



PUBLIC - PRIVATE PARTNERSHIP PROJECTS - WHAT, WHY & HOW IS RISK ALLOCATED?

A RESEARCH PERSPECTIVE
ISSUED BY THE
NAVIGANT CONSTRUCTION
FORUM™

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PURPOSE OF RESEARCH PERSPECTIVE

The purpose of this quarterly research perspective is to explore various aspects of Public-Private Partnership ("P3" or "PPP") projects. P3 projects are gaining in popularity in the U.S. and abroad. While many P3 projects have been delivered successfully a number of other P3 projects failed in the long run. One study of P3 projects surveyed some twenty P3 projects in the U.S. Fourteen (70%) of the twenty projects included in this survey were either operational or under construction and nearly complete. However, the report also revealed that the remaining six (30%) of these P3 projects were in default or bankruptcy.¹

Elsewhere, another report analyzed the failure of the three P3 projects on the London Underground.²

"Kwak et al. (2009) have determined through a literature survey that the success or failure of a PPP project is dependent on four groups of factors: the competence of the government, the selection of an appropriate concessionaire, an appropriate risk allocation between the public and private sectors,³ and a sound financial package. The problems with the London Underground PPPs centered on the allocation of risk between the government and private sector and the ability of the government agencies to appropriately monitor the private participants."⁴

1. Kahlid Bekka, *Public-Private Partnerships for Infrastructure Development: Acquiring New Skills for a New Age*, HDR, Silver Spring, MD, May 2012.
2. Trefor Williams, *Analysis of the London Underground PPP Failure*, Working Paper Proceedings: Engineering Project Organizations Conference, South Lake Tahoe, CA, November 2010.
3. It should be noted that the report points out that the failure of the London Underground PPP projects was attributable to the *lack of* "appropriate risk allocation between the public and private sectors."
4. Ibid. Citing Young Hoon Kwak, Ying Yi Chih and C. William Ibbs, *Towards a Comprehensive Understanding of Public Private Partnerships for Infrastructure Development*, *California Management Review*, Vol. 52, No. 2, Winter 2009 and Antonia Solino and Jose Manuel Vassallo, *Using Public-Private Partnerships to Expand Subways: Madrid-Barajas International Airport Case Study*, *Journal of Management in Engineering*, Vol. 25, No. 1, American Society of Civil Engineers, New York.

These studies fly in the face of so many papers, articles and presentations that tout P3 projects as “the way to go”. Notwithstanding these project failures, research indicates that there are many more P3 project successes than failures. P3 projects are often seen as a solution concerning major projects insofar as their ability to defer capital expenditures; lower whole life cost through integrated and bundled contracts; and introducing private sector expertise and innovation into public projects.

The Navigant Construction Forum™ decided to look into this apparent disparity in perceptions concerning P3 projects. In performing our initial research, the Navigant Construction Forum™ concluded that, to date, the P3 project delivery method seems to be utilized primarily on larger, more costly infrastructure projects. And, the Navigant Construction Forum™ knows from experience that larger infrastructure projects are more fraught with risk than smaller projects.

The Navigant Construction Forum™ located numerous studies and articles suggesting that a lack of appropriate risk management and risk allocation may well be at the heart of the known P3 project failures.

“Many of the problems we observe are due to a lack of professional, forward looking risk management. Direct value losses due to undermanagement of risks for today’s pipeline of large scale projects may exceed \$1.5 trillion in the next five years, not to mention the loss in GDP growth, as well as reputational and societal effects.

Large infrastructure projects suffer from significant undermanagement of risk in practically all stages of the value chain and throughout the life cycle of a project. In particular, poor risk assessment and risk allocation, for example, through contracts with the builders and financiers, early on in the concept design phase lead to higher materialized risks and private financing shortages later on.”⁵

This report continues by pointing out that poor assessment, management and allocation of risk occurs on P3 projects as well as on the traditional design-bid-build (“D-B-B”) infrastructure projects stating the following.

“Surprisingly, the risks of large infrastructure projects do not get properly allocated to the parties that are the best ‘risk takers’ – those that have a superior

capability to absorb these risks. This can result from a misunderstanding or disregard on the part of governments of the risk appetite, for instance, of private investors who are sensitive to the kinds of risks they accept and under what terms. Providers of finance will often be the immediate losers from poorly allocated or undermanaged risks. Even in public-private-partnership (PPP) structures, private risk takers and their management techniques are introduced too late to the process to influence risk management and risk allocation, and therefore they cannot undo the mistakes already embedded in the projects. One crucial consequence is an increase in the cost of financing PPP projects and a greater need for sovereign guarantees or multilateral agency support. In the end, however, society at large bears the costs of failures or overruns, not least in the form of missed or slowed growth.”⁶

Thus, the purpose of this quarterly research perspective is to examine what are the typical risks P3 projects face and how these risks are, or should be, assessed, managed and allocated on typical P3 projects. The Navigant Construction Forum™ acknowledges at the outset that the risk management process on P3 projects is more complicated than the same process when employed on D-B-B projects.

INTRODUCTION

The Navigant Construction Forum™ chose to research the topic of risk assessment, management and allocation on typical P3 projects. As a starting point the Navigant Construction Forum™ had to determine what a P3 project is; what the characteristics of the typical P3 project are; and what P3 projects are not. The Navigant Construction Forum™ then looked into the various ways P3 projects are typically structured, recognizing that different project structures may well have different project risks.

The Navigant Construction Forum™ then researched why project owners decide to employ the P3 project delivery method including the perceived benefits and potential risks. In determining the above, the Navigant Construction Forum™ identified a list of risks typical P3 projects must be prepared to address. Further, the Navigant Construction Forum™ was able to identify how risks on a typical P3 project are, or should, be allocated in the P3 agreement. Finally, the Navigant Construction Forum™ identified some risk allocation clauses that seem inappropriate in P3 projects and may ultimately lead to project failure if left intact in a P3 agreement.

5. Frank Beckers, Nicola Chiara, Adam Flesch, Jiri Maly, Eber Silva and Uwe Stegermann, [A Risk Management Approach To A Successful Infrastructure Project](#), McKinsey Working Papers on Risk, Number 52, McKinsey & Company, November 2013.

6. Ibid.

WHAT IS A P3 PROJECT?

P3 projects are *not* new nor was this project delivery method created in the U.S. It has been reported that the first “concession” project⁷ was granted in 1782 to Perrier in France. This concession involved the distribution of water.⁸ During the 1800’s many canals and railroads in the U.S. were designed and constructed with private European investments.⁹ Moving to more modern times, in the late 1950’s the government of Hong Kong explored the possibility of a privatized vehicle tunnel as a concession. The first mention of the Build-Operate-Transfer (“BOT”) project delivery method can be traced back to Targut Ozal, the Prime Minister of Turkey in the early 1980’s.¹⁰ In Australia, P3 infrastructure projects date back to 1988 and in the UK, the Private Financing Initiative (“PFI”) was introduced by the government in 1992.¹¹

Having provided some background on P3 projects, let’s examine some definitions. It appears from the Navigant Construction Forum™’s research that there is no one single definition that encompasses all aspects of a P3 project and can be put forth as a standard definition. Two of the more general definitions from the U.S. are set forth below:

“A contractual arrangement between a public agency (federal, state or local) and a private sector entity. Through this agreement, the skills and assets of each sector (public and private) are shared in delivering a service or facility for the use of the general public. In addition to the sharing of resources, each party shares in the risks and rewards potential in the delivery of the services and/or facility.”¹²

“A contractual agreement formed between public and private sector partners, which includes private sector financing, and allows for more private sector participation than what is traditional. The agreements involve a government agency contracting with a private company to renovate, construct, operate, maintain, or

manage a facility or system. The public sector retains ownership of the facility; however, the private party may be given additional decision rights in determining how the project or task will be completed.”¹³

Two other generalized definitions of P3 projects follow:

“...an arrangement of roles and relationships in which two or more public and private entities coordinate in a complementary way to achieve their separate objectives through the joint pursuit of one or more common objectives.”¹⁴

“...a long term contract between the public and private sectors where mutual benefits are sought and where ultimately the private sector provides operating services or puts private finance at risk.”¹⁵

The most thorough definition of a P3 project the Navigant Construction Forum™ located is the following:

“Fundamentally, a PPP is a long term contract between a government (the local or national government) or government owned entity (hereinafter referred to as a public agency) and a private sector party (typically a consortium) in which:

- The public agency leverages the private sector party’s skills and assets to perform all or significant aspects of a project (for example, financing, design, construction and/or O&M).
- The public agency and the private sector party share in some fashion or another the risks and rewards of the project.
- The public agency retains some measure of control over the project (either through ownership of the project or contractual provisions binding the private sector party).

7. The term “concession” is defined as “A P3 project delivery structure involving a lease of an existing or to be constructed public asset to a private concessionaire for a specified period of time. In general, the concessionaire will receive the right to collect availability payments or direct revenue generated by the asset over the life of the contract ... in exchange for agreeing to construct or operate and maintain or improve the facility during the terms of the lease.” See [Public-Private Partnership Concessions for Highway Projects: A Primer](#), FHWA Office of Innovative Program Delivery, U.S. Department of Transportation, Washington, D.C., October 2010.

8. J. Monod, [The Private Sector and the Management of Public Drinking Water Supply](#), World Bank, Washington, D.C., 1982.

9. Kahlid Bekka, [Public-Private Partnerships for Infrastructure Development: Acquiring New Skills for a New Age](#), HDR, Silver Spring, MD, May 2012.

10. Mark Augenblick and B. Scott Custer, Jr., [The Build, Operate, and Transfer \(BOT\) Approach to Infrastructure Projects in Developing Countries](#), World Bank, Washington, D.C., August 1990.

11. G. Owen and A. Merna, [The Private Financing Initiative, Engineering, Construction and Architectural Management](#), Vol. 4, No. 3, 1997.

12. [Testing Tradition: Assessing the Value of Public-Private Partnerships](#), The National Council for Public-Private Partnerships, Arlington, VA, 2012.

13. [Public-Private Partnership Concessions for Highway Projects: A Primer](#), FHWA Office of Innovative Program Delivery, U.S. Department of Transportation, Washington, D.C., October 2010.

14. Wendell C. Lawther, [Contracting for the 21st Century: A Partnership Model](#), The PricewaterhouseCoopers Endowment for the Business of Government, Arlington, VA, 2002.

15. Michael J. Garvin, [Enabling Development of the Transportation Public-Private Partnership Market in the United States](#), [Journal of Construction Engineering and Management](#), Vol. 36, No. 4, American Society of Civil Engineers, New York, 2010.

PPPs can be used to:

- Construct or develop a wide range of physical and social infrastructure¹⁶ projects, including highways, power plants, bridges, prisons, pipelines, ports, waste treatment facilities, schools and hospitals.
- Modify, rehabilitate or expand existing infrastructure projects. When used for this purpose, the modification, rehabilitation or expansion is typically significant, requiring substantial new capital investment to justify the costs of structuring the project as a PPP.
- Monetize underperforming infrastructure assets to provide governments with much needed capital. When used for this purpose, the revenues the government earns from selling the right to operate the project (often referred to as a concession) must be sufficient to justify the PPP process and the loss of the project's ongoing revenues."¹⁷

The commonalities among these definitions are summarized below:

- Contractual arrangement(s);
- Between government and a private company or companies;
- Involving renovation, construction, operation, maintenance and/or management;
- Of a project or a facility;
- Where risk and rewards are shared;
- Generally financed by long term project specific equity and debt (Project Financing); and,
- Where the public owner maintains the ultimate ownership.

CHARACTERISTICS OF A TYPICAL P3 PROJECT

Since there appears to be no uniform definition of a P3 project, the Navigant Construction Forum™ reviewed the literature to determine the characteristics common to most P3 projects globally. The Navigant Construction Forum™'s literature review indicates that the following are the characteristics of a typical P3 project:

- **All Project Phases Bundled Into a Single Contract** – Typically, P3 projects have all project phases – financing, design, construction, commissioning and, often, the operation and

maintenance (“O&M”) phases – bundled into a single project. Such bundling offers the contractor the opportunity to be much more involved in the design process than is typical on many other project delivery methods. Further, such bundling also allows the contractor to employ innovative methods to deliver the P3 project. Most P3 projects are a single integrated project versus separate contracts for construction and O&M. This integration of project elements and contracts (construction and operation combined) potentially offers lower whole life cost compared to traditional project procurement where the public owner takes control of the asset.

- **Incentivized Performance Based / Output Specification Approach** – In P3 projects public owners set forth performance standards and requirements for the completed projects. This approach leaves the contractor free to select their own means and methods on how to meet these contract requirements. The concept underlying the output specification approach utilized on P3 projects is to provide an incentive for such innovations based on the contractor's skill, knowledge and experience to be brought to bear on all phases of the project – particularly the project design phase. And, most P3 contracts provide for service oriented payments – that is, no service, no payment! When P3 projects are successful, they result in better on time, in budget project delivery.
- **Large Size** – Most P3 projects are large projects (upwards of US\$500 million or more in cost). Part of the reason P3 projects are often large in size is because P3 projects often have a much longer lead time for procurement and because of this factor larger projects potentially have a greater value for money (“VfM”)¹⁸ than smaller projects. On these larger projects, the additional cost involved in P3 procurement can be justified against the overall project value. Additionally, in the public sector, such projects tend to be good candidates to be delivered using the P3 process as public entities often lack the capability to finance or manage the project on their own. Not only does the P3 project structure allow the public entity to defer capital funds spend, but it only spends when the project is operational and delivering the project benefits (i.e., payments linked to the “availability” of the asset.) From the private sector perspective, large projects are much more likely to provide profit sufficient to warrant their investment in the project.
- **Complex Projects** – Public owners may consider certain projects to be complex, thus justifying use of the P3 project

16. **Social Infrastructure** is a subset of the **infrastructure** sector and typically includes assets that accommodate **social** services. Examples of **Social Infrastructure** assets include schools, universities, hospitals, prisons and community housing.

17. [Public Private Partnerships: Issues and Considerations](#), Practical Law Company, Thomson Reuters, New York, 2013

18. **‘Value for money’** (“VfM”) is a term used to assess whether or not an organization has obtained the maximum benefit from the goods and services it both acquires and provides, within the resources available to it. Some elements may be subjective, difficult to measure, intangible and misunderstood. A utility derived from every purchase or every sum of money spent. Value for money is based not only on the minimum purchase price (economy) but also on the maximum efficiency and effectiveness of the purchase. Read more: <http://www.businessdictionary.com/definition/value-for-money-VFM.html#ixzz4DZYCW3LT>

delivery method. This thinking is likely to be prevalent on projects of the kind that the public entity has never constructed. And, from the private sector perspective complex projects tend to offer contractors a greater ability to utilize innovative ways to deliver the project that, in turn, may increase potential project profitability.

- **P3 Agreements Tailored to Fit the Situation** – Since P3 projects are not “cookie cutter” projects, generally there is no standard set of contract documents commonly used on such projects in the U.S. In the authors’ experience every P3 project has a different, uniquely crafted, and negotiated contract. In a 2009 survey of P3 transportation projects the authors, Manju Chandrasekhar and Charles Nicholas recommended that each party should:

“...insist on the importance of recognizing the unique circumstances of each individual case when crafting a PPP agreement. Chandrasekhar declares that ‘there is no silver bullet or one size fits all approach’ for PPPs, while Nicholas expresses concern that new PPP practitioners fail to recognize how complex the process can be, where ‘every location, every jurisdiction, has its different political and legal problems.’”¹⁹

The Navigant Construction Forum™ notes that some countries – such as the UK – have tried to standardize P3 agreements to help stakeholders become familiar with P3 agreements (e.g., Standardization of PFI contracts [“SOPC”]. The latest iteration is SOPC 4.)

- **Strong Public Support** – Perhaps due to the intense public scrutiny of large, complex projects, public sector owners tend to employ the P3 project delivery method only on those projects that have gained widespread public support. From the perspective of the private sector contractors, such public support is typically perceived as easing the project through all of the needed political approvals. A recent article concerning P3 projects in *Engineering News-Record* commented on this very point by highlighting the manner in which the Texas Department of Transportation (“TxDOT”) has taken a very proactive approach to P3 procurement, as follows:

“This approach provides the public with earlier access to corridor improvements that may have otherwise been delayed for decades. While some projects have not performed as financially projected, the public has still benefited from the availability

of infrastructure. As the program has evolved, both TxDOT and the private sector have moved to better manage the risks, and the public has benefitted greatly from the new availability of infrastructure.”²⁰

- **Reliable Revenue Source(s)** – P3 projects tend to have reliable revenue sources (whether the project itself will produce new revenue or, as in a concession project, the municipality pays the P3 contractor from user fees as in a Lease, Develop and Operate project) – or at least, reliable revenue forecasts as these are necessary to show the project’s capacity to generate return on investment (“ROI”) sufficient to entice the private sector to participate in the P3 process.²¹ However, as noted earlier in this research perspective, the Navigant Construction Forum™ notes one study of some 20 P3 infrastructure projects documented that 6 of these projects were either in default of their financial obligations or were actually bankrupt.²² So, while there is a perception of a reliable revenue source at the outset of the project, that perception may not become a reality when the project is completed and put into operation.
- **Completed or Near Completed Environmental Process** – Most P3 projects typically have completed or are nearly complete with the required environmental process as this status gives the private sector some assurance that the project will, in fact, move ahead. Further, if the P3 project has completed the environmental process the private sector has further assurances of no project delays and no changes as a result of the environmental process. Thus, the completion of the environmental process prior to seeking a P3 contractor removes a good deal of the project risk up front.
- **Trust Based Governance Mechanisms** – The owner’s initial trust and the selection process seem to facilitate trust and increase the focus on project success as opposed to the more typical “us versus them” mentality on all too many projects. This mutual trust plays into the P3 contract responsibilities in that public owners specify exactly what they want when the project is completed (output specifications) and the P3 contractor focuses on delivering on that specification. Mutual cooperation and continual interactions between the owner and the contractor during the planning and design phase should help increase the level of trust between the project participants.
- **Reasonable to High Level of Risk Transferred to the Contractor** – P3 projects are most often characterized by a higher level of risk transfer from the public owner to the contractor than is typical on other forms of project delivery.

19. *Public-Private Partnership: Accelerating Transportation Infrastructure Investment*, SmartMarket Report, McGraw Hill Construction, Bedford, MA, 2009.

20. *P3 Progress Marks New Era*, *Engineering News-Record*, Vol. 276, No. 17, June 13, 2016.

21. The issue of a “reliable revenue source” depends upon which party to the agreement holds the demand/revenue risk. The end user may not pay, as it may be the government paying for the use of the asset on behalf of the public end user. In such a payment mechanism, potential P3 contractors must, at the very least, look for certainty of payment or government backing.

22. Kahlid Bekka, *Public-Private Partnerships for Infrastructure Development: Acquiring New Skills for a New Age*, HDR, Silver Spring, MD, and May 2012.

The level of risk transfer varies from project to project (as will be discussed further later in this research perspective). Risk is generally allocated to the contractor through incentives and disincentives (penalties) embodied in the P3 agreement.²³

- **Private Financing** – P3 projects always involve private financing in the form of project specific debt and, generally, a small amount of equity. This business model is used to ensure that the risks transferred to the contractor are borne and managed by the contractor. This financing method is in juxtaposition to typical D-B-B contracts where the contractor is paid monthly on the basis of the percentage of work completed. The additional scrutiny or due diligence by lenders helps give the public sector reassurance of the commercial viability of the project and the investor.
- **Financed by Project Specific Equity and Debt** – As the private sector contractor has their own money invested in P3 projects, the contractor has a financial stake in the outcome of the project beyond that which is typical on most projects. Essentially, the contractor’s equity in the P3 project is akin to having “skin in the game” which tends to increase the likelihood of project success. P3 contractor project financing means that debt and equity are raised at the project level and ring fenced.²⁴ As such, there is limited recourse to the shareholders if the P3 project defaults.
- **Long Term Contract Duration** – Due primarily to the large costs of most P3 projects and payback schedules, most P3 projects generally have very long term contracts (often between 15 and 30 years). Concession contracts are frequently linked to the economic life of the asset. Such long term contracts tend to increase the level of financial involvement of the contractors. At the end of the contract, the public owner regains possession of the project and its assets and *may*, at their discretion, bid various aspects of the operations and maintenance to other contractors or manage these services with their own staff.
- **Payment Upon Delivery** – P3 projects often employ payment upon delivery somewhat similar to the older turnkey project delivery method. Under this method the contractor is paid only for defined assets or services once construction is completed (although some P3 contracts provide for partial payments at key milestones during the construction phase) and the constructed project is put into operation. Payments may be made on a project availability basis or simply an operations basis. It is worth noting that the payment and performance mechanisms are at the heart of the contractual structure.

- **Constructed Asset Returned to Owner at End of Contract** – Finally, the constructed project on a P3 project is returned to the owner at the end of the contract term which may include a period of full operation and maintenance. Additionally, there are often clearly defined clawback or handback provisions in P3 agreements that state the expected condition of the asset at the end of the agreement term to ensure the P3 contractor has properly maintained the asset.

SOME COMMON MISCONCEPTIONS ABOUT P3 PROJECTS

Now that the Navigant Construction Forum™ has explored the definitions and generally discussed the characteristics of P3 projects a discussion of common misconceptions concerning P3 projects seems appropriate.

- **Private Financing Saves Money For The Public** – One controversial aspect of P3 projects is the perception that the utilization of private financing is always a cost savings over government financing. For public owners it is important to undertake a VfM analysis of utilizing the P3 delivery method versus a more traditional project procurement strategy. Public owners need to assess both expected cost and quality of the P3 proposition. One author who studied the financial aspects of P3 projects offers the following observation:

“You’ll often find public quotes saying that the PPP or PFI enables the private sector to step in and provide infrastructure that the taxpayer cannot afford ... Whether it’s deliberate or not, I don’t know, but it’s a delusion. What you are doing is delaying paying for something – it’s like public borrowing of other kinds, where the state issues gilt edged securities but repays them out of future taxation.”²⁵

In this report Williams argues that the cost of private borrowing through the P3 or PFI process far exceeds the going rate for government bond issues. Based on this analysis P3 projects are not necessarily a way to save money for public owners and their constituents. The Navigant Construction Forum™ agrees that P3 are not free for public owners. The income to the P3 contractor to fund the construction and operations needs to come from one or more user payments (e.g., tolls), ancillary revenues or availability payments from the government. Perhaps because public sector developed projects are often over budget and delivered late, public owners often look to P3 projects. An Australian study

23. See Darrin Grimsey and Mervyn K. Lewis, *Evaluating the Risks of Public Private Partnerships for Infrastructure Projects*, [International Journal of Project Management](#), Vol. 20, January 2002.]

24. A **ring fence** is a protection-based transfer of assets from one destination to another, usually through the use of offshore accounting. A **ring fence** is meant to protect the assets from inclusion in an investor’s calculable net worth or to lower tax consequences.

25. Stephen Glaister, quoted in *Professional Engineer*, August 13, 2008, and cited by Trefor Williams, [Analysis of the London Underground PPP Failure](#), Working Paper Proceedings: Engineering Project Organizations Conference, South Lake Tahoe, CA, November 2010.

comparing P3 projects with traditional projects found the following:

“In absolute terms, PPP cost advantage was found to be economically and statistically significant. On a contracted \$4.9 billion of PPP projects the net cost overrun was only \$58 million – not statistically different from zero. For \$4.5 billion of traditional procurement projects, the net cost overrun amounted to \$673 million.”²⁶

Given this study, P3 projects in some cases may be less costly for public owners when lower construction costs or faster project delivery are factored into the analysis.

- **P3 Projects Are A Form Of Privatization** – All too often critics contend that P3 projects are simply a way to privatize public facilities. This is either a misrepresentation or a misunderstanding. Ownership of P3 projects either remain with the public owner or are transferred back to the public owner at the end of the contract. Additionally, the public owner retains authority over the project at all times; including the ability to make project changes and terminate the contract. Finally, the public owner is accountable to their constituents throughout the life of the project. P3 projects do not generally privatize public infrastructure or facilities. One very recent article on P3 projects offered the following commentary on this specific issue:

“One of the greatest challenges facing the P3 market is the common misconception that the asset is permanently turned over to a private entity ... P3 arrangements usually involve a lease arrangement for a period of time, at the end of which the asset ownership returns to the public entity. Key decision makers (legislators and agency officials) need to understand and support this idea ... Agencies should continue to educate the public about the P3 process to increase their trust and assurance that their interests are still at the forefront of project goals.”²⁷

- **P3 Projects Can Work To Meet Any Infrastructure Need** – The P3 project delivery method must be carefully analyzed by both the public owner and the private contractor. The following factors must be in place and properly aligned to make a P3 project work successfully:
 - An appropriate legal and institutional framework including that for dispute resolution;

- A favorable investment environment for both public owners and private sector contractors;
- A professional, well resourced and P3 literate procuring authority;
- A well structured and economically viable project from both the public and the private sector perspective;
- Reasonable timescales;
- Reliable partners with the capability to successfully deliver a P3 project and meet the performance requirements of the contract; and,
- Appropriate risk allocation and appropriate contractual documents.

If all of these factors are not present on a project, then it is unlikely that the P3 project delivery method will be successful.

- **P3 Projects Are A Way For Government To Access Quick Cash To Close Budget Gaps** – Readily available private financing for P3 projects may entice some public owners to pursue a P3 project rather than pursuing the project through more conventional public bonding efforts. Most P3 projects have front end funding requirements required of the public owner and it is not uncommon that such front end funding often has restrictions in the contract on the use of such funding. Such funding arrangements means that private financing may not be the answer to all public budget shortfalls.
- **Private Partners Make Excessive Profit On P3 Projects** – Earning a reasonable ROI is the objective of all private business. Thus, the profit motive is at the heart of contractor involvement in a P3 project. Many critics of P3 projects contend that the contractors make “excessive profit” from such projects.²⁸ One study stated the following in this regard:

“PPPs are used to conceal public borrowing, while providing long term state guarantees for profits to private companies. Private sector corporations must maximise profits if they are to survive. This is fundamentally incompatible with protecting the environment and ensuring universal access to quality public services.”²⁹

As a result of this attitude, many public owners include clauses in their P3 contracts to prevent contractors from making more than a “reasonable profit”, including revenue sharing provisions, contract rebalancing provisions and the

26. *Performance of PPPs and Traditional Procurement in Australia*, Infrastructure Partnerships Australia, Sydney, NSW, Australia, 2012

27. *P3 Progress Marks New Era*, *Engineering News-Record*, Vol. 276, No. 17, June 13, 2016

28. Darwin Bondgraham, *Highway Robbery: How “Public Private Partnerships” Extract Private Profit from Public Infrastructure Projects*, *Dollars & Sense; Real World Economics*, 2012, <http://www.dollarsandsense.org>.

29. David Hall, *Why Public Private Partnerships Don't Work: The Many Advantages of the Public Alternative*, Public Services International Research Unit, University of Greenwich, UK, 2015.

like. While it is probably not the goal of the majority of private contractors to make excessive returns at the public's expense, public owners that include too many restrictive contract clauses are likely to cause a P3 project to fail.

- P3 Projects Are Difficult And Expensive To Negotiate, Negating Their Benefits** – There is a perception that P3 projects involve lengthy and very expensive negotiations. Some critics believe that the time and expense involved in starting up a P3 project more than outweighs any potential benefit that may be gained. While it is true that negotiating a P3 project takes longer and costs more than bidding a D-B-B project or going through the typical D/B process one survey of project owners who had completed a P3 project indicate that some 90% of these owners would be willing to pursue further P3 projects.³⁰ It appears that, based on the experience of public owners who have successfully executed P3 projects, that the difficulty and expense of negotiating a P3 project does not outweigh the benefits of the completed project. That is, on larger projects the higher cost of procuring through the P3 process can be justified. It also appears that with P3 projects the number of advantages increase with the size and complexity of the projects. Nevertheless, it is likely that there is a fine balance or at least some sort of curve beyond which the benefits of undertaking a P3 project may diminish. If a project is too big or too complicated (or both) it may be an uninvestable proposition or considered too risky, thereby causing increased bid prices.
- P3 Projects Are Simply A Mechanism To Outsource Public Services** – Some critics contend that P3 projects simply outsource public services since P3 contractors often maintain and/or manage the P3 project for the duration of the contract. When this criticism is raised it is often presented as if public agencies never outsource their services. A cautious analysis of this argument leads the Navigant Construction Forum™ to conclude that this comparison overstates the situation. Public agencies *frequently* outsource many activities with the full knowledge of the public. With respect to construction projects, public agencies rely heavily on the private sector typically outsourcing planning, design, construction and construction management to private entities such as architects, engineers, construction managers and contractors. A literature search also indicates that outsourcing other government services (as opposed to construction related services) is gaining widespread support in the U.S. and is much more common today than a decade or so ago.³¹ Facilities management, and the O&M functions of publicly owned facilities and infrastructure are quite common today.

While P3 projects do outsource ongoing operations, the difference between conventional public outsourcing efforts and P3 projects is that P3 projects are performed with private financing under strict contractual provisions.

HOW ARE P3 PROJECTS STRUCTURED?

There are a number of different ways of structuring a P3 project. Different project structures are driven by a number of different factors. These differentiating factors are set forth below.

- The service(s) the contractor will perform under the P3 contract – design, construction, financing, operation and/or maintenance.
- Whether the P3 project involves construction of an entirely new project or a rebuild or modernization of an existing facility.
- The degree of control the public agency wants to exercise during the execution of the P3 project.
- If the contractor will “own” the constructed asset during the term of the P3 contract.
- The terms and requirements of the P3 legislation in the jurisdiction where the project is located.

The most common forms of P3 project structures follow.

- **Design/Build (“D/B”)** – D/B is the most basic type of P3 project. Here the private contractor designs and constructs the project for a fixed, not to exceed or guaranteed maximum price, to meet the performance specifications and requirements of the public owner. The public agency finances the project but avoids the additional costs of separate contracts for design and construction. The public owner owns the project and is solely responsible for O&M and can either perform such services with their own forces or contract out the O&M services to another contractor.
- **Design, Build, Operate (“DBO”)** – Under this P3 structure, the contractor performs all the functions of the D/B process but also operates the constructed facility for the duration of the P3 project. The public owner is responsible for financing the design and construction as well as for the maintenance of the project.
- **Design, Build, Maintain (“DBM”)** – Again, under this form of P3 project the contractor designs and builds the project. However, the owner *operates* the constructed asset while the contractor performs routine *maintenance* and/or *repairs* on the project for the duration of the P3 contract meeting the availability or project usability requirements of the contract.

30. [Public-Private Partnerships: The US Perspective](#), Pricewaterhouse Coopers, Arlington, VA, 2010.

31. Russell Nichols, *The Pros and Cons of Privatizing Government Functions*, [Management & Labor](#), December, 2010; and Daphne T. Greenwood, [The Decision to Contract Out: Understanding the Full Economic and Social Impacts](#), Colorado Center for Policy Studies, University of Colorado – Colorado Springs, March 2014

- **Design, Build, Operate, Maintain (“DBOM”)** – Under this P3 project structure the contractor is responsible for all four elements of the contract. Under this form of contract the P3 contractor is typically paid from the revenue gained through the operation of the constructed project.
 - **Design, Build, Finance, Operate (“DBFO”)** – Like the DBO structure identified above the P3 contractor performs the three basic functions of the project (design, build and operate). However, unlike the simpler form of P3 project under this project delivery method the private contractor finances the project with their own funds. The contractor is paid over the life of the project from the revenue generated by the constructed asset.
 - **Design, Build, Finance, Operate, Maintain (“DBFOM”)** – Under this form of P3 contract the contractor designs, builds, finances, operates and maintains the constructed project. Like the DBOM structure identified above, the P3 contractor performs all four functions plus provides the financing for the project using private funds. While the constructed facility is owned by the public owner, the contractor is paid over the life of the project from the revenue generated from the constructed asset.
 - **Design, Build, Finance, Operate, Maintain, Transfer (“DSBFOMT”)** – In this project structure the private contractor performs all functions of the project, including financing the project. The contractor is paid through the revenue generated by the operation of the constructed asset. Unlike previous P3 structures identified, the contractor actually owns the constructed project for the term of the P3 contract. At the end of the contract term the contractor transfers ownership of the project, including all operation and maintenance responsibilities, to the public owner.
 - **Build, Operate, Transfer (“BOT”)** – Under the BOT structure a public owner grants a private contractor the right to construct and operate a facility for a specified amount of time. The public owner owns the constructed facility and pays the contractor either from public funds or from revenues generated by the asset. Under this P3 structure, the P3 contractor *may or may not* contribute some of the project financing. At the end of the contract term the contractor transfers operations to the public owner. A difference between this P3 structure and the others identified above, as the public owner was involved in the design or even provided the design to the contractor, the owner remains liable for any design errors or omissions.
 - **Build, Transfer, Operate (“BTO”)** – The BTO project delivery model is very similar to the BOT model discussed above but the O&M of the project is performed by the owner at the end of construction. Following construction the public owner and the private contractor enter into a separate agreement whereby the contractor operates the constructed project for a specified period of time.
 - **Build, Own, Operate, Transfer (BOOT”)** – The BOOT P3 structure is similar to the BOT discussed above. However, the P3 contractor owns the project for the term of the contract. And, like the BOT model, the private contractor *may or may not* provide some or all of the financing for the project.
 - **Build, Own Operate (“BOO”)** – In this P3 delivery model the private contractor constructs, operates, and maintains the project for the term of the project. The public owner pays for the use of the project. At the end of the contract term the public owner *may or may not* purchase the project from the contractor. The owner is under no obligation to purchase the project.
 - **Lease, Develop and Operate (“LDO”)** – Unlike the P3 models discussed above, under this model the private contractor leases the facility from the public owner and then, using its funds, modernizes or expands the facility and then operates and maintains the facility under a contract with the owner. The contractor is paid by the owner for the owner’s use of the facility.
 - **Concession** – In this P3 project delivery model, the public owner sells the right to operate and maintain an existing asset to a private contractor. Typically, under concession model, the duration of the concession is for a very long duration. For example, the Chicago Skyway project was leased to a private P3 contractor for a term of 99 years³² while the Indiana Toll Road concession was inked for a 75 year term.³³ The P3 contractor is typically paid from the revenue earned on the project from tolls or user fees.
- Based on the Navigant Construction Forum™’s literature review, there are thirteen P3 models, as outlined above. However, the literature indicates that there are only three basic ways to structure payments to the P3 contractor.
- **Availability Based Payments** – Under this fee arrangement, the P3 contractor starts receiving payments when the project is constructed and made available for use by the public. When this system is used the public owner bears the demand and collection risks in that the payments to the P3 contractor do not change even if the project is not used as anticipated. P3 projects therefore offer budgetary certainty. The public sector often pays a fixed sum to the P3 contractor without having to worry about the increasing costs of operation or the cost of renewals and disruption.

32. *Chicago Skyway*, FHWA Office of Innovative Program Delivery – Project Profiles, http://www.fhwa.dot.gov/opd/project_profiles.

33. Robert Puentes, *The Indiana Toll Road: How Did a Good Deal Go Bad?*, *Forbes*, <http://www.forbes.com/sites/realspin/2014/10/03>.

- **Shadow Toll Based Payments** – This payment model is typically employed on transportation projects. The shadow tolls are the vehicle amounts paid to the P3 contractor by the owner not the users of the project. This payment method is typically used when it is not feasible for the public owner to employ toll facilities. Under this system the more the road is used, the more payments the owner owes the P3 contractor. In this system the owner and the contractor share the demand risk in the sense that if demand goes up, the owner owes more to the contractor and on the flip side, when the demand goes down, the contractor receives less from the owner.
- **User Fee Payments** – In this payment system the users of the facilities pay the P3 contractor for the use of the facility (i.e., tolls on a privatized toll road). Under this payment system, the P3 contractor bears the risk of demand and collection.³⁴

One report employed a graphic to help understand the structure of P3 projects and identify the risks and activities assumed by P3 contractors.³⁵

WHY DO PUBLIC OWNERS EMPLOY P3 PROJECTS?

In the public arena there are a number of perceived benefits to delivering projects utilizing the P3 process. One article enumerated the following five benefits of delivering projects in this manner.³⁶

1. **Cost savings** – Cost savings of between 6% and 40% of the cost of construction are reported in this study and the

quality of service has to be maintained for the life of the P3 agreement, regardless of the cost to the contractor.

2. **Project acceleration** – This benefit is “...arguably the main benefit to the P3 model...” as the private contractor, left pretty much to their own devices can deliver projects faster than the typical public owner..
3. **Better risk allocation** – The authors state that “P3s allow risks to be allocated to the party best suited to manage the risk at the least cost and with the best available structure and skills.”
4. **Innovation** – Another perceived benefit is that the involvement of the private sector in the design and construction process results in a higher quality project.
5. **Adequate facility pricing** – Finally, it is noted that “GAO has listed efficient pricing as a key benefit to the P3 model as the private sector would be more likely to use efficient pricing concepts such as congestion pricing.”³⁷

Another report concerning the P3 project delivery methodology summarized some twelve perceived benefits to the public owner through the employment of P3 projects, as follows:³⁸

1. **Risk Transfer** – P3s allow public owners to transfer some or all of the project risk to the P3 contractor while still retaining a degree of control over the project. This results in transferring more risk to the P3 contractor than is typical in a conventional D-B-B project.
2. **The Only Way the Project is Constructed at All** – In some cases, due to budget constraints, unwillingness to raise taxes and/or the inability to sell bonds, the P3 process using private financing is the only way the project can be built.

Risk/Activities Assumed By Private Partner

PROJECT TYPE	DESIGN	BUILD	FINANCE	OPERATE	MAINTAIN	TRAFFIC
Design-Bid-Build		X				
Design-Build	X	X				
Design-Build-Finance	X	X	X			
Design-Build-Finance-Operate (Availability Payment)	X	X	X	X	X	
Design-Build-Finance-Operate (Toll Concession)	X	X	X	X	X	X

34. For a more in depth discussion of P3 project structures and payment method see [Public-Private Partnerships: Issues and Considerations](#), Practical Law Finance, Practical Law Company, Thomson Reuters, 2013; [Risk Assessment for Public-Private Partnerships: A Primer](#), U.S. Department of Transportation, Federal Highway Administration Innovative Program Delivery, Washington, D.C., 2012; Young Hoon Kwak, Ying Yi Chih and C. William Gibbs, [Toward a Comprehensive Understanding of Public-Private Partnerships for Infrastructure Development](#), California Management Review, Vol. 51, No. 2, Winter 2009.

35. [Public-Private Partnership Concessions for Highway Projects: A Primer](#), U.S. Department of Transportation, Federal Highway Administration Innovative Program Delivery, Washington, D.C., 2012.

36. [Public-Private Partnership Concessions for Highway Projects: A Primer](#), U.S. Department of Transportation, Federal Highway Administration Innovative Program Delivery, Washington, D.C., 2012.

37. [Highway Public-Private Partnerships: More Rigorous Up-Front Analysis Could Better Secure Potential Benefits and Protect the Public Interest](#), GAO-08-44, General Accountability Office, Washington, D.C. February 2008.

38. [Public-Private Partnerships: Issues and Considerations](#), Practical Law Finance, Practical Law Company, Thomson Reuters, 2013.

3. **Reduces or Avoids Increasing Government Debt** – Private financing of the project allows the public owner to receive a completed project at the end of the P3 contract without having to increase public debt (as occurs when public owner sells General Obligation and/or Revenue Bonds). And, because such transactions are “off balance sheet” projects they do not impair the public owner’s bond ratings.
4. **Budget Relief** – As P3 projects utilize private financing such projects do not impact the public owner’s budget. Thus, budget funds that would have been expended had the public owner used the conventional D-B-B project delivery method are freed up for use on other budget priorities. In turn, this reduces or defers capital spending for the public owner as payments are often deferred until the project is completed and goes into operation. As P3 projects are privately financed, they provide budget certainty.
5. **Cost Savings** – By bundling design, construction, operation and/or maintenance into a single contract the public owner can eliminate the costs associated with procuring and managing a series of separate contractors for all of these project phases. It is also posited that the P3 contractor, knowing they will be responsible for O&M for the duration of the P3 agreement, will focus during design on ways to reduce O&M costs. Thus, the “whole life cost” for the project (construction and operation combined) is reduced because detailed design, construction and operation is integrated.
6. **Better Performing Assets** – P3 contractors are generally paid through revenue generated by the completed projects. It is perceived that a P3 contractor is incentivized to ensure the asset is constructed and operates successfully enough that it will generate sufficient revenue to repay the debt owed them. It is also perceived that the quality of service of the completed asset will be maintained for the life of the P3 project as failure to do so will leave the P3 contractor out of pocket due to lack of availability payments or project revenue sharing. It also risks the claim by the public owner that it failed to maintain the asset in the condition outlined in the P3 agreement when the asset is scheduled to be turned over to the owner at the end of the contract term.
7. **Avoids Underbidding** – In the conventional D-B-B process there is a belief that some contractors will bid low to win the project and then pursue numerous changes and claims. This report assumes that the P3 process eliminates this potential issue.
8. **Shorter Construction Periods** – Since P3 projects utilize private financing, project delays at the outset due to budget allocation or government grant processes, P3 projects avoid delays due to project financing delays. Further, bundling the design and construction process into a single contract will help shorten the duration of the project versus the classic D-B-B project delivery method. This, in turn, is likely to lead to better on time, on budget construction performance post contract award due to the diligence performed by those that are funding the project.
9. **Technical Expertise** – The P3 process gives public owners access to the technical experience and evidence of the private sector throughout the entire project. More innovation is possible on P3 projects because they are based on output specifications which maximises the use of private sector skills. This benefit is especially true in those situations where the public owner lacks in house expertise.
10. **Minimizes Waste** – The report comments that government contracts are, at times, awarded to political cronies. It is believed that the P3 contracting process is considerably more transparent; that public agencies perform more due diligence and analysis concerning the structure of the P3 project; and, because public agencies have to convince their political masters and the public to buy into the P3 process, that the potential for wasting public funds is substantially reduced.
11. **Better O&M of the Project** – When projects are publicly funded, while the public agency will have sufficient funding to construct the project, they may or may not have sufficient funding or expertise to operate and maintain the project. One of the benefits of the P3 process is that the P3 contractor will make certain there is sufficient funding to pay for O&M and that they will arrange for appropriate staffing to accomplish this mission. Experience shows that operational planning will be better considered from the outset when the P3 contractor knows they will be responsible for all O&M for the life of the P3 contract. P3 contractors are very likely to make it easier to maintain. P3 projects tend to minimize or eliminate the interface risk between the construction phase of the asset and its operations.
12. **Revenue Generation** – The report refers to this benefit in the context of P3 concessions. As noted earlier, P3 concessions involve public owners selling the right to operate and maintain an existing asset to a private contractor for a very long duration. The sale of the concession can generate a huge amount of revenue for the public owner. “In the Chicago Skyway project, the City of Chicago used US\$490 million of the US\$1.8 billion concession fee to redeem outstanding municipal debt and fund various city programs.”

WHAT TO BIDDERS LOOK FOR IN P3 PROJECTS?

Now that the Navigant Construction Forum™ has looked at why public owners consider the P3 project delivery model, let’s consider what contractors, as bidders on P3 projects, look for when considering they will propose on a P3 project.

- **Return on Investment** – Contractors, like all other businessmen, are in the business of generating profit. Thus, the initial consideration for a contractor considering whether they will propose on a P3 project is the potential ROI on the project. The ROI of a potential P3 project must be sufficiently large to attract the investment needed to fund the project. Profitability is of paramount concern to a potential P3 participant from the private sector. If the proposed P3 project is a revenue generating project (e.g., a toll road, a parking garage in an urban area, etc.) then the project is likely to draw more interest from the private sector. And, as potential proposers on P3 projects have to line up investors in order to provide sufficient equity and borrow enough money to construct the project, ROI will be a concern for such outside investors.³⁹ With P3 projects there is also greater transparency in pricing through the submission of detailed financial models which deal with the internal rate of return (“IRR”) of the project and equity pay outs to the shareholders.
- **Sensible Risk Transfer** – Potential P3 contractors understand full well that they will be required to accept more risk than is usual in typical D-B-B or D/B projects. All potential project risks should be identified and an appropriate allocation of risk should be contained in the P3 agreement. Thus, a P3 contractor considering their participation in a project will examine the proposed contractual arrangements carefully to ascertain whether the risk transfer in the agreement goes beyond their threshold for risk. For example, if demand risk is assigned to the P3 contractor; if all project design risk is laid on the P3 contractor even when the public owner and outside agencies have control over all or portions of the design; or if all force majeure risk is placed on the contractor the project may likely be considered too risky for many P3 contractors. In such an event, some of potential P3 contractors may simply walk away from the opportunity while others will propose higher costs in order to monetize and cover the additional risk.
- **Clear Legal And Institutional Framework** – As noted earlier, P3 contractors want clearly stated and enforceable “rules of the road” related to the project. The terms and conditions of the P3 contract must be clear and sensible. The P3 agreement must set forth the process by which decisions will be made and implemented as well as in what timeframe they will be made. The agreement must define the relationships between the parties to the agreement and various parties’ roles on the project. Project roles and responsibilities should also be assigned to specific entity representatives. If the proposed P3 contract fails to meet these standards, many P3 contractors will be reluctant to propose their involvement in the project.
- **High Level Commitment From Key Stakeholders** – The stakeholders in the context of a P3 contractor’s consideration include primarily the public owner(s). However, the experienced P3 contractor will likely also consider the owner’s constituents – the taxpayers – as they are the intended users of the completed project. These stakeholders will impact, positively or negatively, the demand or usage of the completed project. Thus, the owner’s constituents may well be the ultimate determinant of whether the project succeeds, and the P3 contractor accomplishes their planned ROI, or the project fails, and the contractor does not recover their construction and/or O&M cost. P3 contractors also look for appropriate compensation on termination should the public owner cancel a P3 project.
- **Reasonable Timeframes** – There are two timeframes a potential P3 contractor is concerned with when considering participation in a P3 project. The first schedule is duration of the planned design and construction of the project – that is, when is the project to be operational. The concern here is simply whether there is adequate time to design, build and commission the facility. Too short a time will decrease the time needed to design a successful project and will, in turn, likely increase the cost of construction due to the need for overtime work and/or additional labor and equipment. The other schedule concerns the operation and/or maintenance of the constructed facility. The longer this period the greater the potential for a profitable P3 project for the contractor.
- **Repeatable Projects** – Beyond the immediate P3 project, prospective proposers are highly likely to consider what other P3 projects may follow this one. P3 contractors will be more interested in participating in a P3 project if it appears likely that other public owners in the area (such as the State) are also considering the use of the P3 project delivery method.

PRINCIPLES OF RISK TRANSFER ON P3 PROJECTS

All construction projects carry and must plan for significant risks. These risks are often varied and P3 projects are no different in this regard. At their heart, they are still construction projects, albeit procured differently.

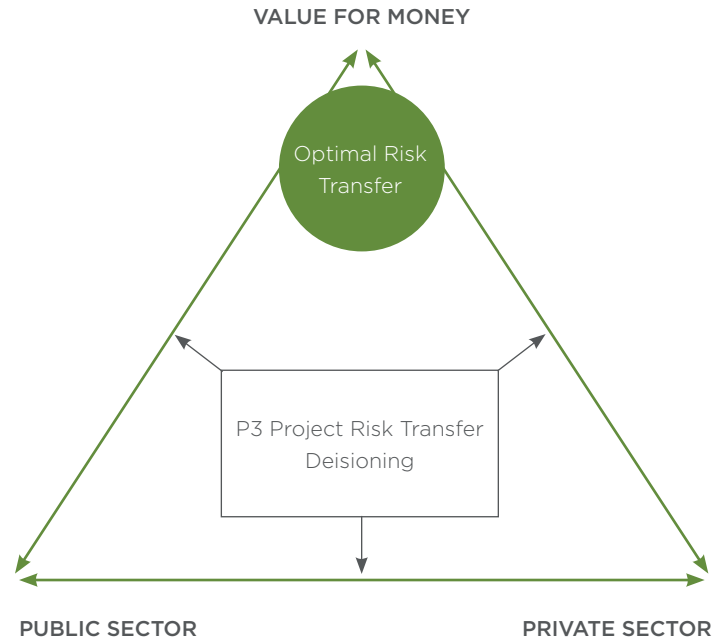
Whilst the contractual allocation of responsibilities and commercial structures de-risk the project as a whole, those risks still exist. However, what a P3 project structure seeks to do is allocate those risks to the party that can best manage those risks. It is also worth noting that these risks will still continue to exist across the whole infrastructure lifecycle of a P3 project, but if they are not identified, mitigated and, more importantly, allocated appropriately from the outset they can have far reaching implications on the future viability of the project at any stage of its lifecycle. If these risks materialize, they have the potential to

39. Lee A. Weintraub, Public-Private Partnerships: Is Your Company Ready?, CFMA Building Profits, May/June 2013, Construction Finance Management Association, Princeton, NJ.

jeopardize the P3 premise of lower whole life costs for the public owner and on time and on budget project delivery.

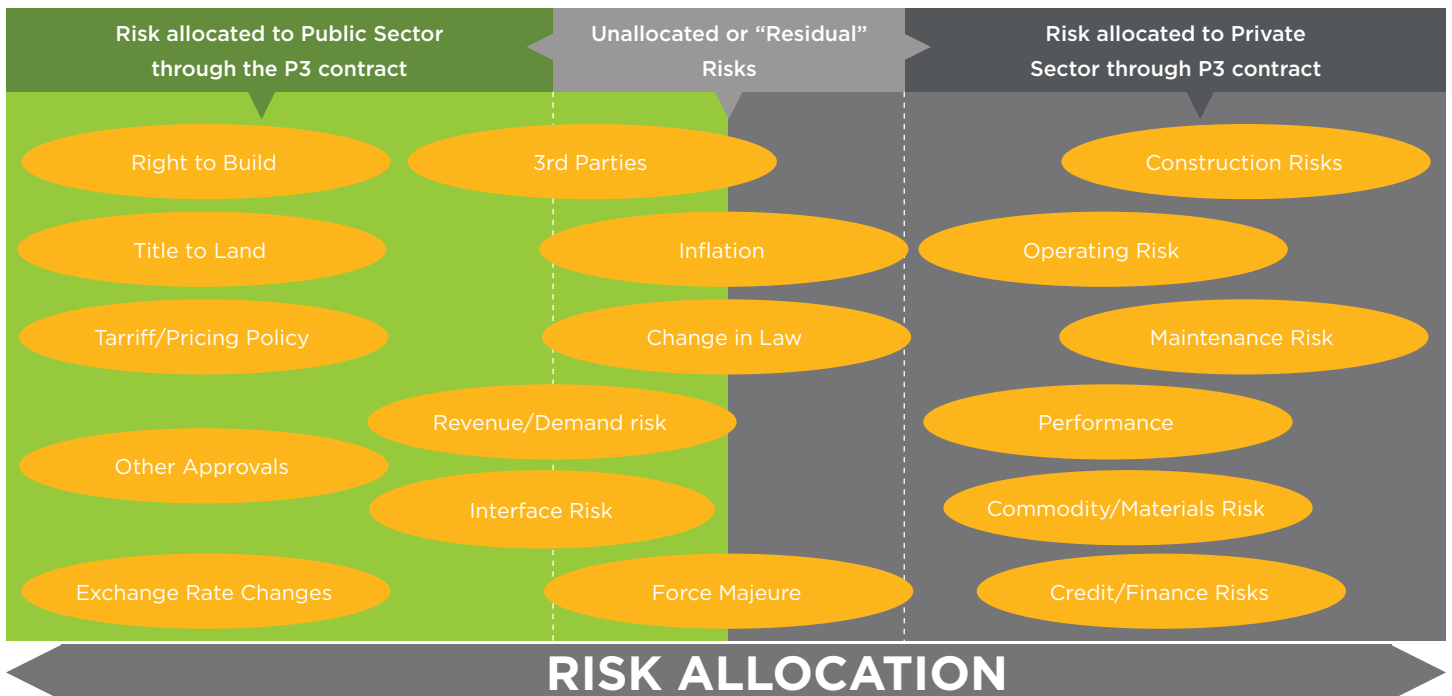
The nature of the risks can also have implications on the commercial structure of the P3 project or even on the decision around whether to procure a project utilizing a P3 approach. Each risk should therefore be objectively reviewed by the public owner, individually, for whether it is a risk that should be transferred to the P3 contractor or concessionaire, one to be retained by the public owner, or one to be shared equally between the parties. Naturally, from the owner's perspective they want to avoid assuming or accepting more risks than they would otherwise would do. However, most public owners are cognizant that the wholesale transfer of risks to the P3 contractor can potentially reduce the VfM the owner might otherwise derive from the P3 project. The graphic below illustrates how risk transfer in a P3 agreement impacts the VfM of the P3 project.

If the bidder community perceives an unfair transfer of risks, they will either view the project as too risky a proposition to bid on or increase the cost of their involvement given the breadth of risks they are being asked to take on. Each risk can have a material cost and therefore impact the project's viability. For example, where there is more risk transfer to the private sector, those that are funding the project may become very cautious and raise the cost of finance. On the other hand, where the public sector owner retains both risks and provides guarantees around payments to the private sector, the cost of finance comes down but this, of course, would also reduce the VfM of procuring under via P3 compared to traditional procurement where the public sector



retains most risks anyway. In fact, in such a scenario it is even possible that the P3 procurement of a project can end up costing the public owner significantly more than if it were procured traditionally. There is, arguably, an optimal balance or level of risks transfer between the public and private sector.

The diagram below illustrates some of those risks often transferred and allocated between the public owner and the P3 contractor or concessionaire and those risks which remain shared or unallocated as residual risks under a P3 structure.



Arguably, the above can be described as typical risk areas and not necessarily individual risks. Each of these can be potentially further split and analyzed. For example, title to land could also involve land acquisition and/or right of way risk. As with most things involving negotiation and appetite there is a spectrum around risk allocation. To which party each risk ultimately gets depends highly upon the strengths and outcomes of negotiation.

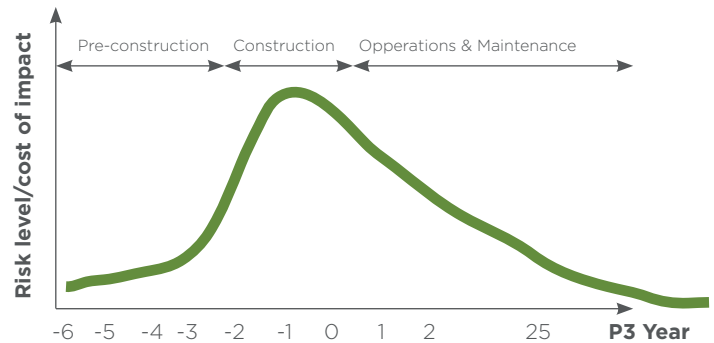
For the public owner, simply allocating the risk to the other party does not make it go away. It may still be inherent in the project, and the investor may apply a risk premium in its pricing as an incentive for taking on that risk. In order to maximize VfM, the public owner should minimize the risk of this occurring to reduce the potential financial exposure of the investor to the risk. The more uncertainty and understanding there is around a risk, the more likely it is to have a cost impact on the project. The commercial structure (or “payment mechanism”) between the parties in a P3 contract is often a reflection of the allocation of risks between public and private sector and the risk and reward. Those P3 projects that transfer risks to the P3 contractor and their investor(s) without the financial incentives are more likely to fail.

WHAT TYPICAL RISKS MUST P3 AGREEMENTS DEAL WITH?

Realistic risk transfer is at the epicenter of a good P3 contract. However, in order to consider what risks should be transferred, mitigated, accepted or shared, it is necessary to first identify and understand those risks. Risks exist across the entire project lifecycle. There are some risks that exist during the preconstruction phase, others during the construction period, and even others during the O&M post construction. Additionally, certain potential market risks exist across the whole life of the project. Such risks include the following:

- Pre-construction risks (e.g. land acquisition, permits, etc.);
- Construction period risks (rise in cost of materials, delays, etc.);
- O&M period risks (asset failures, unavailability of maintenance materials, etc.); and,
- Commercial and market risks (demand risk, change in law, etc.).

A P3 project, like any other construction project, has critical periods in the project lifecycle when the impact of risk events



may be at their highest and could affect the commercial and technical viability of a project. The graphic above illustrates this point.

Arguably, the probability of things going wrong on a project are higher in the earlier stages of the project life but the impact upon cost and therefore the VfM from a P3 project is likely to be lower than if a risk event materialized later in the project when both significant amounts of money, time and resources will have already been injected into a project and any one risk event is likely to have a knock on or compounding effect. One risk event may even cause another to materialize.

The UK National Audit Office’s reports on previous privatizations have an evident trend. They have often found that the private sector prices in a sizeable risk premium for retaining financial risk, even if in the event of project failure responsibility for paying out or making remedies contractually falls upon the public sector. Reporting on the failed London Underground P3 contracts, the Public Accounts Committee of the British Houses of Parliament published a report in March 2005 on what went wrong. It reported that the perception by financiers of political risk (such as the amount of central government support to local government), rather than project risk, appears to have accounted for most of the extra cost of private finance.⁴⁰

The Navigant Construction Forum™ located a study that summarized risks that should be considered when negotiating a P3 agreement. This paper surveyed and cited thirteen previous studies and mapped the risks identified in each of these studies to determine the ranking of project risks.⁴¹ A summary of ten risk categories, how many of the thirteen studies identified each risk, and the percentage of times these risks were cited are set forth in the following tables.

40. <http://researchbriefings.files.parliament.uk/documents/SN01307/SN01307.pdf>.

41. Nur Alkaf Abd Karim, *Risk Allocation in Public-Private Partnership (PPP) Projects: A Review on Risk Factors*, *International Journal of Sustainable Construction Engineering & Technology*, Vol. 2, Issue 2, December, 2011.

Risk Attributes of a Public P3 Project

POLITICAL RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Change in law	9	69%
Delay in project approvals & permits	9	69%
Expropriation / nationalization of assets	7	54%
Poor public decision making process	6	46%
Inconsistencies in government policies	4	31%
Strong political opposition / hostility	4	31%
Unstable government	3	23%
Government intervention	2	15%
Government reliability	2	15%
Inability of Concesionare	1	8%

CONSTRUCTION RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Land acquisition	9	69%
Availability of appropriate labor / materials	8	62%
Availability of finance	8	62%
Construction cost overruns	8	62%
Design deficiency	8	62%
Construction time delay	8	62%
Excessive contract variations / contractual risk	8	62%
Geotechnical conditions / ground conditions	6	46%
Late design changes	5	38%
Contractor failure / Capability of SPV	5	38%
Project delay	4	31%
Completion risk	3	23%
Consortium inability	3	23%
Unproven engineering technique	2	15%
Resettlement & rehabilitation	2	15%
Quality risk	2	15%
Insolvency / default of subcontractors & suppliers	2	15%
Poor quality workmanship	2	15%
Change of scope	1	8%

LEGAL RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Change in tax regulation	5	38%
Corruption & lack of respect for law	5	38%
Legislation changes / inconsistencies	5	38%
Industrial regulatory change	4	31%
Import / export restrictions	1	8%
Rate of return restrictions	1	8%

ECONOMIC RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Interest rate volatility	8	62%
Inflation rate volatility	7	54%
Foreign exchange & convertibility	6	46%
Poor financial market	3	23%

OPERATIONS RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Operations cost overrun	7	54%
Residual value (after concession period)	5	38%
Maintenance cost higher than expected	4	31%
Operation financial risk	4	31%
Low operating productivity	3	23%
Risk regarding pricing of product / service	3	23%
Operator default	2	15%
Quality of operation	2	15%
Project / operation change	2	15%
Supporting facilities risk / necessary infrastructure risk	2	15%
Technology risk	2	15%
Waste of material	1	8%

MARKET RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Tariff change	6	46%
Market demand	5	38%
Fluctuation of material cost (by government)	2	15%
Fluctuation of material cost (by private)	2	15%

PROJECT SELECTION RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Public opposition to project	5	38%
Uncompetitive tender	4	31%
Level of demand for the project	3	23%
Competition risk	2	15%

RELATIONSHIP RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Different work methods / know how between partners	6	46%
Inadequate experience in PPP projects	5	38%
Lack of commitment from public / private partner	4	31%
Organization & coordination risk	4	31%
Third party tort liability	4	31%
Inadequate distribution of responsibility & risk	3	23%
Inadequate negotiation period prior to initiation	2	15%
Staff crises	2	15%
Cultural differences between main stakeholders	1	8%
Non-involvement of host community	1	8%

PROJECT FINANCE RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Financial attraction of project to investors	5	38%
High finance cost	4	31%
Lack of credit worthiness	3	23%
High bidding costs	2	15%
Delay in financial closure	2	15%
Inability to service debt	1	8%
Lack of government guarantees	1	8%
Delay in payment of annuity	1	8%
Financiers unwilling to take high risk	1	8%

NATURAL RISK	FREQUENCY CITED BY STUDIES	% OF TIMES CITED
Force Majeure	8	62%
Environment	6	46%
Weather	5	38%

The Navigant Construction Forum™ believes that this list of project risks is fairly comprehensive. However, the Navigant Construction Forum™ is cognizant that some specialized P3 projects may have additional risks *not* contained in the above list. The Navigant Construction Forum™ cautions readers *not* to rely exclusively on this research perspective when identifying and analyzing risk concerning future P3 projects.

TYPICAL RISK ALLOCATION ON P3 PROJECTS

As noted above P3 projects tend to allocate many more risks than typical D-B-B or D/B projects. However, the basic risk management and allocation process remains fundamentally the same. This process generally follows the steps outlined below:

1. **Identify** – All risks the project may encounter should be identified.
2. **Analyze** – Each identified risk should be analyzed to determine the probability of the risk occurring on the project.
3. **Assess** – Each risk should be assessed to determine the potential impact on the project, both cost and time, should the risk arise on the project.
4. **Determine** – For each risk determine whether to:
 - a. **Accept** – Some risks may be accepted via the terms of the contract. For example, the risk of differing or latent site conditions are frequently accepted by owners through inclusion of a Differing Site Conditions clause in the contract.
 - b. **Avoid** – Contractors can avoid some risks by hiring specialty subcontractors. As an example, a P3 contractor may hire a hazardous waste subcontractor to deal with any asbestos encountered on the project.
 - c. **Reduce** – Owners and D/B contractors can reduce risk by changing the project design, means and methods, etc.
 - d. **Transfer** – Owners and contractors can transfer some risks by purchasing insurance or bonds to cover certain risk events.
5. **Manage and Mitigate** – Owners and contractors should prepare a risk register for each project that includes all identified risks on the project. Owners and contractors should prepare specific risk management plans for each specific risk that has a high potential risk for occurrence and/or a potentially large impact (time and/or cost) on the project.
6. **Monitor** – Finally, the project risk register should be routinely reviewed and reassessed as the P3 project moves from one phase to another – design, construction, commissioning, and operation and/or management.

One article that examined how risk is reflected in infrastructure contracts classified project risk into three categories – production, commercial and context – and then ranked the importance of major risks in each category.⁴² The results of this article are summarized in the table below:

Classification Importance of Major Risks

PRODUCTION	COMMERCIAL	CONTEXT
Planning ***	Demand (Consumption) ****	Financing ****
Design ****	Collection **	Inflation **
Expropriation *	Capacity ***	Legal **
Construction *****	Competition *	Regulation ***
Environmental ***		Unilateral Changes ****
Maintenance & Repairs **		Public Contestation **
Operation ***		Force Majeure **
Technological **		
Performance ***		

Low Risk = *
High risk = *****

42. Rui Cunha Marques and Sanford V. Berg, *Risks, Contracts and Private Sector Participation in Infrastructure*, *Journal of Construction Engineering and Management*, Vol. 137, Issue 11, American Society of Civil Engineers, Reston, VA, November 2011.

As another study pointed out:

“Effective risk transfer is one of the keys to achieving high VfM under PPP contracts. Although the base cost of financing is often higher when using private funds, risk allocation is one of the primary areas where those costs are recovered and, often, real cost savings is realized ... decision makers should seek to

allocate risk to the party best able to manage it. Under PPP arrangements, many project risks traditionally shouldered by the public sector are transferred to the private sector...”⁴³

This same report cited another study that summarized the “typical risk transfer” under most P3 contracts in the following manner.⁴⁴

Typical Risk Transfer Scenario Under PPP Arrangements

	RESPONSIBILITY OF RISK		
	PUBLIC/DBB	PPP	TRANSFERRED
DEVELOPMENT RISKS			
Performance	Public	Private	X
Interface	Public	Private	X
DEVELOPMENT RISKS			
Scope	Public	Shared	X
Errors & Omissions	Public	Private	X
Interference / Coordination	Public	Private	X
Life Cycle	Public	Private	X
CONSTRUCTION RISKS			
Performance	Private	Private	
Schedule	Public	Private	X
Cost Overruns	Public	Private	X
Changes in Scope	Public	Public	
Force Majeure	Shared	Shared	
FINANCING RISK			
Schedule Slippage & Additions	Public	Private	X
Interest Rate Risk	Public	Private	X
VEHICLE SUPPLY RISKS			
Supply / Performance Risk	Private	Private	
Financing Risks	Public	Private	X
Defects	Private	Private	
MAINTENANCE & LIFE CYCLE RISKS			
Maintenance Level	Public	Private	X
Deferred Maintenance / Repair / Repl.	Public	Shared	X
Defective Components	Private	Private	
Residual Value	Public	Shared	X
OPERATIONS RISKS			
Revenue	Public	Shared	X
Service Level & Quality	Public	Shared	X

43. [Testing Tradition: Assessing the Added Value of Public-Private Partnerships](#). The National Council for Public-Private Partnerships, Arlington, VA, 2012.

44. Citing Peter Raymond, *PPPs and Use of Availability Payments*, [Implementation of Public-Private Partnerships for Transit Workshop](#), PricewaterhouseCoopers, LLC, Chicago, IL, May 20, 2009.

Another study located by the Navigant Construction Forum™ was based on a survey sent to 285 professionals all with interest in and/or experience with P3 projects. The author of the study received 45 detailed responses for a response rate of approximately 16%. This survey identified 47 risk factors found

on P3 projects and asked the survey participants to identify, for each risk factor, whether the risk should be assigned to the public owner, the P3 contractor, or equally shared. The following table summarizes the results of this survey:

Results of Risk Allocation Preferences⁴⁵

RISK FACTORS	ALL PREFERRED ALLOCATION	PUBLIC PREFERRED ALLOCATION	PRIVATE PREFERRED ALLOCATION	BANKING PREFERRED ALLOCATION
Unstable Government	Public	Public	Public	Public
Expropriation/Nationalization of Asset	Public	Public	Public	Public
Poor Public Decision Making Process	Public	Public	Public	Public
Strong Political Opposition/ Hostility	Public	Public	Public	Public
Poor Financial Market	Private	Shared	Private	Private
Inflation Rate Volatility	Shared	Shared	Public	Shared
Interest Rate Volatility	Shared	Private	Private	Shared
Influential Economic Events	Shared	Shared	Shared	Shared
Legislation Change	Public	Public	Public	Public
Change in Tax Regulation	Public	Public	Public	Shared
Industrial Regulatory Change	Shared	Shared	Public	Shared
Lack of Tradition of Private Provision of Public Services	Private	Shared	Private	Private
Level of Public Opposition to Project	Public	Public	Public	Shared
Force Majeure	Shared	Shared	Private	Shared
Geotechnical Conditions	Private	Private	Public	Private
Weather	Private	Shared	Shared	Private
Environment	Shared	Shared	Public	Shared
Land Acquisition (Site Availability)	Shared	Public	Shared	Shared
Level of Demand for Project	Private	Shared	Private	Private
Availability of Finance	Private	Private	Private	Private
Financial Attraction of Project to Investors	Private	Private	Private	Private
High Finance Costs	Private	Private	Private	Private
Residual Risks	Private	Shared	Private	Private
Delay in Project Approvals & Permits	Public	Public	Public	Public
Design Deficiency	Private	Private	Private	Private
Unproven Engineering Techniques	Private	Private	Private	Private

45. Olufemi Vincent Tolani, *An Examination of Risk Allocation Preferences in Public-Private Partnerships in Nigeria*, *Afe Babalola University - Journal of Sustainable Development Law and Policy*, Vol. 2, Issue 1, 2013.

Construction Cost Overrun	Private	Private	Private	Private
Construction Time Delay	Private	Private	Private	Private
Material/Labor Availability	Private	Private	Private	Private
Late Design Changes	Private	Private	Private	Private
Poor Quality Workmanship	Private	Private	Private	Private
Excessive Contract Variations	Private	Private	Private	Shared
Insolvency/Default of Subcontractors or Suppliers	Private	Private	Private	Private
Operation Cost Overrun	Private	Private	Private	Private
Operational Revenues Below Expectation	Private	Shared	Private	Private
Low Operating Productivity	Private	Private	Private	Private
Maintenance Costs Higher Than Expected	Private	Private	Private	Private
Maintenance More Frequent Than Anticipated	Private	Private	Private	Private
Organization & Coordination Risk	Private	Private	Private	Private
Inadequate Experience in PPP/PFI	Shared	Private	Private	Shared
Inadequate Distribution of Responsibilities & Risks	Shared	Shared	Public	Private
Inadequate Distribution of Authority in Partnership	Shared	Public	Private	Private
Differences in Working Method & Know How Between Partners	Private	Private	Shared	Private
Lack of Commitment from Either Partner	Shared	Shared	Private	Shared
Third Party Tort Liability	Private	Private	Shared	Private
Staff Crises	Private	Private	Private	Private

The author points out that 27 of the 46 risk factors (59%) in this survey were allocated to the P3 contractor including the following:

1. Poor financial market
2. Lack of tradition of private provision of public services
3. Geotechnical conditions
4. Weather
5. Level of demand for project
6. Availability of finance
7. Financial attraction of project to investors
8. High finance costs
9. Residual risks
10. Design deficiency
11. Unproven engineering techniques
12. Construction cost overrun
13. Construction time delay
14. Material/labor availability
15. Late design changes
16. Poor quality workmanship
17. Excessive contract variations
18. Insolvency/default of subcontractors or suppliers
19. Operation cost overrun
20. Operational revenues below expectation
21. Low operating productivity
22. Maintenance costs higher than expected
23. Maintenance more frequent than expected

24. Organization and coordination risk
25. Differences in working methods and know how between partners
26. Third party tort liability, and
27. Staff crises.

The study reported that only 8 of the 46 risk factors (17%) were allocated to the public owner, including:

1. Unstable government
2. Expropriation / nationalization of the asset
3. Poor public decision making process
4. Strong political opposition / hostility
5. Legislation change
6. Change in tax regulation
7. Level of public opposition to the project, and
8. Delay in project approvals and permits

A total of 11 of the 46 risk factors (24%) were identified in this survey as being equally shared between the public owner and the P3 contractor, including:

1. Inflation rate volatility
2. Interest rate volatility
3. Influential economic events
4. Industrial regulatory changes
5. Force Majeure
6. Environment
7. Site availability
8. Inadequate experience in PPP / PFI
9. Inadequate distribution of responsibilities and risks
10. Inadequate distribution of authority, and
11. Lack of commitment from either partner.

The Navigant Construction Forum™ acknowledges that not all P3 projects will allocate risk in this same fashion. However, this survey may give readers some idea on how risk was allocated on previous P3 projects.

SOME INAPPROPRIATE RISK ALLOCATION CLAUSES IN P3 PROJECTS

As discussed, risk transfer on a project should be on the basis of transferring specific risks to the party best positioned to manage each risk should it arise on the project. Inappropriate risk transfer, particularly risks that the private sector is not any more in control of or experienced with, will *increase* the funding costs of the P3 project which in turn will reduce the VfM of the P3 delivery method.

The risks that the project is exposed to and the appropriateness of risk transfer varies from project to project regardless of the project delivery method employed. However, there are arguably certain risks that are often best left in the hands of either the private sector or the public sector. Land acquisition is one such risk. Public owners typically have greater powers than private entities in acquiring land as they can utilize powers such as Eminent Domain (U.S.) or Compulsory Purchase Orders (“CPOs”) (UK) in order to procure and secure a site for a project. If the P3 contractor were made responsible for land acquisition this transfer of responsibility would likely cause delays in acquiring the land as it would not have the leverage of a government entity and its statutory powers. The P3 contractor would have to rely almost entirely upon the financial offers it is able to make to those whose land it seeks to acquire. It is not a zero sum game for the public sector as the risk of the P3 contractor paying out significant sums will have been priced into their bid. It is therefore better from the outset that land acquisition much like permit and licensing risks be retained by the public owner.

Similarly, change of law is a risk best retained by the public sector. The public owner is responsible for the laws and any changes made to them. Transferring a risk such as change in law subjects the P3 contractor to a great degree of uncertainty which it would then be forced to price into its bid or refuse to participate in the project as it would be too risky. Even if the public sector body procuring the P3 project is not directly in control of the laws that govern the project, it will have more influence than the P3 contractor in protecting the project from changes in law which detrimentally impact the project costs and/or revenues or its ability to operate. An example may be a coal powered fire plant originally constructed as a P3 project but a few years later new laws demand the closure of all coal fired power plants, require them to adopt newer technologies, or only source and use cleaner coal any of which would jeopardize the viability of the P3 project.

Some risks cannot simply be priced into a project and insistence that they be transferred to the private sector may cause project abandonment. Force Majeure risks are such an example. When they occur, how they occur, and what will be their impact cannot be estimated or predicted. All sorts of natural (“Acts of God”) and unforeseen political triggers can cause them to materialize and potentially disrupt or destroy an asset causing downtime and loss of revenue. For this reason, it is often more appropriate for Force Majeure risk events and their impacts to be shared. This sharing may be determined by the type of event or simply “relief events” that allow the investor to get back up and running without penalties being applied to them. Another approach is to simply take out All Risk / Builder’s Risk insurance policies with third parties that protect the investor(s) from damages and loss of revenue for such event.

Likewise, the risk transfer of demand risk or the risk of “usership” to the P3 contractor will likely cause a sharp increase in the cost of the project or may cause potential P3 contractors to decline to bid. With respect to demand risk, one study stated the following:

“Engel et al. (2010) for instance shows that with financing considerations, it is optimal to transfer demand risk to the government. They argue that since PPPs involve large upfront investments, exogenous demand risk is an important concern of lenders when use fees are the main revenue source, so by assigning it to the government, the risk and therefore the interest rates charged to the project fall.”⁴⁶

Likewise, specifically crafted risk transfer clauses are also likely to cause an increase in the cost of the project at the outset including those that:

- Define concurrent delay as contractor caused delay leaving the P3 contractor liable for overlapping owner caused delay;
- Include a Submittal Metering clause that limits how many drawing submittals the P3 contractor can submit in any month on the project;
- Provide for direct costs only, no delay costs, in the event that the P3 contractor encounters a materially different, latent site condition during construction; or
- Incorporate a No Damages for Delay clause.

The Navigant Construction Forum™ acknowledges that these examples are only a few of the many clauses employed in some P3 projects that the authors have encountered. Nevertheless, clauses such as these run contrary to the accepted rule that risk should be assigned to the party best able to deal with the risk should it actually arise during the performance of the project.

TYPICAL CAUSES OF P3 PROJECT FAILURES

While there are numerous successfully completed P3 projects, there are also number of P3 project failures. It is very easy to get wrong. As one study stated:

“... public infrastructure sponsors seldom apply state of the art risk and project management tool and techniques, despite the knock on consequences of being seen to ‘lose’ public money during a time of increasingly constrained public budgets.

...

As a result, the seeds of many project failures are sown in the early stages of development, when a poorly designed project delivery approach or ill considered procurement decision can lead to delays, higher costs, and ultimately diminished returns.”⁴⁷

Some typical cause of P3 project failures are set forth below:

- **Poor Legal Framework And Enforcement** – The lack of a solid legal framework that clearly specifies the rules of the road and reduces project risk is likely to lead to project failures.
- **Failure To Comply With Contractual Agreement** – Financial profitability and sustainability is heavily dependent upon the public owner’s compliance with the terms and conditions of the P3 contract. The failure to do so will cause extreme difficulties in delivering the project and may lead to project failure. Examples from past projects include the owner’s failure to fulfill their preconstruction obligations (i.e., property and right of way acquisition, utility relocations, etc.).
- **Unrealistic Revenue, Growth Potential, And Cost Estimates** – The lack of a thorough, in depth cost estimate of the project combined with an inadequate, realistic revenue projection can bankrupt the concession. This factor has caused a number of P3 project failures already in the U.S.⁴⁸
- **Failure To Establish Strong Institutional Arrangements** – The failure to establish project management teams on the part of the owner and the contractor that enhances and ensures coordination, technical support and adequate checks and balances will likely lead to project failure. Not applying the appropriate oversight and scrutiny may result in project delays especially those related to government approval of land and environmental aspects and can doom the project almost from the outset. It is, therefore, important to engage all necessary stakeholders along the P3 journey and manage their expectations and spend time in planning and managing both the development and the implementation of the project.
- **Inappropriate or Unrealistic Risk Transfer** – Contract clauses allocating the risks of usership; force majeure; obtaining all permits; change of law; etc. to the P3 contractor are all inappropriate and may lead to project failure.
- **Public Resistance – Unwillingness To Pay For Services** – The failure to assess the willingness of the public to pay to use the project once completed can prematurely end the concession. If the public either has a free alternative to the completed

46. Ibid, citing E. Engel, R. Fischer and A. Galestovic, *The Economics of Infrastructure Finance: Public-Private Partnerships Versus Public Provision*, *European Investment Bank Papers*, 15 (1), 2010.

47. Frank Beckers, Nicola Chiara, Adam Flesch, Jiri Maly, Eber Silva and Uwe Stegermann, *A Risk Management Approach To A Successful Infrastructure Project*, McKinsey Working Papers on Risk, Number 52, McKinsey & Company, November 2013.

48. Kahlid Bekka, *Public-Private Partnerships for Infrastructure Development: Acquiring New Skills for a New Age*, HDR, Silver Spring, MD, May 2012.

project or concludes that the concession fees are too high or unaffordable, then revenue will decline and render the project a failure.

KEYS TO SUCCESSFULLY MANAGING P3 PROJECTS

Two published papers summarized what their authors believed are the keys to P3 project success as noted below.

A summary of the factors The National Council for Public Private Partnerships believes will lead to a successful P3 project include the following:⁴⁹

1. **Public Sector Champions** – Strong political commitment is imperative. Recognized public figures should be the advocates for the P3 project. A recently published article on P3 projects put forth exactly this point in the following manner: “Government relations becomes critical for P3 projects. Consultants may be required to help local regulators and legislators continue to understand the value of the P3 and to maintain the political will for the project over time – particularly if and when administrations change.”⁵⁰
2. **Statutory Environment** – There needs to be a clear legal structure in place that includes transparency and a competitive proposal process to create an effective enabling environment.
3. **Public Sector’s Organized Structure** – The public owner should have a team dedicated to the P3 project and this team must be involved from the initial project planning phase through the completion of the project and beginning of operations, and perhaps longer.
4. **Detailed Contract and Business Plan** – The contract should include the responsibilities, risks and benefits for both the public owner and the P3 contractor.
5. **Clearly Defined Revenue Stream** – Even though the P3 contractor will provide funding for the project, an identifiable “...revenue stream sufficient to retire this investment and provide an acceptable rate of return over the term of the partnership...” must be included.
6. **Stakeholder Support** – Stakeholders include more than just the public owner and the P3 contractor and their financial backers. Other groups may include the owner’s employees, the public users, other interest groups and the press. It is important that the public owner reach out to all such groups and gain their support for the project.
7. **Pick Your Partner Carefully** – The report points out that “The ‘best value’ (not always the lowest price) in a partnership is critical in maintaining the long term relationship that is central to a successful partnership.” The P3 contractor’s experience in delivering P3 projects and their financial capacity are also critical factors in picking the right partner.

Likewise the *Urban Land Institute* published a study that identified ten principles necessary to successfully deliver a P3 project.⁵¹ These principles are summarized below:

1. **Prepare Properly for Public/Private Partnerships** – Both public owners and P3 contractors have to prepare in advance of entering into a P3 agreement. Both parties need to assess their own internal capabilities and, if found lacking, fill necessary gaps. Public owners must create and transmit a public vision for a P3 project and create or make certain there is an appropriate legal structure. (It may be appropriate for public owners to identify “pathfinder projects” that are small and easily understood that align with contractor appetite and pave the path for further and increasingly complex projects.) Public owners need to identify and capitalize on all public and nonprofit funds to support the project and have all necessary land acquisitions and rights of way in place. P3 contractors must establish the project feasibility and arrange their financial backing accordingly. P3 contractors must arrange the right team for the project. A recent article included the following concerning this point: “There needs to be a comfort in asking questions and not a presumption of understanding. Everyone needs to operate from a greater level of understanding.”⁵²
2. **Create a Shared Vision** – The owner / P3 contractor team must create and maintain a shared vision of the project. The shared vision is the framework for the project and forms the benchmark for measuring and accomplishing project goals. P3 projects are long term and relatively inflexible structures so it is important to get it right from the outset. This report notes that the public owner and the P3 contractor must become partners to be successful in delivering a P3 project.
3. **Understanding Your Partners and Key Players** – The report notes the following. “The beginning point of any successful partnership is for all prospective partners to invest the time and effort necessary to gain a full appreciation of, and respect for, their counterparts in a deal – their background, reputation, experience, needs, financial strength, motivations, expectations, and goals. Choose wisely, because you want partners who will work with you, not against you. Everyone

49. [Testing Tradition: Assessing the Added Value of Public-Private Partnerships](#), The National Council for Public-Private Partnerships, Arlington, VA, 2012.

50. *P3 Progress Marks New Era*, [Engineering News-Record](#), Vol. 276, No. 17, June 13, 2016.

51. Mary Beth Corrigan, Jack Hambene, William Hudnut III, Rachelle L. Levitt, John Stainback, Richard Ward and Nicole Witenstein, [Ten Principles for Successful Public/Private Partnerships](#), ULI-The Urban Land Institute, Washington, D.C., 2005.

52. *P3 Progress Marks New Era*, [Engineering News-Record](#), Vol. 276, No. 17, June 13, 2016

is not in the deal for the same reasons, and without such understanding, trust will never be built, and distrust may cause the deal to unravel.” While this report does not specifically mention project partnering as this term is used in the construction industry, the implications are clear to the Navigant Construction Forum™.⁵³

4. **Be Clear on the Risks and Rewards** – The report contains a table setting forth the risks and rewards in a P3 project that must be balanced in order to provide for project success for both the P3 contractor and the public owner.
5. **Establish a Clear and Rational Decision Making Process** – As the report notes – “All parties need to articulate and agree upon the process to be followed and the rules of engagement to be used to structure a deal with public and private dimensions as early as possible. Agreement on process helps ensure that partnerships establish effective policies and implement them efficiently and collaboratively. Furthermore, a documented decision making process increases transparency and facilitates the sharing of information about the project.”

6. **Make Sure All Parties Do Their Homework** – Both the public owner and the P3 contractor must analyze thoroughly and fully understand what they will have to invest in time, energy, and resources during all phases of the project. Each party must continue to perform due diligence reviews throughout the project; share information with the other party; and continually monitor and act upon the project risk register as the project progresses through the phases of the project life cycle.
7. **Secure Consistent and Coordinated Leadership** – A well functioning P3 project team requires a small group of individuals – from both the public owner and the P3 contractor – to be the champions of the P3 process. This group will define project goals, coordinate the decision making process, facilitate communications with all project stakeholders, etc.
8. **Communicate Early and Often** – As the report states: “The more open the communication channels and the more they are used by each partner, the greater the prospects

Framework for a Risks and Rewards Balance Sheet

RISKS		REWARDS	
PUBLIC	PRIVATE	PUBLIC	PRIVATE
Conflicts of interest, perceived or real	Excessive costs of development, unprofitable	Greater community wealth, tax base, public infrastructure	Resources to sustain organization
Use / misuse of public funds, resources, perceived or real	Time consuming process required – time is money	Increased taxes, other revenues	Profitability
Controversial impacts on those directly affected <ul style="list-style-type: none"> • Land use conflicts with adjacent property owners • Dislocation by condemnation • Relocation costs & procedures • Disagreements on fair market value 	Failure to create long term value	Promote, advance city image	Value, wealth creation
	Accusation of being unfairly enriched at public expense	Job creation	Enhanced reputation, experience to get next project
	Change in key public, political or staff leadership that derails partnership	Community betterment, enhanced quality of life	Market niche
	Market shortfall, failure	Reelection (elected officials)	Community betterment, enhanced quality of life
	Loss of invested equity	Job retention, advancements (staff)	
Developer fails to perform or goes out of business	Ultimately public airing of critical project details, especially financing		
Public opposition – NIMBYism	Liability impacts		
Liability impacts			

53. For further discussion of project partnering in construction see James G. Zack, Jr., [Delivering Dispute Free Projects – Does Partnering Help?](#), Navigant Construction Forum™, Boulder, CO, March 2016.

for a successful project outcome and lasting public/private partnership.” The Navigant Construction Forum™ also reminds readers of the adage “Bad news delivered early is useful information. Bad news delivered late is a disaster!”

9. **Negotiate a Fair Deal Structure** – The P3 contract is the deal! Public owners and P3 contractors understand and acknowledge this. However, circumstances may change. In such circumstances fairness may be difficult to accomplish. Some general rules for achieving a “fair deal structure” as outlined in this report include the following.
 - Spend sufficient time preparing and reviewing a detailed term sheet.
 - Do not let legal counsel or the documentation process drive the outcome. Only the principals from the public owner and the P3 contractor have a shared vision for the project.
 - Build in objective measures of the expected outcomes that can be used to determine the ultimate fairness of the transaction.
 - Both sides need to hire competent legal and technical counsel.
 - Allow sufficient time to conclude negotiations.
 - Understand the long term nature of the partnership.
 - Understand that compromise is a necessary requirement for achieving a fair transaction.
10. **Build Trust as a Core Value** – The report notes that “Trust is one of the overarching values to be realized from the beginning and throughout the public/private partnership process. To endure, partnerships require a foundation of trust in each partner’s commitment to the project and its objectives. Given the complex public/private partnership process and structure, trust is required between the multiple actors and entities to enable shared decision making and taking of financial risks.”

There is obviously some overlap between these two studies. Notwithstanding this overlap, the Navigant Construction Forum™ believes these two lists are a good roadmap to success for both public owners and P3 contractors considering their participation in a P3 project agreement.

CONCLUSION

The Navigant Construction Forum™ notes that P3 projects are becoming more common in the U.S. and around the globe. The

Navigant Construction Forum™ believes that the P3 project delivery system will become even more popular going forward. It is no surprise as P3 projects are designed to provide greater certainty of project cost and contract value to the public sector before construction starts, maximize the use of private sector skills and inject private sector capital into infrastructure.

While in the process of finalizing this research perspective the Navigant Construction Forum™ became aware of a new Public-Private Partnerships Certification Programme developed by *APMG International*, a global examination institute.⁵⁴ In addition to issuing this new professional certification APMG oversaw the creation and publication of a 1,000+ page *PPP Certification Program Guide*, “...a body of knowledge for professionals working on PPPs around the globe.” APMG also coordinated the implementation of both this Guide and the Foundation Exam in collaboration with the *Asian Development Bank* (“ADB”), the *European Bank for Reconstruction and Development* (“EBRD”), the *Inter-American Development Bank* (“IDB”), the *Islamic Development Bank* (“IsDB”), the *Multilateral Investment Fund* (“MIF”), and the *World Bank Group* (“WBG”) and the *Public-Private Infrastructure Advisory Facility* (“PPIAF”). Additionally, the EBRD on June 21, 2016 issued a statement endorsing this new professional certification program.⁵⁵ With this sort of political backing from some of the world’s largest funding institutions, the P3 project delivery method is bound to spread more widely and more quickly than in the past. It is also noted that China’s Ministry of Finance teamed with some of China’s top banks, including the Industrial and Commercial Bank of China Ltd., have joined with other Chinese financial firms to establish a US\$28 billion Public Private Partnership fund.⁵⁶

P3s have become a legitimate project delivery method. After performing the necessary research to prepare this research perspective the Navigant Construction Forum™ has concluded that P3 projects, if properly structured, can and will be successful. However, a number of P3 projects have failed and others appear to be on the verge of failure. The Navigant Construction Forum™ believes that *inadequate* risk identification, allocation and management are at the heart of the currently known P3 failures.

Identification, allocation and management of P3 project risks *will* greatly affect project success and their bankability from both a contractor and lender’s perspective. Careful and thorough risk identification, risk planning, risk allocation and risk management will make a difference in the VfM necessary to justify the use of the P3 project delivery method as opposed to traditional

54. <http://www.apmg-international.com>

55. Olga Rosca, [EBRD Welcomes New PPP Certification Program](http://www.ebrd.com/news/2016/ebrd-welcomes-new-ppp-certification-programme), European Bank for Reconstruction and Development, <http://www.ebrd.com/news/2016/ebrd-welcomes-new-ppp-certification-programme>, June 21, 2016.

56. [China’s Top Banks Help Launch \\$28 Bln Public-Private Partnership Fund](http://www.reuters.com/article/china-banks-fund-idUSL3N12033G20150930), Reuters News Agency, September 30, 2015, <http://www.reuters.com/article/china-banks-fund-idUSL3N12033G20150930>.

procurement methods such as D-B-B or D/B. The Navigant Construction Forum™ believes that P3 projects *will* perform well when the risks are appropriately transferred and a thorough risk management plan is implemented. Public owners need to recognize that P3 agreements will not allow for total risk transfer and that while P3 agreements are one tool in the project delivery method toolkit, P3 projects are not the answer every time.

Public owners also need to recognize that appropriate risk transfer is *not* the only thing that helps to deliver a successful P3 project. P3 agreements are complex contractual arrangements and public owners must start by choosing the right project(s). The public owner must draft and negotiate realistic and thorough output specifications that encourage innovation with financial performance linked directly to achievement of these outputs. Public owners and P3 contractors must negotiate and settle on well drafted contracts with clear incentives – for both parties. Finally, public owners and P3 contractors must look beyond contract execution to the design, construction, operation and/or maintenance plans and even beyond to what happens when the term of the P3 agreement is reached.

Provided that all of this is done correctly by both the public owner and the P3 contractor the Navigant Construction Forum™ believes that P3 projects can be successfully delivered for the benefit of the public owner, the P3 contractor and all other project stakeholders. The Navigant Construction Forum™ trusts that this research perspective will aid those considering their involvement in P3 projects and those already participating in this project delivery method.

NAVIGANT CONSTRUCTION FORUM™

Navigant (NYSE: NCI) established the Navigant Construction Forum™ in September 2010. The mission of the Navigant Construction Forum™ is to be the industry's resource for thought leadership and best practices on avoidance and resolution of construction project disputes globally. Building on lessons learned in global construction dispute avoidance and resolution, the Navigant Construction Forum™ issues papers and research perspectives; publishes a quarterly e-journal (*Insight from Hindsight*); makes presentations globally; and offers in-house seminars on the most critical issues related to avoidance, mitigation and resolution of construction disputes.

Navigant is a specialized, global expert services firm dedicated to assisting clients in creating and protecting value in the face of critical business risks and opportunities. Through senior level engagement with clients, Navigant professionals combine technical expertise in Disputes and Investigations, Economics, Financial Advisory and Management Consulting, with business pragmatism in the highly regulated Construction, Energy, Financial Services and Healthcare industries to support clients in addressing their most critical business needs.

Navigant's Global Construction Practice is the leading provider of expert services in the construction and engineering industries. Navigant's senior professionals have testified in U.S. Federal and State courts, more than a dozen international arbitration forums including the AAA, DIAC, ICC, SIAC, ICISD, CENAPI, LCIA and PCA, as well as ad hoc tribunals operating under UNCITRAL rules. Through lessons learned from Navigant's forensic cost/quantum and programme/schedule analysis on more than 5,000 projects located in 95 countries around the world, Navigant's construction experts work with owners, contractors, design professionals, providers of capital and legal counsel to proactively manage large capital investments through advisory services and manage the risks associated with the resolution of claims or disputes on those projects, with an emphasis on the infrastructure, healthcare and energy industries.

FUTURE EFFORTS OF THE NAVIGANT CONSTRUCTION FORUM™

In the third quarter of 2016, the Navigant Construction Forum™ will issue another research perspective analyzing construction industry issues. Further research will continue to be performed and published by the Navigant Construction Forum™ as we move forward. If any readers of this research perspective have ideas on further construction dispute related research that would be helpful to the industry, you are invited to e-mail suggestions to.