



RISK & INNOVATION

Can P3 Fill The Infrastructure Gap?

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OVERVIEW

We often don't think about it until it breaks down, but the reality is that much of modern society in the developed world is dependent on public infrastructure investments in roads, airports, schools, water, sewage and electricity utilities that were made half a century or more ago. Without these, developed economies and societies simply wouldn't be able to function.

In recent years, a lack of public investment has forced many of these basic building blocks of prosperity to serve beyond their intended lifespans. In the U.K., the lack of upgrades or replacements for ageing power plants have begun to threaten electricity blackouts, while the recent toxic tap water in Flint, Michigan, has highlighted that ageing infrastructure may not just lead to an economic impact, but also create serious health issues. As many as half a million children may have been affected by lead poisoning from ageing pipes in the U.S. alone.

Why has the condition of our public physical infrastructure been allowed to deteriorate so sharply? And in an age of over-stretched public purses, with ageing populations putting increasing pressure on tax revenues, what are the options for addressing this worsening challenge?



IN DEPTH

Globally, the World Economic Forum estimates that the planet is under-investing in infrastructure by as much as \$1 trillion a year. Since 1990, for example, the global road network has expanded by 88 percent, but demand has increased by 218 percent.

With the global population continuing to grow – and urban populations in particular – the pressure on existing infrastructure is only set to worsen. And in the developed world that infrastructure is creaking: in the U.K., 11 coal-fired power stations are nearing 50 years old, the end of their operational lives, and replacements have yet to be built; in the U.S., the average age of the country's 84,000 dams is 52; in Germany, a third of all rail bridges are over 100 years old; parts of London's Underground rail system, still in daily use by hundreds of thousands of commuters, run through tunnels that are over 150 years old.

According to the Report Card on America's Infrastructure by the American Society of Civil Engineers (ASCE), the U.S. alone will need \$3.6 trillion of infrastructure investment by 2020. It assigned near-failing grades to inland waterways and levees, and poor marks for the state of drinking water, dams, schools, road and hazardous waste infrastructure.

Europe's infrastructure is in worse shape – The Royal Institute of International Affairs has suggested that the continent needs \$16 trillion of infrastructure investment by 2030, more than any other region in a world.

Taxing Issues, Tragic Consequences

While taxes once covered the cost of building and maintaining public infrastructure, entitlement programs such as social security and healthcare have started to claim a larger share of these funds as a percentage of government tax revenue, particularly as the number of people in retirement expanded.

In addition, as the cost of social programs grew, governments came under pressure to cut taxes, leaving even less money available to maintain existing infrastructure, let alone invest in the requirements of growing populations. "Too often infrastructure is seen only through the lens of cost, expenditure and not as core to society's prosperity", says Geoffrey Heekin, Executive Vice President and Managing Director, Global Construction & Infrastructure, Aon Risk Solutions.

"Since the 1950s, investment in infrastructure in developed countries has been declining," he says. "In the U.S., for example, investment as a percentage of GDP has fallen from around 5-6 percent in the 1950s to around 2 percent today."

Tragically, train derailments, road closures, water mains breaks, and even bridge collapses have become commonplace. "Until situations like the water crisis in Flint or a bridge collapse happen, infrastructure does not hold proper weighting in the psyche of leaders in government," says Heekin.

This lack of attention to infrastructure is costing developed economies billions of dollars in lost productivity, jobs, and declining competitiveness. Without addressing the infrastructure investment gap, the U.S. economy alone could lose \$3.1 trillion in GDP by 2020, according to the ASCE, while one estimate attributes 14,000 U.S. highway deaths a year to poorly-maintained road infrastructure.

A Private Sector Solution To Public Sector Under-Investment?

To begin reversing the infrastructure gap, it is likely that governments will need to find ways to encourage private sector investment towards replacing, renewing and upgrading physical infrastructure.

Governments of all political stripes are increasingly supportive of private investment in infrastructure. One model that is now gaining attention is the Public Private Partnership (P3) model.

P3s in one form or another have been used successfully in developed countries for several decades. They are being used to procure everything from public health care facilities, schools and courthouses to highways, port facilities and energy infrastructure. While the volume and type of P3 deal can vary widely by country, there continues to be an upward trend for the model's use by the public sector.

In 2015, for example, Canada procured 36% of its infrastructure with the P3 model. Aon Infrastructure Solutions anticipates that 21 P3 projects will close in Canada in 2016, with a total capital value of USD\$12.8 billion – the highest value of P3 projects in Canadian history. In the US, where adoption of the P3 model is less widespread, 11 projects are expected to close in 2016, with a capital value of USD \$8.7 billion dollars.

Like traditional design-bid-build procurement, P3 projects involve public authorities putting public projects or programs up for competitive tender, and selecting a preferred bidder from multiple bidding consortia.

The key difference is that the contractual structure in P3 allows the public authority to transfer a different set of risks to the private party – including (but not always) the financing for the project. The arrangement can allow the private partner that designs, builds, and finances construction of the asset to operate and maintain it in return for either a share of the revenue generated by the use of the asset, or a stream of constant payments from the public authority (also called availability payments).

Keeping Focused on the Big Picture

"The public sector benefits from P3 delivery when the model is applied to a project that meets a community need and is procured through a transparent, accountable process," says Gordon Paul – Senior Vice President, Aon Risk Solutions and member of Aon Canada's Construction Services Group executive committee and Aon's global PPP Centre of Excellence.

"Public authorities seek 'value for money' in a P3 project by looking to the long-term value," Paul says. This means identifying whether the private sector party is able to design, build, finance, operate and maintain an infrastructure project for a price lower than if the public authority did it on its own over the same period. It's about the full lifecycle of the project – not just the build costs.

Taking a big picture view is equally important for the private sector party, says Alister Burley, Head of Construction for Aon Risk Services Australia. He points to the importance of taking a holistic view to P3 projects and investments to enable efficiencies to be built that will carry forward over time.

If done right, P3 arrangements can be a significant benefit to both the public and private sectors. Public bodies gain a much-needed boost to their infrastructure, often with long-term maintenance included in the deal, reducing the potential negative economic and health consequences of infrastructure failure. And private investors can secure a stable, long-term return through a stake in some of the underlying essentials of our economies.

Whatever route governments take to secure the integrity of our underlying infrastructure, one thing is clear – without a significant increase in infrastructure investment over the coming years, the world's economy and health could well be put at further risk.

TALKING POINTS



"We are facing an infrastructure crisis in this country that threatens our status as an economic superpower – and threatens the health and safety of the people that we serve. As you know, infrastructure is not a sexy or glamorous topic – but it is one of the most pressing issues facing our country." – Michael Bloomberg



"I go through eastern Delaware County and I see many boroughs and townships going through the same infrastructural meltdown. Most communities have waited until the end of the life cycles, and all of the bills are coming to roost at once." – Rohan Hepkins, Mayor of Yeadon, Pennsylvania



"PPPs have emerged as a highly effective vehicle for tackling complex socioeconomic challenges... Yet, success is far from assured. For every PPP that makes progress, dozens more are fraught from the start." – Erin Huntington, Vice President of International Corporate Affairs, Eli Lilly and Co.



"The public-private partnership is very hard. It can work, but there needs to be a lot of negotiation going into it. It tends to be very legal intensive. You have to write detailed contracts, and you have to make sure about their implementation, including how to exit." – William L. Megginson, Rainbolt Chair in Finance, University of Oklahoma

FURTHER READING

- What Flint's Water Crisis Means For The Future Of U.S. Cities – Fortune, January 27, 2015
- The Infrastructure Election – BloombergView, February 1, 2016
- Infrastructure Report A Wake-Up Call: ALP – 9 News Australia, February 17, 2016
- Human Cost Rises As Old Bridges, Dams, Roads Go Unrepaired – The New York Times, November 5, 2015
- Infrastructure Spending: Let's Do It Right – The Globe and Mail, January 18, 2016
- Rail Users Will Pay Price For Failure In Investment Planning – U.K. House of Commons Committee of Public Accounts, November 20, 2015
- Government Objectives: Benefits and Risks of PPPs – The World Bank, October 15, 2015.
- Aon Infrastructure Solutions – latest white papers and reports

