

Public Infrastructure Investment and Asset Governance Digitalization Framework

The World Bank Public Infrastructure Investment and Asset Governance Digitalization Framework // Global Digital Demonstrations Support Tools

Combined with the right public sector skills and competencies, fit-for-purpose digitalization of public infrastructure investment and asset governance function can generate massive returns relative to costs.

Systematic cross-country empirical analysis shows that a significant share of public investment flows do not translate into potential productive infrastructure stocks, at least when measured against the best performers.¹ Against this backdrop, the **digitalization of public infrastructure investment and asset governance** can be a game-changer in ensuring quantifiable benefits.

For instance, tremendous benefits may be yielded if €100 million of current public infrastructure investment quality could yield €50 million of productive infrastructure. Digitalization can play a key role in unlocking such benefits. Analysis of each of the World Bank's 8 Must-Haves (see below) will reveal where the most significant marginal results in terms of end outcomes can be realized; whether in coverage of public investment flows, or improving outcomes in specific dimensions of the 8 Must-Haves for effectively delivering public investment projects.

The use of digital technologies is **both a catalyst and a benchmark for effective public infrastructure and asset management**. Relevant tools include Geographic Information Systems (GIS), Earth Observation (EO) satellite data, Internet of Things (IoT) sensors, and various types of Artificial Intelligence (AI) analytics.

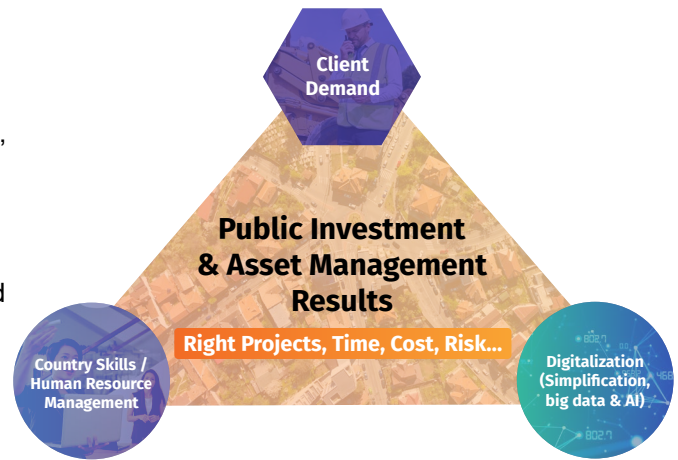


¹ See Kapsoli, Mogues, & Verdier, 2023

Public investment and asset management results

Achieving meaningful results in public investment and asset management is about delivering the right projects, at the right time, at the right cost, while accounting for risks. This level of performance requires strong country demand, driven by committed leadership and backed by the right people, processes, and technology. Ownership matters — not only from central and subnational governments, but also from the private sector and citizens who must see value and possibility in the investment.

Digitalization and knowledge play a vital enabling role. The World Bank's Public Infrastructure Investment and Asset Governance: Digitalization Framework and Knowledge Framework for Public Investment Management show how countries can strengthen institutions and systems — and improve outcomes — through global know-how, practical diagnostics, and cutting-edge digital demonstrations.



Digitalization as a catalyst

By leveraging relevant, real-time data collection, smarter investment decisions are enabled. Asset lifecycles are boosted, services are enhanced, and fiscal sustainability is improved. This applies to infrastructure, property, and land — owned and operated by national as well as sub-national governments, and also by State-Owned Enterprises (SOEs).

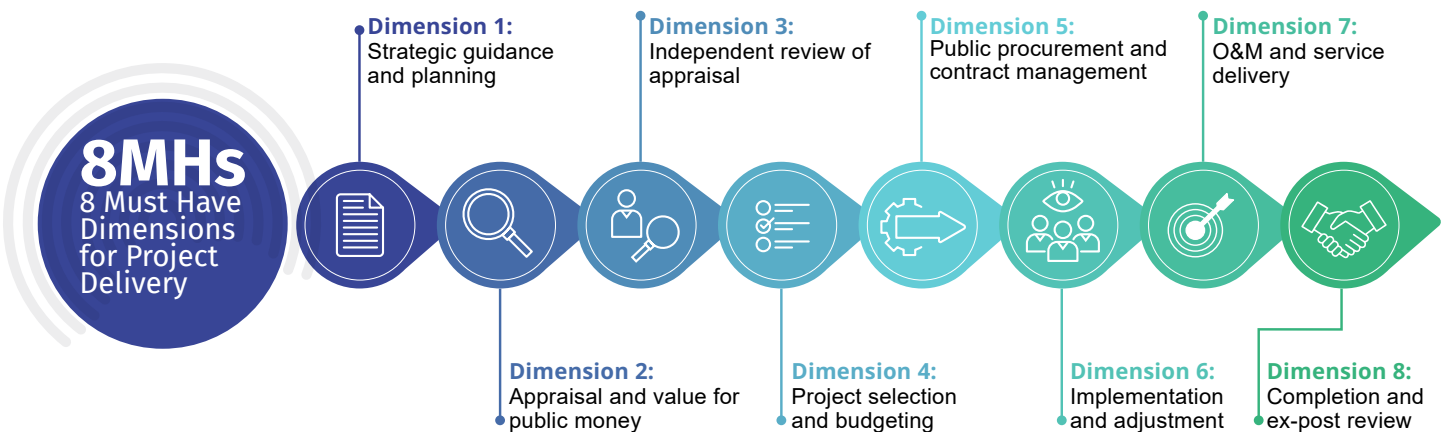
These tools also allow for greater transparency and strategic planning and investments driven by data. This fosters both accountability and resilience; especially crucial for land, property, and infrastructure exposed to climate, environmental, and urban development pressures.

Digitalization as a benchmark

The appetite for and application of tools such as big data analytics, visualizations, and AI not only enhance planning, monitoring, and maintenance, but also demonstrate a government's commitment to evidence-based decision-making and long-term value creation.

Where such tools are adopted, they signal institutional will to modernize, enhance transparency, and maximize the performance of public investment flows and asset stocks, turning technology from a technical upgrade into a governance benchmark.

To better assist client countries, the World Bank is working to show how user-friendly online tools can rapidly enhance insights for smarter public investment and asset management. This is anchored in the InfraGov 2.0 methodology — the World Bank's integrated diagnostic for strengthening public investment, infrastructure, and asset governance. InfraGov 2.0 outlines 16 key dimensions, including the so-called 8 Must-Haves (8MHs) of the public investment project cycle: from project identification to implementation and ex-post evaluation. InfraGov 2.0 and the 8MHs guide countries toward practical entry points for optimizing effective public infrastructure and asset management. Further focus topics include climate change, sub-national government, state-owned enterprises, and private-public partnerships (PPPs).



Source: World Bank InfraGov 2.0 Framework

The pim-pam.net Digital Demonstrations Support Tools

Decision-support applications are a critical prerequisite for countries to invest in relevant and cost-effective data assets and platforms for full-scale adoption. For example, pilot climate risk analytics can serve to validate country-specific data and further needs.

To better assist client countries, the World Bank is working to show how user-friendly online tools can rapidly enhance insights for smarter public investment and asset management. These tools are designed to promote a learning-by-doing journey across three levels of engagement: from **awareness** (foundational understanding), to active **application** through to professional **adoption** across public sectors.



The demonstration resources are housed under the flagship pim-pam.net online resource hub, and cover three key areas:

1. **The Country Benchmarking Dashboards (CBDs):** A curated set of data analytics and visualization dashboards of country-level indicators relevant to PIAG insights and actions.
2. **Geospatial Planning and Budgeting Platform (GPBP) tools:** These demonstrate how data-driven decision-making can lead to smarter public investment and asset management outcomes within countries.

The suite of GPBP tools enables comprehensive analyses of infrastructure projects and portfolios — assessing climate risks, local economic outcomes, and public service access across mapped assets.

Geospatial Planning and Budgeting Platform (GPBP) Tools

Cost-Benefit Analysis (CBA) with Climate Damage & Loss (D&L Analysis)

Climate Change Screening (CCS) & Risk Threshold Database (RTD)

Local Development Tracker (LDT)

Public Infrastructure Access (PIA)

Country Data Cubes (CDCs) / Shared Data Feeds

Guided by Big Data Observatory (BDO) monitoring

3. **Generative Artificial Intelligence (AI):** Applied to interactively distill key insights for public investment and asset management from curated large text references sources.

These include all World Bank project documents and climate action strategies across the Europe and Central Asia (ECA) region, as illustrated by the Governance Operations Analytics Tool (GOAT) and the Climate Legislative Actions Database (CLAD) for the Eastern Europe and Central Asia (ECA) region.

These tools show how existing data can already generate valuable insights and provide a clearer understanding of where gaps can be addressed most effectively.

Beyond offering immediate benefits to end-users, the resources demonstrate what is currently possible with open-source digital technologies and data. They foster the proactive institutional will needed for achieving better development results and are designed to prevent costly and poorly informed public sector investments in decision-support IT systems and data. Decision-support services can also be provided through Application Programming Interfaces (APIs). These allow countries to draw, for example, on the latest relevant global climate change data for the purposes of risk assessments. Countries such as Georgia, for example, have now implemented user-friendly ePIM platforms, including with online CBA functionalities and climate screening workflows.

The World Bank’s Global *Public Infrastructure Investment and Asset Governance* (PIIAG) Community of Practice — in close collaboration with the Vienna Development Knowledge Center (VCDK), Public Finances and SOEs for Greening Development, hosted by the Austrian School of Government (ASG) — will continue to combine targeted knowledge management and learning-by-doing measures with these digital tool resources.

The ultimate metric of success will be the extent to which awareness, application, and the adoption of these tools and methods among PIIAG practitioners can realize measurable progress. In this process, the initiative will continue to seek contributions by Technology Innovation Partners (TIPs) to improve the relevance and quality of these resources.

The World Bank is continually working to integrate feedback on key digitalization stages, including addressing factors such as climate change. Each stage can also be associated with practical performance indicators to document progress.

Digitalization Demos of New Generation PIIAG Decision Support

	Awareness	Application	Adoption
Measure	Relevant counterparts and colleagues are aware of opportunities presented by digital decision supporting	Counterparts and colleagues have applied digital decision tools for their country context	Integration in government systems , either in core or through Application Programming Interfaces (APIs)
Key Performance Indicators (KPIs)	<ul style="list-style-type: none"> Number of hybrid or face-to-face events Access to pim-pam.net and GPBP resources 	<ul style="list-style-type: none"> Number of projects with online cost-benefit analysis (CBA) Number of GPBP Country Data Cubes (CDCs) established/updated Number of projects and/or land, property or infrastructure assets screened for climate Number of projects subject to CBA with climate change risk mitigation analysis 	<ul style="list-style-type: none"> Number of countries and projects subject to online GPBP PCN-CBA good practices Good practice presentations by counterparts at regional/global events
Interventions	<ul style="list-style-type: none"> PFM events Peer exchanges Surveys and participant evaluations 	<ul style="list-style-type: none"> Learning-by-doing training events Application to projects/sub-national governments Systematic user feedback 	<ul style="list-style-type: none"> National policy alignment, Client/recipient executed activities Government cloud instances
Public Investment and Asset Governance Outcomes	Greater transparency about de jure and de facto roles and responsibilities over public investment flows and non-financial asset stocks, as well as digitalization ('IT').	Tangible country-specific evidence flowing from decision-support tool applications (expressed in monetary terms as related to specific investments, assets and sub-national governments).	Formal digital coverage — and enhanced transparency and accountability — of investment flows or non-financial assets. Evidence on materiality of PIM-PAG coverage.

Source: https://docs.google.com/presentation/d/1ykiSve6oulCPRym3NcweaeeJYbZ3rSZ7/edit?slide=id.g2fcfa39a789_4_21#slide=id.g2fcfa39a789_4_21

References

Kapsoli, J., Mogue, T., & Verdier, G. (2023). *Benchmarking Infrastructure Using Public Investment Efficiency Frontiers*. Washington, DC: International Monetary Fund (IMF) Working Papers WP/23/101, May, pp. 32.

World Bank. (2025a). *Infrastructure Governance Assessment Framework: A New Approach and Applications (InfraGov 2.0)*. Washington, DC: January, pp. 101 + Summary.

World Bank. (2025b). *Public Infrastructure Investment and Asset Governance Knowledge Framework*.