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RESEARCH ARTICLE

Investigation of the challenges facing public-private partnership projects in Australia

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Abstract

The practice of implementing infrastructure projects through a public-private partnership (PPP) arrangement is widely employed around the world with successful outcomes. However, this practice is not without challenges related to cost, time and quality variations, which the public is forced to bear. This study aims to explore factors influencing the termination of the East West Link project in Melbourne and present time and cost variation challenges facing the Sydney Light Rail project. This paper utilizes literature, investigating the critical success factors (CSF) for PPP infrastructure projects in an international context, and other readily available data sources such as Australian government publications, the case projects' reports, news articles, and websites as the sources of data. The data gathered from these sources was then analysed to understand the project challenges and to investigate the relationship between CSF and the challenges. Four challenges were identified, including insufficiency of

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the business case, political interference, non-independence of implementing organizations and insufficient risk profile identification. The findings can assist to cover the loopholes that might cause similar failures in project planning, risk management, and policy and guideline frameworks. However, efforts should be made in improving the existing policies to accommodate political interests as part of risk measures under the national PPP guidelines.

Keywords

Critical Success Factors, Public-Private Partnership, Infrastructure Projects, Australia, Project Challenges

Introduction

The practice of using the public-private partnership (PPP) model for the delivery of big projects in Australia has been around for more than 20 years (Wilson, Pelham, and Duffield, 2010). Australia is one of many countries in the world that successfully employ the practice of PPP (Cheung, Chan and Kajewski, 2012). To improve the implementation of PPP projects, countries have developed policies, guidelines, frameworks, and broad experience to successfully realize PPP infrastructure projects. The National Public Private Partnership Guidelines (Commonwealth of Australia, 2008) policies and laws have been developed by the Australian Federal and State Governments to help people understand and run PPP projects successfully. However, despite the extensive knowledge and resources available, Australia is still experiencing unsuccessful practices in implementing some of its PPP infrastructure projects. The 2015 termination of Melbourne's largest infrastructure project, 'East West Link' (Victorian Auditor General's Office, 2015)(VAGO), and the current challenges facing another large project in the state of New South Wales (NSW), the 'Sydney Light Rail', are both examples of PPP arrangements within this environment of expertise in project planning, delivery and years of experience, where one would expect such projects to be implemented successfully, with minor or zero challenges. However, none of the previous researchers have investigated why some PPP projects are not successful despite Australia's many years of experience in delivering PPP projects successfully. All PPP infrastructure projects in Australia undergo a thorough screening against potential risks before they are ready for execution. However, some projects fall short during the implementation process as indicated above.

The termination of the East West Link (EWL) project in 2015 resulted in a loss of \$0.78 billion (VAGO, 2015). Similarly, the continuing criticisms of the Sydney Light Rail (SLR) project for time and cost overrun (O'Sullivan, 2018b), with other undocumented effects on businesses and residents, calls for experts' attention to investigate the reasons behind these difficulties. Financially, Australia expects to spend about \$75 billion within the next ten years on infrastructure (Commonwealth of Australia, 2017). Similarly, the national infrastructure audit report of 2015 revealed that spending on infrastructure was 13.3% of GDP in 2011 of which over 70% was ascribed to transportation. According to the Victoria's Auditor General's report on the EWL project (VAGO, 2015), the project failed before actual work started on site and was terminated in June 2015 when more than \$1.1 billion had been spent. The state government expected to recover only 29% of that expenditure. Similarly, the Sydney Light Rail project is reported to undergo an extension of time for reasons related to project misinformation (O'Sullivan, 2018a). Nonetheless, the adoption of critical success factors can increase the successful completion of the above two PPP projects. However, no study was

conducted to identify which success factors were not implemented in the EWL and SLR projects, and in other PPP projects in general. Thus, the objectives of this study are to identify the challenges faced by Australian PPP infrastructure projects by considering EWL and SLR as case studies and to map the challenges with the potential PPP critical success factors. In this study, the term challenges refer to several issues including problems, shortcomings, and risks that are associated with the running of PPP infrastructure projects.

Literature review

Public-Private Partnership (PPP) is a non-traditional way of project procurement where the public work together and share resources with the private sector on key projects. It can also be described as a government contract with a private sector to design, build, finance, maintain infrastructure and provide service (NSW Government, 2015). The Australian National PPP policy framework recommends the use of PPP when the capital cost of a project is above \$50 million (Commonwealth of Australia, 2008). The practice of PPP in today's project procurement has been increasing and seems to be more significant in the cities where there is high population growth that overwhelms a government's capacity to provide necessary infrastructure as needed. In China alone, Beijing had about 2,400 infrastructure projects in the period between 2006 -2010, an average of 600 projects every year (Chan, et al., 2010b). Such a large number of projects is difficult to be delivered by the government alone. Thus, PPP can be considered as an option in delivering such a volume of projects. However, Cheung, Chan and Kajewski (2012), caution that PPPs are not a cure for all problems and they are not suitable for all project settings. Diverse types of PPP have been practiced with success and some with failures due to a range of factors depending on the objective of the project (Zhang, 2005). PPP projects are costly, time-consuming and service related. During implementation, there are associated challenges that lead to unsuccessful results. Nonetheless, the implementation of critical success-factors could alleviate the problems posed by these challenges. Numerous studies have been carried out to find critical success factors affecting PPP projects as discussed below.

CRITICAL SUCCESS FACTORS (CSF) IN PPP PROJECTS

Critical success factors (CSF) are those factors that influence the effective implementation of the project (Spalek, 2005). Scholars describe CSF as common in developed countries like Australia, Europe and North America where there are stable economies and sound governance structures, leaving out developing countries which are suffering from lack of knowledge, technology, and weak economies to support proper PPP engagement. It has been well documented that CSF for PPP infrastructure projects can be achieved through diverse ways depending on the nature of the project. Osei-Kyei and Chan (2015) found that success factors for PPP that are common between Hong Kong, Australia, and the United Kingdom relate to good legal framework, public and private sector commitment, strong and worthy private associations, appropriate risk sharing and allocation between parties, and stable microeconomic conditions.

According to Zhang (2005), the five CSF for PPP projects are related to economic viability of the project indicated by the projected returns from the investment or services provided, proper allocation of risks to those parties best able to bear those risks, financial capability to support the whole life-cycle cost of the project, well-structured private consortiums with technical strengths, and an investment environment that gives confidence for the investors

to feel safe to invest. Similarly, Chan et al., (2010a) in looking at CSF for PPP projects in China, developed 18 CSF out of which 5 appeared to be common. Hsueh and Chang, (2017) described 26 CSF for PPP while looking at Taiwan infrastructure and created 4 common groups out of 26. Those are a supportive/good legal framework, public support, conducive investment environment and appropriate selection of PPP projects. Similarly, Ismail (2013) found 18 CSF from the Malaysian PPP projects perspective and listed 5 main factors. The main factors were good governance, commitment, and responsibility of public and private sectors, sound legal structure, favorable economic policies and accessibility of the financial market. Chan, et al., (2010a) studied CSF for PPP projects in Beijing and Hongkong administrative zones and found factors that were different from other developed countries like the United Kingdom, Australia, and America due to the government structure and policy system of China. Among the similar factors between Beijing and Hong Kong were lengthy delays in negotiations, inexperience and lack of appropriate skills, lengthy delays due to political debates and termination of projects before contract signing.

Wang, et al., (2018) on their evaluation of the CFS, found that four common CSF that relates to PPP implementation were efficient payment mechanisms, long term demand for service, well-structured and trustworthy partnership, and proper risk allocation. The above CSF reveals similarities and differences due to the context of the project. Similarities found above are related to good governance, stable microeconomic environment, proper allocation and sharing of risks, financial capability and commitment of both public and private sectors as shown in Table 1.

Table 1 Summary of Critical Success factors of PPP Projects.

Main Critical Success Factor	Author(s)
Stable microeconomic environment	Hsueh and Chang, (2017) Cheung, Chan and Kajewski, (2012)
Shared responsibility between parties in PPP – identification of areas where the public or private can cover one another.	Zhang (2005) Chan, et al., (2010a)
Proper allocation of risks in contracts – identification of projects risks and allocating to the most suitable party	Zhang (2005)
A transparent and efficient process of procurement	Cheung, Chan and Kajewski (2012)
Stable social environment – public support on projects and understanding	Ismail (2013) Cheung, Chan and Kajewski (2012) Chan, et al., (2010a)
Stable political environment – Adherence to the rule of law, a democratic environment without institutional interference.	Ismail S (2013) Cheung, Chan and Kajewski (2012) Chan, et al., (2010b)

Table 1 continued

Main Critical Success Factor	Author(s)
Judicious state mechanism	Cheung, Chan and Kajewski (2012) Chan, et al., (2010a)
Financial capability - the ability to seek financial partners to support projects internally or externally.	Hsueh and Chang (2017) Ismail (2013) Cheung, Chan and Kajewski (2012)
Well-structured private consortiums with technical strengths – the ability to seek qualified personnel, skills, equipment, and technology to support the project.	Zhang (2005) Chan, et al., (2010a)
Worthwhile investment environment – safer conditions for local and offshore investments.	Ismail (2013) Cheung, Chan and Kajewski (2012)
Public and private sector commitment – having a common goal towards project realization while maintaining their distinct roles	Ismail S (2013) Cheung, Chan and Kajewski (2012) Chan, et al., (2010a)
Good legal framework – stable and well-structured legal framework to safeguard investors and offer confidence	Hsueh and Chang (2017) Ismail (2013) Zhang (2005) Chan, et al., (2010b)

However, Rwelamila, Fewings, and Henjewe (2015) identified factors which were not addressed by others including the relationship between the public and private sector and the identification of the real public sector. In the majority of democratic nations, public representation starts from civilians who vote for politicians, then politicians form the government. The public commitment required in engaging in contracts with the committed private partner is somehow undermined so that the private partners are more likely to drive a project and defend their position than the public partners.

GATEWAY REVIEWS

To maximize the successes of infrastructure projects in Australia, a statutory independent body was formed under the Infrastructure Australia Act 2008 with a mandate towards prioritizing and progressing national significant infrastructure (Infrastructure Australia, 2016). Infrastructure Australia (IA) conducted autonomous research on infrastructure development for 15 years rolling out schedules and issuing advice to all levels of government, investors, and owners of infrastructure. It developed short and exhaustive assurance reviews that assist successful project delivery, among them is the 'gateway review process' (assurance practice) led by independent reviewers from the public and private sector. Gateway Reviews complement the work of other government approval processes and act as an independent advisor throughout the project. As shown in Table 2, gateway reviews are not audit processes, nor do they take the responsibilities of an entity on project implementation. They assist the delivery of projects in accordance with the agreed objectives (Commonwealth of Australia, 2017).

Table 2 Six Gateway reviews (decision Points) at various critical stages of a Project.

Critical Stages		Focus area
Gate 0	Business need	Adequate assurance of scope, purpose, and benefits
Gate 1	Business case	Assurance of business approach that can be clearly defined, quantified and delivered within the timeframe.
Gate 2	Delivery strategy	Assurance of project plan and implementation is clearly captured in procurement strategy and process
Gate 3	Investment decision	Assurance of benefit management strategies and plans are well incorporated
Gate 4	Readiness for service	Assurance of organizational readiness before delivery through evaluation of ongoing performance and benefits
Gate 5	Benefit realization	Measuring the expectations for the future, building remedial actions to combat any potential risks.

Research methodology

The methodology in this paper adopts a case study approach, investigating projects carried out in Australia's two biggest cities, Melbourne and Sydney. The paper utilizes a literature review of CSF for PPP infrastructure projects, using readily available data sources, such as government publications, reports, journal articles, media, and websites. Data gathered from these sources were then analysed to map the challenges faced by the case study projects and the potential CSF. The case study approach is preferred mostly for explanatory research that deals with functional relationships drawn over time instead of mere incidences or random occurrences (Yin, 2011). In this paper, an in-depth case study review was conducted to detect the primary challenges faced by the EWL project in Melbourne, which resulted in its termination. Our review also explored the current challenges faced by the SLR project, which are causing major delays and incurring high unexpected costs. The two projects were chosen as case studies for this paper due to the following attributes:

- Public attention due to projects' cost and completion time challenges
- Political intervention/interest
- Public outcry regarding social and environmental impacts
- High development costs involved
- The enormous size of the projects

To identify the challenges faced by the two case projects, this study utilized publicly available information such as basic project details, information on the management process and project development framework. Further, publications regarding the public's opinion and reaction to the development of the projects were reviewed. A similar approach was used by Stewart and Nicholson (2003) to study the EWL project. The content analysis of the data from the two case studies was carried out and lists of the challenges were developed. The CSF obtained from the literature were then related to the identified challenges. Consequently, discussions of results relating to the challenges of CSF were conducted. A similar approach was used by Roehrich, Lewis and George (2014) as well as Chan, et al. (2010b) when looking at the health and obstacles facing PPP projects respectively.

Analysis of the case studies

EAST-WEST LINK PROJECT – MELBOURNE

The East-West Link (EWL) project was among the largest projects ever proposed in Australia (VAGO, 2015). An 18km road across Melbourne, connecting the Eastern Freeway at Hoddle street to City Link, the Port of Melbourne area and the Western ring road at Sunshine West. At an estimated cost of \$8-10 billion, the project was due for completion in December 2019. The EWL project was divided into three sections; the Eastern Section, City Link, and the Western Section. This study investigates Stage I of the project where the State government of Victoria entered into a PPP development agreement with a private consortium to deliver the project. In compliance with the National PPP policy and guidelines, the Victorian State government developed its own guidance for projects that focuses on financial analysis inputs, financing options, and contract management. This guidance on PPP projects is consistent with the high-value high-risk assurance process as well as gateway reviews through the approval process of PPP projects (VAGO, 2015) as shown in Table 3. According to the Victorian Auditor General's report, decision making on the EWL project and its management was mainly undertaken by the government itself through processes put in place to verify project value (VAGO, 2015). Process and responsible entities for approval and decision-making were:

- Cabinet process including the decision by State Premier and Treasury – decides under advice from the Minister for Roads and relevant departments and agencies.
- Major Transport Facilitation Act 2009 was used during the EWL project for planning assessment, delivery approval and timeline certainty by the Minister for Planning.
- Establishment of Linking Melbourne Authority (LMA) accountable to Minister for Roads, to manage complex road projects. LMA was involved in all processes from initial EWL project development to contract negotiation.
- LMA was abolished in January 2015 following the suspension of EWL project.

Table 3 Sequence of Events from inception to termination of the EWL Project (decision timeline).

Date	Activity
Apr 2008	Report recommendation for 18kms to provide an alternative to West Gate Bridge ' <i>Investing in Transport: EWL Needs Assessment</i> '
Nov 2010	State Election (Change of Government)
Nov 2011	EWL project proposal submitted to Infrastructure Australia
Dec 2012	Eastern Section of EWL subjected to ' <i>Major Transport Projects Facilitation Act 2009 (MTPFA)</i> ' assessment, approval, and delivery requirements.
Apr 2013	The government approved the Eastern Section business case, \$7.96 billion allocated. Approved submission to Infrastructure Australia and availability of PPP.
May 2013	Funding for EWL project allocated in State Budget for 2013 - 2014

Table 3 continued

Date	Activity
Jun 2014	Federal Government issued \$1.5 Billion for EWL subject to MoU on its use. Minister's project approval under MTPFA.
Jul 2014	Minister's approval decision challenged in court by Yarra City Council and Moreland
Sep 2014	Contract signed. East West Connect (EWC) Consortium appointed by the State government to finance, design, construct, operate and maintain the project after winning a competitive tender. The contract included clause 58 regarding the potential impact of a legal challenge concerning the soundness of the planning approval decision of the project. The opposition announced to cancel the project if elected.
Nov 2014	State Election (Change of Government).
Dec 2014	Opposition Party (Labour) won and issued an instruction to suspend works on EWL. Negotiations to terminate the contract started.
Apr 2015	State agreement with EWC to facilitate contract termination.
Jun 2015	EWL contract terminated. Costs at termination; more than \$1.1 billion including planning, development, procurement, and termination. The state expects to recover \$320 million through re-selling of properties.

EWL challenges

The implementation of the EWL project was surrounded by several challenges from the public, experts and politicians. Those challenges include:

- Legal advice offered to the Victorian State Premier by a parliamentarian member to delay the signing of the contract. This was based on the knowledge of an unresolved legal challenge regarding the planning approval of the project from the Supreme Court of Victoria.
- The contractor's concern about the possibility and capacity of the Government to sign a contract while there were pending issues in the Supreme Court, which could cause project delays or cancellation.
- Public outcry and street rallies condemning the government as the project's business case did not offer a good justification for the government to enter into a contract (Lidberg, 2014). The project's cost-benefit ratio was \$0.45 for every dollar spent and the cost of construction was very high, leading to about 56 years of investment returns as compared to other similar projects such as City-link (8 years) and East-Link (20 years).
- In the lead up to the 2014 State elections, as shown on the decision timeline, the opposition party promised to cancel the project without conducting a cost-benefit analysis to support their decision (VAGO, 2015).

SYDNEY LIGHT RAIL (SLR)

As part of its initiative to improve transport in Sydney, the NSW State Government rolled out a long-term Transport Master Plan for Sydney through PPP procurement (NSW Government, 2015). The following are the project's key facts:

- 12 kms - Circular Quay to Sydney's south-eastern suburb (CBD South East light rail).
- Costs: \$2.1 billion.
- Contract term: December 2014 to March 2034.
- Private partner is responsible for design, construction, operation, and maintenance.

Infrastructure and Structured Finance Unit (ISFU) is the NSW State organization that deals with PPP projects under the office of Treasury (Spencer, 2008). The ISFU advice the government during all stages of PPP procurement including:

- Strategic Business Case development
- Contract Execution and Financial close, and
- Post Contract matters.

The ISFU observe and is responsible for the National PPP policy and guidelines, as well as the NSW PPP guidelines (NSW Government, 2017). The SLR decision timeline is shown in Table 4. However, while the project was underway, misleading information provided by the public partner during procurement caused problems and affected the project's implementation (O'Sullivan, 2018b).

Table 4 Sequence of activities on the Sydney Light Rail Project from start to date.

Date	Activity description	Outcomes
Project Planning		
Mar 2011	NSW Government commitment to building light rail in the CBD	Feasibility studies conducted
Aug 2011	Transport NSW start a strategic plan	Developed a strategic plan
Nov 2012	Strategic plan for light rail completed	Shortlisted route outlines
Nov 2013	NSW government announce the business case	Capital cost: \$1.6 billion Benefit worth \$40 billion
Project Procurement		
Jun 2014	Transport NSW award contracts	Essential early works
Oct 2014	Preferred bidder (ALTRAC) announced by the NSW government as part of PPP	For design, construct, operate and maintenance of the project
Dec 2014	NSW Government announce modifications and signed contract	Capita costs increased to \$2.1 billion
Project delivery/construction		
Feb 2015	Transport NSW complete project financing agreement with ALTRAC	Financial close

Table 4 continued

Date	Activity description	Outcomes
Jul 2015	ALTRAC assume responsibilities	Operation and maintenance of light rail services
Oct 2015	Major works	Main construction works started
2016 - 2019	Major works	Expected completion of 2018 Passenger service expected to start Mar 2019

SLR challenges

During the implementation of the project, certain sections of the rail line were found to have utilities along the line, which affected the contractor's planned activities as well as the health and safety of workers (O'Sullivan, 2018b). The government informed the contractor that a different company was contracted to handle utility re-allocation along the project line. However, it was later discovered that utility relocation was not contracted to any company. That event led to the following project challenges:

- The contractor filed a case in the Supreme Court claiming compensation of \$1.2 billion and a time extension of about 12 months (O'Sullivan, 2018a).
- The NSW Government planned to 'buy out' the project due to fears that the construction contractor might be running out of funds.
- SLR contractor staged a 'go slow' approach in order to push the government to agree to pay more money for the project.
- Public outcry on the financial loss to businesses along the project area (Casben, Live, and Cockburn, 2018).

With the above observations on the project, Table 5 shows the implied contractual changes that would be made to the SLR project to date. It can be seen from the table that the main challenges facing the project are also key issues in the project business case development and are subject to gateway reviews for screening prior to implementation. It is important to determine if the origins of these challenges were new or unknown to the government.

Table 5 Comparison of agreed project cost and time against the contractor's claim.

Contract Particulars	Original	Expected revision	Remarks
Contract Sum	\$2.1 Billion	\$3.3 Billion	52% increase
Estimated completion time	March 2019	March 2020	1 Year Extension

Results and discussion

This section presents the main findings and discusses factors that have contributed to the termination of the East-West Link (EWL) project, current challenges facing the Sydney light rail (SLR) project and their relationship to the scholar's perspectives on the PPP critical success factors.

The first factor found to relate to the termination of the EWL project was the failure of the environmental impact assessment to include areas that were to be affected by the project on design, heritage sites, crown land, pollution and information on flora and fauna species which are protected by law (*Flora and Fauna Guarantee Act 1988*). Secondly, immediately before the signing of the contract, the government was reluctant to accept advice from the president of the Public Transport Users Association (PTUA) not to enter into a contract (Morton, 2014). Despite the efforts to persuade the delay of signing until the court hearing could be finalized, the government signed the contract, promising to compensate the contractor if anything went wrong. The contractor themselves provided similar advice to wait until the finalization of the court hearing. A further factor was the lack of accountability by those responsible for project appraisal. The contract was entered with deficiencies that were known well in advance of the contract signing and where the expectation is that technical experts and government officials would provide appropriate advice to address the threats. The final factor that contributed to the termination of the EWL project was that of political challenges and interest, given that the contract was signed only a few months before the State elections of 2014. The opposition party promised to abandon the project during the election campaign, and, upon their election, the project was terminated.

For the SLR project, the first factor was found to be insufficient availability of critical project information causing the contractor to not fully examine the site conditions and its challenges regarding utilities along the line. Secondly, there were indirect damages to the public in terms of loss of business and disturbance to daily life. About 60 business owners along the project site have combined to sue the NSW government for delay in project completion and consequent continuing damage to their businesses and lives (Casben, Live, and Cockburn, 2018). A further factor was the lack of professional accountability within state infrastructure teams in observing and addressing the project's critical path regardless of the circumstances behind the project. The final factor that contributed to the challenges facing the SLR project was political interest as the NSW government was aware of the existence of utilities along the line and deceived the constructor leading them to underestimate project cost and completion time during the tendering process.

Therefore, based on the review of CSF for PPP projects in Australia, four CSF were found related to the challenges seen in the EWL and SLR projects as shown in Table 6.

Table 6 Critical success factor with their impact on projects

Critical success factor	East West Link		Sydney Light rail	
	Public	Private	Public	Private
Shared responsibilities between parties in PPP	No	Yes	No	Yes
Proper allocation of risks in contracts	No	Yes	No	Yes
Public and private sector trustworthy	No	Yes	No	Yes
Stable political environment	The project was used as part of political mileage towards elections		Project deficiencies were ignored to improve public perceptions of government.	

Discussion of the CSF shown in Table 6 is based on their impact on both projects, EWL and SLR. The governments in both cases appeared to ignore part of their shared responsibilities as public partners within a PPP. This lack of accountability was evident in the failure to undertake a comprehensive environmental impact assessment of the EWL project and the failure to appraise sufficiently the business case on the SLR project. The proper allocation of risk, including appropriate risk identification, allocation, and sharing between parties make this CSF important (Osei-Kyei and Chan, 2015). Both states' governments showed shortfalls in making proper decisions on known risks as compared to contractors. Furthermore, both governments were less trustworthy when compared to contractors. The act of signing a contract with known risks and providing deceptive information to the contractor while knowing the impact this might cause for both EWL and SLR projects respectively indicates the lack of trustworthiness of the state governments. A stable political environment appeared as a shortcoming on both projects due to the impact and political mileage these big infrastructure projects can provide. The EWL project was canceled to fulfil an election campaign promise by the opposition party. In the SLR project, one could conclude that the need to ease infrastructure in the CBD brings about a political mileage to whoever is in power so that the project is pushed forward even when compliance with the rules and guidelines is compromised.

The literature review revealed a developed system in Australia containing policies and guidelines at national and state levels to support the implementation of PPP projects. These systems are under the Infrastructure Australia for the Federal Government and for state governments are Partnership Victoria and Infrastructure and Structured Finance Unit (ISFU) for Victoria and NSW respectively. Gateway reviews are part of the review systems set to help project delivery from inception to operation through six assessment stages. It is in the first three stages where projects are at a critical stage of realization. Stage one (business need), both EWL and SLR projects, were aimed at easing the congestion problem in the CBDs of Melbourne and Sydney and therefore the projects were found to be essential to the Victorian and NSW governments. Stage two (business case development), includes feasibility studies where the economic viability, environmental challenges, financial and other aspects vital for the project are examined and evaluated. The environmental impact assessment on the EWL project revealed some critical effects that the project would create so that the Melbourne City Council refused to support the project and took legal action to prevent commencement of the project (Lidberg, 2014). At stage three (delivery strategy) which includes the project implementation plan and procurement process, the project plan is checked to assure all the required processes are followed. At this stage, all the required information to be shared with third parties are reviewed for a compliance check. After the completion of this stage, the NSW government conducts a shadow bid model (SBM) to ensure the project's fitness for investment. Through this process, it appears that if ISFU had tested the correct information, current challenges facing the SLR project would have been captured and controlled. As a result, when those challenges surfaced, the project suffered delays, increased costs, and prolonged closure of businesses around the project area. This suggests that the government knew about the cost and time impact of the underground utilities. However, the government decided to implement a project with its shortcomings which gave a short time political gain until problems started to surface. Figure 1 presents the key CSF and their relationships with project challenges and mitigation strategies.

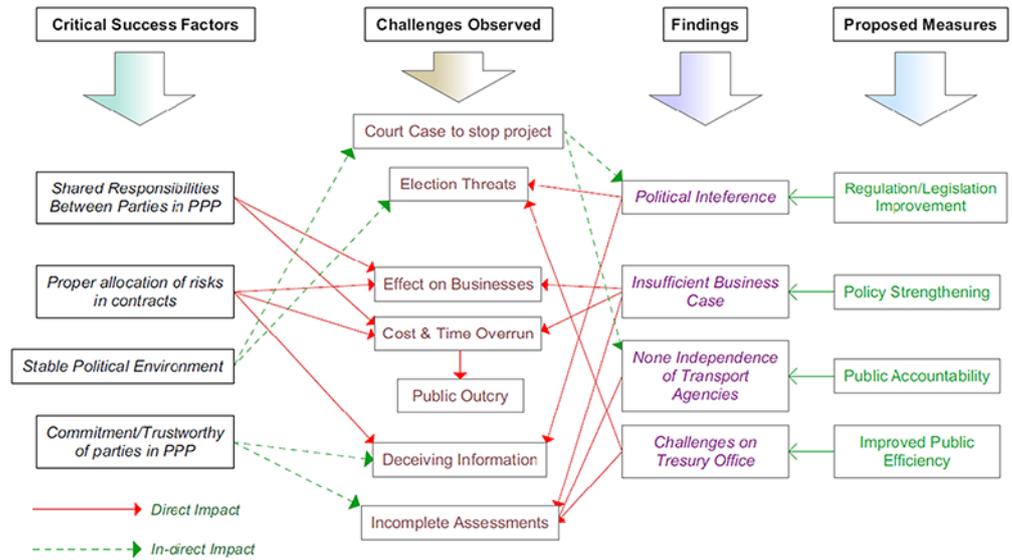


Figure 1 Relationship between critical success factors, challenges observed and mitigation strategies

POLITICAL INTEREST

It is argued that PPPs have a direct relation with political influence such that no public expenditure on PPP is granted without the necessary support from politicians (Osei-Kyei and Chan, 2017). Analyzing both case studies, politics played a significant role in the termination of the EWL project. Despite the shortcomings and court case presented by the Melbourne City Council against the environmental impact assessment report (Harris, 2013), the government proceeded with the project. Also, as reported by the Victoria Auditor General, the Labour Party, then in opposition to the government, promised to cancel the project as part of their political campaign in the 2014 elections (VAGO, 2015). On the other hand, the case of Sydney light rail does not show direct political interference. However, the accusation of issuing inadequate information to the private partner attracts a proposition that the government wanted the project to start and was afraid of the cost and duration of the project if the correct information was shared early with the contractor.

THE INADEQUACY OF BUSINESS CASE

Both projects went through the rigorous process of checking and reviewing of the business case as required by Infrastructure Australia, Partnership Victoria for EWL and Transport NSW for SLR. The analysis shows that even though the business case for EWL was passed and the project was approved, key issues regarding the environmental impact assessment of the project were not resolved and the risks associated with it were undermined. Unlike EWL, the challenges facing the SLR project resulted from insufficient information in completing the risk allocation table under the National PPP Guidelines which requires the government to identify risk associated with 'site' and 'design, construction and commissioning' for the project as shown in Table 7. The contractor found utilities underneath the rail line in parts of the project area during execution of work and as informed earlier, the company that was named by the state government to remove the utilities denied having been given that job. The act

of the government, in this case, created unrealistic risk measurement on-site factors and on design and construction factors. Infrastructure Australia has been criticized for not assessing properly some of the business cases submitted for its review and priority status including EWL project, West Connex in Sydney and Cross River Rail in Brisbane (Searle and Legacy, 2018).

Table 7 Selected project risks and their description (Commonwealth of Australia, 2008)

Risk	Description	Remarks
Site	Includes any factor that may make the project land unsuitable for the intended project	Deficient environmental impact assessment – EWL
Design, construction, and commissioning	The risk that the project design, construction, and commissioning might cause adverse consequences to cost and/or service delivery is carried out.	Time and cost overrun - SLR

The identification of risk areas and measuring their impact on a project is the first step to ensuring its success (Shrestha, 2015). This step is followed by identifying the party that is most capable of managing that risk. If a risk cannot be managed by one party then all parties involved in the project could equally share the risk, to create what is known as a win-win situation (Schieg, 2006).

INDEPENDENCE OF TRANSPORT AGENCIES

Among other issues observed in EWL is non-independence of Partnership Victoria as a statutory entity which must deliver its obligation to the best interest of the public. While knowing the threat created by the opposition party, the project's deficiencies on the environmental impact assessment and public outcry, Partnership Victoria assisted the government throughout the process up to contract agreement. The Victorian Auditor General (VAGO, 2015) accuses the technical team of not giving truthful advice to the decision makers. A professional urban planner when addressing the issue of politicians making transport choices commented that transportation agencies are not independent and strong enough and should be disconnected from politics (Alcorn, 2014).

CHALLENGES ON TREASURY OFFICE

Infrastructure Australia, Partnership Victoria, Infrastructure NSW, and similar organizations in other states are all under the office of the Treasury. The departments under the Treasury office do all the infrastructure administrative planning, negotiation, implementation, auditing, and reporting. This mechanism tends to cause a blind spot in some of the key risk areas of the projects (English, 2006). The office of the Treasury may be inclined to certain project values and overlook other threats that might affect a project.

Conclusion

This paper has looked at challenges facing PPP infrastructure projects in Australia. The case study approach was used to identify influencing factors towards the termination of the EWL project and challenges on the SLR project. Four factors were identified including the inadequacy of business cases, independence of transport agencies, political interest and limited objectivity in the Treasury office. The discussion on how these factors challenged the projects was also presented.

The discussion of the findings contributes to the need for improving and covering loopholes that might cause similar failures in the future. These findings suggest a need to acknowledge the skills of key stakeholders in multi-million-dollar projects as when they fail the public bears an enormous cost. As described by Osei-Kyei and Chan, (2017) political support attracts investments. However, if not well managed they can cause project distress. Therefore, continued efforts are needed to make improvements in the policies to accommodate political interest as part of the risk area in the National PPP Guidelines. Also, an improvement of public accountability is required, so that professionals dealing with project decisions are more accountable to the public. Finally, improving the efficiency of the Treasury office. Being responsible for projects' initiation, planning, approvals, implementation, operation, auditing, and reporting, the Treasury office may have competing interests that limit decision making within its own guidelines. This study is limited in context to Australian infrastructure practices, with a focus on PPP infrastructure projects. However, the findings can be applied to other jurisdictions globally as similar problems may be experienced when undertaking infrastructure projects. The study suggests that there are areas under the policies and guidelines that provide room for some suboptimal practices to take place. Hence, apart from having political support as a critical success factor, political interest can also be considered as a critical success subfactor towards PPP delivery.

Further studies may look at how political influence can be provided as a criterion within gateway reviews and other decision-making processes for PPPs. Such studies may help guide future decision makers in reaching into well-informed decisions that are in the best interest of the projects and the public. Future studies can also look at how best public awareness and opinion in projects planning might help reduce public resistance but increase support towards projects.

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