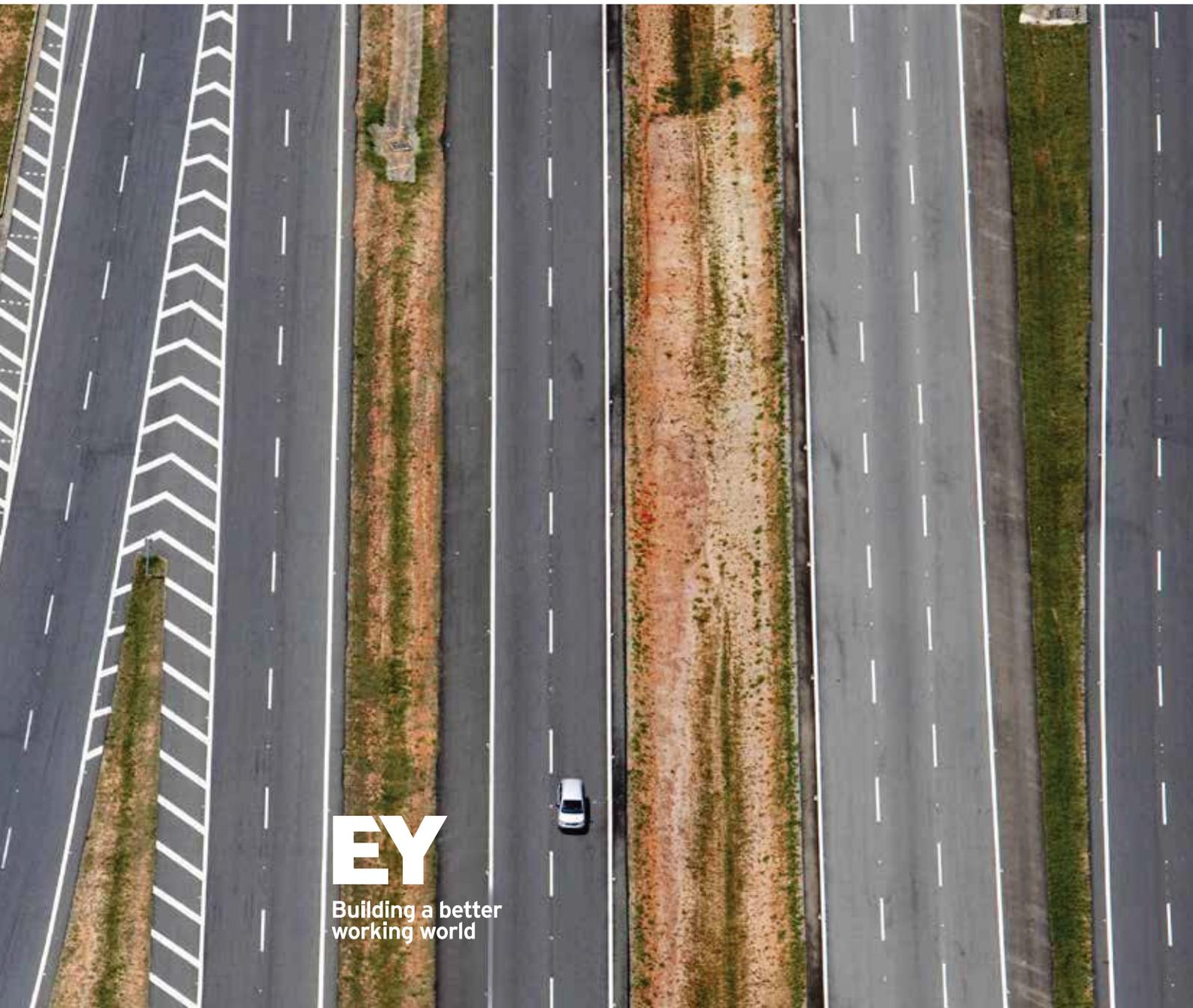


Government & Public Sector  
Insights

# Transport corridors

Catalyzing private sector and cross-border investment for gains



**EY**

Building a better  
working world



## Transport infrastructure is the backbone of stronger economic growth

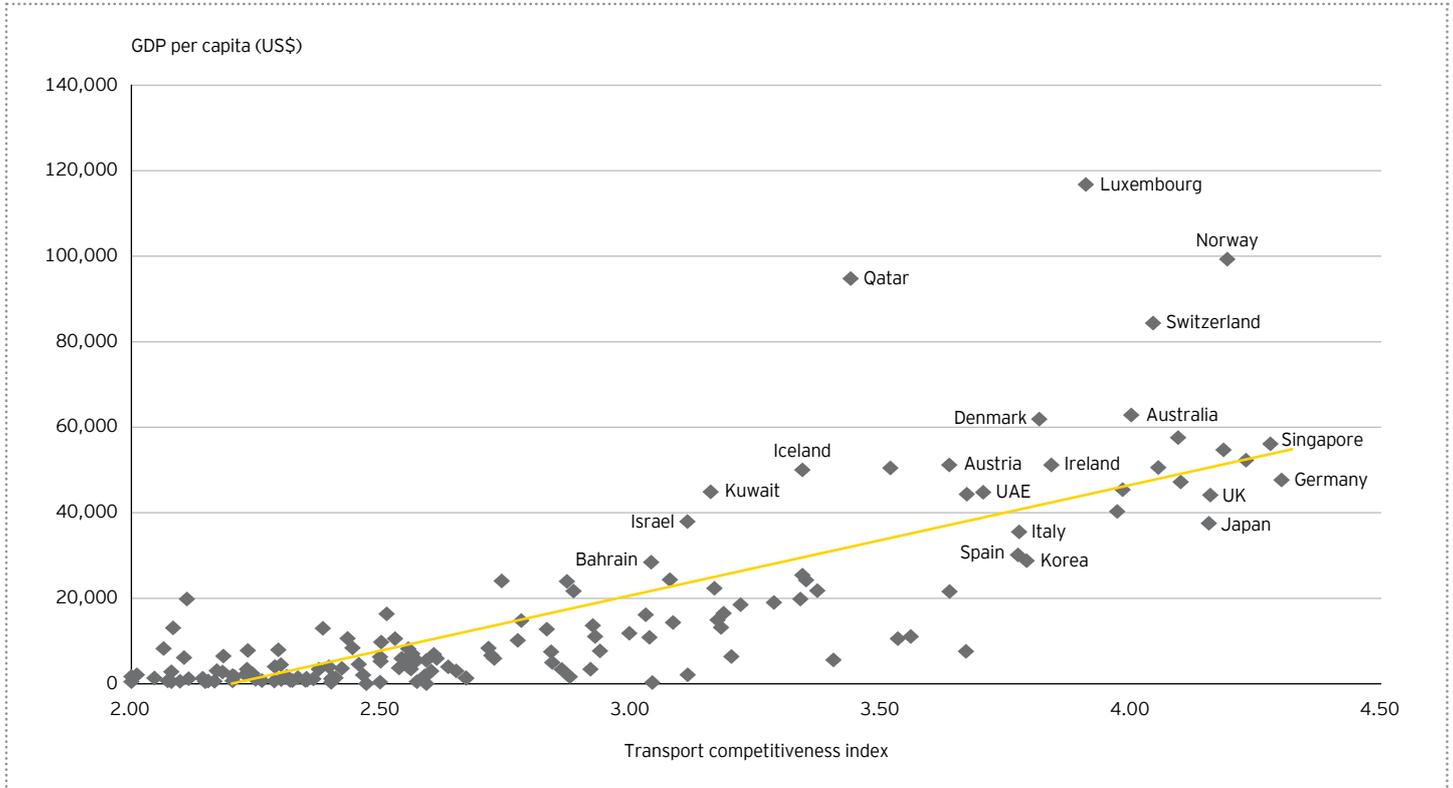
With the global economy at an inflection point, the role of investment in accelerating growth deserves a renewed strategic policy focus. According to the International Monetary Fund (IMF), the global economic recovery has been characterized by sub-par levels of growth and jobs, suggesting that a new mix of bold policies is needed to increase momentum and overcome this “new mediocre.”<sup>1</sup>

Public investment in infrastructure is a major catalyst that can shift economic activity up into a new gear. Capital stocks have been steadily depleted in advanced economies over recent years, with the protracted slide in public investment a major factor. It is down by about a quarter compared to its levels in the 1980s, from 4% of GDP to 3% today.<sup>2</sup> This decline has gone hand in hand with a drop in

global economic output, compared to its estimated potential. New strategies to revive public infrastructure investment and direct capital toward its optimal use are therefore crucial for achieving a “new momentum.”

Transport infrastructure is a critical component of growth. It is well established that the economic and productivity growth of a given region is tied closely to its transport infrastructure, with transport systems enabling higher productivity through lower logistics costs, inventory savings and access to larger supply and labor markets (see Figure 1). In short, accessibility and connectivity are key drivers of economic competitiveness.<sup>3</sup> Improved mobility is also a key outcome of investment, with transport driving positive

Figure 1. Competitive transport infrastructure supports increased economic activity and wealth



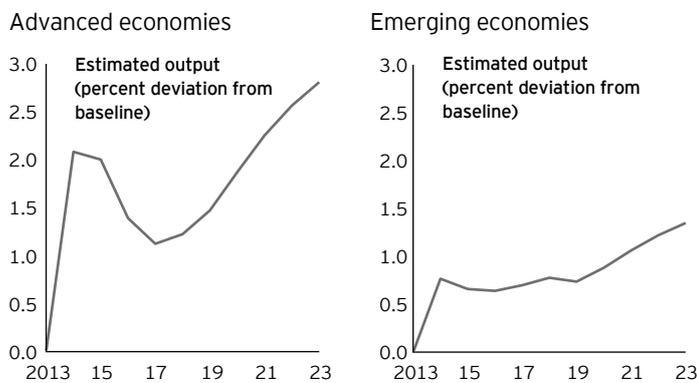
1. Christine Lagarde, IMF, “The Challenge Facing the Global Economy: New Momentum to Overcome a New Mediocre,” speech at Georgetown University, 2 October 2014 (accessed via <http://www.imf.org/external/np/speeches/2014/100214.htm>)  
 2. Ibid.

3. I-C-EU project consortium, *Overview of Indicators of Competitiveness and Regional Growth in Relation to Transport Infrastructure Investment*, 24 April 2013 (accessed via [http://www.i-c-eu.eu/deliverables/I-C-EU\\_WP1\\_D1.3.pdf](http://www.i-c-eu.eu/deliverables/I-C-EU_WP1_D1.3.pdf))



multipliers for growth and productivity.<sup>4</sup> Estimates from the IMF highlight the significant impact on GDP of public investment, such as transport. IMF simulations for advanced economies suggest that an increase in public investment equivalent to 1% of GDP increases the level of GDP by approximately 0.4% in the same year, with the incremental increase in output stabilizing at 1.5% four years after the increase in public investment.<sup>5</sup>

**Figure 2. Public investment has significant, long-lasting effects on economic activity**



To drive connectivity, productivity and activity gains beyond pre-crisis levels, public transport infrastructure investment needs to accelerate. With economic activity chugging along a “new mediocre” path in some major economic regions, transport investment will need a more-than-normal payoff to change the trajectory of competitiveness and growth. This includes investment in competitive and efficient integrated transport corridors.

Significantly, fiscal constraints suggest a critical role for private sector investment in expanding transport infrastructure. High levels of government debt, and deficit ceilings, mean public funding alone cannot meet project needs. This opens up a clear need for governments to leverage private financing, in order to achieve these objectives. For example, in the European Union, the 315 billion EUR infrastructure investment plan, announced in late 2014, will use 21 billion EUR in EU funds. This is intended to provide a guarantee in private capital markets, allowing the EIB to raise 60 billion EUR in bonds, the proceeds of which will then be invested in 315 billion EUR of loans for infrastructure, and for small businesses<sup>6</sup>.

Leading models demonstrate effectiveness in securing and deploying private and international capital. They also show efficiency in estimating and recalibrating infrastructure project costs. These are the building blocks for optimizing the connectivity, productivity and economic activity gains from transport corridors.

This report presents a strategic overview of best practices in public-private partnerships to accelerate investment in transport corridors and activate their economic gains. The core characteristics of successful projects across collaboration, capital, and risk and project management are explored, with a clear strategy for governments proposed.

The scale and complexity of Europe’s cross-border transport corridors - and the growth benefits that completing these can offer to its single market - make public-private transport corridor investment in Europe a suitable focus for our report. Importantly, the main insights and best practices have a wider international relevance, cross-border investment in other geographies, and domestic, inter-regional projects.

4. United Nations Economic Commission for Latin America and the Caribbean, *Bulletin on Facilitation of Trade and Transport in Latin America and the Caribbean*, issue no. 212, April 2004 (accessed via <http://www.cepal.org/transporte/noticias/bolfall/0/19430/FAL212e.htm>); I-C-EU project consortium, *Recommendation on EU Policy Assessment Methodology to Capture Wider Economic Impacts of Transport Infrastructure Investment*, 23 April 2013 (accessed via [http://www.i-c-eu.eu/deliverables/I-C-EU-WP4-D4.3\\_UG.pdf](http://www.i-c-eu.eu/deliverables/I-C-EU-WP4-D4.3_UG.pdf)); OECD/International Transport Forum, *ITF Transport Outlook 2013: Funding Transport*, OECD Publishing/ITF, 31 July 2014 (accessed via [http://www.keepeek.com/Digital-Asset-Management/oecd/transport/itf-transport-outlook-2013\\_9789282103937-en#page7](http://www.keepeek.com/Digital-Asset-Management/oecd/transport/itf-transport-outlook-2013_9789282103937-en#page7))

5. IMF, *World Economic Outlook: Legacies, Clouds, Uncertainties*, October 2014 (accessed via <http://www.imf.org/external/pubs/ft/weo/2014/02/>)

6. <http://www.ft.com/intl/cms/s/0/8539ed1a-754c-11e4-b1bf-00144feabdc0.html#axzz3Re1lqnZx> [http://europa.eu/rapid/press-release\\_IP-14-2128\\_en.htm](http://europa.eu/rapid/press-release_IP-14-2128_en.htm)

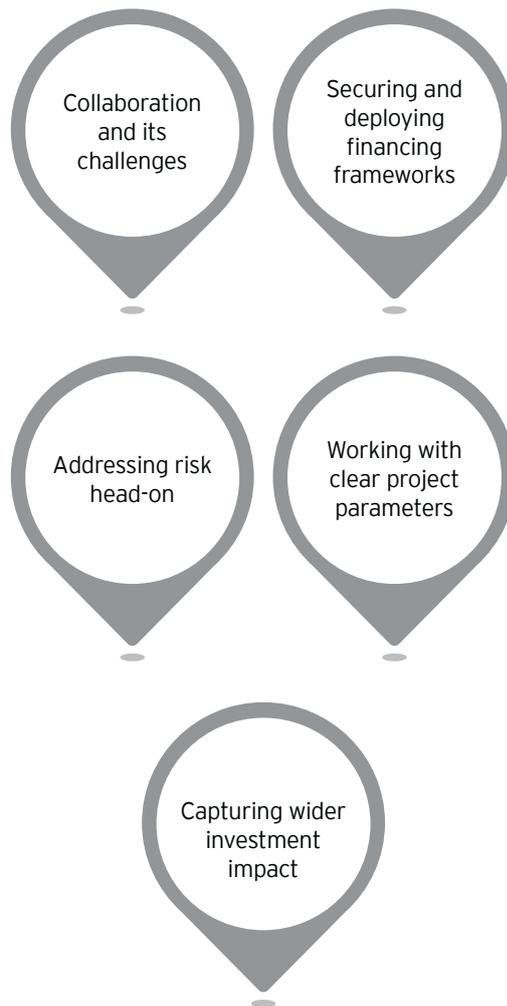
## Case study: cross-border transport infrastructure corridors in Europe

Like many economies, Europe is currently facing investment and financing challenges to its transport infrastructure, with the financial crisis and still-soft economic conditions impacting activity. The European Commission (EC) suggests that around €1.5 trillion is required for cross-border transport infrastructure up to 2030, which implies an annual run-rate of approximately €100 billion per year in investment.

Given this shortfall, the EU has agreed on a large package of public support for trans-European network projects. The European Parliament and European Council have agreed to allocate €33.3 billion of the EU budget to the Connecting Europe Facility (CEF) under the 2014-20 Multi-annual Financial Framework. The objective of the CEF is to finance projects which fill in the “missing links” in Europe’s energy, transport and digital backbone, with transport being the largest component at €26.3 billion. At the same time, the EU and the European Investment Bank (EIB) recently announced the availability of €21 billion to support €315 billion in investment in (primarily) infrastructure projects over the 2015-17 period, with nearly 30% focused on transport projects. Under this investment initiative, the transport projects that will receive priority support from the EU are projects that tackle bottlenecks or are missing links in the nine cross-border transport corridors; certain “business enablers,” such as intelligent transport systems; and urban transport systems, particularly in expanding cities that are plagued by congestion.

Cross-border transport corridors are particularly important in this context, as they are potentially powerful channels for strengthening the European single market. This will be a critical enabler of amplified connectivity, productivity and economic activity in the region, and absolutely necessary to push growth above the “new mediocre” path.

## International best practices showcase clear frameworks and innovation



**Leading best practice models for effective cross-border investment in transport corridors share several characteristics. Securing and deploying private and international capital effectively, the efficient estimation and recalibration of infrastructure project costs, and clear risk management and accommodation of externalities are critical. Below we present the main building blocks for optimizing the connectivity, productivity and economic activity gains from transport corridors.**



## Public-private and public-public collaboration will be especially critical in addressing some unique project challenges

There are several key challenges involved in public-private collaboration, which investment and operational strategies will need to address. Project dynamics in Europe again offer a clear case study on these challenges, with the core themes having global applicability.

### Grow the investable pipeline

A major bottleneck in infrastructure project development is not available financing (demand side), but the lack of a transparent pipeline of viable investment projects (supply side). There is undoubtedly significant interest in Infrastructure as an asset class for Institutional funding and it appears a natural solution to governments' increasing need to find private sector funding for infrastructure development projects. But policymakers must be cognisant of some of the challenges.

Governments have the opportunity to attract alternative financing solutions to infrastructure but there needs to be an appropriate risk/return profile and a strong pipeline of infrastructure projects such that they can adequately resource teams and have confidence in the sector to last the typically long procurement timetables.

In addition, to be competitive with other credit instruments and attract this investment, Government needs to be increasing transparency, standardising processes and clarifying regulation and policy. As infrastructure PPP projects are a long-term relationship between Government and the Private Sector, the Private Sector needs to be able to have confidence in the procurement, legislative and policy environment they are investing in.

In Europe, the EC has specifically recognized these challenges by creating its recently established EU Investment Task Force, which is focused on strategic, cross-border infrastructure projects, and by initiating projects with a long-term investment horizon and broader socioeconomic benefits. In particular, a viable pipeline suffers from "complexities related to the allocation and management of project risks, lack of standard project structures, long lead times for preparation, and special challenges regarding smaller sized and cross-border projects."<sup>7</sup> A quality pipeline depends on macroeconomic certainty, structural reforms and regulatory support, as well as a framework for bringing projects through a robust planning and approvals process.

Governments are focusing on specific initiatives to grow the pipeline of "investable" projects. For example, some European governments have expanded the traditional fare and toll fee schemes to the privatization of transport infrastructure assets in order to maximize their return and support investment growth in the long term. Even so, considering its potential, the current pipeline is insufficient to meet the needs and targets of Europe. However, investment in transport infrastructure should increase as government initiatives are implemented, as in the UK's PF2 model and the Dutch initiative, the Netherlands Investment Institution.

7. European Commission, *Special Task Force (Member States, Commission, EIB) on investments in the EU - final task force report*, 9 December 2014 (accessed at [http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/special-task-force-report-on-investment-in-the-eu\\_en.pdf](http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/special-task-force-report-on-investment-in-the-eu_en.pdf))

## Establish a clear and stable cross-border policy framework

The lack of a clear and stable cross-border policy framework is another major bottleneck that impedes effective transport infrastructure investment. In Europe, the fragmentation of national regulations and the non-transposition of EU directives into national law serve to increase project complexity and reduce transparency for investors who try to assess the risks associated with these projects. A greater harmonization in the application of EU legislation is required.

At the same time, a clear and unequivocal policy on public accounting standards applied to public-private partnerships (PPPs) is necessary. In fact, some European governments have undertaken PPPs on the assumption that the risk allocation was appropriate for an off-balance sheet treatment of the project under ESA 95 accounting regulations, only to have these projects requalified with the updated ESA 2010 regulations. Contracting authorities need to validate the risk allocation matrices with European authorities prior to commencing project works, while the EU institutions themselves, e.g., Eurostat, the EIB and the Directorate-General for Economic and Financial Affairs (DG ECFIN), can also coordinate more effectively on public accounting treatment for PPPs. The EIB's European PPP Expertise Centre (EPEC) recently published a practical guide on this topic, which is a good first step.<sup>8</sup>

## Multilevel stakeholder coordination is critical

Innovative public-private and public-public financing depends on effective cross-border coordination to mobilize capital. For cross-border transport projects, best practice is a multilevel commitment to funding at the local, national and supra-national levels. The Berlin-Dresden-Prague-Vienna corridor, which is part of the Trans-European Network and involves road, rail and waterways development, is a key example. It has required a fully coordinated funding mechanism, with financial support from the EU, the German Federal Government and the governments of the German states along the corridor. To secure funding at a local level, there was extensive consultation with the communities affected, which resulted in changes to the initial plans, and a thorough appraisal of the long-term impact of funding.<sup>9</sup>

Coordinated funding mechanisms go hand in hand with deep coordination between institutions, including between cross-border regional authorities. In the EU, for example, the Innovation and Networks Executive Agency (INEA), the successor to TEN-T, is responsible for supporting program execution and technical and financial management of the projects. Best practice examples of federal-state coordination across levels of government are also instructive. For example, in Canada, the provinces have their own platform to discuss and determine investment priorities. At the same time, the government has "federal arms" located in the provinces to ensure that central priorities are represented and to drive a communication flow back from the provinces to the federal government.<sup>10</sup>

8. EPEC, *Risk Distribution and Balance Sheet Treatment, Second Edition*, November 2014 (accessed via [http://www.eib.org/epec/resources/publications/epec\\_risk\\_distribution\\_and\\_balance\\_sheet\\_treatment\\_2nd\\_edition\\_en.pdf](http://www.eib.org/epec/resources/publications/epec_risk_distribution_and_balance_sheet_treatment_2nd_edition_en.pdf))

9. OECD/ITF, *Seamless Transport: Making Connections*, May 2012 (accessed via <http://www.internationaltransportforum.org/Pub/pdf/12Highlights.pdf>)

10. International Center for Public Policy, *Coordination of Infrastructure Investment Across Levels of Government*, Working Paper, 14-16 January 2014, pp 7-8

## Increase public funding

Many government budgets are highly constrained due to the unsustainable sovereign debt levels and the consequent measures to effect fiscal discipline. These constraints have led to a steady decline in government investment, both direct investment in public sector projects and indirect investment in projects delivered by the private sector, such as concessions, PPPs and regulatory support schemes. The launching of new projects has in many cases ground to a halt since the onset of the financial crisis. This is demonstrated in the EU, where some Member States have chosen to cut investment expenditure rather than operational spending. The Juncker Investment Plan is the latest initiative at EU level to counteract this trend.

## Promote alternative financing solutions for infrastructure

Constrained credit conditions suggest a need to rethink financing structures for large-scale infrastructure projects. In Europe, bank funding is a particularly pertinent example. Many banks in the European market have retreated from the long-term maturity market, as the Eurozone credit crisis has forced them to better match assets and liabilities and shore up their capital ratios. Some banks have even closed their project financing departments or sold their project finance portfolios.

At the same time, another group of investors continues to seek long-term assets to match their long-term liabilities. Pension funds, life insurance companies and sovereign wealth funds are looking for ways to diversify their investment portfolios and pick up additional yield versus government bonds. It is estimated that these institutional investors have around €14 trillion in assets in Europe, of which only a small proportion has been oriented toward infrastructure investments. For example, the infrastructure asset class is estimated to account for only 1%-3% of pension funds' total assets under management. Canadian and Australian pension funds are further along the learning curve, with allocations between 4% and 16% of total portfolio.<sup>11</sup>

Several recent transactions demonstrate the large potential capital pool of this group of investors. The involvement of a pension fund in the debt financing of the Dutch N33 highway PPP project in November 2012 is a key example of successful access to this relatively untapped source of long-term financing. A number of deals have also been structured to issue debt to pension funds and insurance companies in public issues and private placements. The EU Project Bond Credit Enhancement has already been successfully deployed in a number of projects, including the A11 road project in Belgium and the A7 road project in Germany. Previously held notions about the expectations of this investor class, including the need for a minimum A- rating, no construction risk exposure and no commercial risk, have been overcome through innovative financial structures and different forms of credit enhancement as well as the desire of these investors - particularly the larger, more sophisticated ones - to pick up additional yield.

There is undoubtedly significant interest in infrastructure as an asset class for institutional funding and it appears a natural solution to the EU's increasing need to find private sector funding for infrastructure development projects. Nonetheless, governments should be cognisant of some of the challenges.

Governments have the opportunity to attract alternative financing solutions to infrastructure but there needs to be an appropriate risk/return profile and a strong pipeline of infrastructure projects such that they can adequately resource teams and have confidence in the sector to endure the typically long procurement timetables.

In addition, to be competitive with other credit instruments and attract this investment, governments need to increase transparency, standardise processes and implement clear regulations and policies. As infrastructure PPP projects are a long-term relationship between governments and private enterprises, the private sector needs to be able to have confidence in the procurement, legislative and policy environment they are investing in.

11. R. Della Croce, *Trends in Large Pension Fund Investment in Infrastructure*, OECD Working Papers on Finance, Insurance and Private Pensions, No. 29, OECD Publishing, December 2012



## For catalysing capital flows, global best practice is characterised by flexible and innovative public and private financing instruments

**There are several key dimensions to financial innovation and to securing and deploying international capital across resilient financing frameworks. Best practices allow for flexibility while at the same time promoting competition and efficient delivery on cross-border transport projects.**

### Resilient financing frameworks are the basis for tapping private capital

First and foremost, open and competitive markets are critical to securing private sector engagement and, at the same time, optimizing investment in desired transport modes or structures. London's urban transport system is a key example. It uses auction procedures to drive transparency and the discretionary authority of the regulator to drive competition and ensure that anti-competitive practices are avoided. Efforts to open and connect transnational rail networks would benefit from such a transparent approach.<sup>12</sup>

Furthermore, best practice examples also suggest that private or cross-border partners need flexibility in scoping to recalibrate transport infrastructure projects, based on the estimates above and on demand forecasts. For example, for the LBJ Expressway in the US, the original project scope was not economically viable. A private firm, Cintra, worked with the procuring authority to alter the scope without compromising the main project objectives. The alterations included removing a segment of road, where it was determined there was insufficient traffic congestion to warrant additional managed lanes, and opening the project in sections to reduce ramp-up periods.

Another example is the reset of the Greek motorways project in 2007-08. During construction, the project's viability and credit rating changed significantly, due to the deteriorating economic conditions and the sovereign debt crisis in Greece, and this led to a stop being drawn under the loan facilities. As a result, the Greek State had to renegotiate and restructure the concession. The ranking of revenue sharing payments was restructured, the terms and conditions of the loans were renegotiated, and the construction of selected sections was postponed. In December 2013, the restructuring was successfully completed, the new terms were ratified by the Greek Parliament and approved by the EU, and the projects were able to restart. EY provided financial modeling, reviewed the contractual and commercial issues, and assisted the client during the negotiations.

### Innovative financing drives project effectiveness through private and public financing structures

Financial structuring of infrastructure projects is typically initiated by one of two parties: private contracting consortia and public authorities. As regards financial structuring, revenue guarantees and construction risk management are issues that are critical and need to be addressed in a best practice PPP. They enable governments to relieve or delay public transport infrastructure spending effectively.

12. G. Ang and V. Marchal, *Mobilising Private Investment in Sustainable Transport: the Case of Land-Based Passenger Transport Infrastructure*, OECD Environment Working Papers no 56, OECD Publishing, May 2013 (accessed via [http://www.keepeek.com/Digital-Asset-Management/oecd/environment/mobilising-private-investment-in-sustainable-transport\\_5k46hjm8jpmv-en#page18](http://www.keepeek.com/Digital-Asset-Management/oecd/environment/mobilising-private-investment-in-sustainable-transport_5k46hjm8jpmv-en#page18))

The Canada Line Rail project in Vancouver shows how a carefully structured greenfield PPP project can be organized to attract large-scale institutional capital while minimizing any social compromises. In this project, a private sector consortium won a mandate to design, build, partially finance and operate the line over a 35-year concession period. The consortium was obliged to complete the construction for a fixed price and was responsible for any budget overrun. It received payments based on defined milestones through the construction phase and also received performance payments from the Canadian Government during the operating phase of the project, based on fare revenues. Construction risk for the pension fund investors was reduced principally by partnering with an experienced construction firm, which also provided equity into the project. This ensured that the interests of the consortium members were aligned. The investment was attractive to private investors because of the guarantees on revenue that the government was able to provide via availability payments, thus reducing demand-side risk.<sup>13</sup>

Another form of financial structuring, effective regulated utility models, offer a specialized example of PPPs that are attractive to a broader range of institutional investors. These models offer a familiar investment category in capital markets and have a clear role in investment portfolios, particularly given their ability to provide returns from year one without the long procurement timetable associated with PPPs. They typically differ from the greenfield construction PPPs, which tend to involve construction of a new standalone asset and often have an extended procurement period by the government. This style of greenfield project typically delays investment returns until after the construction period has completed, creating a construction risk period for investors that regulated models cover through annual payments for the existing regulated asset base or group of assets.

In the US, for example, private activity bonds (PABs) are a major initiative.<sup>14</sup> A demonstration program, authorized in 2006, enabled US\$15 billion of PABs to be issued for PPP projects. These were used in the capital structure of several projects, including the US\$1.9 billion raised to build the I-495 HOT (high-occupancy toll) lanes project on the Capital Beltway in northern Virginia. PABs totaling US\$590 million were issued for the project, with two private sector partners, Fluor and Transurban, successfully executing the placement of the bonds.

As regards public sector initiatives, best practice financial support programs, such as the CEF, are effective in leveraging public capital. However, the EC is transitioning from pure grant financing to supporting financial instruments such as project bonds or PPPs. Indeed, the EC encourages CEF applicants to identify the potential for deploying innovative financial instruments. It also proposes financial support to managing authorities to help them undertake financial, technical and legal studies on the use of financial instruments for their projects.

Third, carefully structured government loans can also offer a reduction in capital costs. Key examples include the Transportation Infrastructure Finance & Innovation Act (TIFIA) loans in the US, and Viability Gap Funding (VGF) capital grants in India. Well-designed loan programs can support user-funded PPPs, providing a stopgap for revenues in some parts of the network. The TIFIA scheme offers credit assistance for transport infrastructure, including intercity facilities, and helps project sponsors to assemble capital by providing long-term financial assistance, including secured loans, loan guarantees and letters of credit. It applies to national and regional projects that cost at least US\$50 million and have dedicated revenue sources available for repayment. The VGF grants in India have provided funding for 20% of projects in some cases.

13. International Transport Forum, *The Potential of Private Institutional Investors for Financing Transport Infrastructure*, Discussion Paper 2013-14, (accessed via <http://www.international-transportforum.org/jtrc/DiscussionPapers/DP201314.pdf>)

14. William Reinhardt, *The Role of Private Investment in Meeting U.S. Transportation Infrastructure Needs*, May 2011 (accessed via [http://www.pwfinance.net/document/research\\_reports/0%20artba.pdf](http://www.pwfinance.net/document/research_reports/0%20artba.pdf))



## Risk management and regulatory frameworks address challenges head-on

**The fourth major building block for effective transport investment centers on thorough risk management and a well-structured regulatory framework.**

### Risk management through project integrity planning ...

The period leading up to the investment decision presents a limited window of opportunity to influence the commercial outcomes - and ultimately the long-term success - of a project. Action taken pre-investment is proven to reduce cost escalation and safeguard estimated return rates as the project progresses. Our experience at EY shows that failing to invest in early risk mitigation and commercial integrity activities may result in post-investment risks totaling over 40% of the budget. Being clear on in-delivery integrity activities during the pre-investment stage is key to gaining stakeholder confidence in the organization's ability to deliver the benefits agreed in the investment case. A robust Project Integrity Plan brings together all the assurance activities. Taking a long-term view, from the planning stages through to operation, it provides oversight of the complete control framework and offers flexibility and provisioning to cope with regulatory and commercial change.

### ... and through risk sharing

Best practice on risk sharing is to apportion project risks to the public or private party best able to manage them. While this cannot entirely remove risk, it can help to mitigate variability.<sup>15</sup> For the management of demand and supply risks themselves, several practices are worth highlighting.

On the demand side, reference forecasting is a key best practice for risk reduction. In aligning demand estimates with previous projects, it can reduce "planning fallacies," such as the optimism bias. For example, this has been used in the UK for major transport projects since 2004 and several other European countries follow similar procedures, including Denmark, the Netherlands and Switzerland. Governments can also offer exclusive concessions that limit access to infrastructure for competitors, as is the case with the UK's passenger rail franchises.

Variable concessioning is also an important means of managing demand risk. With concessions awarded to the lowest bid for the net present value of revenues, under a user pricing structure fixed by the government, the concession ends at the point when actual revenues have accrued to the level of the bid. The Queen Elizabeth II Bridge, part of London's Dartford Crossing, is a leading example of employing a simple formula to manage uncertainty in traffic forecasts. Finally, revenue caps and collars can also reduce demand risk for private sector participants, such as those used in the UK's rail franchising system.<sup>16</sup>

15. Joana Ribeiro et al, "Cross country analysis of PPP: The case of urban rail," presentation, October 2014 (accessed via <http://www.ppptransport.eu/docs/Final/Urban%20Rail.pdf>)

16. OECD/International Transport Forum, "Better Regulation of Public-Private Partnerships for Transport Infrastructure," Discussion Paper 2013:06 (accessed via <http://www.international-transportforum.org/jtrc/DiscussionPapers/DP201306.pdf>)

On the supply side, governments can mitigate risk through loan guarantees for debt finance, although there is still a risk that they will be forced to consolidate a project on its balance sheet. For instance, the European statistical agency, Eurostat, recently forced the federated governments in Belgium to perform a balance sheet consolidation of a number of infrastructure projects that benefited from full government debt guarantees. Whilst the accounting regulation on off-balance sheet assets is getting stricter, there remain some innovative solutions to be considered, such as insurance products to cover this risk, or milestone payment structures for the "early retirement" of some of the debt.

Furthermore, the phasing of contract awards and detailed design and construction guidance are key mechanisms for mitigating risk.<sup>17</sup> In Chile, for example, concessionaires have been granted a mix of supports for infrastructure projects, including special public works sureties, which cover all concession assets except for VAT payments.<sup>18</sup>

Finally, detailed sensitivity analysis is critical to understanding and mitigating risk. A typical sensitivity analysis performed on infrastructure projects would focus on capital spending, operating costs, take-up rates and demand profiles over time, as well as the discount rate applied to project cost and benefit streams. Financiers also look at these sensitivities when evaluating inherent project risks and determining the pricing (financial cost) for the project.

## Effective regulatory frameworks focus on minimizing bias

This aspect of risk management focuses on finance as, given the diverse range of effective and innovative financing options, best practice government reporting and measurement frameworks need to ensure that financial bias toward one particular structure is minimized. This means improving the information available on the future fiscal costs and risks of a proposed financing structure, and employing accounting practices that change the way that instruments capture reported spending and debt.

These practices include ensuring that topline fiscal indicators treat PPPs as creating public assets and public liabilities (for example, the UK and Australia have on-balance sheet accounting for PPPs). It also involves the use of commitment budgets, where future years' spending commitments for projects are approved at the same time as cash spending (as in Germany and France). Finally, it also requires governments to cap the stock and annual spending for new PPPs – the simplest approach to limiting the liabilities created by PPPs is to impose specific limits on the size of the PPP program. For example, the UK has a cap on the stock and annual spending for new PPPs.

17. Ibid.

18. World Bank Institute, *Best Practices in Public-Private Partnerships Financing in Latin America: the role of innovative approaches*, January 2012 (accessed via [https://einstitute.worldbank.org/ei/sites/default/files/Upload\\_Files/BestPracticesPPPFInancingLatinAmericainnovativeapproaches.pdf](https://einstitute.worldbank.org/ei/sites/default/files/Upload_Files/BestPracticesPPPFInancingLatinAmericainnovativeapproaches.pdf)), p 102



## An effective project preparation process is transparent and applies clear and dynamic parameters

**During the project preparation process, best practice examples center on partnership structures that make transport infrastructure attractive to private institutional investors. There are several critical dimensions of a realistic and transparent infrastructure investment plan, which are crucial to growing investment in cross-border transport corridors.**

The plan should include clear cost guidelines and evaluation metrics to drive clarity on project expectations and outcomes. On cost, best practice projects make a clear distinction between different infrastructure project cost categories. For effective assessment of costs incurred during construction and through the project's lifetime, this means that estimates need to distinguish between construction, maintenance, operations and renewals. This is a critical foundation for the terms of engagement between entities throughout the project and for selecting a public-private project that optimizes public outcomes. For example, the US Federal Highway Administration makes a clear distinction in cost categories in both its cost-benefit analysis (CBA) and its life cycle investment modeling. In particular, its life cycle models are designed to consider alternative highway investment strategies by comparing user benefits with life cycle capital, operating and maintenance costs under different strategies. The models are also used to evaluate trade-offs between system expansion and system preservation, as well as to assess the expected benefits of different overall levels of investment.<sup>19</sup>

As to evaluation, the application of a realistic and robust evaluation methodology is important for estimating the potential benefits and prioritizing projects. It includes the use of realistic and flexible discount rates and inflation assumptions. European country programs offer best practice here, with the UK and France, for example, using discount rates between 3% and 6%. While the higher rates used in some models (in the range of 5%-8%) are not achievable in current conditions, they are consistent with recent estimates from the IMF on the potential benefits of public infrastructure investment, which use a 6% real interest rate.<sup>20</sup> In particular, the discount rate should be calibrated to the long-run borrowing cost of the public authority, irrespective of the government's concurrent capacity to fund, which might be because of debt constraints or prohibitive credit spreads. The use of discount rates, rather than an internal rate of return, when comparing projects is also best practice as it avoids confusion about project selection criteria and discounting practices. France and some other European countries offer examples of this approach.<sup>21</sup>

Finally, pricing over the life cycle of the model is an important consideration. It reduces the potential for distortions of the real value of future cash flows, as under the use of nominal rates, and the assumption of fixed prices. The Australian Civil Aviation Safety Authority (CASA) offers a best practice example, using real discount rates and treating inflation consistently across the discount rate and the cost and benefits of a given evaluation.<sup>22</sup> Next to this, the Australian Government has issued National Public Private Partnership Guidelines, which take discount rate methodology into account and the allocation of risk.<sup>23</sup>

19. Toolbox for Regional Policy Analysis Report (accessed via [http://www.fhwa.dot.gov/planning/processes/tools/toolbox/methodologies/costbenefit\\_overview.cfm](http://www.fhwa.dot.gov/planning/processes/tools/toolbox/methodologies/costbenefit_overview.cfm))

20. Lawrence Summers, "Why Public Investment Really is a Free Lunch," *Financial Times*, 6 October 2014, (accessed via <http://www.ft.com/intl/cms/s/2/9b591f98-4997-11e4-8d68-00144feab7de.html#axzz3lg62dfZe>)

21. OECD/International Transport Forum, *Improving the Practice of Transport Project Appraisal, ITF Round Tables*, No. 149, OECD Publishing, 2011 (accessed via [http://www.keepeek.com/Digital-Asset-Management/oecd/transport/improving-the-practice-of-transport-project-appraisal\\_9789282103081-en#page1](http://www.keepeek.com/Digital-Asset-Management/oecd/transport/improving-the-practice-of-transport-project-appraisal_9789282103081-en#page1))

22. Civil Aviation Safety Authority, *Cost Benefit Analysis Methodology Procedures Manual, chapter 3 - principles of Cost Benefit Analysis*, November 2007 (accessed via [www.casa.gov.au/manuals/regulate/acm/257r001.pdf](http://www.casa.gov.au/manuals/regulate/acm/257r001.pdf))

23. Australian Government, *National Public Private Partnership Guidelines*, December 2008



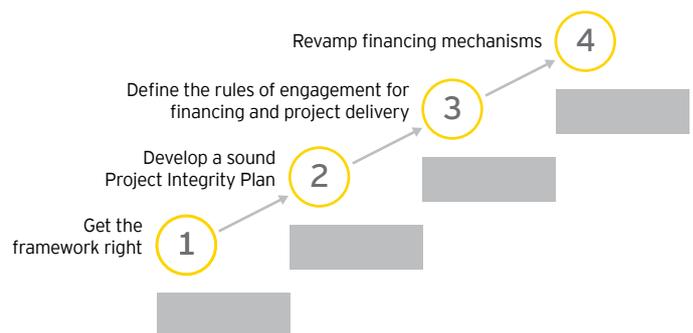
## Effective projects incorporate value capture for transport corridors

**Large public and private investment in transport infrastructure, such as transport corridors, can have a substantial positive impact on adjacent land values. Proximity to a corridor, or a multi-modal interchange facility, can drive significant benefit for private landowners. Capturing the value of this benefit is a best practice, as a financing mechanism for transport corridor investments.**

Best practice value capture strategies are exemplified in several examples, predominantly at the city level. These include special assessment districts, where a special tax is levied against property owners in a defined geographic area, who have been identified as receiving a direct benefit from the transport infrastructure investment. One example is the taxation of select residents in the city of Seattle, USA, to fund a streetcar expansion project for which they are specific beneficiaries<sup>24</sup>. Tax increment financing is another strategy, whereby the government can capture a proportion of the growth in property tax, or sales tax, resulting from a new transport project, and associated increase in property values. The city of Denver, USA, use such a tax increment from its Union Station development to pay down its infrastructure loans. A developer impact fee, assessed on new development, is another strategy, and supports payment of operating costs of the transport initiative. Finally, a joint development scheme, where the public and private sectors cooperate to develop public land, with lease payments flowing back to the government, is another best practice model. For example, in Hong Kong, the rail transit system pays all costs, including interest on bond indebtedness, from land rents derived from development in station areas<sup>25</sup>.

## Catalyzing private sector investment demands clear planning, funding and rules of engagement

For governments to effectively catalyze private sector and cross-border investment in transport infrastructure, our best practice analysis suggests several clear policy steps. To drive economic competitiveness and growth, policymakers should focus on the five principles set out below. These principles will serve to establish the development of a clear, transparent pipeline of quality projects and ultimately optimize investment, collaboration and project efficiency.



### First, get the framework right

Nothing will happen without a well-ordered, realistic program of well-scoped and feasible infrastructure projects, along with complementary non-infrastructure measures. The private sector needs to see a pipeline of projects if it is to mobilize the resources needed. Therefore, a program approach is essential.

24. [http://www.mapc.org/sites/default/files/MAPC%20value%20capture%20memo.docx\\_.pdf](http://www.mapc.org/sites/default/files/MAPC%20value%20capture%20memo.docx_.pdf)  
 25. <http://www.vtpi.org/smith.pdf>

To establish an effective infrastructure program, governments need to start by incorporating this plan into a bigger economic development plan. A successful program needs to flow demonstrably out of long-term plans for the relevant region, country or group of countries. These long-term plans need to obtain policy approval before individual projects are progressed.

Next, a holistic case for the infrastructure project - and any bigger program and strategy of which it is part - needs to be proven. Regardless of the local rules, decision-makers, stakeholders and the public need to see a persuasive "strategic business case" that shows why it is required. Furthermore, program leaders need to show that it will benefit the economy and society (the "economic case"); that it is commercially viable and can be successfully procured (the "commercial case"); that it is affordable (the "financial case"); and that what it entails is achievable for all stakeholders (the "management case").

It follows that the physical planning of the project is crucial, and effort spent getting this right in the early stages reaps benefits later on. For example, too many infrastructure projects get delayed in the planning process due to insufficiently developed environmental impact assessments.

Finally, the framework needs to be rigorously followed in order for projects and programs to keep moving forward through the approvals process toward implementation. Jurisdictions that are the most successful in infrastructure development avoid backtracking and protect projects from political interference by closing down debate once milestones have been agreed. For cross-border projects, there is the additional challenge of coordinating all the above across different national systems and in a way that reflects a consistent set of priorities.

## Second, develop a sound Project Integrity Plan

Introduced at the outset, a Project Integrity Plan promotes external stakeholder confidence. It does so through a clearly articulated and embedded culture of control and risk awareness, as well as the successful avoidance of cost escalation and detriment to investment return rates via built-in flexibility and provisioning for regulatory and commercial change. A sound plan also minimizes the risk of delays, through consistent contractual and professional arrangements. Once the project is underway, robust integrity translates into strong governance, risk management and project management practices. Action early on can ultimately define success of the project and set the parameters for other programs going forward.

To optimize the plan for governance, roles and responsibilities, incentives, and performance measures, many of which will be in place for the duration of the project, program leaders should address the following issues in the pre-investment phase:

1. Investment - Are up-front outlays sufficient, and have enough resources been set aside to sufficiently reduce risk before starting the project build?
2. Capabilities - Does the delivery organization have the right capacity in-house, including the skills, experience and processes, needed to deliver?
3. Governance - Is the form of the delivery organization clear, along with the role and responsibilities for the delivery partners?

4. Project scoping and management – Are the scope and requirements clear, are schedules and costs accurate, and how will the team contract with the supply chain, including providing incentives for performance?
5. Risk management – Are funding and strategies in place to mitigate financial exposure from macro events, and is there a framework in place to continue to mitigate risk and maximize opportunity once in delivery?

### **Third, define the rules of engagement for financing and project delivery**

Too many infrastructure projects still fail because of poor preparation or the failure to anticipate certain risks. Project sponsors and financial institutions are keenly aware of this, and they will critically assess the feasibility and credibility of an infrastructure project prior to deciding whether to invest time and resources in pursuing it. As explained above, public sector authorities therefore need to thoroughly prepare the infrastructure project at regulatory, technical, political and financial levels to ensure its success. This is all the more true for cross-border projects and PPPs, where the process is long and needs to be able to withstand potential public appeal processes, changes in government and financial market developments. Not every factor can be foreseen, and therefore it is important for the public authority to set up a tendering process that is clear but robust, and for it to have the legitimacy and capability to react accordingly to potential threats or barriers to the project.

Financing conditions depend on the creditworthiness of the public authority and the project sponsors but, equally importantly, on the smoothness of the project delivery. Cross-border transportation projects are inherently complex, which is why it is important for

risk mitigation measures to be identified and executed in the preparatory phase, and for the public authorities involved to agree on a Memorandum of Understanding before launching the project. Smooth project delivery is crucial for the project's financiers, as construction phase delays and cost overruns threaten the project's profitability and its capacity to repay the loan facilities provided. Public authorities should communicate their risk analyses and suggested risk mitigation measures to the private partners and lenders, which will give the latter comfort in investing in the project. Finally, when engaging the private sector, public authorities can also call upon the experience and innovation of private sector expertise to deliver solutions where appropriate. For example, public authorities are typically best placed to ensure the availability of the constructible land area, but private partners can also be useful in obtaining the necessary permits by proposing admissible, state-of-the-art project concepts and solutions.

### **Fourth, revamp financing mechanisms**

Besides the technical complexity of executing cross-border transport projects, the scale and investment volume that is often involved requires a realistic and balanced financial structure to make the project investable. As we described above, the financing market for infrastructure is undergoing a fundamental shift, and the classical financial institutions such as banks are no longer the only available sources of debt finance. Institutional investors, such as insurance companies and pension funds, are increasingly allocating funds to infrastructure in a quest to match their long-term liabilities and to pick up a spread on low government yields.

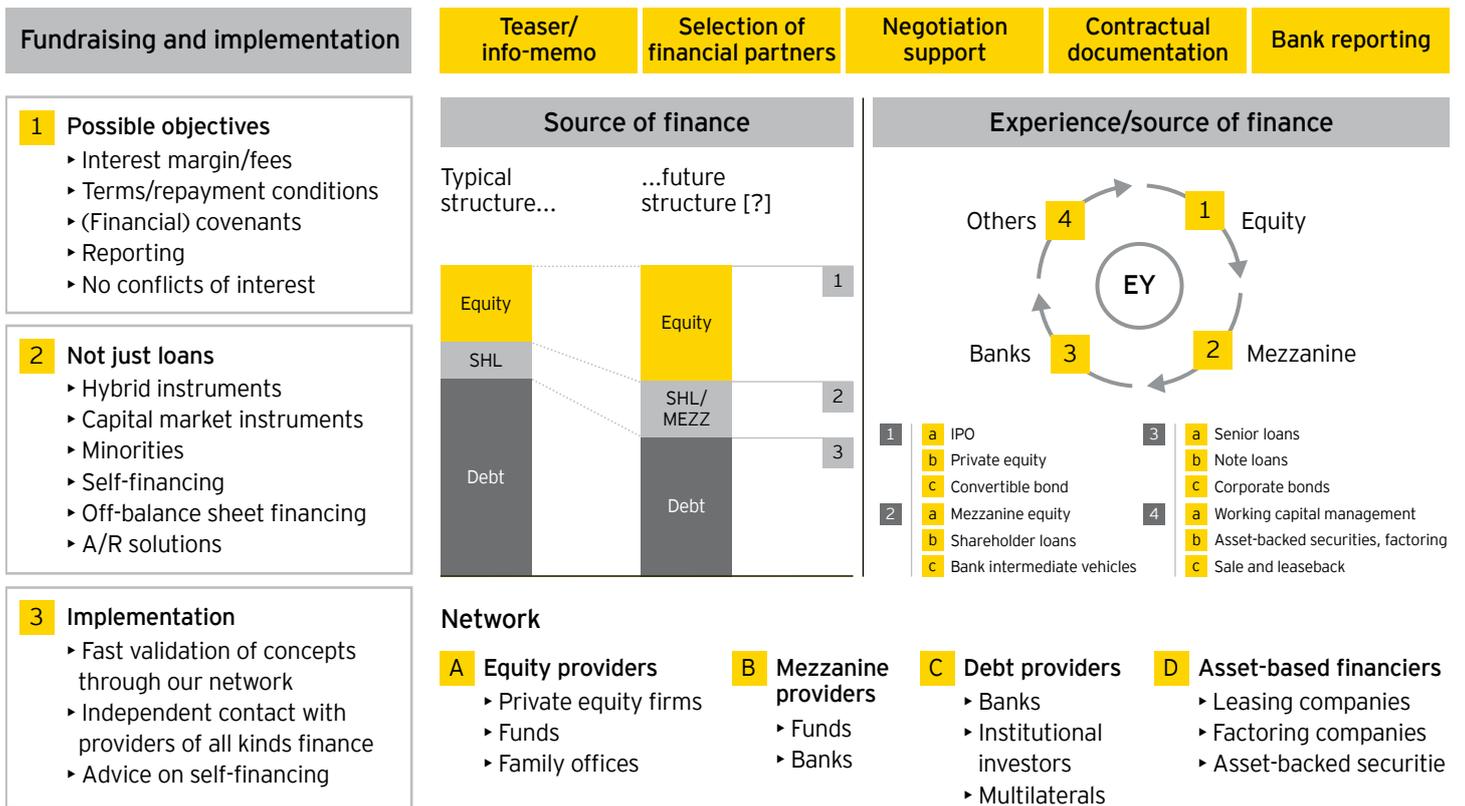
As a result, program leaders need to explore alternative structuring and funding mechanisms. For example, project bonds, whether private placement or public issues, are an interesting financing alternative. Tapping cross-border public funds through innovative

structuring is a potentially “cheap” source of finance that should be considered, and cross-border credit guarantees, where available, should also be incorporated into financing plans. In addition, instruments and initiatives at private and national institutions, such as infrastructure debt funds into which institutional investors can pool their investment funds, are an important potential resource.

Examining potential financial structures of a project in the preparatory phase is instrumental in securing financial support through any combination of the financial channels above. Performing this financing options analysis helps establish the most efficient commercial structure and to determine government

funding requirements. This assists in the budgeting process, and also identifies and quantifies financial risks, such as shifts in reference interest rates, construction delays and contractor default. Furthermore, a market sounding, performed by an external advisor, can identify market sentiment toward the project, any potential issues and indicative financial conditions. Finally, the engagement of an independent financial advisor is recommended, adding value throughout the tendering process by ensuring that projects are procured with the most competitive financing conditions and terms available given their risk profile (see Figure 3).

Figure 3. Diverse financial structuring approaches are available for cross-border projects



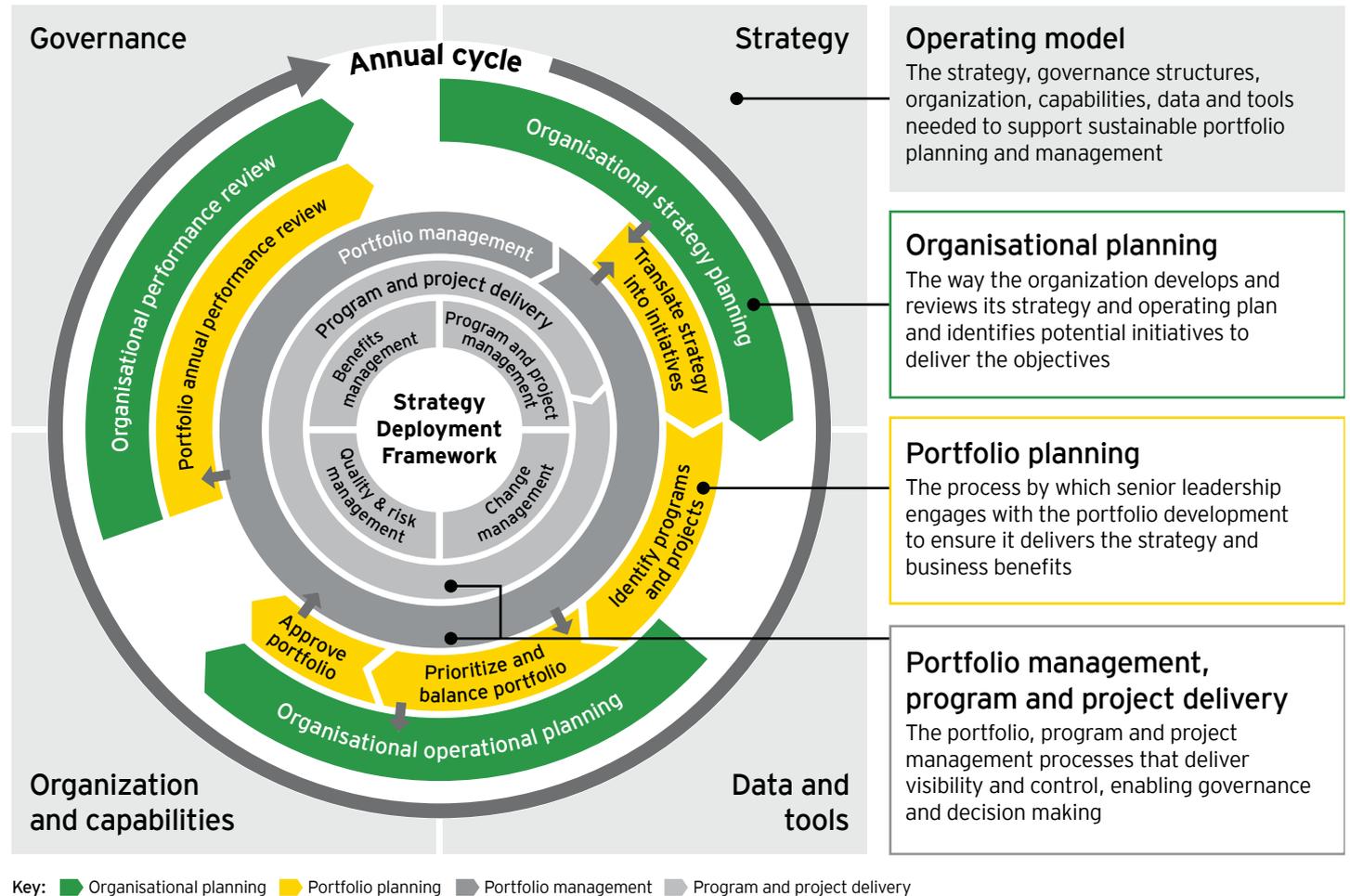
## Finally, continually benchmark the cross-border transport program to best practices

Program leaders should adopt a mind-set of continuous improvement throughout the project life cycle. The scale and complexity of cross-border transport corridors, in particular, suggest that ongoing improvement in planning and operational effectiveness will provide welcome support for the major inherent challenges of efficiency and cost control.

This includes the periodic review, and systematic implementation, of best practices throughout the project life cycle, from both public and private sector initiatives (see Figure 4). In particular, best

practices in project continuity are crucial for public sector cross-border projects, with budgetary cycles that are often a challenge to project development and implementation. The complex nature of such projects suggests that strong competencies on the public side are required, as are best practices in capability building and talent management and in implementing a sound competency framework to support the execution of all processes. In addition, best practices on project incentives throughout the project life cycle are important in mitigating the large potential downside and should be implemented on an ongoing basis. Finally, private sector best practices in portfolio planning and management can support the effective execution of large-scale, capital-intensive infrastructure projects.

Figure 4. Strategic deployment of cross-border transport infrastructure projects involves continual improvement in interrelated planning and management functions



## Transport infrastructure at EY

Transport infrastructure is a critical enabler for economic growth and competitiveness. At EY, we have worked with some of the largest and most complex projects around the globe, for the public and private sector, with experience throughout the whole project life cycle, from planning and procurement to delivery, operations and exit. Our experience and expertise are reflected in our industry rankings. EY was ranked first in the Financial Advisor category in terms of global PFI/PPP advisory mandates closed, by Dealogic (2013), and first in terms of global mandates won, by Project Finance International in the same year. EY is the most globally integrated professional services organization - in our mind-set, actions and structure. We are building a practice that will support the efficient, effective and economic delivery of transport infrastructure around the world.

### Planning

For governmental clients considering major expansions, significant renewal work and/or PPP initiatives, EY's infrastructure advisory business can assist in the development of long-term investment plans, as well as agency-wide programs and policy frameworks, including project management. This supports a clear and transparent pipeline of projects.

### Economic feasibility studies

EY's lead advisory teams can drive economic feasibility assessments for transport infrastructure, including delivery model analysis, CBA and private-public comparator models. Such analyses give policymakers a clear picture on the net economic benefits of proposed projects.

### Financial advisory

EY can advise governments and private sponsors on financing projects, including the financial structure and sources of financing, private finance, public funds or PPPs. We can help in the procurement and delivery phase including market sounding, funding option analysis, risk allocation, commercial and financial structuring, payment mechanism structuring, contract negotiations and financial close.

### Securing cross-border funding

EY can support government clients in securing their eligibility for available funding. This includes diagnosis, preparation of applications and CBA. This is particularly important for projects where analyses such as CBA are mandatory requirements for funding applications.

### Tax services

EY's global tax teams have the broad capabilities to match the spectrum of tax issues. The teams can support transport infrastructure projects on tax challenges including human capital management and tax regulatory changes.

### IT transformation services

The EY Advisory Performance Technology Services teams help clients rethink how to architect, deploy and manage technology. The teams can work with governments to accelerate business performance through technology transformation, enterprise intelligence, enabling technology and technology risk and security.

### Capital project management and assurance

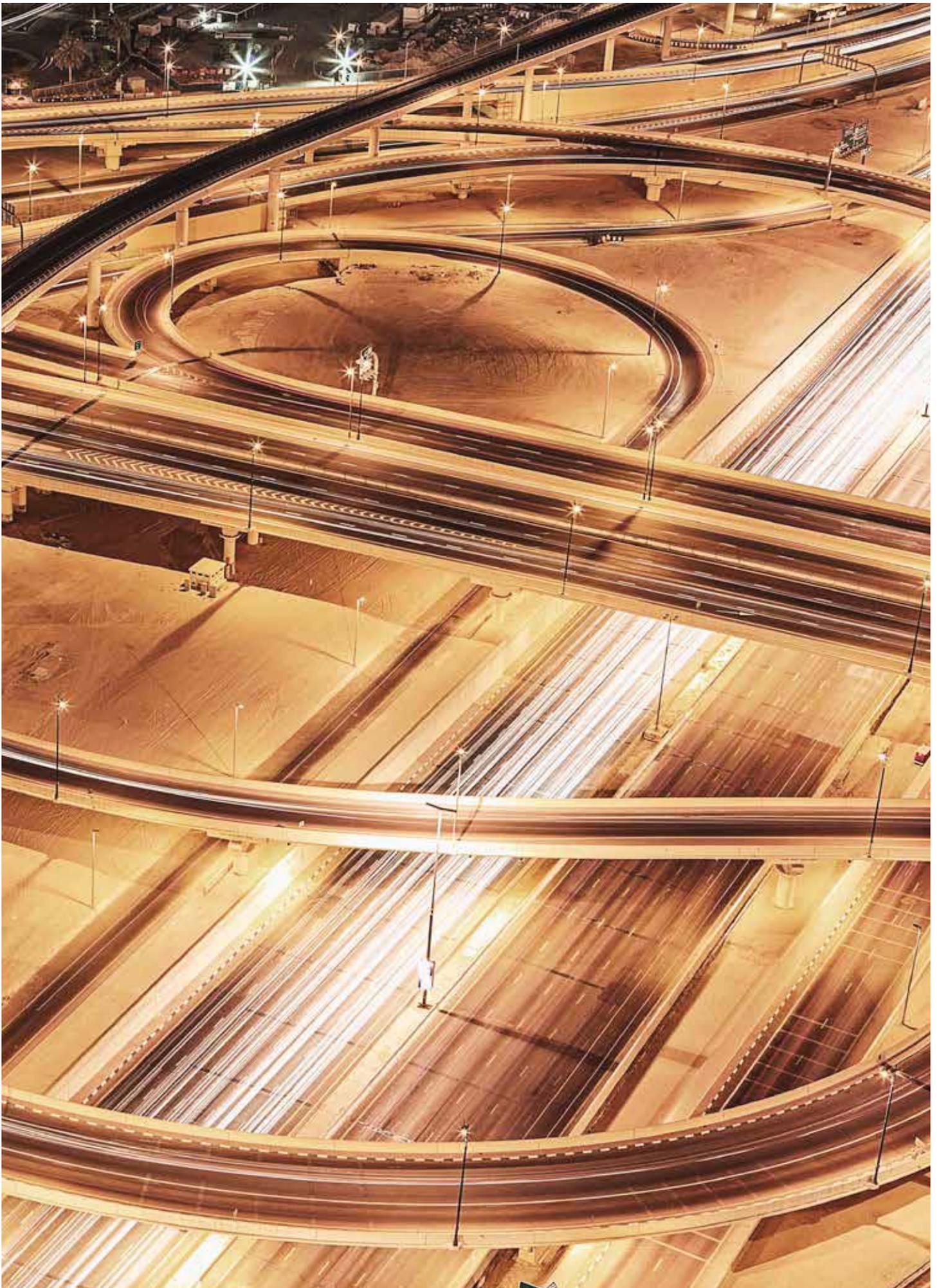
EY can assist in capital project management and provide assurance on its progress. This includes regular monitoring and evaluation throughout the project, ensuring accountability and transparency for investors and citizens. Designing a Project Integrity Plan is part of this effort.

### Climate Change and Sustainability Services for legacy programs

EY's Climate Change and Sustainability Services (CCaSS) teams can monitor the delivery of the project and support the transition to sustainable legacy. CCaSS can offer expertise in social impact assessments and reporting.

### Transaction Advisory Services for infrastructure

EY Transaction Advisory Services (TAS) provides advisory services around the client's capital agenda, whether this means preserving, optimizing, raising or investing capital. In particular, TAS can assist governments and private sponsors with secondary market operations, including divesting or acquiring assets, restructuring project companies, and performing due diligence and working capital analysis.



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