., Heintz John L and Wamelink J.W.F. (Hans) (2008) A Review of Knowledge Management in Collaborative Design: The Necessity of Project Knowledge Integration in Large Scale Building Projects. *Design & Construction Management Section Delft University of Technology, Netherlands.*
- Egan J. (2002) Accelerating Change. Rethinking Construction A Report by the Strategic Forum for Construction, London.
- Kohlbacher F. (2006) The Use of Qualitative Content Analysis in Case Study Research. *Forum: Qualitative Social Research, Volume 7, No. 1, Art. 21.*
- Kale P. and Singh H (2009) Managing Strategic Alliances: What Do We Know Now, and Where Do We Go From Here? *Academy of Management Perspectives.*
- Kelly J. M., Schaan J. L., and Joncas H (2002) Managing Alliance Relationship: Key Challenges in the Early Stages of Collaboration, University of Ottawa.
- Lambe J. Spekman R. E. and Hunt S. D. (2002) Alliance Competence, Resources, and Alliance Success: Conceptualization, Measurement, and Initial Test, Texas Tech University, Virginia Tech.
- Mendez M. (2012) Collaborative Mechanisms in Alliance Contracting, unpublished honours thesis, School of Architecture and Building, Deakin University, Geelong Victoria, Australia
- Mills A.J., Mendez M., and Nalewaik A.A., (2013) Critical Factors to the Success of Alliance in Australia, AACE International Annual Meeting, Washington, DC USA.
- Muller, R & Turner, JR 2005, 'The Impact of principal-agent relationship and contract type on communication between project owner and manager', *International Journal of Project Management*, vol. 23, pp. 398-403.
- Nesrine Ben yahia, Narjès Bellamine and Henda Ben Ghézala (2012) On the Convergence of Collaboration and Knowledge Management. RIADI-GDL Laboratory, National School of Computer Sciences (ENSI), University of Manouba, Tunisia.
- Victorian Government, Department of Treasury and Finance (2006) Project Alliancing Practitioner's Guide Melbourne, Victoria Australia.