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A RESEARCH AGENDA FOR PUBLIC PRIVATE PARTNERSHIPS

Over the past decade Australian state governments have considered using Public Private Partnership (PPP) mechanisms to deliver many services for the community. Dr Colin Duffield looks at the extent of these projects and suggests a mechanism to manage relevant research in the field.

Public Private Partnerships (PPPs) has become the internationally recognised term for governments working in partnership with the private sector to deliver services for the amenity of the community.

PPPs flourished in the 1990s, initially for the provision and operation of infrastructure such as bridges, roads and water treatment plants. The adoption and application of the PPP mechanism has expanded to cover the provision of both economic (e.g. roads, ports, airports, IT) and social (e.g. hospitals, schools, courts, prisons) infrastructure. The Blair Government in the UK started this trend and the Victorian NSW and Queensland governments in Australia have policies for PPP projects.

The extent of projects being undertaken via PPP mechanisms is best put in context by reflection on the building and construction industry. The total value of Australia's building and construction activity in 2000–2001 was $51,798 million (i.e. 7.7% of GDP), (Royal Commission into the Building and Construction Industry (2002)), of which 71% (i.e. 5.5 % of GDP) of the work involves major engineering and building projects. Both public and private providers are responsible for this work through ownership, the engagement of construction resources and the overall operation and management of the services reliant on the infrastructure provided. Overall the public sector accounts for 30% (i.e. 2.3 % of GDP) of building and construction activity and of this some 39% (i.e. 0.9 % of GDP) of the work is undertaken by the private sector. It is forecast that some 20% of Australia's infrastructure will be managed by PPP mechanisms in the near future.

The policies and procedures underlying the use of PPPs is currently gaining wider acceptance with Canada, South Africa, the Netherlands and the World Bank promoting its use. In Australia, Victoria was the first state to develop PPP specific guidelines and other state governments have built upon the Bracks government's, 'Partnership Victoria Policy', with WA, NSW and Queensland governments recently releasing their policies along with SA and the NT who are also well advanced in their policy development.

There have been a number of issues associated with the implementation of PPPs. These issues include the assessment of the benefits of such schemes commercially, and in respect to public outcomes and probity matters, the cost of tendering, financing arrangements and achievement of creative, cost effective infrastructure solutions that meet service demand for the duration required. A particularly important time related issue involves assurance that the long-term stewardship of assets is being professionally managed and public interests protected. To date, there have been reported project successes, failures and from time to time frustration in the marketplace due to the speed and certainty of decisions, (Duffield (2001)). Allocation of project risk has also been investigated in detail, (e.g. Arndt (2000)). The management of risk continues to be one of the most important factors in achieving successful outcomes for PPP projects. Structured and ongoing independent research is urgently required to assist government, the commercial sector, construction firms and service operators and providers avoid past pitfalls as new PPP projects are initiated.

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STAKEHOLDERS AND BENEFITS

The importance and significance of research into PPPs is vast as these projects influence the fabric of our society and do so over a long time period, often equating to a generation. Individual PPP contracts are typically structured to last 20–40 years and reflect the requirement to deliver service outcomes in an efficient manner over the facilities' whole life. The magnitude of the impact of PPP projects is reflected in the relationship between capital cost, operation and maintenance costs, the level of service outcomes provided and the responsibility for risks associated with unforeseen or changing service requirements.

PPPs are reliant on long-term relationships between governments, private providers, users of the service and the general public. Improvements to, and a greater understanding of PPP projects resulting from structured applied and fundamental research has the potential to add value to all these stakeholders.

The research projects identified in this article have been compiled on the basis of recommendations from past research, (from a number of Universities and businesses), input from industry groups such as the Australian Council for Infrastructure Development (AusCID) and The Institution of Engineers, Australia (IEAust), feedback from the PPP think tank of the Heads of Australian State Government Treasuries and through direct input from advisers to The Australian Centre for Public Infrastructure.

POTENTIAL RESEARCH TOPICS

Melbourne University Private, in conjunction with industry, has responded to the need for research through the establishment of the Australian Centre for Public Infrastructure to create a platform for independent research and corporate continuing education and training. The Centre has developed a range of current research topics covering themes such as process, risk, financing and funding, infrastructure development, contracts and public policy. Research has commenced on some of these topics, others are the focus for ongoing research within the centre and some will be used as research topics for students undertaking Melbourne University Private's Master of Public Private Partnerships course.

RESEARCH FACILITATION

The significance, need and breadth of research required of PPP projects are self-evident. The ongoing challenge is how to undertake the priority areas of the research agenda within the required timeframe and how such research is to be resourced and funded.

Research in Australia has historically been funded by governments, if the research is fundamental or for the 'public good'. More latterly, there has been a strong emphasis for research to be funded as a partnership between industry and government. Such an approach has a relatively long gestation period and issues of confidentiality and access to data are often complex. This is particularly the case for research into PPP projects where the whole justification for using a PPP mechanism is that there are strong commercial and service outcome grounds for doing so. The commercial justification and associated risk allocation is, by its nature, confidential and often needs to remain so for many years, for these reasons traditional research funding mechanisms are not particularly attractive.

Some have advocated funding PPP research by placing a levy on projects and using the projects as research case studies thus potentially enhancing the outcomes for the particular project in addition to industry at large. The concept of a healthy pool of research funding is naturally attractive to researchers, however, this approach would lead to fragmented research if undertaken and controlled by the specific project teams rather than being coordinated. Alternatively, commercial in confidence issues would be at risk if research control were with a third party.

The approach adopted by Melbourne University Private is to facilitate research through research students who are also in the employ of project participants. This model has the advantage that case study research data is readily available to the researcher, the project participants have a direct role in the research and staff have the opportunity to gain a research degree whilst assisting to move the PPP industry forward. Melbourne University Private has the added advantage that its research material need not be made public.

In an ideal world a combination of the above approaches would assist in achieving the research outcomes required.

It is also of paramount importance that this research be conducted in a coordinated and shared manner such that duplication of effort is minimised. There is a strong case for The Australian Centre of Public Infrastructure to act as an honest broker of case study data and material to facilitate Australian research. The Centre also provides scope for discussion, debate and dissemination of research information.

The first cohort of students undertaking Melbourne University Private's Masters of Public Private Partnerships (by research) commenced in March 2003.

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The research topics identified are by no means the only areas where value can result from focussed research. Ongoing input to the research agenda is welcomed and suggested research topics should be forwarded to Colin Duffield, email: c.duffield@muprivate.edu.au˙

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SETTING THE AGENDA

The success of public private partnerships relies on long-term relationships between the stakeholders. Research resulting in improvements to, and a greater understanding of PPP projects has the potential to add value for governments, private providers, end-users and the general public, but the research needs to be structured. Dr Duffield identifies a range of potential research topics based on a set of broad themes.

Process

- Develop transparent evaluation techniques for PPP tenders. Include mechanisms for consideration of cost and non cost issues as well as multi criteria analysis methodologies. This may include the development of mechanisms to reduce the cost to proponents and government when initiating PPP projects.
- Refine methods to assist in the achievement of 'value for money' outcomes from PPP projects. This may involve refinement of the current Private Sector Comparator (PSC), clarification of risk identification, pricing and allocation and possibly some standardisation of implementation methodologies.
- Consider non cost related 'value for money' issues in delivering projects as PPPs, for example private sector as 'change agent' or customer focus issues.
- Develop and refine a methodology for project evaluation that considers time related issues and triple bottom line impacts. This may be an enhancement of the existing time value of money concepts.
- Undertake a rigorous comparative analysis of 'value for money' outcomes to test differences between traditional budget sector asset and service acquisition and those delivered via a PPP mechanism. The comparison may include the development of a more sophisticated model based on traditional delivery that is enhanced to include allowance for cost over-runs, delay and risk weighted cost of government capital.
- Investigation and establishment of targets for the extent of regulation for PPP projects. This regulation includes probity audits during tender process and regulation throughout the operation period of the contract.
- Investigate the level of central infrastructure planning that should be undertaken to address short-, medium and long-term needs of our community and how best this planning may be achieved, (IEAust (2002)).

Risk

- Develop new, and enhance current, theories for efficient risk allocation and develop mechanisms for sensible application of such theories in practice. Such theories include symmetrical risk allocation, options for sharing exogenous risks such as risk sharing on a pro-rata basis and government risk capping, similar to that used in alliance contracts.
- Undertake an objective analysis of risks associated with various projects and establish a technique to predict optimal weighted cost of capital – public vs private.
- Examine the relationship between the use of non-recourse finance and the skewed risk profile to which lenders are exposed. Particular attention should be paid to the problems arising from the financing technique regarding the achievement of efficient risk allocations.
- Refine the use of qualitative risk valuation techniques for use in establishing a risk cost for use in public sector comparators. Techniques may include the application of Monte Carlo, contingent claims analysis and value at risk.
- Undertake a detailed historic investigation of past projects to statistically establish the likelihood of certain events occurring for particular asset classes. This should include the likelihood for contractual disputation and would lead to an improved understanding of the causes for, magnitude and mechanisms for solution of restricted practices, contract variation and disputes.

Market position, demand and value of PPPs

- Conduct longitudinal analysis of PFI/PPP/BOOT etc projects using data captured periodically after project initiation—for example 5, 10 years after delivery—to identify and analyse relationships between value, risk, benefits, success and service outcomes.
- Develop a methodology to assist the use of PPPs for local governments and authorities such as water boards. This adaptation will necessitate cost efficiencies for small projects and may incorporate packaging.
- Test and review the appropriateness of using weighted cost models for Australian projects. In particular review Australian infrastructure projects over past 25 years or so to identify the level and extent of cost over-runs along with possible reasons.

Finance and funding

- Review the role of municipal bonds in delivering regional infrastructure in the USA and their potential application in Australia. The project would include financial modelling of cost and a comparison to tax revenue if such bonds were applied here on a similar basis to the USA.
- Investigate mechanisms that make investment in PPP projects appropriate for superannuation funds.
- Development of appropriate measures to address the impact of section 51AD and division 16D of Australian taxation legislation on the implementation of PPP projects.
- Develop a methodology for determining an appropriate discount rate for use in developing Public Sector Comparators. This should allow for constraints on public sector borrowing and general business and sectorial risks.
- Consider the scope and potential for unbundling the financial component of a PPP project from the other packages such as design and construction, maintenance and operation in order to increase competition among financiers while retaining the benefits of private financing.

Infrastructure development

- Explore mechanisms to facilitate innovation in design, service delivery and operation and maintenance. The possible outcome from this may include the development of 'best' practice guidelines for output specifications.
- Investigate the benefits of having integrated infrastructure assets. This would include consideration of the degree of networking of assets, the level of redundancy required and assessment of who controls the overall system when large numbers of services are delivered via PPP mechanisms. Integration of infrastructure systems to facilitate re-routing options in the case of disaster planning may also be considered.
- Develop structured measures to quantify the life expectancy and value of both existing and new infrastructure assets.
- Develop specific linkages between technical design and long-term project success.
- Develop an integrated database of infrastructure facilities. Such information would facilitate evaluation of value for money achieved on projects.

PPP contracts

- Investigate situations where the development of standard form contracts may be appropriate for PPP contracts.
- Develop techniques to assist ongoing contract management of complex PPP agreements. This would include consideration of methods to flexibly accommodate change whilst still maintaining consistency in interpretation of a contract. It may also include the development of systems for repricing such that sound commercial positions are maintained for all stakeholders without unrealistic erosion of the initial commercial positions of either government or private proponents.

Public policy

- Develop a mechanism to match an organisations risk profile to the structure of project delivery systems. This research would benefit from an analysis of organisational psychology including whether the loss aversion trait applies to firms as well as individuals.
- Develop tests and mechanisms to appropriately allocate responsibility of last resort protection for the public. Is government underwriting the answer?
- Examine the issue of 'core and non core services' and what arguments there are for government to retain control over 'core services'.
- Examine the influence of political motivation on the success of potential PPP projects and the mix between levels of direct taxation and society's tolerance for direct charges for services.
- Investigate mechanisms to appropriately engage communities when considering PPP projects. This is particularly relevant for regional development.

Application of PPP concepts

- Investigate specific case studies to establish how PPP policy is applied and developed for real projects and ongoing delivery of service. This may be different for different sectors.