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— GLOBAL —

**In Partnership with McKinsey & Company**



# **A better road to the future**

Improving the delivery of road infrastructure across the world

**April 2018**

# Developing an Infrastructure System Diagnosis

Many authoritative studies have underscored the growing gap between highway investment needs, and current levels of spending on road construction and upkeep. By contrast, less attention has been paid to the policies and mechanisms required to “stretch” available funds through better project selection, efficient procurement strategies, and effective delivery practices.

McKinsey & Company and the International Road Federation (IRF) established a partnership from 2015 to 2017 to survey the global road sector and develop a comprehensive view of market trends and best practices. The results of this research provide transportation decision makers with a comparative study on the cost-effectiveness of these productivity-enhancing practices.

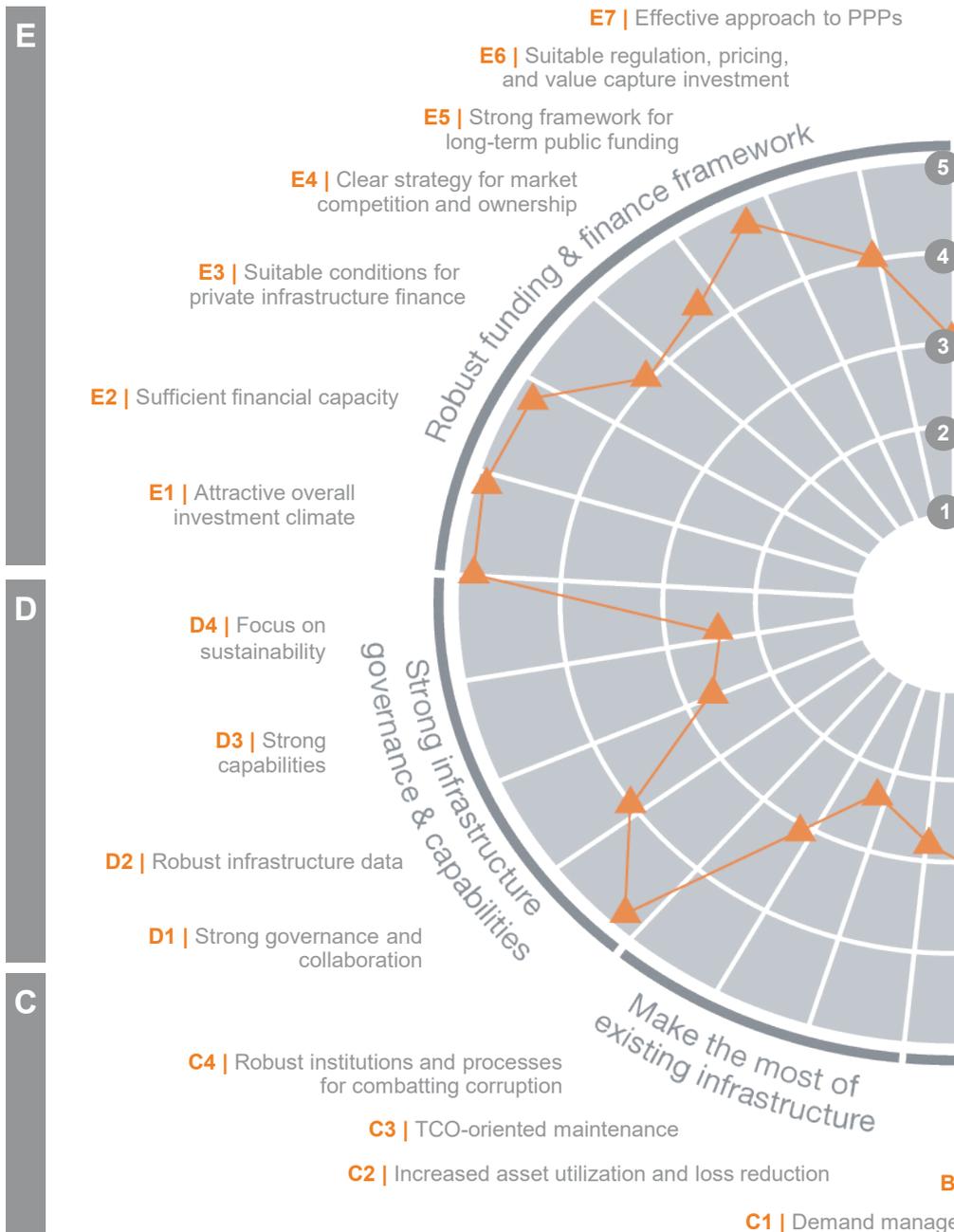
Our work focused on what can be done to enhance the whole delivery system, ensuring that the spend results in the best possible road network – defined as the road network that best fulfills the transportation needs of the economy. Given the complexity of the task at hand, all stakeholders have a role to play: governments can set up the playing field right and enable sufficient flow of funds; infrastructure owners can build comprehensive plans for investments, maintenance and, improved use; companies can strive for innovation; courts and municipalities can streamline permitting; and citizens can make their voices heard on effectiveness measures. The task may feel overwhelming, but a good way to start is to take stock of the current state and design an inclusive plan for improvements based on the desired future state. The results of this research provide transportation decision makers with a comparative study on the cost-effectiveness of these productivity-enhancing practices.

## Many tenders receive few bids

When one road agency analyzed 2,200 tenders over a five year period, covering consultants, contractors, and design-build combinations, 30 to 40 percent of these tenders received three or fewer bids, and only around 40 percent of tenders received five or more

## Large Cost Variations

Differences in design, standards, ground conditions, supplier markets, and other factors lead to difficulties in benchmarking costs between countries and projects. Even when normalizing for as many of these differences as possible, we often see large disparities in road construction costs between countries, illustrating the productivity challenge even further

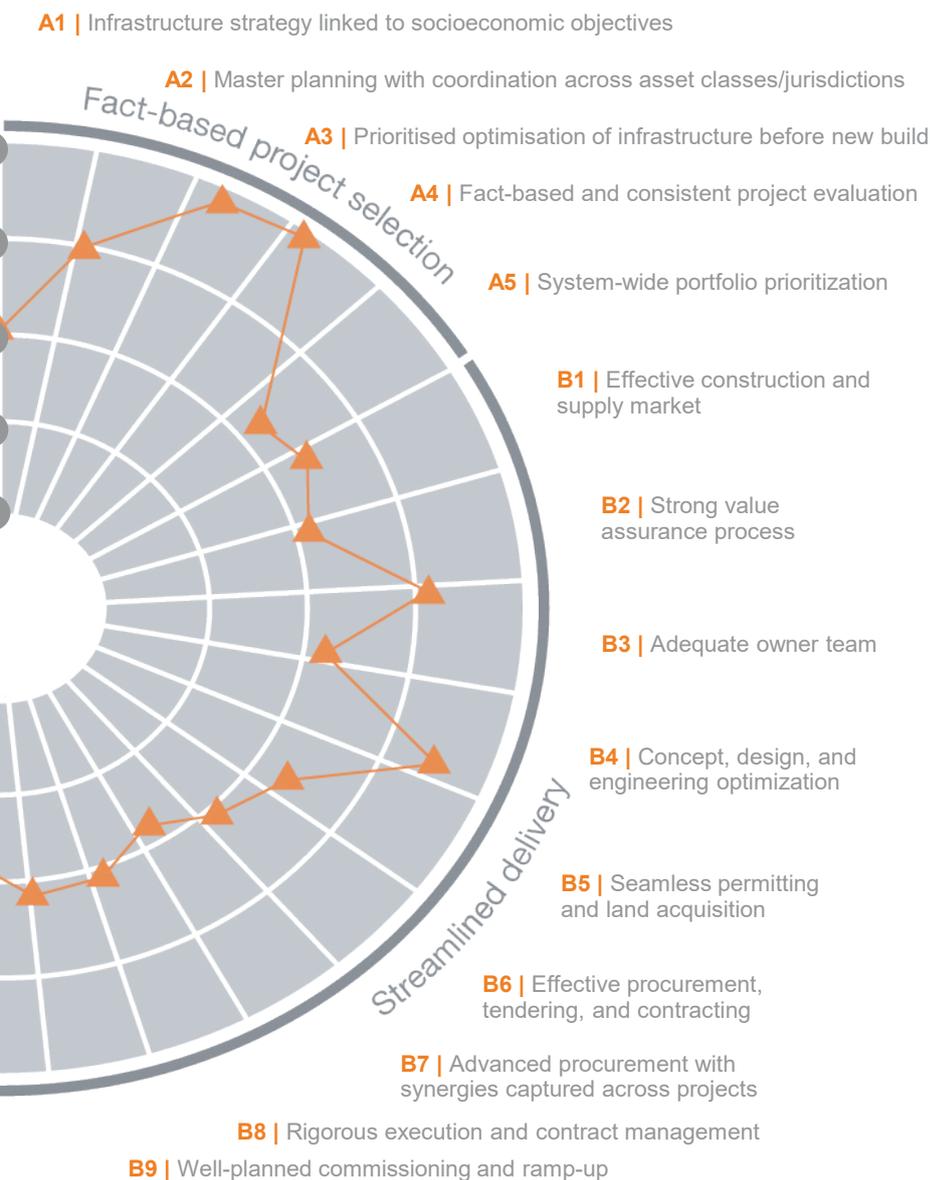


In consultation with leading industry experts, we developed a diagnostic for the full infrastructure delivery system. The diagnostic evaluates five key areas:

- A. Fact-based project selection
- B. Streamlined project delivery
- C. Making the most of existing road networks
- D. Strong governance and capabilities
- E. Robust funding and finance

These areas are broken down into 30 categories and 80 sub-categories, each representing a globally leading practice, and are connected to a database of over 500 examples of best practices found across the world. More than 20 countries in Europe, the Middle East, Africa, Latin America, and South-East Asia have applied this diagnostic and analyzed the delivery systems in the road infrastructure sector. In parallel, we have worked with several countries and road agencies on specific parts of the delivery system: for example, fact-based project selection, procurement strategies, supplier industry competition, and technical standard simplifications. These efforts have yielded insights into the root causes behind the challenges in the infrastructure industry in general and the road sector in particular. They have also enabled us to identify successful and proven approaches to overcome these challenges.

1 = poor practice  
5 = world class practice



A

**Lack of value assurance processes**

“It would be easy to reduce cost by 30 percent by moving to different designs—but if we are given those designs already, rather than being able to influence them, we have to deliver the more costly project.”

B

**Scaling innovation challenges**

Approaches such as lean construction, the use of big-data-driven building information modeling (BIM) systems, telematics in construction machinery, digital twins of physical objects, prefabrication, effective and automated machinery, and construction flow balancing are often not applied to their full potential.

## What can be done about the challenges?

Our work illustrates the complexity of the challenge in infrastructure. The solutions are equally complex, and there is no silver bullet that a country can apply to significantly improve its road infrastructure delivery system. However, there are many components of best practice that are already being demonstrated in countries all around the globe. The diagnostic approach to assess the performance of road infrastructure delivery systems outlined in this report illustrates that each country could build an improvement journey based on its individual starting point.

### 1. Improve project selection

The key to improved project selection is to establish (and stick to) a rigorous, fact-based project evaluation and a transparent process for establishing what can be done and in what order. Having one entity responsible for evaluating projects and establishing a fact-base enables policy makers and elected officials to properly prioritize. Ensuring an outcome-focused approach to prioritization will bring the greatest benefits to citizens and businesses.

### 2. Streamline delivery

Infrastructure construction takes several years from planning to completion, and in many cases there will be different political leaders and priorities during the course of a single project. Early-stage planning sets the prerequisites for the whole project, but we often see too little investment in this stage. Eager to break ground, and sometimes fearing that funding will go away if a project isn't started under the current budget, infrastructure owners too often rush through this phase, which can cause problems further down the road. The key to improving streamlined delivery is to boost cooperation in the sector across contracting, tendering, site management, and stakeholder management. The infrastructure owner decides the type of contract and how to tender the projects.

### 3. Make the most of existing infrastructure

Governments often have a tendency to address transportation needs by launching a new project. While cutting a ribbon to inaugurate a new road may seem like a powerful step toward an improved transportation situation, the existing stock of roads will always be more important than any new addition to the network. Thus, making better use of the existing road network is key to effective transportation.

### 4. Ensure effective sector governance

The effectiveness of the road delivery system ultimately rests on the capabilities and competence of the people involved. More often than not, there are not enough skilled experts and talented professionals to meet the needs of the sector. The impact can be profound. Our research across thousands of infrastructure and construction projects shows that the skills of the project manager make all the difference—no other factor correlates as strongly with the result of the project.

### 5. Enhance funding and finance frameworks

While funding of roads will likely continue to be predominantly sourced from government budgets, many countries would be better off if they could complement public funds with access to private money. No one solution is right for all countries, but tools ranging from toll stations, infrastructure bonds, real estate appreciation capture, congestion charges, public-private partnerships, build-operate-transfer, and other methodologies can be part of the toolbox and considered as a way of topping up available funds.

**“If the underlying productivity growth could be raised to the same level as the productivity growth of the economy, it would only take ten years to realize 20 percent savings worldwide—that is, the equivalent value of \$180 billion annually in the road sector alone.”**

## More Information

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