

## **Measurement Matters: *Improving Infrastructure P3 Comparative Evaluation***

### **Briefing Memo for Cornell Program in Infrastructure Policy September 2015 P3 Conference**

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#### **Introduction**

The need for major infrastructure renewal in the US is widely recognized. The amount of private-sector capital willing to invest in this renewal through innovative public-private partnerships (P3s) is at unprecedented levels. The latter is often talked about as an obvious way to address the former. Yet at every level of US government and across all infrastructure sectors progress in actually enacting P3s is frustratingly slow. Why?

In specific situations the answer usually appears to be straightforward. In one, it's a legislative political problem. In another, it's the result of resistance from interest groups. The difficulty of obtaining permits and dealing with red tape are often cited as causes. The complexity of P3 negotiation and the long timeframe of the development process are considered intrinsic problems. And so on.

Such issues are undoubtedly significant, as they are in any major public-sector undertaking. But the frequency with which varying issues become insurmountable roadblocks for P3s reflects a common theme – the lack of a clear and fundamentally compelling case about *why* P3s are a real solution to the problems that the US public sector actually faces with infrastructure investment. A large pool of willing private-sector capital is a necessary condition for the development of a broad market in the US, but it is not sufficient. Each transaction needs a rationale that is strong enough to overcome inevitable challenges and resistance.

The rationale for infrastructure P3s arises where the capabilities of private-sector capital can meet the specific needs of the public sector. Given the growing interest in P3s among sophisticated and experienced infrastructure investors, the private-sector can be expected to continue to be responsive and innovative in addressing the capability side of the equation. What appears to be missing is a clear elucidation and evaluation of what the public sector is actually looking for. More than anything else, this is a problem of measurement.

## **A Thought Experiment**

Correct measurement is the bedrock of value and the basis for any product's market development. A simple thought experiment can illustrate the point. Imagine if, from the inception of cellular technology, mobile phones had been evaluated (through regulatory law or persistent custom) only in terms of the cost-effectiveness of their basic capability, voice transmission. In the product's early stages, this would not have been a constraint since initially there was a wide scope for lowering cost in comparison to landline alternatives. But at some point in the 1990s voice transmission would have achieved maximum cost-effectiveness and the constraint would have become binding. Even if technology firms and their investors recognized that cell phones were capable of much more with respect to a different use, data transmission, there would not have been a way to fully describe or measure this aspect of potential value. Consumers might also have been intuitively aware that compared to their other rapidly-evolving digital devices cell phones were unusually limited. But without a correct metric to express value for something other than voice transmission, there would be no demand or price for it. Cell phone market development would have stopped at a level far short of what actually was achieved simply as the result of a technical-seeming measurement constraint.

## **Old Metrics Versus New Uses**

With the cell phone thought experiment in mind, it is worth briefly revisiting the historical origin of modern infrastructure P3s. The initial development stage was in Europe, particularly the UK, in the early 1980s. At that place and time, post-war European economies had reached the limits of political tolerance for the effects of socialist policies. The public sector was seen (to some extent fairly) as bloated and wasteful, and significant gains in social welfare were demonstrably possible by re-introducing a role for the private sector in economic activity. This was the genesis, for example, of Thatcherism's privatization policy. For essential or unpriced infrastructure that could not be fully privatized, a partnership with private-sector owners and operators was seen as a tool by which private-sector cost-efficiency could be obtained on a selective basis.

In that context, the primary objective of P3s was focused almost exclusively on improving cost-efficiency, an area where at the time there was much low-hanging fruit. Customized measurement techniques were developed to ensure that the promised cost savings were indeed delivered. These techniques evolved into the standard Value for Money (VfM) framework used by developed economies to compare P3 and public-sector alternatives for infrastructure projects. VfM is now a sophisticated methodology, but in essence it is still centered on its original objective, measuring comparative cost-efficiency.

In contrast to Europe, the public sector in the US has never been as large a factor in the economy and (political rhetoric aside) it has been kept on a relatively short leash with respect to efficiency and results, especially at the US state and local level. This would explain why infrastructure P3 transaction volume in the US has been far lower than in Europe despite America's generally higher level of trust in the private sector. There simply has always been less inefficiency to squeeze out of infrastructure services here. This is even truer now, as many state and local governments are cutting costs still further in the face of serious budget constraints.

Yet in light of this, why is there suddenly great deal of interest in P3s in the US, not just from P3 investors (where it would be expected given their current investment objectives) but among public policymakers and politicians? The answer must lie in the recognition that a P3 approach for major infrastructure projects is capable of *more* than just improving cost-efficiency and can be effective in dealing with something that is now in the forefront of many public-sector minds -- risk. Along with improved efficiency, P3s can be structured to transfer risk, especially with regard to long-term funding commitments and major unexpected costs, away from the public sector and to the private sector which (for a price) seems glad to take it.

Increased interest in risk transfer is in fact unsurprising given the current economic environment and the situation many public-sector officials find themselves in. Before 2008, decades of the so-called 'Great Moderation' encouraged US state and local governments to add more volatile assets (e.g. income taxes, federal transfers) and apparently manageable liabilities (e.g. additional health and pension benefits). The financial crisis of 2008 and the subsequent highly-uncertain recovery shattered the illusion of stability and radically changed local policymakers' perception of their situation. Now the prospect of long-term low and uncertain economic growth makes revenue sources appear to be even less predictable and commitments (especially those sensitive to demographic changes) much less manageable. This perception is undoubtedly why more infrastructure projects are not being done despite serious need, substantial benefits and historically low bond rates – local policymakers are understandably hesitant to add the fixed obligations and uncertain revenues of a major project to public-sector portfolios that are already too large and volatile.

At the same time that the US state and local public sector is avoiding the risk of investment in public infrastructure, however, the private-sector is seeking significantly increased investment in exactly that asset class. Risk is relative to the ability to manage it. The type of risk that the public sector wants to avoid is not related to the long-term value of infrastructure assets (which is relatively certain) but the long-term volatility of project funding and costs. For mostly intrinsic reasons related to a democratic political process, the public sector is not very effective at managing the annual budget surpluses and deficits that can arise from volatile assets. In contrast, the private sector deals with volatility all the time as the natural

state of most long-term market-based business activity. This difference between the two sectors with respect to managing risk is a real basis for achieving improved economic efficiency with a P3 transaction that is completely separate from, and does not rely on, improved project cost-efficiency.

In effect, while the original purpose of infrastructure P3s was primarily related to improving cost-efficiency (and this remains a valuable feature), the most compelling use of P3s for infrastructure renewal by many US state and local governments is now primarily related to a different P3 capability, transferring funding and cost risk away from a stressed public sector. Like cell phone technology in our thought experiment above, the purpose of the product and intuitive perceptions of value have changed in response to its overall environment. But also like the measurement constraint imposed in the thought experiment, incorrect and inadequate measurement appears to be impeding the adoption of P3s for a new and currently relevant purpose.

### **Hidden in Plain Sight**

As noted above, VfM, the standard evaluation framework for P3s, is mainly focused on the comparative cost-efficiency of the P3 alternatives. This factor is always important even when not the predominant motivation for the transaction, and a thorough VfM analysis should always be completed by the public sector.

But when it comes to transferring most funding and cost risks, VfM is not a sufficiently broad framework to reflect the correct value of a P3 for the public sector. Specifically, there are two aspects of a VfM cost-efficiency analysis that tend to exclude important factors in a relevant risk analysis:

- The value of cost-efficiency is projected to surface in the *expected* cases of the public and private sector alternatives for the infrastructure financial model. In this way the P3 can easily be shown to 'pay for itself' if cost savings are sufficient, and;
- The value of cost-efficiency can be completely captured by project metrics on a *stand-alone* basis – further context is not required to show one alternative is less costly than another.

In contrast, the two parallel aspects of the value of risk transfer from a P3 transaction are fundamentally different:

- The value of risk transfer only surfaces in *unexpected* cases – that is, when funding or major costs are unexpectedly higher or lower than planned, leading to increased risk (but not certainty) of a

public-sector surplus or deficit. Transferring such risk to a P3 will have an immediately defined cost but the benefits are only realized in unexpected outcome (i.e. the P3 does not appear to 'pay for itself'), and;

- The value of risk transfer can only be captured in the *context* of the public sector's overall situation. Risk transfer is not free. Whether it is worth paying to avoid the impact of a possible deficit at the project level depends on the public sector's ability to absorb it.

As a result, a VfM analysis, however precise and thorough, will intrinsically exclude most of the value of a P3 being considered for risk-transferring objectives.

Moreover, the limitations of the VfM framework can easily become a binding constraint on correct P3 measurement because risk analysis itself is generally outside of standard public-sector budgeting procedures. Most US state and local financial accounting is based on periodic cash flows with little recognition of accrual (much less stochastic) concepts. Decisions are therefore made on projections of expected cash flow which naturally reflect cost savings but not the impact of unexpected outcomes.

This is not to suggest that unexpected outcomes are not considered by public sector decision-makers. Far from it, especially with respect to downside risk. For example, there is a widespread (and quite erroneous) belief that the public sector's 'cost of capital' for an infrastructure project is reflected in the cash impact of its cost of (usually tax-exempt) financing. If this were true, infrastructure projects in the current real interest rate environment would be practically *costless* – and an enormous amount of infrastructure investment would be occurring. But on a deeper level, public sector decision-makers recognize that real resources must be allocated to pay for a project (even a zero-interest rate bond must be repaid) and that those real resources are exposed to real-world risks (that is, the cost of capital is real and significant). So although cash-based, expected-case accounting would *preclude* consideration of a risk-transferring P3 alternative, that same accounting is not used to justify an increase in the risk position of already-burdened public sector portfolios.

In effect, without correct measurement of alternatives that can deal with infrastructure investment risk, the US state and local public sector is currently caught 'between a rock and a hard place'. On the one hand, an acute awareness of risk stalls much-needed infrastructure investment. On the other, the absence of a widely accepted analytical framework to show that transferring risk to a P3 can be worth paying for makes it difficult to for P3 proposals to appear sufficiently compelling to overcome inevitable issues and resistance. Like the vastly truncated cell phone market in our thought experiment, the net result of constrained measurement is much less infrastructure investment than either public-sector consumers or private-sector investors would otherwise want. Worse, suboptimal infrastructure investment will have

deleterious long-term consequences – the risks of eroding infrastructure, and the cost of dealing with it, will only increase with time if nothing is done.

## Two Specific Recommendations

Establishing better risk measurement methodologies is squarely in the middle of P3 market development. While many public sector officials are likely to be open to improved methodologies that can address their pressing concerns about risk, the impetus for development must naturally come from the P3 industry itself, along with academic experts and policy advisors in the field. In effect, the tools to correctly measure the value of risk transfer are an intrinsic part of the P3 'product'. The current inadequacy of these tools means that the P3 product is still basically incomplete with respect to its new, risk-transferring, purpose – and hence frequently unsaleable, as current experience shows.

The complexity of infrastructure investment in light of US public-sector realities suggests that a number of disparate approaches may be necessary to develop effective methodologies, ranging from advances in economic theory to heuristic practices. Two broad paths, corresponding to the limitations of the VfM framework noted above, are likely to guide immediate development:

- First, the VfM framework itself should be improved with respect to evaluating the real cost of public sector capital deployed in a major infrastructure project. An accurate assessment of capital cost will inevitably surface the real-world funding and cost risks involved, and from that starting place a better 'apples-to-apples' comparison of the value of risk-transferring P3 alternatives can be achieved.
- Second, a new framework with a different focus than the project-specific VfM analysis is necessary to assess the relative value of risk transfer, which can only be determined in the context of the public sector's overall risk position. This framework can be called 'Value for Funding' (VfF) as an explicit allusion to (but distinct from) the standard Value for Money methodology. The VfF framework should encompass long-term estimates of volatile public-sector fiscal metrics (e.g. the probability of future budget deficits). The impact of different public and private-sector alternatives for a planned infrastructure investment on these metrics can then be assessed.

It is worth noting that these two paths, enhancing VfM and introducing VfF, are roughly analogous to private-sector precedents in improving investment analysis and portfolio management tools over the past few decades. In particular, the Capital Asset Pricing Model (CAPM) for individual investments and Value-at-Risk (VaR) models for portfolio management are similar in many ways to enhanced VfM and VfF, respectively. Although public sector investment objectives and requirements are of course significantly

different than those of private-sector investors, CAPM and VaR might provide a useful initial guide to technical and practical development of better measurement of public infrastructure investment.

### **Federal Policy Implications**

US federal economic policies and programs can play a critical role in the development and adoption of new risk measurement methodologies for P3 alternatives. There is a natural connection to existing federal policy objectives not only with respect to improving national infrastructure itself but to the overall ability of state and local governments to meet future fiscal challenges. There are at least three areas where federal policy can support development efforts:

- Federal infrastructure educational programs and knowledge centers for P3s can expand their scope for risk to include risk measurement topics;
- Existing federal infrastructure investment grant and other direct support programs can be reviewed with respect to criteria for facilitating risk transfer, which in turn will encourage better measurement, and;
- Federal infrastructure loan programs can be expanded specifically to include risk-transferring P3 transactions. Since the main objective of such expanded programs is to help manage long-term infrastructure cash-flow volatility (which the federal balance sheet is well-suited to do), not to transfer long-term value, this may be an especially effective way for the federal government to provide support for P3 development at low risk and cost to federal taxpayers.