UNLOCKING THE POTENTIAL OF INFRASTRUCTURE IN THE NEW FINANCIAL AND ECONOMIC PARADIGM

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ABSTRACT

New regulatory frameworks introduced in the wake of the global financial crisis and the new economic environment allied with a contraction in risk appetite and capacity of banking institutions, the conventional providers of real estate and infrastructure development finance, have served to constrain the infrastructure development pipeline.

The scale of the funding challenge is demonstrated by McKinsey Global Institute (2013) who forecast that infrastructure investment globally will have to increase by nearly 60% from the prevailing US$36tn spent from 1995-2012 to US$57tn over the period 2013-2030 in order to support anticipated global economic expansion.

The global infrastructure challenge is multi-faceted and complex. The new financial paradigm for infrastructure funding allied with a growing acceptance of the inadequacies and deficiencies in infrastructure provision ensure that the need to implement a more systematic response to the challenge is necessitated. Within the new financial paradigm national governments are seeking greater value for money when it comes to infrastructure investment in essence better quality, enhanced output for less input.

This paper examines the emergence of the 'new normal' financing environment on infrastructure delivery through partnership arrangements and the need to align infrastructure provision relative to economic growth strategies in order to harness more effectively the multiplier effects associated with infrastructure investment. Arrangements such as Public Private Partnerships (PPP) have been advocated as one possible solution to the infrastructure 'investment gap'. Predicated on 'value for money', PPPs are now used in over 40 countries and will continue to provide an important method for infrastructure procurement.

1.0 SCALE OF INFRASTRUCTURE FINANCING CHALLENGE

Across the world the demand for infrastructure is increasing following the period of reduced economic growth resulting from the global financial crisis. Infrastructure projects are being undertaken to respond to economic needs, to repair/upgrade existing facilities and to respond to increasing growth in the global economy (Preqin, 2014).

The scale of the challenge of financing such infrastructure is demonstrated by McKinsey Global Institute (2013) who forecast that infrastructure investment globally will have to increase by nearly 60% from the prevailing US$ 36tn spent from 1995-2012 to US$57tn over the period 2013-30 in order to support anticipated global economic expansion.

The extent of the global challenge is also recognized by the Organisation for Economic Cooperation and Development (OECD) and Asia-Pacific Economic Cooperation (APEC). Over the last decades, public capital investment in infrastructure has on average declined in OECD countries. The OECD average ratio of capital spent in fixed investment (mainly infrastructure) to GDP fell from above 4% in 1980 to approximately 3% in 2005 (Della Croce and Yermo, 2013). The need for long-term infrastructure investment is one of the main priorities for APEC. APEC Finance Ministers welcoming the G20/OECD High-Level Principles at their September 2013 meeting in Bali asked the OECD to join the new APEC PPP Experts Advisory Panel (OECD, 2013).

There are major economic benefits from undertaking infrastructure development. In relation to economic growth, every US$1bn spent on infrastructure creates 18,000 jobs, almost 30% more than if the same amount were used to cut personal income taxes. In addition, investment in infrastructure boosts long run productivity by lowering travel times for people and goods, facilitates easier communication and lowers expenditure both in time and money on repairs. Research shows that the construction of a road typically led to an increase in economic activity between three and eight times bigger than the initial outlay within eight years after its completion (Economist, 2013).

Demand for energy, transport, water, education and healthcare improvements increase with the growth in the global population. Allied to demand is the recognition by governments that investment in infrastructure creates jobs and stimulates economic growth. The demand for infrastructure has culminated in an extenuated need to attract new sources of investment and to develop infrastructure investment models which more effectively align institutional investor profiles with project opportunities.

Addressing the infrastructure investment challenge necessitates a bi-lateral approach encompassing the attraction of new sources and formats of finance conducive with the radically transformed financial and economic paradigm and increasing the efficiency and effectiveness of all facets of the infrastructure provision process (Figure 1).

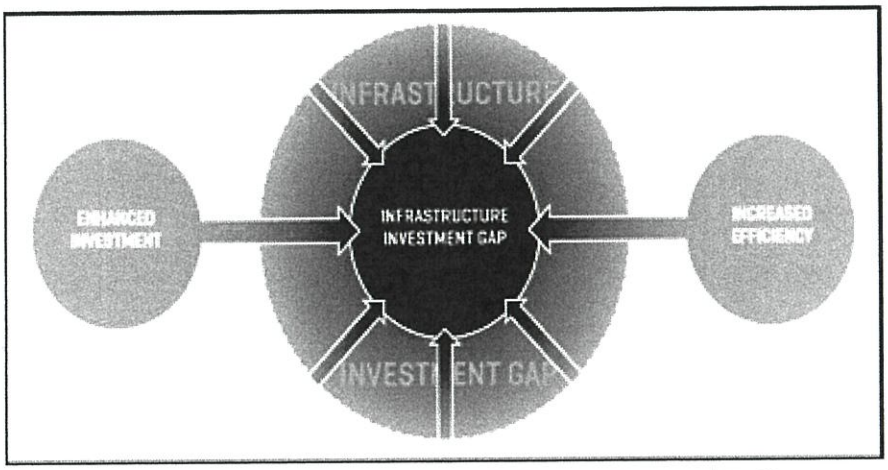

Figure 1: Bilateral Nature of the Infrastructure Challenge

2.0 GLOBAL GROWTH AND INFRASTRUCTURE INVESTMENT TRENDS

The World Bank reports that global growth recorded 2.3% in 2013 and an increase to 3.2% is anticipated in 2014 growing further to 3.5% in 2016. The growth in infrastructure investment broadly mirrors and reinforces the macro-economic picture (IJ, 2014). The twelve months to the end of December 2013 saw a recovery across global infrastructure markets both in terms of value (51% increase to US$280bn) and number of deals (up 30% to 548 deals reaching financial close). Energy in the form of oil and gas led infrastructure projects (US$113bn) followed by transport (>US$50bn) and power (US$35bn) focused on strong activity in Asia and Pacific (IJ, 2014).

The uplift in infrastructure activity is supported by Preqin (2014) who report that global infrastructure deal flow has grown steadily in recent years, in terms of the number of deals completed and aggregate deal value (Figure 2). In 2009 just 516 infrastructure deals were closed globally due to investor appetite stalling and banks retreating from lending. The upward trend is demonstrated with 668 completed deals in 2010 and a record high of 729 transactions in 2011, an increase of 41% in two years. Deal flow plateaued but remained strong in 2012 and 2013, with 702 and 691 deals closed in these years respectively. By early Spring 2014 a total of 78 deals have been reported.

In terms of deal value, Preqin produces two figures to illustrate how much global capital is invested in infrastructure assets on an annual basis, a reported (based on the sum of all known deal sizes per year) and an estimated (total amount invested in infrastructure including deals where the financial value has not been disclosed) aggregate deal value.

In 2013, US$292bn of transactions were estimated to have been completed, slightly less than the US$304bn completed in 2012. So far in 2014, US$25bn of infrastructure transactions are estimated to have been completed. European infrastructure assets have historically accounted for a higher proportion of deals completed per year than any other region. Of more than 750 infrastructure deals finalized since the start of 2013, European assets account for 44% of the total, while North America is also a prominent market, accounting for 29%. Outside of these two core regions, 11% of deals completed have been

in Asian infrastructure assets, 7% in Australasia and 5% in South America. In terms of industry, core infrastructure sectors are most prominent, accounting for a significant 82% of total deals made since the start of 2013, while social sectors account for 16% (Preqin, 2014).

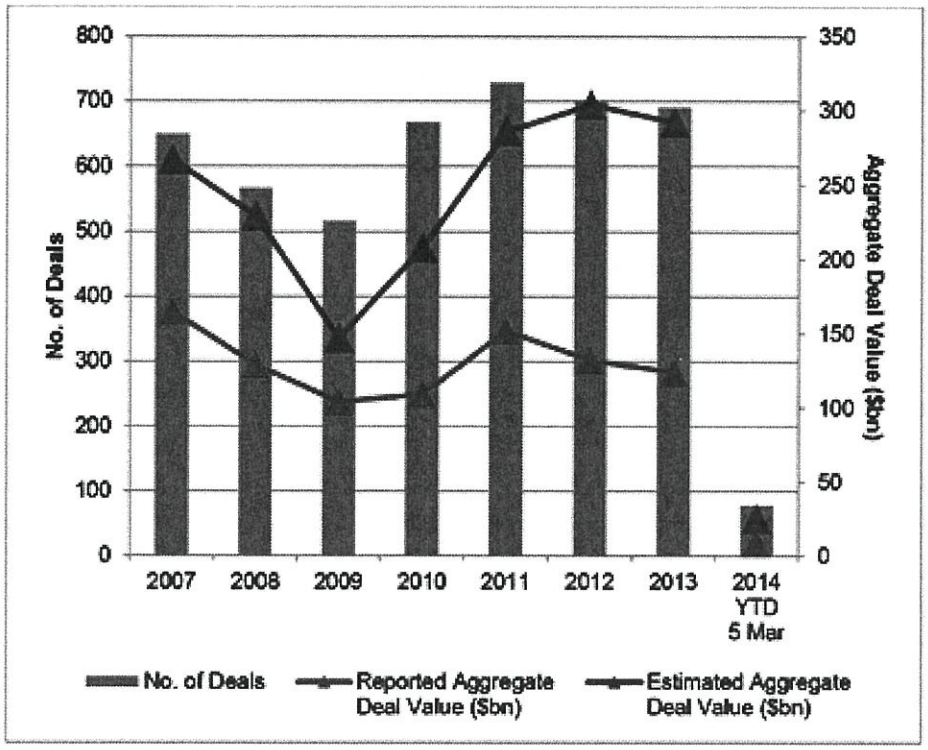

Figure 2: Number and Aggregate Value of Infrastructure Deals Completed Globally, 2007 - 2014 YTD
Source: Prequin (2014)

IJ (2014) report that Asia and Pacific region was the largest geographic market for infrastructure investment with deals totalling US$67bn whereas Europe was the most active in terms of deal value closing a number of transport, social and renewable energy deals (IJ 2014). In relation to project financing long-term institutional debt finance availability was not a problem in 2013 however a range of funding solutions are found involving government guarantee models, EIB Project Bond Initiative, ING Pebble funding structure and increased capital markets involvement in project finance. Nevertheless the volume of finance for green field projects remains subdued compared with pre-crisis years.

3.0 FLIGHT FROM EUROPEAN TO ASIAN BANKS

In relation to debt finance for infrastructure, European banks have given way to Asian and Australian lenders (IJ, 2014). While Europe has posted a revival Asia & Pacific is the region with the most diverse number of countries bringing oil and gas project deals to a financial close. In 2013 the region was the second largest global market for investment due to the growth of energy infrastructure in Australia, China, Japan, Indonesia, and India and supporting transport links within regional economies.

On past performance Australia is a market leader in project finance investment closing deals worth US$52bn in 2013. Projects include light rail, roads, ports, prisons, hospitals and LNG facilities worth US$21bn. Australian pension funds are diversifying overseas into the US market particularly for large value deals in the US energy sector.

In addition 19 countries in the region raised finance for projects last year with Vietnam focusing on the oil and gas refinery sector. Australia, Japan and Thailand are dominant in the renewables sector which has been growing in the region and onshore wind farms raised a total of US$3.5bn up from US$626 million in the full year 2013. PV solar saw investment of US$1.7bn up from US$203mn over the year.

Other countries with active investment pipelines include Australia, Bangladesh, New Zealand and the Philippines. Social infrastructure in the region has a pipeline worth US$4bn ranging from hospitals to prisons in Australia, Indonesia, the Philippines, Pakistan and Bangladesh.

India has focused primarily on the energy sector in 2013 however a number of road tenders are also underway. The Indian government's launch of its Infrastructure Debt Funds last year seeks to attract foreign and local institutional investor capital to the country.

4.0 CHARACTERISTICS OF THE 'NEW NORMAL' ECONOMIC ENVIRONMENT

The new economic environment or 'new normal' as described by El-Erian (2010) following the global financial crisis of 2007-08 and the aftermath of the 2008-2012 global recession has questioned the belief of policy makers and economists that industrial economies would return to their pre GFC trends. El-Erian envisaged a new economic environment characterized by permanent weaker activity, employment and profits as the artificial stimulant of excess borrowing was excised. In contrast to the pre-GFC, the new normal offers a view of the world based on hard facts and reality, rather than the simplified versions proffered by ideological economic agendas (Alvardo, 2010). According to Kaletsky (2010) such a view questions the long-term survival of a free-market capitalist system.

In contrast to the view that the new normal will be a period of stagnant living standards, depressed asset prices and weak growth, Kaletsky argued in 2010 that the world economy would be able to achieve a rapid recovery, provided central banks and governments redirect their macroeconomic policies towards growth and keep interest rates at rock-bottom levels. His optimism results from four powerful long-term trends that shape the global economy. Three of these the rise of Asia, globalization, and what he calls the Great Moderation created by the reinvention of Keynesian demand economics continue to operate. Only the fourth trend the revolution in finance has been severely impacted by the GFC.

While the global economy appears to be making a slow rather than a rapid recovery and the new normal theories about permanently low growth have become less credible nevertheless new patterns of finance and partnership arrangements are emerging. These are culminating in an extenuated need to attract new sources of investment and in the case of infrastructure seek more effective alignment of institutional investor profiles with project opportunities.

New regulatory frameworks introduced in the wake of the global financial crisis including Basel III and Solvency II allied with a contraction in risk appetite and capacity of banking institutions, the conventional providers of real estate and infrastructure development finance, have served to constrain the infrastructure development pipeline extenuating the need to attract new sources and forms of investment.

5.0 INSTITUTIONAL INFRASTRUCTURE INVESTMENT: BRIDGING THE GAP

The global financial crisis had a profound effect on project finance for infrastructure at a global level (Preqin, 2014). In the early years of the current recession it was anticipated that the cost of debt would return to a reasonable level and project deal flow would increase. The impact of the GFC has been to reduce the availability of private capital by increasing its cost and restricting its availability (Preqin, 2014). The contraction in debt finance has been accompanied by economic austerity and cutbacks in public expenditure rather than economic growth (Preqin, 2014).

The impact of the GFC has fostered more cautious investment strategies and a greater focus on portfolio risk management in the coming years. On the other hand, the prolonged low-yield environment has heightened the need for return-enhancing strategies, pushing some investors to invest in alternative assets (Della Croce and Yermon, 2013). Consequentially, debt investments for infrastructure by institutional investors were initially perceived in 2011 as a short-term opportunity due to traditional bankers scaling back their activity. Three years later it is now appreciated that project financing will be a longer-term opportunity and one that is more diverse and complicated than originally thought. New banking regulations (Basle III) will negatively affect the ability of banks to provide long-term financing. The emerging long-term financing gap is particularly acute in the infrastructure sector and could slow down the world economy for years to come and abort attempts by emerging and developing economies (EMDEs) to set themselves on a high-growth path (Della Croce and Yermon, 2013).

The role of institutional investors in long term financing is nonetheless constrained by the short-termism increasingly pervasive in capital markets as well as structural and policy barriers such as regulatory disincentives, lack of appropriate financing vehicles, limited investment and risk management expertise, transparency, viability issues and a lack of appropriate data and investment benchmarks for illiquid assets such as infrastructure. A principal challenge for institutional investors is that infrastructure debt does not fit neatly with investors' traditional asset allocation frameworks due to its nature as a hybrid asset class ie it is not quite real estate and not quite fixed-income (IPE, 2014).

Institutional investor appetite for infrastructure nonetheless remains strong according to Preqin (2014). Many institutions have made their maiden investments in the asset class over the course of 2013 with the majority of investors (61%) reporting that they are below their target allocations and 46% anticipate their allocations will increase in the long-term. However, by way of context it is important to recognise that for many institutional investors infrastructure is still a new asset class with 72% of active investors allocating less than 5% of their total assets to infrastructure (Preqin, 2014).

In terms of the medium by which investors have sought exposure to the asset class there has been a dramatic growth of the unlisted infrastructure debt fund market since 2009 and in January 2014 there were 20 funds seeking an aggregate US$15bn compared to 16 funds targeting US$9.7bn a year earlier (Preqin, 2014). Research indicates that investors are increasingly adopting direct and co-investment strategies as well as more established placing of capital through discretionary funds. In addition funds are assembling teams with infrastructure investment banking, project finance and private equity experience across a range of sectors and geographical regions (Preqin, 2014).

Reasons for investors' interest in infrastructure include de-correlated returns, long-term stable cash flows, security over valuable assets, a socially useful purpose, and potentially an inflation hedge. In the past only equity investment in infrastructure was an option for institutions as banks dominated the debt market. A consequence of the global financial crisis has been the opening up of infrastructure debt to a broad range of investors for the first time (IPE, 2013).

Research by Sequoia Investment Management of a side-by-side comparison of infrastructure equity and debt indicates that historically, infrastructure equity has returned 11% (net IRR) and senior debt 4.5%. However, debt yields are higher since the crisis and equity yields have fallen so the gap in returns between infrastructure debt and equity is now much narrower (IPE, 2013).

Interestingly the research demonstrates that absolute returns should not be the main focus but rather returns in the context of risk and capital. Investments in infrastructure debt are significantly more predictable than equity with standard deviation of 0.9% on a single infrastructure investment, compared with 7.5% for an equity fund. Consequently infrastructure debt has attractive risk-return characteristics (IPE, 2013).

The returns on infrastructure debt have increased considerably in recent years due primarily to supply and demand rather than a change in risk profile. Many banks have exited long-term infrastructure lending or are just focusing on domestic markets leaving gaps in the market. While some institutions such as Allianz, MetLife and Blackrock have started lending to infrastructure projects, they have not yet come close to replacing the lost financing capacity.

6.0 RESEARCH ON GLOBAL INFRASTRUCTURE AND PPP

The global infrastructure challenge is multi-faceted and complex. The new financial paradigm for infrastructure funding allied with a growing acceptance of the inadequacies and deficiencies in infrastructure provision ensure that the need to implement a more systematic response to the challenge is necessitated. Within the prevailing financial paradigm national governments are seeking greater efficiency when it comes to infrastructure investment in essence better quality, enhanced outputs for less cost.

To assist policy formation the Royal Institution of Chartered Surveyors (RICS) sponsored research on partnership based infrastructure procurement to ensure that the advice RICS provides to governments and other key stakeholders is supported by a timely and credible evidence base (RICS, 2013). The scope of the investigation covered five key PPP markets at different levels of maturity namely the UK, Australia, Canada, India and the US and focussed on efficiency in the procurement process and attracting new and enhanced levels of investment.

The methodology comprised stakeholder interviews and forum based discussions across the five key markets involving the public (local and central government, government advisors) and private sectors (contractors/service providers, banks and investment institutions). In addition quantitative evidence was obtained from Infrastructure Journal (IJ) and Prequin databases.

Public Private Partnerships (PPP) are now used in over 40 countries providing an important method for infrastructure procurement. As the share of government investment in infrastructure has declined that of the private sector has increased, with privatisations being an important driver. Since the 1990s national policies of many countries have sought to increase private sector participation in the financing and implementation of new projects notably through "project finance (Della Croce and Yermon, 2013). New business models with private sector participation, variants of public private partnership models (PPPs), often using project finance technique, have been increasingly used particularly in OECD countries, offering further scope for unlocking private sector capital and expertise. Global Project Finance stood at US$382bn in 2012, a 6% decrease from the US$406bn recorded in 2011. Asia Pacific accounted for 50% of global project finance in 2012. EMEA's share was 26% while the America's made up 24%. Since 2007, Asia Pacific's share of global project finance has increased from 19% share while EMEA's has decreased from 56%. America's proportion has increased steadily since 2010 (RICS, 2013).

7.0 PPP: ENSURING GREATER EFFECTIVENESS AND VALUE FOR MONEY

In making infrastructure delivery or procurement more efficient there is no globally recognised/accepted definition of efficiency in terms of Value for Money (VfM). A principal reason is the lack of robust and credible data provision resulting in the inability to benchmark projects on a like-for-like basis.

One of the key drivers behind the international roll out of the PPP model is the premise that partnership based procurement is inherently more 'efficient', minimises large cost overruns and delays endemic within traditional design and build or design-bid-build public procurement and as a consequence delivers better VfM. The underpinning ideology is that private sector participation in asset and service provision can maximize VfM for governments by expediting financing, facilitating innovation, providing better risk management, and integrating life-cycle management. Numerous studies have continuously demonstrated advantages and disadvantages employing PPPs, with a number of policy documents in the UK alone advocating the utilisation of the PPP model (NAO, 2011). However, the lack of robust quantifiable evaluation has resulted in partnership based procurement being left open to criticism.

Quantifiable analysis of PPP projects relative to other infrastructure procured using a traditional approach on a 'like-for-like basis' incorporating the 'lifecycle' and whole life cost dimension remains problematic as it is unlikely that two projects are 'identical' which makes comparison inherently difficult. The deficiency of adequate benchmark data and the time taken to undertake value testing are key barriers for robust VfM analysis. Scrutiny between procurement approaches is perceived as difficult as data generally exists at a high level only, with limited data publicly available for analysis on the range of costs and charges that are included in the PPP deal (design costs, construction costs, technical, legal, financial and transaction costs). Equally, there is limited data relating to public authorities actual costs to provide, operate, finance and maintain an asset procured conventionally and funded directly with public funding over the lifecycle.

The perceived advantages and disadvantages that PPP delivery exhibits in comparison to other procurement routes has been succinctly summarised by Graham (2010) in Table 1.

Table 1: Summary of PPP Advantages and Disadvantages

	Traditional Procurement Methods				
	PPP	Design & Construct	Alliance/ Partnering	Design, Construct & Maintain	Managing Contractor
Time taken to award contract	✓	✓✓	✓✓✓	✓✓	✓✓✓
Time to deliver asset	✓✓✓	✓	✓✓	✓✓	✓✓
Transaction cost	✓	✓✓	✓✓✓	✓✓	✓✓✓
Cost certainty	✓✓✓	✓	✓	✓✓✓	✓
Whole life maintenance	✓✓✓	×	×	✓✓✓	×
Budget certainty	✓✓✓	✓	✓	✓✓	✓
Project due-diligence	✓✓✓	✓✓	✓	✓✓	✓
Environmental approvals	✓✓	✓✓✓	✓	✓✓	✓
Change in performance requirements	✓	×	×	✓	×
Design innovation	✓✓✓	✓	✓✓	✓✓	✓✓✓
Construction innovation	✓✓✓	✓✓	✓✓	✓✓✓	✓✓
Commissioning/ Decanting	✓✓✓	✓	✓	✓✓✓	✓✓

Source: Adapted from (Graham, 2010)

A VfM assessment is often called for at all stages of a project's life cycle, including the study of project feasibility, project delivery, and at post-project evaluation. However, assessing VfM within PPP projects relative to projects procured through conventional procurement is usually only undertaken up to the end of financial close. Therefore, confirming VfM of PPP projects currently in the operational phase remains problematic. In the UK, guidance was issued by NAO in 2006 to assist procurers identify, challenge and confirm if VfM was being achieved in delivery of infrastructure assets through a PPP procurement.

A key finding of the interview evidence was that VfM can be improved by public equity co-investment in future projects to ensure better alignment of objectives, greater transparency and improved VfM. Interviewees suggested that enhanced long-term planning will improve accelerated delivery ensuring procurement is faster and cheaper than in the past, with improved public sector procurement capability.

This finding is a key point in terms of the enabling process as planning has a role to play in addressing inefficiency, in addition to more flexible service provision, together with a gain share mechanism for any surplus lifecycle funds; significantly increasing the level of capital grant that authorities can make to projects, without disrupting the transfer of risk to the private sector; and encouraging the assessment and use of a greater range of debt financing sources to secure affordable, value for money long-term debt finance.

For the purposes of the research infrastructural provision was premised upon four distinct phases:

i. Planning and development (from inception or assessment of need/demand to advertisement of the project opportunity)
ii. Procurement (placement of notices seeking requests for participation through to contract financial close)
iii. Construction/Service Implementation (site commencement to asset handover/or availability for use/operation)
iv. Operation/Use (the operational phase through to completion of PPP contract and hand back of the asset or facility to the client).

Each phase has a series of key dynamics which are deemed essential for consideration to ensure the successful delivery of PPP projects as well as understanding/enhancing VfM over the lifecycle of the PPP contract. These 'critical success factors' depicting the basis for VfM assessment can be evidenced through consideration of a value proposition framework (Figure 3).

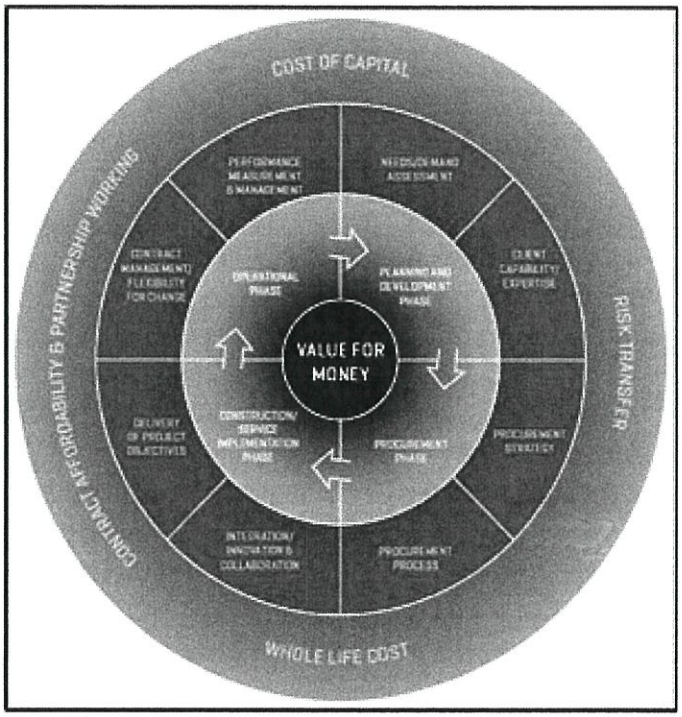

Figure 3: Value Proposition Framework
Source: rics.org (2013)

8.0 ENHANCING INFRASTRUCTURE INVESTMENT AND PROCUREMENT

The research highlights a number of areas for improvement in the delivery of infrastructure procurement and investment.

A more 'Systematic' Approach to Infrastructure Provision: addressing a perceived inherent bias (often political in the West) towards new build infrastructure. There is a requirement to make more effective use of existing infrastructure and to embrace new technologies/strategies which permit more effective management of infrastructure demand. If 'new build' is justified, and in light of budgetary constraints, there is a requirement to 'maximise' and demonstrate both the economic and societal impacts of infrastructure investment. Moreover, emphasis should be placed on an 'area' based rather than 'project' based approach to enhance the 'societal impacts' potentially within the confines of a wider regeneration/renewal programme.

Opportunities for cross-departmental collaboration or a 'portfolio' based approach also need to be explored as this will enhance VfM and investment opportunities moving forward. The 'Infrastructure Route Map' developed by Infrastructure UK serves as a credible platform to the development of a more coherent approach to assessing and building an effective delivery environment premised on best practice. RICS embraced this route map in preparing its *Developing an Appropriate Procurement Strategy and Route Guidance* for its members published in July 2013.

Sustain Government's Commitment to Infrastructure Investment: wholesale inadequacies in infrastructure related policies have served to undermine the economic competiveness of many of the world's leading economies. As such there is a need to 'ring fence' infrastructure investment levels as a percentage of GDP and to more effectively align infrastructure investment programmes with economic growth strategies. This will provide a sustained commitment to infrastructure investment and reinforce the strong synergy between economic competiveness and the quality of infrastructure provision on the part of national governments. A 'clear' commitment to infrastructure investment will also serve to stimulate greater private sector commitment. Paradoxically, the absence of government commitment will be construed as enhanced 'political risk' and will serve to curtail the participation of the investment community.

Educate Stakeholders (Uniformed/Misinformed) on the Benefits of PPP: there is a need to 'educate' stakeholders including the wider public on what PPP actually is, what and where the costs are - more importantly where savings or efficiency gains can be achieved by the use of PPP. Paradoxically, that education process is not confined to new/emerging PPP markets. In what could be considered more 'mature' markets there is a need to communicate more effectively the 'benefits' and VfM attainment in order to generate a more 'balanced' PPP debate.

Improve 'Capacity' and 'Competence' within the Public Sector: whilst the levels of public sector competence have improved markedly over the course of the last decade it is apparent that competence levels vary significantly across the jurisdictions and within different infrastructure sectors.

Indeed, even within 'mature' PPP markets such as the UK, deficiencies in client capability across different phases of the PPP procurement timeline are serving to detract from VfM. As such, there is a need to develop 'client capability' in a number of areas including needs assessment, whole-life costing and contract management/enforcement. Additionally, the research identifies the need to improve public sector competence in 'preparing' deals for market readiness to ensure deals are 'packaged' conducive to investment. Within these confines it is important for the public sector to recognise and appreciate the role of 'deal makers' in matching projects and investors.

Establish a Robust and Credible Data Framework for PPP Projects: the 'data vacuum' pertaining to PPP deals requires urgent redress if 'public' confidence in the model is to be 'established' or 'restored' (dependent on market maturity). Over the course of the research the extent of deficiencies and limitations in key data sets pertaining to operational performance were acutely apparent. Specifically, more needs to be done to improve the transparency of project performance and the returns being generated by investors. The lack of transparency and relative absence of robust quantifiable performance data has culminated in misguided opinion and often unwarranted criticism pertaining to PPPs.

Facilitate Greater Contract Flexibility and Promote 'Mutually Advantageous' Life-cycle Innovation: forecasting infrastructure need/demand over the lifetime of a PPP contract is problematic as the timeline will invariably encompass different phases in the economic cycle. There is a requirement for greater flexibility in the PPP contract to explore and implement innovative concepts/techniques to enhance value for money over the life time of the PPP contract. At present the rigidity of the contractual structure is not conducive to asset/ service 'lifecycle innovation'. Moreover, it is apparent that opportunities for innovation and efficiency savings need to be 'mutually advantageous' and not a means of enhancing private sector profits – which has often been the case historically.

Improve the 'Enabling Environment' for Investment in PPP: a proactive approach is required on the part of national governments in order to improve the 'enabling environment' for investment in PPP projects. Legislative and political risks were routinely identified as the single greatest barriers to enhanced levels of (institutional) investment. Additionally, innovative investment platforms/ models (both direct and indirect) which are conducive to prevailing financial paradigms for infrastructure projects and which afford more proficient liability matching (investor with opportunity) in order to enhance levels of investment from the private sector. Finally, there is a need to educate investors currently not in the infrastructure space and lacking specialist infrastructure expertise on the investment potential as well as the risks offered by different forms of infrastructure.

9.0 CONCLUSIONS

The GFC had a profound impact on the landscape for infrastructure debt. Bank lending has been curtailed as a consequence of constraints on lending capacity in tandem with a marked contraction in risk appetite. Additionally, the cost of borrowing for infrastructure projects has moved out markedly in the last five years – a consequence of diminished competition amongst lenders. Pertinently, the implications of the financial crisis are likely to have long-term as well as immediate impacts for infrastructure finance as a result of regulatory transformation. Basel III introduced to stabilise the banking sector will have unintended but potentially profound consequences for infrastructure lending. Specifically, stability and liquidity ratios present significant challenges given the large scale, capital intensive nature of infrastructure projects. A number of infrastructure specialist debt funds have sought to avail of the opportunities being manifest as a result of the large-scale exodus of conventional lenders (predominantly banking institutions). Default rates on infrastructure loans are less pronounced than for other sectors of industry whilst reduced completion in the market has resulted in more favourable lender margins on deals that are transacting.

Addressing the infrastructure investment challenge necessitates a bi-lateral approach encompassing the attraction of new sources and formats of finance conducive with the radically transformed financial and economic paradigm and increasing the efficiency and effectiveness of all facets of the infrastructure provision process. One model increasingly advocated in response to the infrastructure investment challenge has been Public Private Partnership (PPP). The PPP model is premised upon the attainment of 'Value for Money' (VfM) and amidst prevailing budgetary constraints the global PPP market had been expected to continue to expand unabated. The GFC has nonetheless proven to be a 'watershed' for PPP markets around the world. A number of prominent banking institutions have exited the PPP market whilst the increased cost of debt post 2008 has served to reignite the debate on 'affordability' (over the life time of the contact) and VfM attainment relative to other procurement options.

In an investment environment governed by risk aversion, the 'tangibility' of infrastructure assets combined with comparatively stable and robust returns has served to enhance the appeal of infrastructure within the investment community. Nonetheless, in order to move the institutional investment community from a position of 'awareness of the potential' to 'committed investment', a number of potential barriers need to be addressed. Firstly, there is a pertinent need to improve the transparency of infrastructure markets in order to facilitate performance benchmarking relative to other asset classes. The work of Infrastructure Journal (IJ) and PreQuin has been instrumental in driving the market transparency agenda and significant strides have been made over the course of the last five years in developing market sophistication. Whilst it is clear that there is a strong appetite for infrastructure investment within the institutional investment community there is a requirement for more effective liability matching including better alignment of investor profiles relative to project investment opportunities in order to expedite investment flow. Additionally, there is requirement for greater collaboration between the providers of infrastructure and the institutional investment community in order to develop mutual appreciation and understanding of positions and to initiate exploration of innovative funding models for the provision of essential infrastructure going forward in conformance with new legislative principles including the Solvency II Directive.

Given the unremitting budgetary pressure confronting national governments and the continued demand for efficiency and allocated resources, there has been a collective will to promote the use of the PPPs as a means of effective delivery of public services. The achievement of Value for Money within infrastructure procurement remains a foremost policy concern. Research has constantly questioned whether infrastructure procurement delivered through private capital truly represents VfM for the taxpayer.

Evaluations of PPPs relative to other procurement routes remain largely unquantified and lack a robust and tangible performance measurement evidence base. In this regard, quantifiable analysis of PPP relative to other publically procured infrastructure on a 'like-for-like' basis incorporating whole life costing remains problematic. There is a requirement to undertake full lifecycle costing and measurement of PPPs throughout all phases of the project lifecycle. Furthermore, there remains considerable scope for expediting the pre-contractual agreement phase of PPP contracts to enhance VfM. Risk transfer remains a key mechanism through which PPPs can deliver improved VfM. The increase of PPP as a standardised procurement route will undoubtedly improve risk allocation and the achievement of more optimal VfM.

Nonetheless, challenges exist as to the competitive nature of the PPP bidding process. Limited skills and financial prudence required to set up PPPs can restrict potential bidders, reducing open market competition. Finally, the use of the Public Sector Comparator (PSC) for assessing VfM relative to PPP remains challenging and plagued with methodological difficulties. This presents significant challenges and indeed opportunities to improve and monitor the PPP model in order to deliver more timely and cost effective VfM.

The PPP model will continue to occupy a 'pivotal' role in the provision of global infrastructure going forward. Public Private Partnerships have proven themselves flexible and adaptable transcending international borders and cascading different infrastructure forms. As the model has evolved and matured there is consensus that the benefits of partnership based procurement are more evenly apportioned across the public and private sectors. Nonetheless, even the strongest advocates of PPP recognise the scope for further refinement and streamlining across all phases of the PPP lifecycle in order to further improve efficiency and enhance VfM. It is imperative that the public and private sectors work together to facilitate refinement and reformation of the PPP model conducive to the paradigm shift in the financial landscape in order to explore innovative avenues to reduce the cost of capital for essential infrastructure provision whilst continuing to harness the recognised benefits of whole life costing and scheduled maintenance programming in preserving asset value.

Finally, and in light of budgetary constraints there is a requirement to ensure investment in the provision of essential infrastructure effectively harnesses wider multiplier effects in terms of societal improvements and economic expansion. Aligning national infrastructure investment programmes including PPP projects alongside economic growth strategies enhances the investment decision making process in terms of infrastructure need as well as informing the sequencing of projects to ensure optimal economic and social benefits).

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