



# Governance of Infrastructure: International Best Practices and Innovations

## Executive Summary



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## The Infrastructure Challenge

In recent years, Germany has had a track record of derailed infrastructure projects. The railway project Stuttgart 21, the Berlin-Brandenburg Airport (BER), and the Elbphilharmonie in Hamburg illustrate some of the key problems of German infrastructure policy. For one, financing is typically deficient and available funds are allocated unequally. What is more, as these well-publicized examples indicate, it often seems that Germany lacks the capacity to implement, maintain and update infrastructure on time and on budget. These deficiencies create an efficiency dilemma: while the quality of newly built infrastructure in Germany is good, frequent cost overruns and delays point to inherent efficiency challenges.

Against the background of dramatic examples like BER, Elbphilharmonie and Stuttgart 21, and taking into account previous studies of German infrastructure financing and delivery, the report argues that identifying and assessing new governance and finance models are essential for finding solutions to the efficiency dilemma. To this end, the report examines best practice cases from different countries and infrastructure fields and suggests recommendations for policymakers and practitioners.

## International Innovations and Best Practices

In order to identify potential ways to overcome Germany's efficiency dilemma, the report looks at innovations and best practices in strategic long-term planning, project planning, procurement, and stakeholder involvement.

### Strategic and project planning

One way to address the efficiency dilemma is strategic long-term planning that takes stock of the current situation, formulates goals and sets priorities for infrastructure policy. However, strategic planning is only part of what is needed to ensure the success of infrastructure projects. The other key element is comprehensive front-to-end project planning with adequate risk management.

The study highlights two examples for strategic planning: The first is a national strategy or policy framework that sets out a concrete and credible infrastructure plan for the coming decades. Such a plan can function as a signal to citizens, investors, and future policy-makers and can clarify which priorities were chosen and why. Successful cases of national strategies can be found in Estonia, the Netherlands, New Zealand and the United Kingdom. These plans encompass the results of several common tasks, such as analyzing the status quo, assessing future needs and prioritizing projects that are essential for a country's societal and economic well-being and growth.

The second example, the Eddington Transport Study in the UK, is a sector-specific analysis that highlights challenges facing the British transport system over the next 30 years and offers recommendations for improved policy and governance frameworks.

On the project level, detailed upfront planning can make all the difference in project delivery. The use of IT and digital tools to plan and coordinate all parts of the construction process has been an important factor in the on-time and on-budget delivery of projects like the Olympic Velodrome in London in 2012 and the Shanghai Tower. The use of specialized software has also been recognized as a useful tool for planning large-scale projects in Germany.

### Procurement

Decisions about procurement and tendering models are crucial in the execution of an infrastructure project. With procurement being highly regulated to prohibit corruption, the room for innovation and improvement seems limited at first. However, better communication between procurers and potential contractors and a smart tendering process can help increase the efficiency of the whole project.

One way to achieve better communication between the involved parties is Early Contractor Involvement (ECI), which can help clarify design and construction issues early in the procurement process and can ultimately contribute to finding innovative solutions to complex project components. A specific form of ECI are the RAKLI Procurement Clinics in Finland. The clinics bring together government entities with potential infrastructure providers to limit uncertainty and risk, and thereby produce more efficient and transparent solutions to complex project procurement challenges.

Another way to create efficient procurement and tendering is to speed up processes whenever standard and easy-to-monitor tasks are contracted out. In Spain, for example, tenders for conventional infrastructure projects are highly routinized and are formulated so clearly and with such detail that negotiation phases are no longer required or needed once contracts are awarded. Such tender procedures have reduced procurement processes to an average of eight months.

## Stakeholder involvement

Delivery of infrastructure can lead to serious conflicts among stakeholders with some having much to gain and others much to lose. Infrastructure projects might be contested on the basis of their need or design, or a general attitude of 'not in my backyard' might cause delays or even prevent them from going ahead. This has been a particularly severe problem in Germany in recent decades.

Two models highlighted in the report try to overcome those frictions through adequate stakeholder information and involvement. The French National Commission on Public Debate facilitates public discourse on projects that have a certain environmental or economic impact. By publishing all relevant documents, collecting comments and guiding the public debate, the commission enables citizens and stakeholder groups to engage in the process in effective ways. In the Netherlands, the Alders Table has mediated in the conflict arising from a planned expansion of Schiphol Airport in Amsterdam. The forum led by former Minister of Transport and Infrastructure Hans Albers brought together industry, civil society, and government entities to develop recommendations for operating and extending airport capacity.

## Innovative Financing

While spending available resources more efficiently is one approach to improving infrastructure governance, mobilizing underused financing sources or developing new ones is another. Looking at the international landscape in infrastructure financing, some potential sources are still more or less untapped in Germany. These include:

### Strategic infrastructure funds

Budgetary time limits put on available funds amount to a major challenge for public infrastructure financing: Resources need to be spent within a certain budget year or they are lost. To address this challenge, funds that specifically target infrastructure projects and are not bound to the fiscal budget year have been set up for example in Canada and Switzerland. The Canada Strategic Infrastructure Fund, established with resources set aside from the regular budget, finances regionally or nationally relevant projects in transport, tourism and urban development, water and waste water, and broadband coverage. Another fund with resources coming from the gas tax finances projects on the local level. In Switzerland, the railway fund was set up to improve the rail network independent of the federal budget. With revenue coming from heavy goods vehicle tolls and various taxes, as well as from the federal government, this dedicated fund has been a major source for financing the new Gotthard railway tunnel.

### Land value capture

Different mechanisms and instruments of land value capture (LVC) have been used in many countries. In short, LVC aims to capture the added value that a property gains through new or updated infrastructure in order to refinance that particular project or provide funding for a new project.

The variety of measures includes tax instruments, such as land value or betterment tax and tax increment financing, special assessments, transportation utility fees, development impact fees, negotiated exactions, and marketing air rights. All these mechanisms enable sharing the costs of a new infrastructure development with those that profit the most from it or cross-subsidizing projects that might be necessary but unattractive to external investors.

## Pension funds and institutional investors

Institutional investors, such as pension funds or insurance companies, are increasingly interested in investing their funds in infrastructure projects given such projects' long-term and stable nature. Especially in Australia and Canada, pension funds have been important actors in infrastructure financing. Institutional investors have two options: either directly funding a certain project or investing in a fund specializing in infrastructure. Both models have benefits and costs. In general, investments by pension funds face significant challenges, such as a lack of know-how and competence in the infrastructure sector or uncertainty regarding political planning and regulatory frameworks.

In Germany, pension funds currently play a minor role when it comes to infrastructure financing. One reason for this has been various regulations limiting the effective amount that can be invested. However, recent amendments to relevant legislation have simplified the basic framework for institutional investors and also enabled smaller funds and insurance companies to invest in infrastructure. There is also a more fundamental political disagreement in Germany on whether and how public-private partnerships (PPP) should be used for the provision of public infrastructure.

## Infrastructure platforms

Reasons institutional investors struggle with infrastructure investments include lack of familiarity or experience with infrastructure projects and the simple fact that few adequate projects for private investment exist in some countries. To this end, infrastructure platforms can serve as intermediaries. Pension funds in the UK, for example, launched the Pensions Infrastructure Platform in 2015 to provide combined expertise in infrastructure delivery and to identify potential projects.

A number of such platforms have also been established by development banks. Bringing together governments and investors, the platforms can also act as creditor, enforcer of rules, or coordinator. In Germany, two models have been suggested by an expert commission on strengthening investment: One model would bundle projects in a public fund, the other would extend the competences of existing development banks.

## Financing through private investors and mixed funds

Private investors do not necessarily have access to infrastructure finance models. Citizen crowdfunding presents an opportunity for individuals to get involved and ensure the construction of needed infrastructure, as the example of a pedestrian bridge in Rotterdam shows. Specialized internet platforms for crowdfunding infrastructure have also emerged.

In the German context, there are two other ideas for engaging citizens in infrastructure investment for which no international blueprint or example exists. One option would be establishing a 'citizen's fund' (Bürgerfonds) and thereby enabling direct investment by private investors in infrastructure projects. Another would be to use the international experience of pension funds and adapt it to the German system. The contributions from a private supplementary pension system, as is currently discussed in the context of the 'Deutschland-Rente', could be used to finance infrastructure projects, benefiting from the long-term investment prospects and potentially higher returns.

## Potential for implementation in Germany

		political and administrative hurdles	
		Low	High
financial potential	Low	Citizen's fund Crowdfunding	Land value capture
	High	Infrastructure platforms	Pensions funds Private supplementary pension

Some international models can be more easily applied and implemented in Germany than others. The table above maps the financial potential and how high the political and administrative hurdles would be for implementing the respective instrument. For Germany, the trade-off between potential and hurdles would result in possibly pursuing citizen's funds and infrastructure platforms in the short and middle term. Pension funds and private supplementary pensions would present a long-term option, while land value capture would be unattractive at present.

## Infrastructure Agencies

Governments face at least two challenges in terms of infrastructure policy. Strategic long-term planning is essential for a coherent infrastructure policy. However, and this is the first challenge, political decision-making can interfere. The second challenge arises from the many different levels of government and various groups of stakeholders that are involved in infrastructure planning and delivery processes, thus requiring significant coordination capacity. Dedicated infrastructure agencies can be a response to those challenges. There are several examples of agencies and institutions that take on the task of strategic, long-term planning of infrastructure policy, financing of projects or the delivery, operation and maintenance of assets. The design of those institutions varies immensely and ranges from a purely advisory body to one with decision-making and budgetary power.

On the advisory end of this spectrum is Infrastructure Australia which develops general policy frameworks, performs cost-benefit analysis and audits of projects, and prepares the long-term Australian Infrastructure Plan. On the other end, the Austrian ASFINAG is a government-owned company that is responsible for maintaining and developing the Austrian highway system.

## Infrastructure agencies in international comparison

The report examines 16 such agencies and maps them according to their degree of autonomy, decision-making power, budget power, and thematic scope. Clearly, those institutions with a high degree of decision-making and budgetary power are rarely independent from government influence. Overall, most agencies have rather low or medium level of autonomy, limited decision-making and budgetary power, and a broad scope. In light of this assessment, ASFINAG seems to be a very special case (although similar concepts do exist, but with less power e.g. Highway England).

Overall, the examined agencies share certain tasks:

- Analyzing the current situation and assessing future national infrastructure needs in order to develop long-term plans
- Developing policy frameworks to enhance consistency at all levels of government
- Providing cost-benefit analysis of individual projects and independent assessment of a project's benefit based on expertise
- Evaluating projects, pointing out deficits and suggesting remedies, as well as collecting cases of failed approaches and best practices

## Infrastructure agencies in Germany

To increase efficiency of infrastructure planning and project execution in Germany, institutions or agencies on different levels and with different foci could be an option. On the federal level, an advisory agency, dedicated to long-term and strategic planning, needs assessment and cost-benefit-analysis for all sectors, could provide independent expertise. Complementing this institution, a set of agencies on sub-federal levels could support the public sector in planning and execution of projects.

## Conclusion and Recommendations

The state of infrastructure policy and planning in Germany can be summed up as follows:

- German infrastructure policy is characterized by three fundamental problems. First, financing for infrastructure is lacking, and at the same time those funds that are available are unevenly distributed. Second, the public sector faces a shortage of capacity and expertise and is unable to meet political expectations. Third, this leads to inefficiency when it comes to the execution of infrastructure projects.
- Based on this assessment, the need for new finance and governance models to increase funding and efficiency is obvious.
- Therefore, new financing models need to be explored, capacities enhanced and coordination of different actors and levels improved. Planning and project delivery processes need to be evaluated and overhauled.

After reviewing international best practices and innovations, we put forward the following recommendations for policy makers in Germany:

- Explore the potential for a national infrastructure plan. Such a plan has to be based on detailed analysis of the current condition of German infrastructure and potential future needs.
- Engage stakeholders early on and in forward-looking ways to reduce the possibility of conflicts during project implementation. Citizen's acceptance of infrastructure projects may be enhanced when citizens are involved in the project from the beginning. In addition, stakeholder involvement in procurement and planning holds great potential for improving these processes.
- Test the feasibility of new financial models. Balancing political and administrative hurdles with the financial potential of the models presented here, citizen's funds and infrastructure platforms should be explored as short- and medium-term options. Pension funds and private supplementary funds are only possible if comprehensive reforms are undertaken and therefore should be considered as an option for the long term.
- Review existing regulations, and adjust them if necessary, in order to develop new financing sources and increase investment in Germany.
- Re-think current processes of planning, procurement and project delivery. Using Early Contractor Involvement can improve planning and procurement procedures, and IT-based planning instruments can be helpful tools to detect potential risks.
- Consider establishing dedicated infrastructure agencies and institutions in Germany. On the federal level, an advisory institution could be responsible for long-term planning and capacity building in all sectors, while agencies on sub-federal levels could support the public sector in the planning and execution of projects.

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