

An aerial photograph of a city, likely New York City, showing a dense grid of buildings and streets. A large, semi-transparent blue curved shape overlays the top half of the image, creating a modern, architectural feel.

# **BEST PRACTICES FOR** Managing Public Infrastructure Projects



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# EXECUTIVE SUMMARY

The complexity of large-scale infrastructure projects creates significant operational and project cost management challenges. Many uncertainties and risks can threaten project success.



Fortunately, local governments can dramatically reduce wasted resources, and ultimately create better infrastructure assets, by improving financial transparency and cross-departmental collaboration.

A panel of industry leaders discussed how governments could tackle these challenges during our recent webinar, [“Best Practices for Managing Public Infrastructure Projects,”](#) presented by SmartBrief in collaboration with Oracle Construction and Engineering.

During the conversation, panellists David Clark, Director of the Capital Improvements Program, Office of the Chief Financial Officer, District of Columbia (Washington, D.C.); Yves Courtois, Partner, KPMG; and Werner Maritz, Director of Industry Strategy for Oracle Construction and Engineering, took a deep dive into several challenges for maintaining capital efficiency and identified measures to address these.



## MEET THE PANELISTS



**DAVID CLARK**  
Program Manager,  
*D.C. City Government*



**YVES COURTOIS**  
Partner,  
*KPMG*



**WERNER MARITZ**  
Director of Industry  
Strategy,  
*Oracle Construction  
and Engineering*

### **CHALLENGE:**

## SELECTING AND PRIORITIZING THE RIGHT PROJECTS BASED ON CITIZENS' NEEDS AND FUNDING

The asset creation and maintenance portfolio should align with the strategic intent of the government's administration, supporting both short-term service delivery objectives and long-term sustainability objectives, which may contradict each other, Maritz said.

"Projects must be able to survive changes in the political landscape, which can happen every time there is an election and political objectives change," explained Maritz.



**SOLUTION:** Deploy a transparent project portfolio selection and capital-planning solution across departments to facilitate portfolio planning.



**EXAMPLE:** Clark explained how D.C. thinks about project selection using "a robust system to track, plan, and budget to be successful in the long-run." The database includes assets and their conditions (assessed every three years), and separates ongoing projects from new initiatives.

### **CHALLENGE:**

## ENSURING THE FINANCIAL GOVERNANCE OF PROJECTS

"The infrastructure demand, globally, is higher than the available funding from the public purse," Maritz said.

Besides government grants, public entities must seek funding from other sources, such as commercial loans, bonds, public-private partnerships, tariffs, and tolls. In an online poll conducted during the webinar, 34% of participants said that prioritizing needs or allocating budgets was the biggest challenge to managing large infrastructure projects.



**SOLUTION:** Implement a platform where funding sources can be traced from the source of allocation to the actual transaction consuming the funds.



**EXAMPLE:** "There is never enough money," Clark said of public budgets.

The D.C. program incorporates a 28-factor scoring matrix that helps stakeholders evaluate and prioritize projects.




The district also formed an office focused on public-private partnerships (PPP) to make private investments in projects when the opportunity is right.

“Having a central point focusing on issues of each proposal and ... determining its viability as a PPP has been huge for us,” Clark said.

#### **CHALLENGE:**

### COLLABORATING ACROSS DEPARTMENTS AND STAKEHOLDERS EFFICIENTLY

In the webinar survey, 39% of attendees said managing multiple stakeholders was their toughest challenge; 20% are challenged by a lack of adequate visibility across critical information.

 **SOLUTION:** Improve collaboration with a wide range of stakeholders via a common data environment (CDE).

“The CDE serves as a collaboration platform for all participants to work from the same version of the truth of the project,” Martiz explained. This single version of the truth makes it possible to:

- Manage external service providers without losing control over project management.
- Ensure extended team collaboration while the public sector retains eventual ownership of the as-built baseline.
- Protect data security and integrated disaster recovery.

#### **CHALLENGE:**

### TRANSITION THE NEW ASSET TO OPERATIONS WITHIN THE PLANNED PERIOD


Using an asset presents a constellation of issues related to project hand-off. These issues include project ramp-up, budgeting, and executing operations and maintenance.

Delayed ramp-up affects the ability to pay for the new asset if the project financial model is based on forecast revenue from tariffs or tolls from end-users. Incorrect budgeting for maintenance causes additional problems.

“The CDE serves as a collaboration platform for all participants to work from the same version of the truth of the project”







“Assets don’t repair or maintain themselves. If we don’t budget correctly for maintenance, in 50 years they’ll be doing it over again.”

“Assets don’t repair or maintain themselves. If we don’t budget correctly for maintenance, in 50 years they’ll be doing it over again,” Clark said.

**⚙️ SOLUTION:** Implement solutions that facilitate digital handovers to the operations and maintenance teams. This will ensure the new asset is up and running quickly. The asset will function as designed for its operational life by:

- Enabling digital handover of the as-built baseline.
- Providing full operations and maintenance manuals.
- Delivering a Building Information Model (BIM) with all associated information that enables the quick identification of the correct spare and repair parts. It should also provide design and operations data, inspections, and warranties.

**🔧 EXAMPLE:** Maritz recalled the handover of a high-speed rail system that included 26 rail containers of hard copy documentation.

“It was of no value to the operations team,” he noted. If a digital model of all associated design documents and the live 3D model of the asset is handed over, it will be “of great value to the project team and asset manager.”

**⚙️ CHALLENGE:**

## PREDICTING AND MANAGING RISKS THROUGHOUT THE PROJECT LIFECYCLE

Public-sector entities struggle to mitigate risks associated with large capital projects, including inconsistent project selection and approval; reputational damage from a lack of governance; supply chain collapse; and financial, schedule, or technical failure.

**⚙️ SOLUTION:** Implement a project delivery system designed to achieve optimal risk mitigation and financial security among all partners. The result: “[T]he allocation of risk will be with parties who are optimally placed to handle them,” Courtois said. Ways to do this include:

- Explore PPP structures such as build-own-operate and design-build-finance-maintain.
- Understand the financial risk inherent in an era of international project finance, including fluctuations in exchange rates.

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- Select the right financing model based on political preferences and model suitability.
  - Ensure the system can trace funding sources with allocation to projects, contracts, and specific line-item invoicing against the original funding sources.
  - Create a structural mechanism to absorb cashflow issues, such as using debt service reserve accounts.
  - Ensure proper maintenance of assets to avoid damage, additional capital expenditure, or interruption of service.

- Integrate data security and neutrality measures to ensure the extended team adopts the software.

Maritz suggested an asset full life-cycle approach to the selection, design, construction, and operation of infrastructure assets to improve the success of public infrastructure engagements.

“Start with the selection of a common data environment to connect and integrate various components of the project environment,” he said.



Then standardize project delivery processes to create a blueprint methodology and leverage current project and construction management software to improve the capital project delivery process.

It's also vital for project owners to “develop in-house digital skills to communicate with external service providers effectively. Leaders in the project owners’ organization must support and reward technology adoption by the workforce,” he continued.

Technological innovations empower public entities to reduce risk and boost capital efficiency of large infrastructure projects responsibly, transparently, and cost-effectively. ■



ABOUT

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ABOUT

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