



Assessing the true value of infrastructure investment

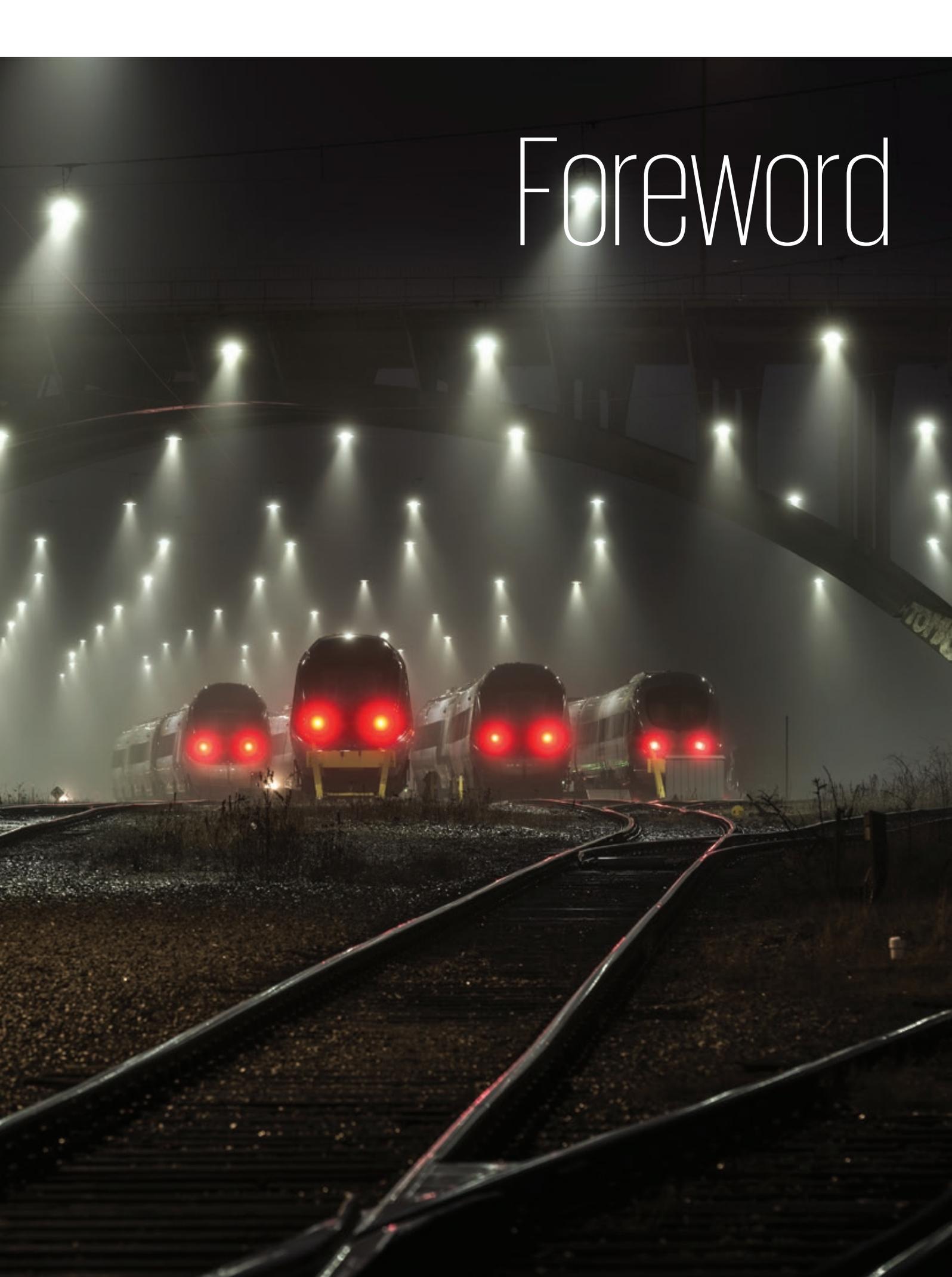
Global Infrastructure

KPMG International

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Foreword



By now, it should be clear to everyone that investment into infrastructure can stimulate economic growth. The reality is that infrastructure systems and economies are intricately intertwined; infrastructure can increase connectivity, facilitate productivity, create jobs and stimulate trade — all key enablers of economic growth.

On the other hand, economic growth can be a key enabler of increased investment and funding for infrastructure; those economies with stronger growth prospects tend to attract more investment for infrastructure than those with poor or no growth prospects.

Go beyond financial viability

Our experience suggests that this causal relationship between economic prosperity and investment into infrastructure is poorly understood. Traditional cost/benefit appraisal methodologies are far too narrowly focused on an asset's financial viability and almost always view projects in isolation.

The challenge has been accentuated by fiscal constraints. Demand for infrastructure — and other government services — is rising and many countries are now faced with the challenge of delivering increased investment in an era of reduced fiscal capacity.

This, in turn, is forcing governments to focus on prioritizing their infrastructure investments in favor of projects that can deliver increased economic growth, social benefit and resilience. This, too, will require new and improved prioritization methodologies that provide a link to all the drivers of infrastructure investment.

With far too many projects stuck in pipelines around the world, governments are also looking for new and improved ways to appraise individual projects to allow faster and better decision and approval mechanisms.

The reality is that — now, more than ever — governments and societies need a long-term plan for infrastructure that focuses on responding to the needs of society and growing the

economy rather than the influences of the political cycle. Yet achieving this is not as simple as drawing up a list of high-profile projects; identifying and prioritizing the projects that will deliver the greatest return will require new mechanisms to assess value, more robust business case and appraisal methodologies and clear insight into the longer-term needs of society.

Why we did the study

While the need for new appraisal and prioritization methodologies is critical, relatively limited research seems to have been conducted in this area. Approaches vary — both in maturity and practical application — around the world and across different infrastructure segments. Few sources exist for those looking for leading practices and insights into developing their own assessment methodology.

To close this gap and to help governments and project owners get more from their investments, we set out to research and assess current approaches to prioritization and assessment in a variety of markets around the world. In this report, we shine the spotlight onto the emerging markets — South Africa, Brazil and India — as well as the UK which, arguably, boasts the most mature frameworks for assessing and prioritizing infrastructure investment.

In each case, we have included keen insights and analysis from 'in country' leaders within KPMG's global network.

And, recognizing that the letter of policy and its application are often two different things, we have also included a case study for each market to illustrate how approaches are being practically applied.

To learn more about how these policies are being practically applied in these markets, this report also includes a summary of a roundtable discussion between industry experts in the UK, South Africa and Brazil. To round out the report, we have also included our point of view, articulated by two of KPMG's top infrastructure leaders. Together, these articles provide useful insight and key takeaways for those seeking to improve the way they prioritize and deliver infrastructure.

Make the most of your investments

In today's world of high demand for infrastructure, slow economic growth and constrained fiscal budgets, we believe that governments, infrastructure investors and project owners and sponsors must start to rethink the value they receive from their infrastructure investments.

We hope that this report catalyzes governments to reevaluate their current approaches to project appraisal and prioritization and provides valuable insights to help project owners and sponsors demonstrate the true value of their projects to investors, governments and users.

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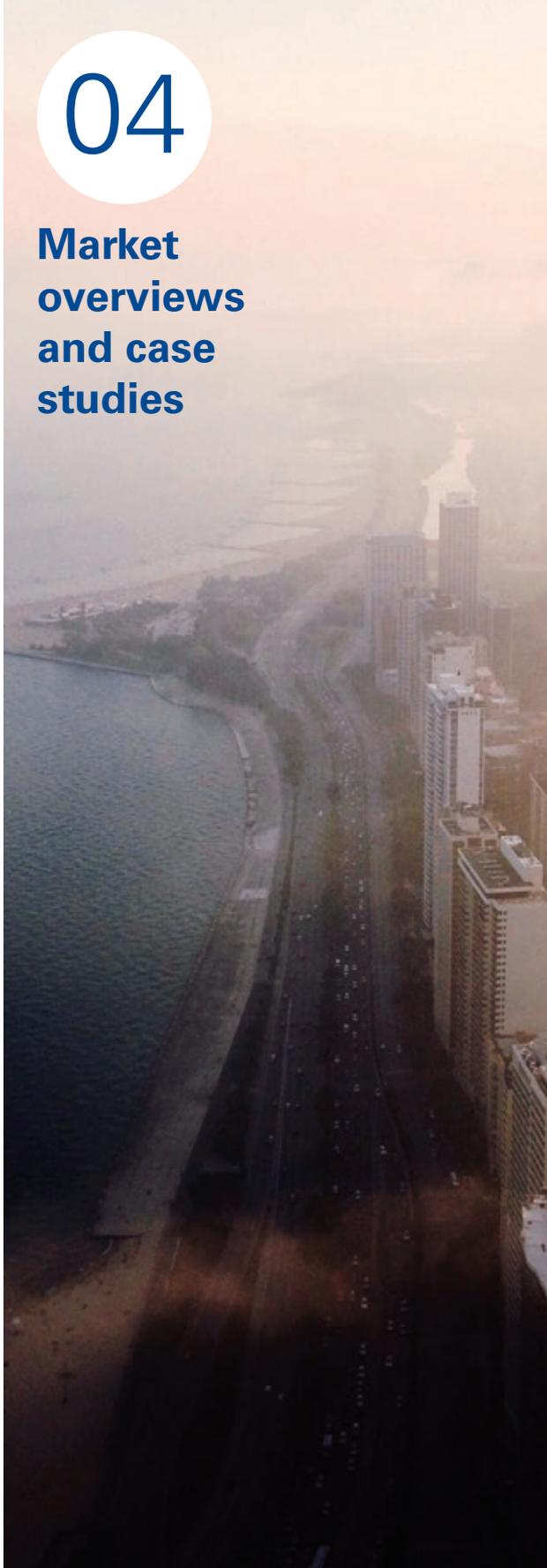
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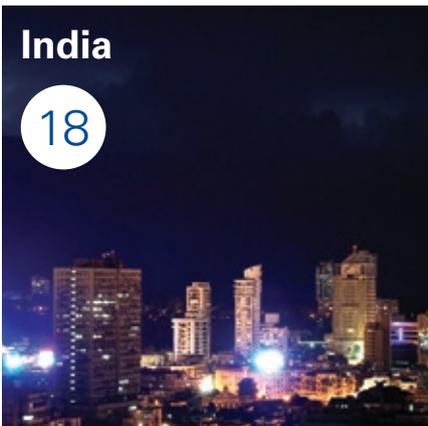
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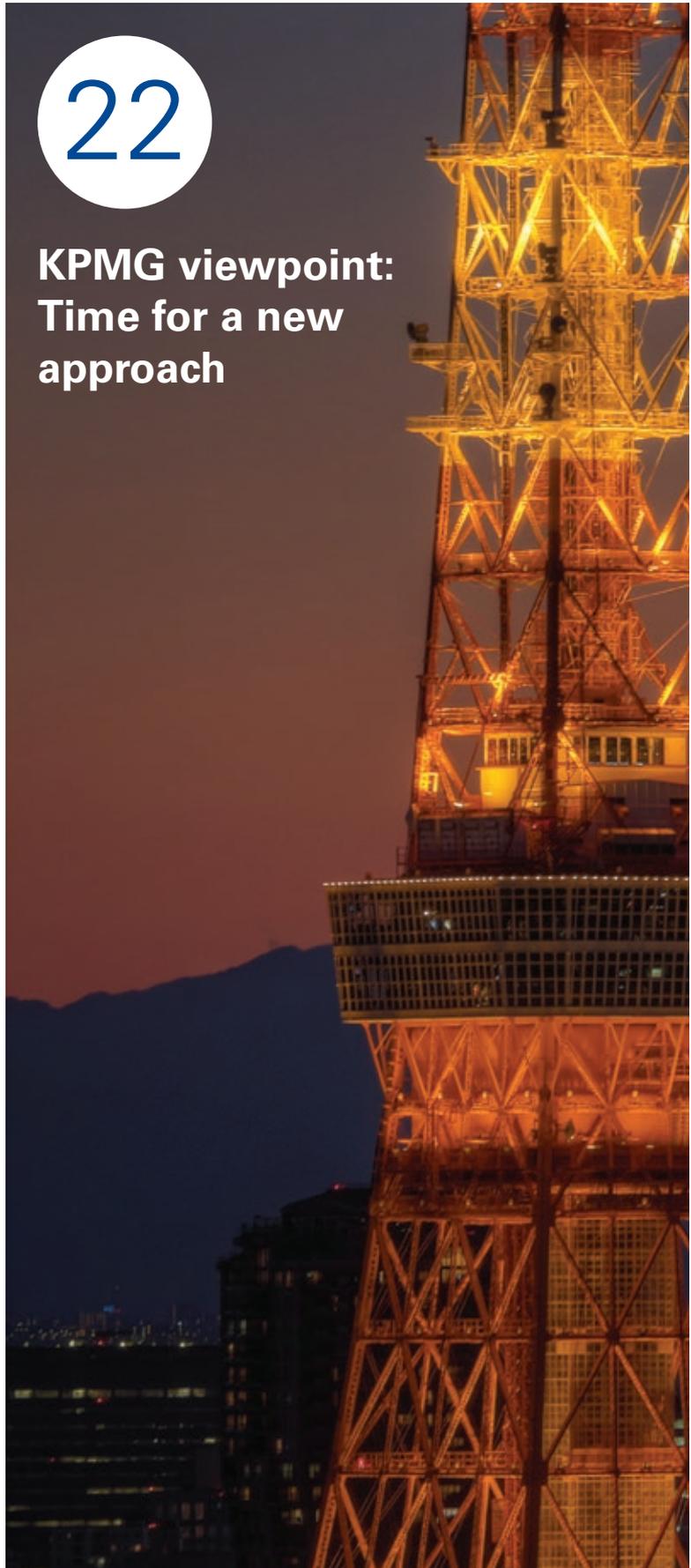
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**KPMG viewpoint:
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Getting practical: A roundtable discussion

Infrastructure prioritization and planning is rising up the agenda for governments, developers and investors around the world. In this roundtable discussion, we brought together industry experts from the UK, Brazil and South Africa to share their experiences and advice for improving the way infrastructure is planned and prioritized.

Tomas Bruginski de Paula is a Director with the Company for Partnerships at the state of São Paulo, Brazil; **William Dachs** is the COO of the Gautrain Management Agency in South Africa; and **Bridget Rosewell** is a highly-regarded UK infrastructure advisor and Commissioner for the independent National Infrastructure Commission.

In your opinion, what can be done to improve the way infrastructure investments are currently assessed and prioritized?

William Dachs: It may be a broad statement, but I think the big challenges often arise when governments try to translate policy into practical action. We get lots of wonderful policy papers — well thought out arguments on why public transport should get preference over private or road-based transport — but very little of that actually rolls down into real projects.

Tomas Bruginski de Paula: I think in Brazil — certainly in São Paulo state — one of the biggest challenges comes down to government capability

and capacity to properly plan and assess projects. We've had a long period of very unstable investment into infrastructure in Brazil and that often means that we don't have a stable enough pipeline to maintain and improve those capabilities.

Bridget Rosewell: The UK has a fairly mature assessment process. What is not being well addressed, however, is the role that infrastructure plays in a changing economy. People seem to understand that infrastructure matters and that it contributes to growth in the economy. What we haven't yet pinned down is how we rationalize decisions differently as a result.

What role should economic benefit play in the business case development process?

Tomas: Particularly in the transport sector, economic benefit plays a massive role. When we go to the international stage for funding, international investors and institutions are very demanding when it comes to economic benefit. Economic benefit is also key to our own decision making; we always want to ensure that our investments are going to the projects that deliver the best benefit in the long run.

William: I'd absolutely agree. It's not good enough to just say that you are going to improve mobility and accessibility. That's not going to make the priority list. It's got to have a massive social impact; it's got to

start moving people from the poorer satellite residential communities into employment areas and demonstrate the economic impact that will have. You can't overstate the importance of socio-economic criteria.

Bridget: I think in the UK we are beginning to recognize that it's about even more than just economic benefit. It's about rationally selecting and then balancing a set of criteria that achieve the vision that you are trying to attain. The criteria needs to be not only useful and measurable, but also something that our politicians can understand as being realistic.

To what extent should cross-sector impacts influence the infrastructure investment decision process?

Bridget: That's exactly why we've been setting up infrastructure commissions and conducting national infrastructure planning in the UK. But the National Infrastructure Plan is still essentially a list of sectoral projects. Where the cross-sectoral work is actually being done is more at the city level by groups such as the London Infrastructure Commission. The more recently set up National Infrastructure Commission is also aimed at addressing this issue at a national level.

William: I think you absolutely need to think about the cross-sector impacts. Developing a new mass transit system in an urban area isn't just about laying down track and signaling. It's also about how the asset impacts housing,



spatial planning, city master planning and so on. Cross-sectoral planning is at the bedrock of what we need to do.

Tomas: It's certainly all interconnected. Part of our thought process is about making the best use of our assets. Rather than extending out our regional rail line — which connects the city to urban areas some 50 kilometers away — maybe the better question is how we move more people closer to the existing network. And what does this mean in terms of the supply of houses and employment opportunities.

In your experience, what can governments do to improve their current infrastructure planning and prioritization capability?

William: To me, it's about getting the right people in the right places — the training, the up-skilling of people, the deployment of the private sector — these are all going to be critical to improving our capabilities. I think we also need to start looking at things in more detail, starting in the planning process but also on the procurement side and I think sometimes that requires outside and independent viewpoints.

Tomas: I'd agree with William on both counts. You need the right people and skills, and you need a strong plan. I think sometimes we could move faster, deliver better results and be much more efficient in our delivery of infrastructure if we just spent more time planning and creating a better starting point than we often do.

Bridget: I think it's about building consensus around what we need to do and how we are going to do it. It's about discussing it differently and really thinking about what linkages your projects have with the economy. There's certainly been a huge shift in the debate about infrastructure, but I'm not certain we're making those linkages yet.

What role should politics play in the infrastructure planning and prioritization process?

Bridget: I actually believe we need to find a model where political engagement is more incorporated than it is today. I think where we are going to see the most activity in that arena is at the city level. That's where these trade-offs can happen in a more integrated fashion; in a more 'small p' political rather than 'big p' political fashion.

William: You can't take away the politics even if you wanted to. Any manager operating in the infrastructure space must have political support. But what needs to stop are the sudden changes that often come from a change of party or policy. Once the planning has led to an investment decision, these decisions must be honored in the same way as a contractual agreement and that's not always the case when politics is involved.

Tomas: I absolutely agree. Prioritizing investments requires a view of what you want to offer the next generation

and that's a political decision. The problem comes when politics starts to interfere with the details. You need to focus on finding the best technical approach to the project — maybe make minor adjustments based on relevant political issues — but the core decisions — including scope and financing — must be technical ones.

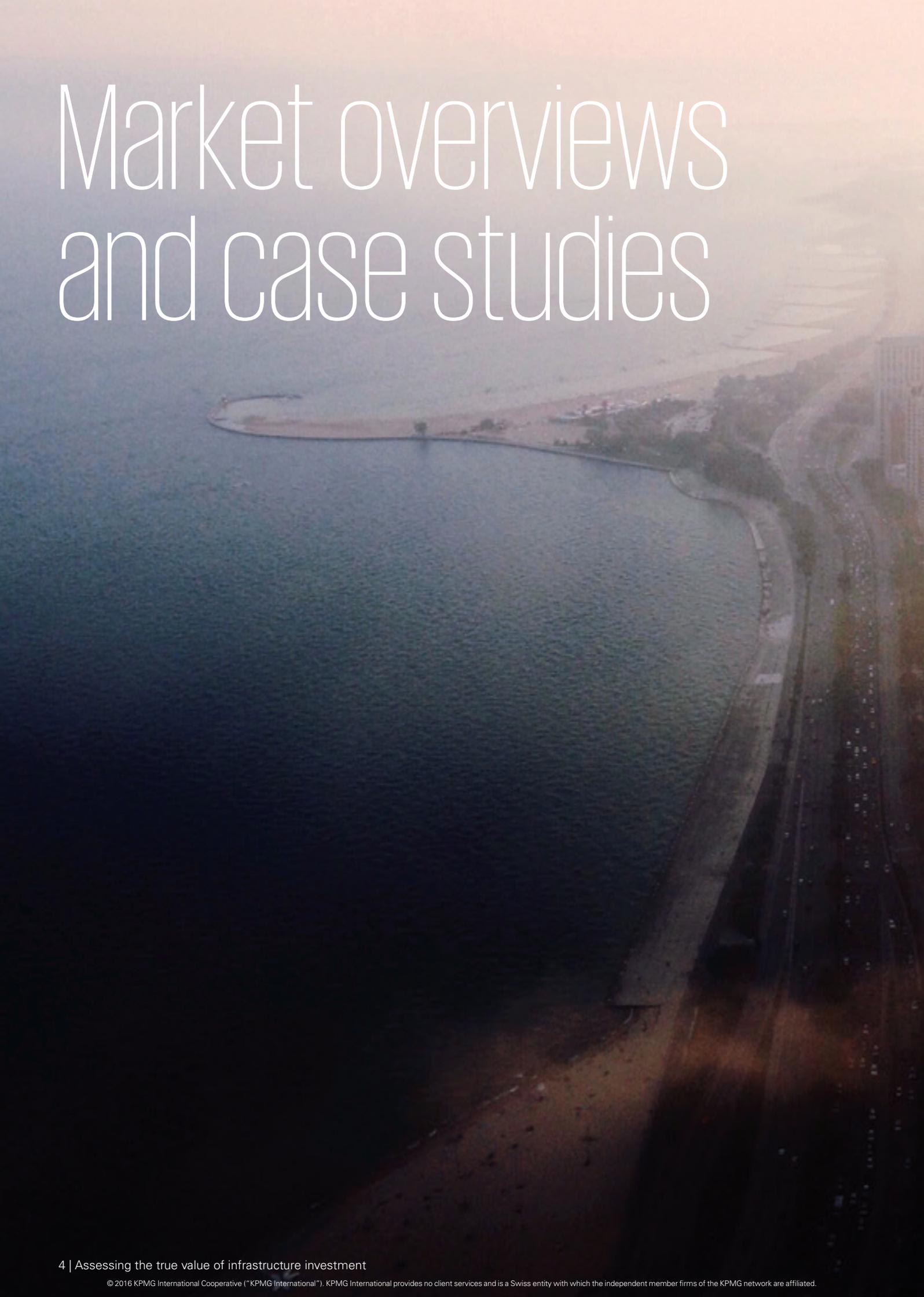
What advice would you give to those involved in infrastructure planning and prioritization today?

Tomas: I think it's about understanding what you can sustainably achieve. I think planners are afraid to reduce the scope of the project in fear of missing a big target. But if you can deliver a project — on time and on budget — that provides 80 percent of your goal, that's much better than failing to deliver a project because you set an ambitious but unrealistic target.

Bridget: I think that's absolutely right. And I'd say we need to start thinking more in terms of the risk scenarios. Maybe not trying to get the perfect outcome or right answer, but rather balancing the risks and developing the scenarios that help define what you need more of.

William: And I think that echoes for the broader prioritization process. A lot of countries get overambitious and try to solve all of their problems in one 10-year plan and the reality is that they just don't have the resources, the investors or — frankly — the risk appetite to get it done.

Market overviews and case studies

An aerial photograph of a large body of water, possibly a lake or bay, with a curved shoreline. The water is a deep blue-green color. On the right side, there is a road with a white dashed line down the center, and some buildings and greenery are visible in the distance. The sky is a pale, hazy blue.





United Kingdom

Market overview

Planning and prioritization of infrastructure

As far as planning of infrastructure is concerned, it is all changing in the UK. In November 2015 the Chancellor, George Osborne, announced the establishment of the National Infrastructure Commission (NIC). The NIC will assume the responsibilities of Infrastructure UK (IUK) for developing a long-term vision and plan for UK infrastructure. Shortly afterwards it was announced that IUK would merge with the Major Projects Authority to create the Infrastructure and Projects Authority (IPA). The objective of the NIC is to bring independence and greater transparency to the infrastructure planning process and it will be established through new legislation. It is not yet clear how exactly the NIC and IPA will operate so this UK Market Overview focusses on the historical picture.

Established in 2009 to advise the government on the country's long-term infrastructure needs, Infrastructure UK (IUK) worked under Her Majesty's Treasury (HMT) to determine the UK's long-term priorities and to help secure private investment for infrastructure projects. IUK developed the country's

National Infrastructure Plan each year and outlined the Top 40 priority projects for the UK.

IUK was guided by the IUK Advisory Council which comprised of public sector managers (representing the government departments responsible for delivering economic infrastructure projects) and private sector representatives (contributing experience in key functional areas such as construction, operations, regulation, finance and technology).¹

Those projects that fall below the Top 40 are planned and prioritized by the relevant central government department and then approved and funded (based on a mix of business case rationale and political direction) by HMT. The devolved powers of Scotland, Wales and Northern Ireland tend to have more control over cross-sector prioritization within their jurisdictions.

Essentially, government funding for infrastructure projects outside of the Top 40 is decided through a 5-year comprehensive spending review where government departments submit project and program proposals that are then allocated funds from the relevant budget. Interestingly, much of the pipeline is based on submissions from local government who play a complex role in project prioritization.

With very limited funds of their own, most local projects are funded through business case submissions to central government bodies, which places them within the broader national prioritization process for each department. Local infrastructure projects are often funded through a mix of council taxes on residential properties, a share of business rates and grant funding from various other levels of government. As a result, prioritization of local projects tends to be based on whether or not funding can be found.

While this dynamic has recently changed somewhat with the introduction of 'City Deal' growth fund allocations from central government to local authorities, the funding represents only a small part of the government's overall infrastructure capital budget. Just GBP2 billion has been allocated for the 39 local enterprise partnerships in England and much of this funding represents money that had already been committed before the deals were struck.

Projects can also receive support through the government's National Infrastructure Planning body, delivered by the Planning Inspectorate, who is responsible for examining planning applications for nationally significant

¹ <https://www.gov.uk/government/organisations/infrastructure-uk/about/our-governance>

infrastructure projects. The Planning Act of 2008 was introduced, in large part, to streamline the decision-making process for projects deemed 'nationally significant', with the intention of making the planning process fairer and faster for developers and stakeholders.

Long-term planning

The UK's largest and most impactful projects are covered under the National Infrastructure Plan which has been developed as a partnership between IUK — who was responsible for recommending which projects to fund — and HMT, who has the funding capacity. The National Infrastructure Plan contains the list of Top 40 priority investments across a variety of sectors (projects in the 2013 plan represented a 10-year investment pipeline worth GBP375 billion (US\$55 billion), for the most part focused on the energy and transport sectors).

Scotland, Wales and Northern Ireland also develop long-term infrastructure plans, largely based on input from the relevant government department (such as Transport Scotland) and political direction from the devolved governments. In Scotland, for example, the Scottish government published its Infrastructure Investment Plan in December 2011 to outline its intended project pipeline for investment up to 2030. Since its publication, the Scottish government has produced annual progress reports and updated project pipelines. Similar plans were developed in Wales and Northern Ireland.

Prioritization methodology and approach

To select and prioritize the Top 40 projects outlined in the National Infrastructure Plan, IUK used three main criteria:

- The project's potential contribution to economic growth
- The project's potential to deliver enhanced quality, sustainability or capacity
- The project's potential to unlock private investment

However, IUK's selection and prioritization of projects could also be influenced by a number of other

factors such as its strategic importance, capital value, regional importance or its ability to improve national infrastructure capabilities and expertise.

Outside of these Top 40 projects, the responsibility for the prioritization of infrastructure projects largely rests with the relevant central government department, with each using their own technical methods to carry out prioritization within their relevant sector.

As previously mentioned, the devolved powers of Scotland, Wales and Northern Ireland tend to have more control over cross-sector prioritization but — to date — have no formal framework for evaluating projects across sectors and prioritizing based on anticipated economic impacts. Instead, projects are often prioritized based on political direction and input from government departments (who are effectively competing for investment budgets).

It must be noted that — while local government tends to have little power to prioritize projects — some regional authorities (most notably The City of London) have greater financial power and are able to generate significant private funding to pay for infrastructure without central funding. However, projects still must follow the usual central government infrastructure approval processes.

Business case development

All infrastructure projects and schemes require the development of a full business case. The business case summarizes all the research and analysis needed to support transparent decision making and, in its final form, summarizes project objectives, outlines the preferred option for meeting those objectives, discusses key features of implementation management and details arrangements for post-implementation evaluation.²

To help guide all levels of government in their development of business cases, HMT has developed the 'Five Case' model that describes five different yet interconnected aspects of business case development:

- The strategic case — does the project justify government intervention?

- The economic case — does the preferred option demonstrate the greatest value for money?
- The commercial case — is the project commercially viable?
- The financial case — is the project financially affordable?
- The management case — can the project be successfully delivered?

The business case is generally developed over a long period of time and is often viewed as a living document while the proposal develops.

Economic appraisals

While HMT provides guidance on economic appraisals through the Green Book (a 'best practice' guide to appraisals for all central departments), each department develops its own technical methodology for carrying out appraisals. Many local authorities have also developed their own methodologies consistent with the principles contained in the Green Book and departmental technical guidance requirements, albeit while providing supplementary guidance on their own specific areas.

Economic appraisals are developed as part of the business case process, requiring planners to have considered a range of project delivery options based on 'value for money'. Associated costs, benefits, and risks across the entire life-cycle of the project must be considered and calculated annually with the results compared on a Net Present Value basis.

Cross-sector integration

As part of its mandate, IUK was expected to observe infrastructure planning from a holistic view when developing its National Infrastructure Plan. However, outside of the Top 40, projects are planned and executed in isolation by the relevant government departments.

At the local level, a small number of city authorities have started to take a more holistic view on cross-sector prioritization (see our case study on Glasgow), but these efforts have often been aimed at securing specific government grants or funding allocations.

² HM Treasury. "Assessing Business Cases 'A Short Plain English Guide'"

► Case study

Putting cities at the forefront

With an increasing recognition that growth “does not take place at an abstract national level”, the UK government created the City Deals program in 2011 in an effort to give UK cities more control to create economic growth.

The main goals of the City Deals program are to fund major infrastructure projects, drive innovation and growth, and address the challenges of local labor markets.³ Broadly speaking, the program is essentially a decentralization of urban policy to the local level.⁴

To support the goals of the City Deal program, the UK government also created the Cities Policy Unit (bringing together experts from public and private spheres) and created the new position of Minister of Cities with the responsibility for improving lines of communication between local and central government. The position holds significant weight in government, particularly after the first Minister (Greg Clark) was promoted to Secretary of State for Communities and Local Government following the 2015 elections, largely due to his success with the City Deal program.

High level prioritization

Initially, the program was not available to all urban areas but rather was rolled out in waves in order to focus on the areas of greatest need and return. The first wave focused on the eight largest cities outside of London (also known as the Core Cities) and the second wave expanded the scope to include the ‘next 14’ largest cities and the six cities with the highest population growth between 2001 and 2010.⁵

Cities interested in a City Deal must develop a proposal to demonstrate how it plans to use that investment to stimulate and support economic growth and how it will leverage public-private partnerships to amplify the investments.

However, it is worth noting that, for the most part, programs included in these deals have been rather small. Just four of the deals or funds that were created topped GBP1 billion (Greater Manchester, West Yorkshire, Glasgow and the Clyde Valley, and Greater Cambridge).

Glasgow and Clyde Valley

Announced in 2014, the Glasgow and Clyde Valley City Deal brings together eight local authorities representing the largest city-region in Scotland and one of the largest in the UK. As such, the region is seen as a “key engine of economic growth for both the Scottish and the UK economies.”⁶



The Glasgow and Clyde Valley City Deal has the potential to deliver significant economic and jobs growth across the Glasgow metropolitan region. The model has a proven track record in England, boosting the economies of many competitor cities.

The Glasgow and Clyde Valley City Deal consists of a GBP1.13 billion infrastructure fund made up of grant funding (both the UK government and the Scottish government will allocate GBP500 million in grant funding) with the remainder expected to be funded by the local authorities themselves.

Ultimately, the Glasgow and Clyde Valley City Deal expects to create 15,000 construction jobs and 29,000 permanent jobs and should allow the city to leverage an estimated GBP3.3 billion of investment from the private sector. The fund is expected to deliver a sustainable uplift of around 4 percent (or

approximately GBP2.2 billion) annually for the regional economy.

Conducting the economic prioritization

To secure the City Deal funding and to ensure that it was doing everything it could to boost economic growth through investment, the Glasgow and Clyde Valley authorities knew they needed to take a different approach to their infrastructure prioritization.

Working with KPMG in the UK, the Glasgow and Clyde Valley authorities designed a Single Assessment Framework model capable of measuring the economic impact of potential investments across different sectors, namely transport, housing and regeneration.

While key metrics include the Gross Value Added (GVA) and job impacts that each investment would provide to Glasgow and the seven participating local authorities, the key feature of the model is that it offers way to measure the impacts of interventions across these sectors on a level playing field.

An initial list of 80 projects valued at more than GBP4 billion was culled down to 40 using preliminary assessments and these projects were then tested and prioritized based on their potential impact on the region’s GVA (as a proportion of whole life costs). Ultimately, this resulted in an infrastructure prioritization list of 20 projects, covering a range of sectors such as housing and regeneration, flood management, and transport.

Many prioritization initiatives suffer from two main challenges: projects are often assessed in isolation and the benefits are often centralized. We believe that Glasgow’s Single Assessment Framework model addresses both of these challenges successfully and therefore provides a strong model for other markets to emulate and adapt.

³ Ibid.

⁴ Unlocking Growth in Cities, 2011

⁵ <https://www.gov.uk/government/policies/giving-more-power-back-to-cities-through-city-deals>

⁶ Glasgow and Clyde Valley City Deal, 2014

KPMG insight



While the UK has taken great strides towards improving national infrastructure prioritization and planning, it is clear that politics and transparency have continued to create challenges for the smooth prioritization and planning of infrastructure.

The reality is that many of the UK's most controversial projects (those with large costs or significant environmental impacts, for example) are often delayed to suit the political calendar; the decision on whether to grant an expansion to Heathrow or Gatwick, for example, has been delayed for decades, and for a further 6 months just recently, and — at many times — the reason for the delay has been to suit the political calendar.

Clearly, there is no point progressing a proposal that is unlikely to be deliverable — either from a physical, financial or political perspective. Often, the inability to deliver is inter-related; the current decision on London's airport expansions may be difficult to deliver politically given the promises made in previous elections.

Realistically, no country will ever fully achieve a true separation of politics and infrastructure planning and prioritization. The UK's framework is certainly better than most and, with the introduction of the NIC, is about to take a bold step forward in terms of independence and greater transparency of analysis and decision making. The NIC will add to the existing positive aspects of the framework: the rigorous appraisal process and the business case requirements that provide considerable confidence that projects will be progressed based on their merit. Confidence is further reinforced by the fact that the Queen ceremonially approves all schemes, which makes them difficult to cancel based on purely politics alone.

Appraisal reform has become an important topic — politically and financially — for the UK government. Many are recognizing that cities and regions are starting to take the lead in driving the reform agenda (particularly in transport) and government is now working hard to understand the implications of that trend.

As the Glasgow and Clyde Valley case study (see previous page) illustrates, significant progress is being made through the City Deal program. But even with all of the safeguards, processes and appraisals, the UK framework could go further to improve transparency on infrastructure prioritization. No formal framework exists for evaluating projects across sectors or prioritizing them based on their anticipated economic impacts. Instead, projects have historically tended to be prioritized based on political direction and fierce competition between departments, making it much more difficult for central government authorities to take an objective approach to prioritizing projects. Here is the challenge for the newly formed NIC.

UK's National Infrastructure Plan has been a case in point: the three main criteria for selecting and prioritizing projects (contribution to economic growth, ability to enhance quality, and ability to unlock private investment) are all rather subjective which means that decisions on which projects and sectors to prioritize are not always transparent.



South Africa

Market overview

Planning and prioritization of infrastructure

Until recently, all of South Africa's infrastructure planning and prioritization was conducted individually by the relevant government entity. However, with more than 1,100 'organs of state' across the country (including 45 national departments, 108 provincial departments, 278 municipalities and 715 state-owned entities), each with their own mandates, strategies, growth and long-term expenditure plans, there has been little consistency in project planning and prioritization across the country.

Recognizing the need for greater consistency, the Presidential Infrastructure Coordinating Committee (PICC) was established in 2011 with responsibility for planning and prioritizing major public infrastructure projects. The PICC is a multi-level government body that sits within the Economic Development Department and includes representation from the President and Deputy President of South Africa, national Ministers with responsibility for infrastructure, provincial Premiers and metropolitan Mayors.

In 2012, the PICC published the country's first National Infrastructure

Plan (NIP) which prioritized 18 Strategic Integrated Projects. Formalized by the Infrastructure Development Bill in 2013, the PICC's mandate is to ensure the systematic selection, planning and monitoring of large infrastructure projects, with the ultimate goal of achieving the country's growth, development and employment targets.

Those projects that fall outside of the NIP's mandate are typically prioritized at a departmental level and at a State-Owned Enterprise (SOE) level. Each national department (such as the Department of Energy, the Department of Water and the Department of Transport) develops and maintains their own strategic plans.

Long-term planning

Guided by the priorities and requirements set out in the country's National Development Plan (which articulates the long-term vision for the country), the PICC developed the country's first NIP in 2012. The NIP outlines 18 Strategic Integrated Projects (SIPs) which include more than 150 individual infrastructure projects (selected from a list of almost 650 potential 'in scope' projects) covering a wide range of social and economic infrastructure sectors.

In addition to the NIP, SOEs and government departments also develop 20 to 25-year master plans for their respective infrastructure project needs. For the most part, these plans are largely focused on capacity planning, but socio-economic impacts are often considered in scoping and selection.

The Department of Energy, for example, developed a strategic plan (the Integrated Resource Plan for Electricity) and vision for 2025 to ensure secure and sustainable provision of energy for socio-economic development. The Department of Water's plan covers a 5-year span and is focused on ensuring equitable access to water as well as its sustainable, efficient and effective use towards achieving the social and economic goals of the country.

Infrastructure is also planned and developed at the provincial and municipal/local level. At the provincial level, infrastructure projects are required to align to four key planning documents:

1. *The Provincial Growth and Development Strategies (PGDS)*: a strategic tool based on the province's long-term view of development, intended to guide and coordinate the allocation of national, provincial and local resources and private sector.

2. *The Provincial Sector Plans*: a framework that sets out strategic objectives for each sector at a provincial level along with defined strategies and implementation plans; supporting activities and monitoring are also outlined in the Provincial Sector Plans.
3. *The Provincial Sectoral Master Plans*: prepared for a 25-year period, these master plans include key policy directions and economic development scenarios, set out land use and spatial plans, as well as development principles for each sector.
4. *The Provincial Integrated Development Plans (IDP)*: an IDP based on the socio-economic profile of the province that identifies the Growth and Development Strategy (GDS) principles, objectives and mechanisms.

At the municipal level, strategy and project planning is set out in local documents including municipal Integrated Development Plans, local sector plans and project pre-feasibility studies and business plans.

Prioritization methodology and approach

In developing the NIP, the PICC undertook a 'spatial mapping' exercise aimed at projecting potential growth (in population, urbanization and the economy) and identifying the specific infrastructure that would be required to facilitate that growth. In particular, the exercise focused on identifying:

- Current and future demand
- The state of existing infrastructure assets and services
- The long-term infrastructure requirements to fill the gap
- The potential for unlocking economic opportunity⁷

The exercise resulted in the identification of more than 645 infrastructure projects across the country, of which more than 150 were prioritized and 'clustered' together to form the 18 SIPs, largely focused on supporting economic development

and addressing service delivery in the poorest provinces.

In addition to the results of the spatial mapping exercise, the PICC further prioritized the projects to be included into the SIPs based on its terms of reference which include the following objectives:

- Achieve development objectives through improvements in skills, industrialization, empowerment and research and development
- Expand maintenance on new and existing infrastructure
- Improve infrastructure links, particularly in rural areas and the poorest provinces
- Address capacity constraints and improve coordination and integration
- Support African development and integration

Outside of the projects included in the NIP, national departments tend to prioritize projects based on their long-term plans. Projects within the Department of Energy, for example, are prioritized to achieve the department's vision of a transformed and sustainable energy sector that includes 30 percent 'clean' energy by 2025. The Department of Water's prioritization tends to align to the department's Second National Water Resources Strategy, which outlines the future priorities for the water sector in South Africa.

While, at the provincial level, the comparison and prioritization of projects remains quite limited, it is at the local level where sectoral planning and provision often takes place, including prioritization, the identification of appropriate resources and the selection of the service provider.

Economic appraisals

All infrastructure projects funded from the National Treasury require a full feasibility study before funding can be approved. Economic appraisals are conducted as part of the feasibility process, often by outside transaction advisors who analyze and estimate

the costs and revenues over the life of the project.

Beyond demonstrating financial feasibility, the study also requires wider economic analysis on the project's potential impact on key growth indicators such as job creation, Gross Domestic Product (GDP) growth, tax revenues and environmental impact, and considers factors such as deliverability, governance and asset management.

However, different government departments tend to apply different lenses to their appraisal of projects. The Department of Energy, for example, includes the concept of 'Cost of Underserved Energy' (essentially the cost of interruption of supply) in their appraisal framework. The Department of Transportation evaluates projects based on macro-economic impacts, physical environment impacts and the potential for improving social equity.

Cross-sector integration

The SIPs provide a strong motivation for cross-sector integration. Each of the SIPs focus on a goal rather than a specific project or sector and therefore require government to integrate activity and investment across various sectors to achieve their goals.

Projects outside of the NIP, however, tend to be planned, prioritized and executed by the relevant government department or SOE and, for the most part, little cross-sector integration is achieved.

However, outside of developing the NIP, the PICC is also expected to play a more holistic role in infrastructure planning by developing the necessary frameworks to ensure that national, provincial and local structures are coordinated.

Integrated development planning also takes place at the municipal level, bringing together all of the sectoral plans into a more programmatic approach. However, progress is often hampered by a lack of sufficient program and project management capacity at the municipal level.

⁷ A Summary of the South African National Infrastructure Plan. Presidential Infrastructure Coordinating Commission, 2012.

► Case study

Achieving socio-economic goals through power procurement

Since 2007, South Africans have had to grow accustomed to the dark. Electricity supply has lagged behind demand and, as a result, the country has experienced widespread blackouts. But a secure electricity supply is not South Africa's only challenge: unemployment is also rife, peaking at over 25 percent in 2010, while GDP per capita remains stubbornly low (US\$5,694).

Over the past few years, South Africa's government has been working aggressively to improve the socio-economic growth of the country by embedding socio-economic goals into their wider basket of investments and programs.

First tabled in May 2011 and then updated in 2013, South Africa's Department of Energy published its Integrated Resource Plan for Electricity 2010–2030 (IRP 2010). The plan essentially outlines the power generation requirements for the country and sets the guidelines under which NERSA (South Africa's energy regulator) can license new capacity.

The IRP 2010 calls for the addition of 41,346 MW of new electricity generating capacity (above and beyond that needed for the replacement of decommissioned plants) with the overall objective of diversifying the coal-driven power mix. The plan seeks to increase generation through domestic and regional IPPs and incorporates multiple energy sources such as renewables, nuclear as well as thermal.

The IRP 2010 also calls for the addition of new base-load generation capacity of 7,761 MW (a third of which is envisioned to be procured through a

Coal Base-Load Independent Power Producer (IPP) Procurement program) and around 11.4 GW of renewable energy sources (to be developed by 2030 under the Renewable Energy Independent Power Producer Procurement (REIPPP) program).

The Coal Base-Load IPP Procurement program

The goal of the Coal Base-Load IPP is to procure 2,500 MW of power generation capacity and energy from independent power producers to be connected to the South African electricity grid over the next 10 years.

To achieve this, South Africa's Department of Energy has issued a Request for Proposal for the procurement of 1,000 MW of capacity. Single projects can be no larger than 600 MW, but IPPs can register and submit proposals for more than one project. The RFP includes a Power Purchase Agreement (which may not be marked-up) and the government has proposed an incentive payment for those projects that can be delivered before June 2020. Both initiatives should further aid in executing the projects in a timely manner.

The REIPPP program

While South Africa's first renewable 'feed-in' energy policy in 2009 was ultimately cancelled due to issues surrounding the legality of the program and the pricing of tariffs, the government's new REIPPP program has already demonstrated significant success.

The REIPPP is being rolled out in five rounds of competitive bidding with selection based on both price and non-price criteria. In each round, bidders bid the price (tariff) that will

be payable by Eskom (as the buyer) pursuant to the Power Purchase Agreement (PPA), with the price not to exceed a set price cap for each technology for each phase. Bidders are also required to submit the terms of material contracts, including financing agreements and construction and operation contracts and an Operating and Maintenance (O&M) contract.

The first round, launched in August 2011, selected 28 preferred bidders with a total proposed generating capacity of 1,416 MW. A second round initiated in November 2011 selected 19 bidders (out of 79 proposals) and a third round in May 2013 selected a further 17 preferred bidders for an additional 1,456 MW of renewable energy generation capacity.

Concluding the economic prioritization

Interestingly, both the Coal Base-Load IPP Procurement program and the REIPPP program are designed to not only help alleviate the current constraints on electricity, but also to help the country achieve key socio-economic goals.

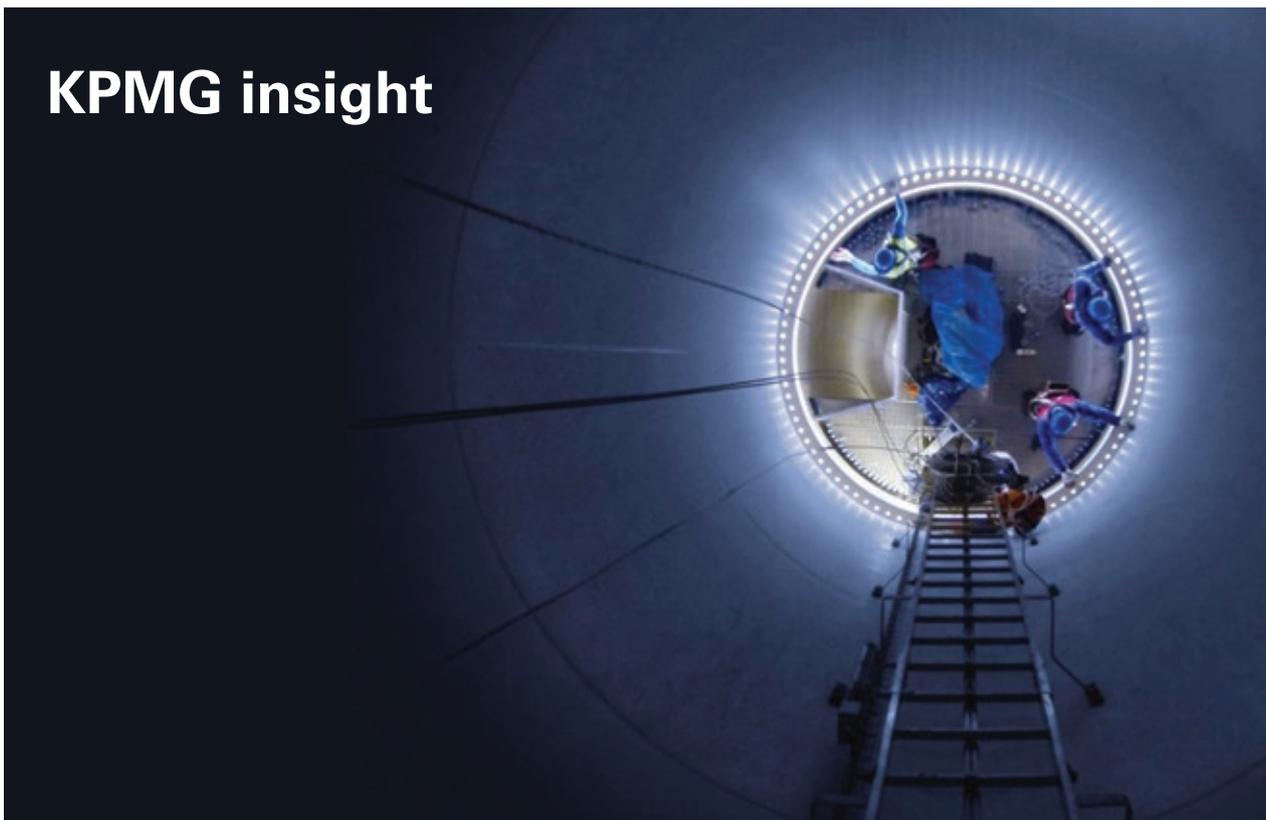
Clearly, the overall goal of this program is to secure new energy supplies and diversify the country's energy mix. But the government has also made it clear that participation in the program will require projects to show how they can contribute to socio-economic and sustainable growth as well.

Indeed, minimum thresholds for IPPs to qualify for the programs include metrics related to job creation, economic development requirements, local content and ownership, preferred procurement and supplier and enterprise development.



The overall goal of this program is to secure new energy supplies and diversify the country's energy mix. But the government has also made it clear that participation in the program will require projects to show how they can contribute to socio-economic and sustainable growth.

KPMG insight



Clearly, South Africa boasts one of the most transparent and efficient infrastructure planning and prioritization processes on the continent. The use of more structured feasibility studies for projects and the articulation of a national vision and plan have done much to help the country start to overcome many of their most critical infrastructure challenges.

However, the country continues to face a number of challenges in implementing large infrastructure projects. Project planning and execution capacity continues to lag behind demand at the institutional level and slow approval processes keep many projects stuck in the pipeline for extended periods of time. Lengthy and onerous government tender processes do not help.

These implementation challenges are a reminder that — unless great care is taken — the implementation of more robust and transparent planning, prioritization and business case processes can

often do more to complicate and lengthen the process of bringing a major project to market than to shorten them. Governments must therefore strive to ensure that such processes are developed to be as efficient as possible, supported by sufficient capacity in the planning and prioritization departments to move projects forward.

At the same time, we have seen vested interests influence and delay projects either directly or through procurement challenges. The escalating cost of construction and monopoly pricing are also creating major challenges to the delivery of large projects across sectors.

Going forward, South Africa's government will need to focus on creating a more transparent and consistent process for project prioritization. Economic benefits need to be more comprehensively assessed and compared; project financial viability and asset sustainability need to be more candidly assessed; and

industrialization and economic benefits need to be more carefully balanced to ensure fiscal efficiency and sustainability.

Clearly, South Africa's government is moving in the right direction, albeit somewhat necessitated by financial constraints within the tax system and challenges accessing financing. At the same time, municipalities and provincial authorities are starting to apply more critical criteria in project selection and seem open to the need for project prioritization. While some of these changes are happening on a more informal basis, most expect more formal changes to follow soon.

The greatest challenge facing the government, however, will be creating more alignment between policy objectives and budgets. Without significant change, policies and priorities will become increasingly unachievable, and affordable only on a limited or piecemeal basis.



Brazil

Market overview

Planning and prioritization of infrastructure

Infrastructure prioritization in Brazil is managed by the federal, state or local government depending on the sector or project location. However, for major infrastructure developments, the federal government takes a bigger role as the main provider of funds.

The country's Growth Acceleration Program (PAC), which was created in 2007 to promote the recovery of major infrastructure projects and drive sustainable development, is a massive development and investment program that is funded by the federal government but includes federal, state and local projects. Programs such as the PAC largely guide infrastructure prioritization in Brazil.

The PAC plan is overseen by the Planning Minister (one of the most important ministers in Brazil's government) who delegates responsibility for the planning and procurement of certain infrastructure projects to specific ministries (the Ministry of Cities, for example, is charged with subways, regional trains, and sanitation and water projects, among other responsibilities). Within Cabinet, the Ministry of Planning sets out the budget for the whole country.

A handful of other government bodies also contribute to the prioritization of projects within certain sectors. The organization created to oversee the recently-announced 'second edition' of the country's Logistics Investment Program (PIL), for example, is expected to play a role in the prioritization of projects within the transportation

sector in order to achieve its mandate of improving the country's transportation network.

Long-term planning

Based on the success of the first PAC (which was widely credited with increasing job creation and encouraging private investment), Brazil's government announced a second phase (PAC-2) in 2011 with a 3-year target of US\$526 billion in public and private investments in infrastructure.

PAC-2, similar to PAC-1, focuses its investments in the areas of logistics, energy and social development. It is focused on six major initiatives:

- Better Cities (urban infrastructure)
- Bringing Citizenship to the Community (safety and social inclusion)



- My House, My Life (housing)
- Water and Light for All (sanitation and access to electricity)
- Energy (renewable energy, oil and gas)
- Transportation (highways, railways, airports)

Long-term planning is also conducted in the transportation sector through the PIL which was initially created in 2012 to promote investment in roads and rails and to encourage greater integration. A second version of the PIL — with the same objectives — was launched in mid-2015. To execute this mandate, the government created the Company of Planning and Logistics (EPL) to help implement the more than US\$50 billion in anticipated public-private partnership projects within the sector.

However, while the EPL clearly recognizes the need for a long-term plan (with a prioritized project pipeline based on a set criteria), the organization is relatively new and is therefore more focused on integration rather than planning and prioritization. It is widely believed that the EPL will focus on developing a project appraisal and prioritization framework in the near future.

Prioritization methodology and approach

Brazil's approach to prioritizing infrastructure projects is not entirely consistent or transparent, with many investment decisions seemingly based solely on what the federal government thinks is best for their citizens.

For the most part, the government follows a top-down approach to planning and implementing infrastructure projects with the federal government identifying the priorities and gaps. However, the federal government stops short of identifying specific projects, preferring instead to identify actions (such as 'we need to increase our stock of public housing'). Based on these actions, the Planning Minister provides funds and delegates responsibility to states and government departments to execute projects.

The government's main concern is the employment and financial welfare of Brazilians. PAC-1 was introduced in a time of severe global financial crisis and provided many Brazilians with both secure employment and a steady income; these two objectives remain at the core of new PAC mandates and are believed to influence project prioritization and selection.

However, outside of this mandate, prioritization of projects under PAC-2 remains somewhat opaque with allocations to each of the six initiatives largely determined by the perceived level of pressing priority and necessity. In the run-up to the 2014 FIFA World Cup and 2016 Summer Olympic Games, for example, the government of Brazil recognized

the need to prioritize accessibility through investments in transportation infrastructure.

Business case development

In some cases, state governments and government departments can submit a business case to the federal government to secure additional funding but — even in these cases — there is no set business case framework for infrastructure projects in Brazil.

Those business cases that are developed tend to focus more on financial feasibility and some risk mitigation rather than the wider aspects of infrastructure project planning such as project delivery and governance.

Economic appraisals

With no set appraisal framework for infrastructure projects, most appraisals tend to focus narrowly on financial feasibility (how much it will cost, how it will be funded and/or financed).

For the most part, it is not clear how rigorous appraisals are and whether all associated costs and benefits are being considered.

Cross-sector integration

Projects are generally viewed in isolation with little to no cross-sector analysis of costs and benefits.

Within sectors, however, there is some evidence of increasing integration. The EPL, for example, is currently focused on increasing integration across the multiple agencies involved in transportation and logistics planning and all federal ministers have been asked to help EPL develop an integrated plan.

Integration is also a challenge at the regional level, with few links currently existing between the planning functions of federal, state and local government. While programs such as PAC have provided mechanisms to improve integration (largely via federal funding of projects), most projects are managed in isolation.

► Case study

A PIL for transportation woes

Brazil's government knows it needs to reinvigorate investment into infrastructure. In part, this is because the country's infrastructure has been under the spotlight as the host of both the 2014 FIFA World Cup and the 2016 Summer Olympic Games. Games infrastructure has certainly come under scrutiny, but so too has the country's transportation infrastructure as floods of new visitors overwhelm airports and further congest already-overcapacity roadways and railways.

At the same time, Brazil recognizes that it is losing some of its global competitiveness. Indeed, prior to 2012, Brazil was ranked the sixth largest economy in the world but ranked 104th in terms of infrastructure quality, investing just 1 percent of Gross Domestic Product (GDP) into infrastructure (most estimates suggest 3 percent is required in order for Brazil to just maintain its existing infrastructure).

Ultimately, the growth of GDP, impacted by the increase in foreign direct investments, has driven an increased demand for greater investment into Brazil's infrastructure.

A pipeline of transportation investments

As previously mentioned, in August 2012, President Rousseff introduced the PIL, a new plan to promote investment in roads and railways. And, based on its successes, the government launched PIL-2 in mid-2015. The PIL-2 envisions a variety of transportation projects requiring investments of around US\$56 billion, with around US\$20 billion to be invested between 2015 and 2018. For the most part, these projects are expected to be delivered via public-private partnership models.

The PIL includes investments into:

- *Highways*: Includes 11 new lots of highway and toll roads (approximately 4,400 kilometers total) estimated at US\$9 billion, plus additional investments in existing concessions
- *Railways*: Plans to construct or upgrade five major railway projects, plus additional investments in existing concessions at a total investment of US\$25 billion
- *Ports*: More than US\$4 billion for widening and modernizing Brazil's ports

- *Airports*: Includes concessions of four international airports (estimated at US\$2.4 billion) and improvements at regional airports, mainly in the state of São Paulo

Removing bottlenecks

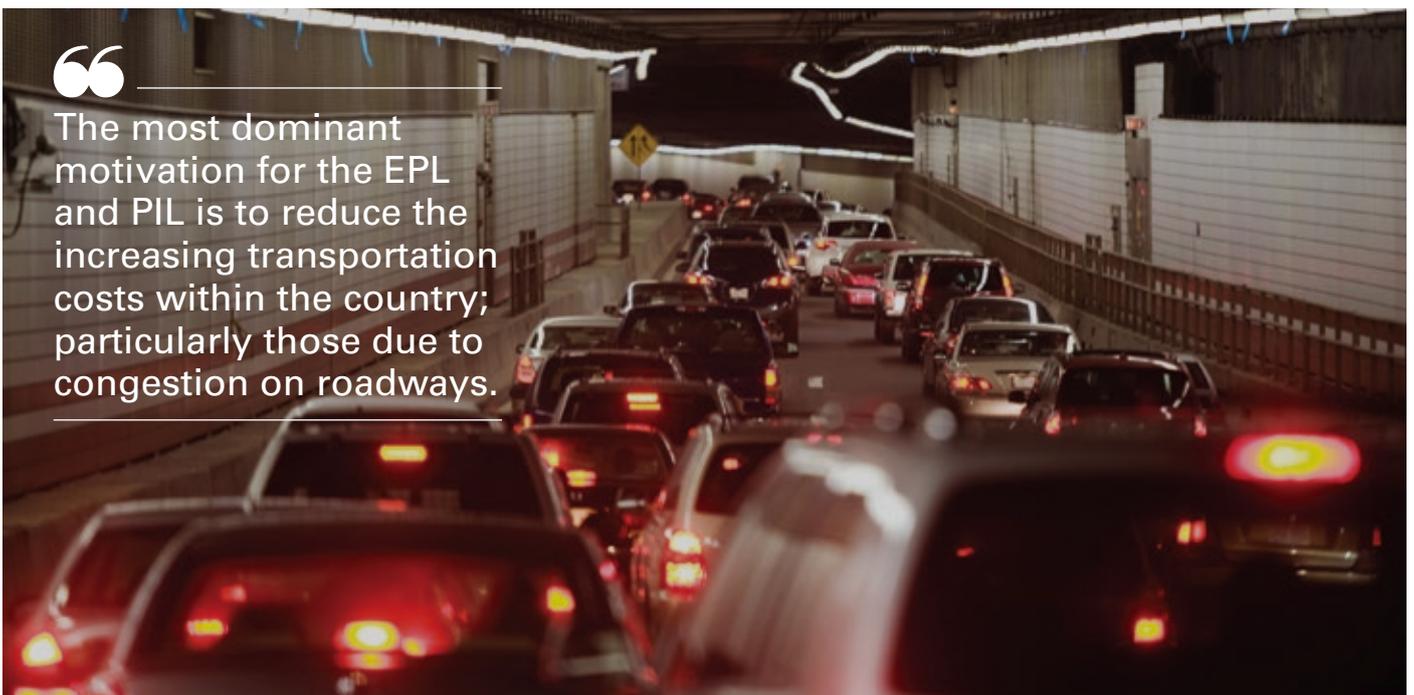
The introduction of the new updated PIL program (and the earlier establishment of the Company of Planning and Logistics (EPL) suggests that Brazil's government is focused on three main priorities:

- Improving transportation networks to resolve transport bottlenecks, which currently hurt the competitiveness of major industries such as mining and agribusiness
- Improving access to major centers as the country emerges onto global stage as the host of the FIFA 2014 World Cup and the 2016 Summer Olympic Games
- Supporting renewed GDP growth and facilitating the emergence of a middle class.

However, in the structuring of the PIL, it is clear that the most dominant motivation for the EPL and PIL is to reduce the increasing transportation costs within the country; particularly those due to congestion on roadways.



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KPMG insight



Brazil's recent hosting of — and preparations for — the 2014 FIFA World Cup put the spotlight on the limitations of Brazil's government in implementing large-scale infrastructure projects.

In part, this was due to rapidly shifting economic realities. In 2007, when Brazil first lobbied to host the event, the country was experiencing an economic boom. But when it came time to implement the infrastructure, the economy had changed and the country was struggling with construction capabilities.

With the world watching, preparations became delayed. Poor safety standards at construction sites led to many workers being injured or killed on the job while limitations on infrastructure

management led to pushbacks on major deadlines. The most conservative estimates put total investment by the government on the World Cup at US\$3.5 billion.

Controversy surrounded many of the projects such as the Arena Amazonia — a stadium built in the middle of a rainforest — which has led many domestic and foreign observers to wonder whether the country has the proper planning skills to effectively utilize its financial resources for funding infrastructure in the long term.

Poor planning and investment controls on infrastructure spend related to both the 2014 FIFA World Cup and the 2016 Summer Olympic Games has also raised concerns from many of Brazil's citizens who are critical that the investments

are not being resourced expertly enough to benefit the country's own people.

Corruption is another issue that is frequently noted by those operating in Brazil's infrastructure sector. Current scandals at Petrobras, for example, have shaken investor confidence and significantly undermined the country's infrastructure market.

For Brazil, the hope is that mandates such as PAC-1, PAC- 2 and PIL will improve these limitations. By effectively prioritizing infrastructure investments towards the needs of Brazilians, the government will be able to slowly increase stability within the country in the long term.



India

Market overview

Planning and prioritization of infrastructure

Generally, the planning and prioritization of infrastructure projects in India falls under state jurisdiction but all projects require central government approval. The exact approval standards vary depending on the central department involved.

In the past, India's investment decisions had been guided by the Planning Commission (PC) who — since 1951 — had developed successive Five Year Plans aimed at improving resource exploitation, living standards, production levels and employment.

In 2009, the Committee on Infrastructure (Col), which was responsible for planning and prioritizing major public infrastructure projects, was replaced by the Cabinet Committee on Infrastructure (CCI). The CCI, which is chaired by the Prime Minister, is responsible for reviewing and approving infrastructure projects and advising on financial, institutional and legal interventions that may be required to support project implementation.

In 2013, the government merged the Col with the Cabinet Committee

of Economic Affairs (CCEA) which operated under a wider mandate that included reviewing economic trends on a continuous basis and evaluating matters of economic policy, funding, financing and implementation across sectors in order to drive investment and growth. For obvious reasons, the CCEA places a high focus on reviewing and approving infrastructure project proposals on a regular basis.

In January 2015, Prime Minister Narendra Modi scrapped the PC in favor of a new planning 'think tank' called the National Institution for Transforming India (NITI). The group will include leaders from each of India's states and union territories and will answer directly to the Prime Minister. Modi's plan for the body is to create an approach that is based on a "pro-people, pro-active and participative development agenda"⁸ The NITI also maintains separate focus groups on infrastructure and public-private partnership projects, which are responsible for undertaking periodic reviews of project proposals and progress in implementation.

It is worth noting that in March 2015, the Prime Minister also set up a multi-purpose platform for

monitoring important government programs and projects, called PRAGATI (Pro-Active Governance and Timely Implementation). Many large infrastructure projects across a variety of sectors — including airports, roads, railways, ports and energy sectors — are within PRAGATI's purview and progress is reviewed on a monthly basis by the Prime Minister.

Long-term planning

In the past, economic growth goals for the country had been articulated through the PC's Five Year Plan which covered a variety of growth stimulants such as health, industry, poverty reduction and infrastructure investment.

Infrastructure received significant attention in the Eleventh Five Year Plan (covering years 2007 to 2012) and a strong emphasis was placed on promoting sustainable economic growth through infrastructure investment. Working in partnership with CCI and other government Steering Committees within the infrastructure sector, the Eleventh Five Year Plan outlined an estimated US\$514 billion in investment requirements over the plan period.

⁸ <http://in.reuters.com/article/2015/01/01/india-planningcommission-modi-idINKBN0KA1NA20150101>

A retroactive analysis of the Eleventh Five Year plan shows that — while the overall investment target was met — some funds were shifted towards more commercial ventures (such as telecoms and oil and gas) at the expense of segments such as ports, water and wastewater and transportation.

The PC's Twelfth Five Year Plan was announced in December 2012 and sets aggressive targets for increasing infrastructure investment. Indeed, the plan envisions a doubling of investment overall (to more than US\$1 trillion), lifting infrastructure investment to 10 percent of Gross Domestic Product (GDP) by 2017. It is widely expected that the NITI will continue to strive towards these targets through the completion of the current Five Year Plan period (2012 to 2017).

However, in a recent NITI review, authorities suggested that investments under the Twelfth Five Year Plan had started to lag. The report suggests that there will likely be a shortfall of 20 percent of public investment and more than 40 percent in private investment.⁹

Prioritization methodology and approach

Infrastructure prioritization in India is often an informal process. With no standard prioritization process or approach at either the state or the central government level, priorities are often based on the individual state's objectives and their ability to produce an infrastructure pipeline. The State of Kerala, for example, has seen a dramatic rise in tourism and has therefore successfully prioritized tourism-related infrastructure projects.

At the federal level, India has seen a significant transition in the way projects are prioritized. Whereas, just a few years ago, priorities were most often driven by political motivations (focusing on those investments that would return the greatest number of votes come election time), the country is undergoing a shift towards prioritizing projects based

on economic returns. Indeed, at both the state and the federal level, India's government is increasingly focusing on projects that alleviate poverty.

However, the fact remains that prioritization is currently a very informal process that varies from state to state and from department to department. And political priorities continue to play an influential role in the prioritization process; investments that support the Prime Minister's priority projects — such as the Make In India campaign (aimed at growing the manufacturing sector), the Sagar Mala project (aimed at modernizing the country's ports) or the Smart Cities program (aimed at improving the efficiency of city operations) — tend to receive special attention from India's government departments.

Business case development

While governments and government departments can submit a business case to the federal government for funding, there is currently no formal governmental business case framework for infrastructure projects in India. Projects that are large or nationally significant often require collaboration between the states and the central government to develop business cases, but often the federal government is responsible for developing the business case for major projects.

That being said, some business case development is conducted within national departments. The National Highway Authority of India prepares a financial model for every new road project; Indian Railways requires both a business model and a certain Internal Rate of Return (IRR) before investing; and the Airports Authority of India requires a business case analysis for all greenfield and brownfield projects to help determine IRRs.

Other central departments and authorities are quickly following suit. For the Sagar Mala project, the Ministry of Shipping is expected to require an IRR of at least 8 percent.

And for the High Speed Rail project linking Mumbai to Ahmedabad, planners prepared a very detailed business case. Furthermore, projects funded by multilateral institutions such as the World Bank or the ADB invariably also require business cases to be prepared.

While business cases are becoming more robust and frequent, their use (particularly at the state level) is often inconsistent and the data analyzed within the business cases can sometimes be influenced by political preferences. Indeed, in some cases, political preferences are often allowed to overrule commercial or economic rationale.

Economic appraisals

India also lacks a formal economic appraisal framework for any level of government. As a result, projects are generally appraised based only on financial feasibility (cost, potential revenues and anticipated returns for investors).

Few — if any — projects assess their wider economic impacts (such as how the proposed infrastructure project will affect employment, economic growth or the environment) and it is therefore difficult to assess the rigor of the appraisal and whether all associated costs and benefits were considered.

Cross-sector integration

Outside of the high-level targets of the Five Year Plans, little focus is placed on cross-sector integration for infrastructure planning and prioritization.

However, some cross-sector integration is now being seen on major national projects such as the Sagar Mala project which may lead to closer integration across broader project portfolios in the future. Some state governments are also working to create a 'single window process' for infrastructure planning and approval which, ultimately, will create greater integration, at least at the bureaucratic level.

⁹ NITI AAYOG Brief #5

► Case study

Land acquisition remains one of the biggest challenges in project implementation

The Navi Mumbai International Airport (NMIA) is the largest greenfield public-private partnership (PPP) airport in India. The project was first conceived by the Government of India in 1997 to address the long-term air traffic demand for the Mumbai metropolitan region. Mumbai is the country's business and financial capital and, with more than 20 million people, is also India's most populous city. With the old city increasingly challenged for large-scale horizontal development, the region of Navi (which means 'new') Mumbai is being planned as the city's new core. Together, the twin cities are expected to serve a population of more than 25 million in the next 20 years, with estimated air traffic of 100 million passengers per annum (mppa).

The new airport is clearly needed, in part because the existing Chhatrapati Shivaji International Airport is likely to breach its estimated operating capacity of 45 mppa in the next 2 to 3 years and, in part, to serve the growing urban and suburban areas to the north and east of the city. The availability of world-class aviation infrastructure is considered necessary to maintaining Mumbai's stature as the financial hub and in advancing the state's leadership in attracting foreign direct investment.

The airport is designed to be developed in four stages with passenger traffic expected to reach 10 million annually in its first year of operation (2019), rising to 60 million passengers annually by 2030.¹⁰ Responsibility for planning and overseeing the implementation of NMIA belongs to the City and Industrial Development Corporation of Maharashtra Ltd. (CIDCO), a public agency, and the project is being implemented as a PPP.

A Special Purpose Vehicle (SPV) will be formed for the development and operation of the airport under a long-term concession agreement, with CIDCO and its nominees holding 26 percent of the shares in the SPV. CIDCO is running an international

competitive bidding process for selection of the private sector partner and an agreement is expected to be signed by June 2016.

A history of delays

The government created the initial roadmap for the implementation of a second airport in Mumbai almost two decades ago which — given the significance of the project — provided some certainty and momentum to the project. However, the project has suffered a number of lengthy delays, in part due to government uncertainty; while airports are a central responsibility in India, state governments have often taken up initiatives for both greenfield and brownfield airport projects with the support of private developers and operators.

For NMIA, many of the greatest challenges came down to land issues. Many sites were evaluated to assess technical feasibility and, in 2000, the site was moved from Mandwa-Rewas to Navi Mumbai in order to accommodate a second runway. However, the specific site (at Panvel) presented a number of challenges: the terrain was undulating and difficult to develop; the site contained an environmentally-sensitive area of mangroves that needed to be properly managed; and it was populated by a number of scattered landowners and settlers who had to be resettled, rehabilitated and paid reasonable financial compensation.

While the site location was decided in 2000, the process for the acquisition of approximately 670 hectares of private land from people affected by the project began only in 2011. First, NMIA needed to acquire an additional 1,150 hectares of land (separate to the 1,160 hectares needed for the airport's footprint) to compensate land givers through a unique land-for-land model, and to provide for other airport related infrastructure requirements. A majority of the land owners consented to the land-for-land deal but there were a few dissenters seeking better terms, which delayed the process further.

These factors created significant delays. For example, while the Ministry of Civil Aviation issued an in-principle approval for the NMIA project in 2007, it still took another 3 years to get the zoning approved by the Ministry of Environment and Forests due to the presence of mangroves on the proposed site. The specially-formulated land compensation policies for the land owners also needed to be reviewed and ratified by the state government.

While the CIDCO appointed technical consultants and project advisors in 2008 to help prepare the airport master plan, business plan and transaction documents, the global tendering process was ultimately held back for almost 2 years while much of the land acquisition process was underway.

That being said, most observers now believe that the project is essentially back in flight. The second stage of the bidding process for NMIA got underway in November 2015 with the issue of the request for proposal (RFP) and project agreements. The project is also now being directly monitored by the Prime Minister's office under the PRAGATI (Pro-Active Governance and Timely Implementation) initiative with the first phase of the airport now scheduled to be opened for commercial operations by 2019.

Better planning required

What is clear from this project is that — even with the right political will and demand — projects can often become stalled by government approvals and popular opinion.

In some cases, a lack of coordination between different agencies can lead to standoffs on critical approvals, which could seriously affect the execution of projects. For NMIA, this lack of coordination led to significant complexity dealing with multiple levels of interactions between state and central government stakeholders on the project scope, structure and documentation (including related regulatory compliance requirements).

¹⁰ http://www.cidco.maharashtra.gov.in/NMIA_AbouttheProjects.aspx

However, the key challenge for implementing large public service projects in India often comes down to the issue of land. In general, the diversity of land owners and holdings, asymmetric information, improper land records, disputed land titles, inadequate social awareness, weak community participation and — last but not least — the existence of a variety of state and central land-related legislations and property laws can make the process of land acquisition a laborious, litigious and exasperating exercise. Oftentimes, stalemates result from huge differences between the value offered for land (as per government records) and the actual market value, which leads to disputes and litigation.

Many projects have been stalled or been delayed due to land acquisition issues. The reality is that the statutory process for notification and acquisition of lands from private owners for any public purpose project is quite lengthy and — particularly where voluntary consent is not forthcoming — can require multiple rounds of negotiation. As in any democratic environment, political influencers can also play a big part in delaying or expediting project closure, especially where land valuations and stakes are high.

In this case, however, progress was supported by the active role that CIDCO played in negotiating what is widely viewed as one of the better compensation and rehabilitation packages for displaced land owners in India's history. Clear support from the government for speedy closure on the deal has also catalyzed progress somewhat.

While it may be an obvious lesson, the NMIA project shows that proper project planning and coordination is critical to successful infrastructure delivery. All too often, government leaders and project owners are in a rush to award projects and make announcements, but this often forces authorities to side-step crucial aspects of the project planning like land acquisition.



Clearly, infrastructure prioritization and planning in India would benefit greatly from a more formal approach to project planning, business case development and economic assessments.

Governments at both the state and the federal level generally have a good idea of what projects will provide the largest economic benefit. But most suffer from challenges related to deliverability, governance and project planning. As a result, projects tend to become delayed, experience high cost overruns or get stuck in the project pipeline. A more formal approach to planning and business case development would force projects to create more robust governance structures and address deliverability challenges prior to securing funding.

One of the biggest issues stemming from the lack of a formal business case process is that governments have been forced to focus more on the short term (spending time dealing with project planning and execution) rather than on the long term by taking a more strategic and sustainable view of infrastructure priorities.

Another ongoing limitation on India's ability to implement large infrastructure projects comes down to land ownership and acquisition. Resistance from local communities has long resulted

in disputes and litigation in rural areas, while urban population density growth has made acquiring land in cities increasingly difficult. Growing environmental sensitivities are also creating land disputes along the coastline.

The Modi government's proposed raft of reforms may do much to unblock the infrastructure pipeline. Included in the program are new land purchase rules, important labor reforms, a reduction in government subsidies and a long pipeline of asset sales.

In the most recent federal budget tabled in March 2015, the government announced a new fiscal framework for the division of taxes between the central and state governments, increasing the allocation towards states by about 10 percent. This, in turn, should provide state governments with more control over the prioritization, planning and funding of infrastructure projects.

However, to truly achieve Modi's objectives for the country, we believe that India's governments need to start focusing on creating an ecosystem that prioritizes long-term and sustainable growth. To achieve this, however, India will need to improve the way it plans, prioritizes and executes infrastructure projects at all levels of government.



KPMG viewpoint: Time for a new approach

By Lewis Atter and Said Hirsh, KPMG in the UK and Australia

If everyone agrees that investment into infrastructure drives economic growth, then why are decisions being made without a view on the true economic value that those investments deliver? And, without these considerations, how is anyone effectively prioritizing their investments to ensure they are putting the right money in the right places to achieve their economic objectives?

We believe that current infrastructure appraisal and prioritization methodologies are frequently nowhere near sophisticated enough to allow governments to make truly informed decisions about their investments. It's time to rethink the way we appraise and prioritize infrastructure, and forge better links between decision making, growth and thus the revenues that ultimately pay for what is built.

The unavoidable fact is that demand for infrastructure is growing exponentially while — in most markets — the ability of government to fund these investments is dwindling. In response,

many governments recognize the sense in prioritizing those investments that seem likely to drive economic growth. Most seem to understand that improved economic growth is ultimately about productivity, and that improved productivity will increase tax revenues without the need to raise tax rates.

Yet our experience suggests that very few governments are able to properly assess the actual economic value that their investments deliver. In part, this is because current infrastructure appraisal and prioritization methodologies tend to take a very narrow view of value. As this report illustrates, in some markets, appraisals are simply based on a mix of feasibility studies and (occasionally) economic cost/benefit analysis. In many cases the appraisal is a way for individuals to get what they want rather than helping decision-makers understand which combination of projects merit investment.

Those — like the UK — that do include more sophisticated business case requirements into their investment

process often focus narrowly on calculating what expected revenues can be generated from users and the welfare benefits to these users (i.e. their untapped willingness to pay) for an improvement, usually against the background of an assumption that the “real economy” is fixed. In some sectors, such as transport, appraisals now incorporate an estimation of the wider economic benefits that a fixed economy, welfare based appraisal might miss. While that is a step in the right direction, this “missing piece” approach is too narrow, and fails to provide a complete picture of the impact a project may have on the real economy, since inevitably there are overlaps between the welfare and real economy views of the world. A better question would be how a project will impact the real economy (growth and jobs), land values and tax revenues, and what this means for overall project affordability for the taxpayer. For instance, a conventional appraisal of a rail project will forecast revenue and cost projections 60 years into the future, but ignore the impact of the



project on productivity and thus tax receipts tomorrow.

In the UK this is resulting in what amounts to twin track appraisals, with the real economy and conventional welfare approaches running in parallel.

Another major challenge is that most governments today tend to manage their infrastructure investments in departmental silos or (in the case of strategically important projects and megaprojects) on a project-by-project basis. And, as such, there is often little awareness of the relative value that each project delivers to the government's overall economic objectives which, in turn, makes it very difficult for governments to properly balance their investments to get the best returns. The project-by-project view of life also risks ignoring important interactions between projects, which can only be addressed by looking at whole programs and across silos. In the real world, no program is ever exactly the sum of its parts.

In the absence of data, methodologies and a program view, our experience suggests that politics gains much

more influence in the government investment decision-making process. Indeed, quite often, we find that project appraisals are used as a means towards an end, rather than as a way to assess various options.

Politicians, for example, may decide that a new airport is needed and appraisals will be conducted to find the best way to deliver that airport, or to clear a particular approvals hurdle. Very rarely does anyone question whether an airport truly delivers the best economic outcomes when compared against, say, high-speed rail or improved urban mobility projects, or a fundamentally different economic strategy based on a set of interventions in other sectors.

We believe that it is time for governments to start focusing on evolving their infrastructure appraisal and prioritization processes to reflect the real economic value and thus long-term affordability of infrastructure, and focus on programs rather than projects.

To start, governments must find a way to explore and measure the broader basket of benefits that their investments can deliver. The calculation for economic benefit should include not only traditional metrics such as 'time saved' or revenues generated, but also aspects such as impact on tax revenues and land value changes. As is being found in the UK, this may mean running real economy and program based appraisals in parallel to more conventional, scheme specific approaches. Authorities are taking steps to help ensure that these real economy approaches are as rigorous as the conventional variety.

In many cases, governments may have other specific policy objectives that they hope to achieve (reducing the carbon footprint, for example, or improving job prospects for the poorest 25 percent of the population). These must also be understood, measured and assessed.

With this information in hand, governments should be in a position to start making more informed decisions about how they invest their budgets to optimize their policy objectives. The role of politicians, therefore, would be to set the right policy objectives and decide the right balance between them which, in turn, will enable the bureaucrats to properly evaluate and

prioritize investment accordingly. The latest developments in the UK suggest this may not mean one all-encompassing appraisal metric based on an opaque set of shadow prices, but parallel appraisals addressing key objectives, and in the case of the real economy, long-term affordability.

Just as importantly, governments need to start thinking about their infrastructure as a portfolio or program rather than as a set of discreet projects. This should allow decision-makers to better understand the relative value — and the necessary trade-offs — of each option which, in turn, should drive improved prioritization. The program approach can also help deliver balance between objectives and help deliver minimum outcomes, which is impossible at the project level.

To take another UK example, this approach is being used by cities at the forefront of the UK City Devolution agenda to design programs that seek to maximize growth, but do so subject to minimum environmental and social outcomes for the program as a whole. In practice this means parallel program level appraisals of real economy, environmental and social outcomes, with the mix of projects in the program being adjusted until the desired balance is achieved. Politicians define what balance really means (ideally in advance); and the bureaucrats and their advisers run the numbers until they have found the program that delivers it.

We believe that governments and policy makers need to embrace change and encourage more innovative approaches to infrastructure appraisal and prioritization.

Creating and implementing a new approach to infrastructure appraisal and prioritization will not be easy. In some cases, the right data may not be available. In other cases, governments may face opposition from stakeholders with a vested interest in maintaining the status quo.

However, we firmly believe that — to achieve the best returns on their investments, to achieve their policy objectives, and to achieve better affordability for infrastructure — governments must start to evolve their approaches and methodologies. And, given the current 'funding gap' for infrastructure, most would be well advised to start right now.

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