

Planning and financing transportation infrastructures in the EU – A best practice study

Executive summary

Commissioned by:

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A. Transportation infrastructure provision in Germany: Challenges and the need for action

1. Eroding assets and growing demands: Germany's infrastructure is falling behind

In Germany, transportation infrastructure projects are often plagued by long delays, problems with public acceptance and cost overruns. Alongside widely discussed problems in a number of major construction projects, the worrying overall condition of the country's existing transportation infrastructure has increasingly become the focus of public debate in recent months. The picture that is emerging shows an accelerating, large-scale erosion of infrastructure assets. These infrastructure deficits are becoming increasingly visible, impairing the performance of Germany's transportation networks.

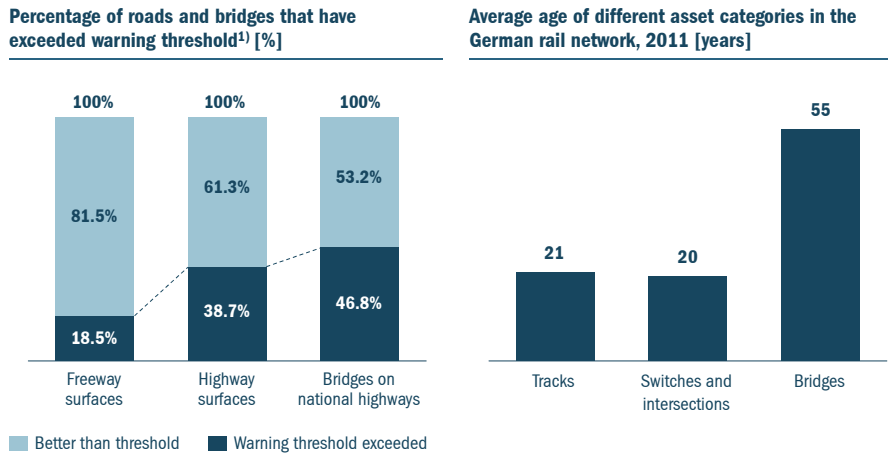
At the same time, a modern, high-performance transportation infrastructure in line with actual demand is an essential prerequisite for economic competitiveness, growth, and prosperity. This is especially true for Germany, whose economy, more so than most others, is based on exporting high-end industrial products and therefore depends on the availability of an effective and efficient logistical network. Modern and well-developed transportation routes are indispensable to the smooth flow of goods traded within the single European market, but also to give Germany's manufacturing base access to global markets. At the same time, a high-quality and high-capacity transportation network is vital for reaching ambitious climate protection targets and addressing the challenge of scarce fossil fuel resources. Modern transportation networks are needed to implement smart mobility concepts, leverage potentials for greater resource efficiency and reduce harmful emissions.

At first glance, Germany's existing transportation infrastructure seems to provide a solid foundation to master these key challenges in the future. The country features a dense network of railways, roads and waterways that is very well developed by international standards. However, this cannot obscure the fact that in recent decades, the Federal Republic's transport infrastructure has seen the beginning of a large-scale erosion. Indicators of network quality confirm this negative trend: the modernization level of the German network for all modes of transportation has deteriorated noticeably since 2004. In the road and waterways infrastructures, the negative trend has even persisted since the mid-1990s.¹⁾

1) Federal Ministry of Transport, Building and Urban Development/German Institute for Economic Research (2012): *Verkehr in Zahlen* ["Transportation in Numbers"] 2012/2013.

Almost one fifth of the country's freeways ("Autobahnen") have already exceeded the critical warning threshold used to assess the condition of road surfaces. For its highways ("Bundesstraßen"), the figure is nearly 40%. Moreover, virtually half of the bridges along Germany's long-distance roads have exceeded the warning threshold (see Figure 1).²⁾ The tracks and switches that make up the German rail network are around 20 years old on average, while the country's railway bridges have an average age of 55 years. In the years ahead, there will therefore be a substantial need to invest in replacement. This represents a particularly serious challenge, since bridges act as natural bottlenecks: if they become overloaded or are out of service, this can significantly impair the operation of the entire network.

Figure 1: Indicators of the condition of the road and rail network



1) Most recent data pursuant to the German Transportation Investment Report (January 2013)
 Source: BMVBS; DB AG

At the same time, the volume of traffic that Germany's transportation network must absorb is growing continuously. Despite the slump precipitated by the global financial and economic crisis in 2009, the volume of goods traffic on Germany's roads, railways and waterways rose by around 10% between 2004 and 2010. Based on the long-term traffic forecast produced on behalf of the Federal Ministry of Transport, Building and Urban Development, the volume of goods transportation on the German transportation network will increase from 612 billion tkm in 2010 to about 936 billion tkm in 2025.³⁾ While strong growth is predicted for all modes of transportation, the rise in road freight traffic is expected to be particularly dynamic.

2) See also: Federation of German Industry/German Construction Industry Association/German Building Materials Association (2011): *Brückenertüchtigung jetzt – Ein wichtiger Beitrag zur Sicherung der Mobilität auf Bundesfernstrassen* ["Upgrading bridges now – An important contribution to safeguarding mobility on Germany's long-distance roads"].
 3) Federal Ministry of Transport, Building and Urban Development (2007): *Prognose der deutschlandweiten Verkehrsverflechtungen 2025* ["German traffic integration forecast 2025"].

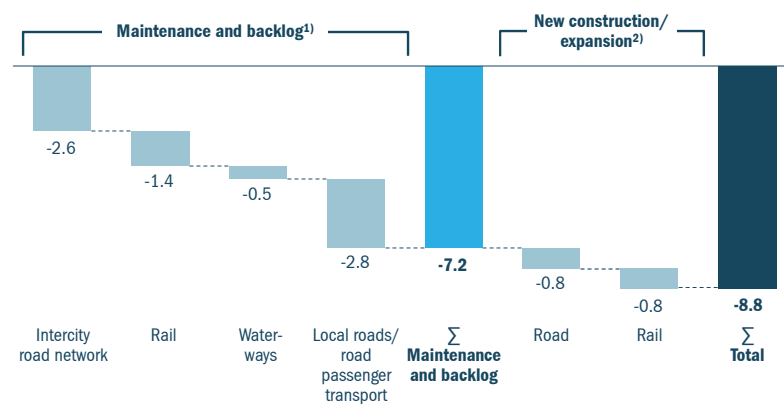
2. The causes: Investment logjam and problems with realization

The recent deterioration in the overall condition of the German transportation infrastructure is the result of insufficient financial resources and too little investment in maintenance, new construction and expansion. The so-called "Daehre Commission", appointed by the Conference of Ministers of Transport, calculated that real gross investment in transportation has declined by around 24% over the past 20 years.⁴⁾

Funding for maintenance and the investment backlog alone reveals an annual funding shortfall of EUR 7.2 billion across all modes of transportation. The most pressing problem is the considerable need for modernization that has accumulated over years of inadequate financing for maintenance projects. To make up for the cumulative backlog of unrealized maintenance investments from the past over the next 15 years, it would be necessary to invest around EUR 2.65 billion a year (see Figure 2).

Figure 2: The shortfall in funding for Germany's transportation infrastructure

Annual funding shortfall, by mode of transport [EUR bn p.a.]



1) Annual investment that would be needed to work off today's cumulative backlog over the next 15 years

2) Average annual investment gap for projects included in the requirements plans

Source: Commission "The Future of Transport Infrastructure Financing"

Apart from the considerable lack of funding, delays in the realization even of those projects for which money is in principle available are increasingly impeding the delivery of an adequate transportation infrastructure that satisfies demand. In many cases, this is due to protracted administrative processes and legal proceedings, especially as a result of lawsuits filed by stakeholders and environmental associations.

4) Commission "The Future of Transport Infrastructure Financing" (2012): Final Report.

This is especially true in the case of projects where communication is lacking and the local population feels that it has not been properly involved in the decision-making and planning process.

In Germany, the barriers to legal challenges to approved projects are comparatively low. Moreover, especially in the case of complex projects, lawsuits have relatively good prospects of being upheld on the basis of technical and/or formal errors in the course of the administrative proceedings. Such legal disputes can cause serious delays for the projects concerned. In the case of major infrastructure projects, it is not unusual for years or even decades to go by between the application for and completion of a project.

In practice, the investment logjam and problems with acceptance are closely intertwined. On the one hand, funding difficulties and insufficient resources for compensatory measures can fuel a lack of popular acceptance. On the other hand, problems with acceptance can lead to expensive delays, worsening existing financing issues. In light of this correlation, both issues must be addressed jointly to guarantee the swift and efficient delivery of an adequate, high-quality transportation infrastructure in the future.

B. Weaknesses in the provision of transportation infrastructure in Germany

In Germany, the process of planning, permitting and funding large-scale transportation infrastructure projects is characterized by clear structures and procedures. In recent decades, the fundamental architecture of this process has proven its worth. However, these undisputed strengths are contrasted by a number of clearly visible weaknesses (see Figure 3). In today's difficult climate – project complexity is increasing, the public is demanding ever greater participation and more of a say in decisions, and public budgets are under growing pressure to consolidate – these weaknesses have increasingly detrimental effects. They impede a quick, effective and cost-efficient delivery of transportation infrastructure projects, and are thus partly to blame for the country's widely criticized investment and realization logjam.

Figure 3: Overview of weaknesses

Defining strategic priorities	<ul style="list-style-type: none"> > Relatively little strategic prioritization of projects in the Federal Transport Infrastructure Plan with a view to performance of the overall network > Obstacles for realizing strategic national guidelines and projects > Risk that project planning could become fragmented through purely regional considerations
Funding of the transportation infrastructure	<ul style="list-style-type: none"> > Available public funds not sufficient to provide an adequate transportation network in line with demand > Medium-term stability of financial planning relatively poor due to heavy dependence on annual budgeting exercises
Timing and form of popular participation	<ul style="list-style-type: none"> > Popular participation regarding specific projects too late in the process up to now > Predominant format for popular participation (written submissions) makes it difficult to involve all stakeholders > Complex expert reports unsuitable as basis for information for the general public
Political legitimacy for major projects	<ul style="list-style-type: none"> > Lack of visible parliamentary backing for projects > Overarching goals and strategies not communicated/explained adequately > Official plan approvals as administrative acts are vulnerable to legal challenges
Coordination & resources of administrative authorities	<ul style="list-style-type: none"> > Expertise for managing major projects is fragmented in administrations across the country > Authorities' staff overloaded by having to do regular work and handle major projects in parallel > Threat of delays and extra costs due to inconsistent regional procedures for suprarregional projects
Vulnerability to lawsuits & lack of process stability	<ul style="list-style-type: none"> > Planning process is complex and relatively vulnerable to lawsuits > Lack of milestones before plan approval decision destabilizes process and runs risk of causing substantial delays

1. Defining strategic priorities

Germany's Länder (state or regional governments, as opposed to federal government) play a key role in submitting proposals for infrastructure projects to be funded through the federal government's Federal Transport Infrastructure Plan ("Bundesverkehrswegeplan"). Within the general framework of strategic guidelines set by the federal government, the investment requirements and project proposals defined at the regional level have a material influence on overall planning. The substantial weight of regional demands bears the risk of fragmented project planning, which is primarily driven by regional considerations.

That makes it more difficult to realize strategic federal guidelines and projects that are necessary from a national perspective. As a result, requirements derived from strategic, nationwide analysis are sometimes fulfilled only inadequately or not at all. This holds, for example, for the needs of transit traffic, which are factored in only to a limited extent if requirements are identified predominantly at the regional level in order to remedy local deficits.

2. Funding of the transportation infrastructure

The overall level of investment in the transportation infrastructure is relatively low in Germany. Available funding is clearly not sufficient to meet the growing demands that derive from the projected growth in traffic flows in the years ahead. In addition to the inadequate level of funding, there are also serious shortcomings regarding the stability and medium-term predictability of available funding. Public funds to be invested in the transportation infrastructure are allocated on an annual basis through the federal budget to be adopted by parliament for each fiscal year. This annual funding cycle is not aligned with the multi-year (i.e. medium-term) planning horizon anchored in the Federal Transport Infrastructure Plan and the framework investment plan ("Investitionsrahmenplan"). In other words, the system does not provide a stable funding framework which allows for reliable medium-term financial planning for transportation infrastructure projects. This represents a considerable challenge for major infrastructure construction projects, which are typically characterized by a multi-year planning horizon. Annual discretionary fiscal policy decisions and resulting short-term changes to the amount of funding available can lead to inefficiencies and disruptions in the course of construction projects. Consequently, the allocation of funding on a fiscal year basis tends to drive up project costs.

3. Timing and form of popular participation

To date, the public has often been involved much too late in the planning process of infrastructure projects in Germany. The first formal procedural stage, at which personal interaction between the project developers and the stakeholders is compulsory, is a public hearing in the course of the plan approval procedure ("Planfeststellungsverfahren"). Yet by this time, the project developer has already planned the route down to the last land parcel, which means that, de facto, both technical planning and the exact route are already virtually immutable. As of this point, it is difficult – and rather unrealistic – to make substantial changes to the design of the project. This increases the risk of escalating conflicts.

Furthermore, the fact that written statements are currently the predominant form of participation in Germany makes it more difficult to effectively involve all stakeholders. Appropriate communication strategies to actively involve the local public – through information events and other target-group specific channels, for example – are still applied too rarely. Moreover, the complex expert reports that

are commonly used in administrative permitting procedures in Germany are not suitable to inform public participation. While they do provide access to a broad range of facts, they do not usually facilitate an objective debate about the project in a form accessible to laypersons.

In passing the Planning Harmonization Act ("Planungsvereinheitlichungsgesetz")⁵⁾, which came into force in June 2013, the government has taken a step intended to strengthen popular participation in the planning process. Wherever possible, the public is to be informed and given opportunity to air and discuss their views even before a formal application is made during the plan approval procedure. However, the legislator has stopped short of obliging the project developer to inform the public at an early stage. Nor is there any detailed prescriptive procedure for the participation process. Accordingly, the new law allows for flexible solutions in line with the needs of individual projects. Based on this flexible legal framework, it is now up to the administrative agencies and project developers to ensure that public information and debate is facilitated at an early stage.

4. Political legitimacy for major projects

In the German planning and approval process, the national and Länder parliaments (as forms of popular representation) play too small a part in giving political legitimacy to specific projects through explicit approval and endorsement. The Bundestag (lower house) and Bundesrat (upper house) approve the so-called requirements plans ("Bedarfspläne") based on the Federal Transport Infrastructure Plan, which is itself prepared and adopted by the federal government. Both the regional planning procedure ("Raumordnungsverfahren") and the plan approval procedure are then handled by the responsible administrative authorities. The practice of delegating decisions about the specific details of project planning largely to administrative authorities can undermine political legitimacy and cast doubt on visible political backing for key transportation projects. As a result, unresolved political conflicts surrounding infrastructure projects can effectively be farmed out to administrative processes. For the administrative authorities involved, that can imply a huge challenge. Being administrative acts, plan approval decisions issued by administrative authorities can easily be challenged through legal proceedings. As a result, in practice, the final decision is often taken in administrative courts. Delays and an unreliable basis for planning are the inevitable consequence.

5. Coordination and resources of administrative authorities

Within Germany's federal system, the federal government and the governments of the Länder assume different roles in the planning and approval of transportation infrastructure projects: The Federal Ministry of Transport, Building and Urban Development adopts the Federal Transport Infrastructure Plan. The federal legislator votes on the requirements plans that are based on this plan.

5) The official German designation of this law translates as the "Act to improve public participation in and to harmonize planning processes".

The specialist administrative authorities in the Länder are the key players in the subsequent planning and approval process for individual projects. This decentralized set-up makes it difficult for project developers and the relevant authorities to build up a sustainable body of expertise and knowledge regarding large-scale infrastructure projects, especially with a view to complex popular participation procedures. On the contrary, the experience of managing major infrastructure projects gathered by individual authorities remains heavily fragmented within this decentralized system.

In practice, many authorities also simply do not have sufficient resources, as major transportation infrastructure projects are often processed alongside their regular day-to-day tasks without the addition of extra staff. This results in procedural delays and also leaves the process vulnerable to errors.

In addition, the decentralized structure runs the risk of fragmenting the planning and approval process where projects involve more than one of the Länder, especially where different Länder handle procedural issues differently. Once again, this can lead to considerable delays and added costs.

6. Vulnerability of the process to lawsuits and lack of process stability

The German approval process is characterized by protracted procedures, a lack of milestones and high vulnerability to legal action. For example, the "dual" environmental impact assessment (EIA) performed in Germany is extremely time-consuming and resource-intensive. In this context, environmental impact is assessed first as part of the regional planning procedure and then a second time, on a more in-depth level, during the plan approval procedure. Another issue is that, until the final plan approval decision is taken, the German approval process has no fixed milestones, i.e. binding interim stages that, once ratified, can no longer be legally disputed. Because of this, judicial challenges to the planning decision that point to alleged shortcomings in the EIA performed as part of the preceding internal regional planning procedure have the potential to block or cause serious delays to a project that has been in planning for many years. A successful judicial challenge can even put an end to projects that have already cleared all the prescribed planning hurdles – i.e. projects that have already incurred sizeable costs and taken a great deal of time.

As it stands, the German system also overloads the planning process. Given the complexity of the environmental impact issues that must be taken into account, it is in practice almost impossible – especially with major projects – to make administrative procedures legally watertight. As a result, judicial challenges to plan approval decisions for larger projects have today become the norm rather than the exception. Ultimately, the combination of protracted and time-consuming administrative procedures and the "dual environmental impact assessment" severely destabilizes the overall process and poses the threat of long delays.

C. European best practices: Possible remedies to the weaknesses of the German process

When looking for effective ways to address the weaknesses in the current German system, a glance across the border to other European countries can provide useful ideas and important insights. Following this approach, the study investigated and analyzed promising and successful approaches to the planning, approval and funding of transportation infrastructures in selected European countries and assessed to what extent these good practices could be applied in the German context. Our analysis concentrated on a sample of four EU countries – France, Denmark, Austria and the Netherlands – which were identified as a good fit for a comparative analysis on the basis of a variety of criteria.⁶⁾ The assessment of the best practices found in these countries was systematically focused on the identified weaknesses in the German system. From the findings of the comparative analysis, we derived specific policy recommendations aimed at improving the German process in precisely those areas that require attention (see Figure 4). The study thus aims to present possible trajectories for reform, providing evidence-based stimulus for the ongoing political debate. Overall, our analysis of best practices clearly shows that, despite the complexity of the challenges, promising answers exist that could effectively address some of the key weaknesses in the German system.

Figure 4: Recommendations for action at a glance

DIMENSION	RECOMMENDATIONS
1. Set strategic priorities for infrastructure projects	<ul style="list-style-type: none"> > Use systematic assessment of existing and forecast network deficits and demand as baseline for decisions > Establish the removal of bottlenecks affecting the overall network as key criterion for project selection and prioritization > Use expertise of regional planning authorities to validate projects and draft solutions
2. Make funding more reliable – Try out alternative models	<ul style="list-style-type: none"> > Increase public funding for transportation infrastructure investments by shifting budget priorities > Try out alternative funding sources (e.g. user-based financing) beyond traditional (government) budget-based financing > Release funding for transportation infrastructure projects from constraints of annual budgeting exercises (by introducing a fund model with dedicated revenues)
3. Make popular participation more effective	<ul style="list-style-type: none"> > As prescribed in the Planning Harmonization Act, involve public at an early stage and inform public comprehensively, proactively and in understandable language > Beyond minimum legal requirements, make popular participation flexible, optional and tailor it to target groups > Create publicly funded national competence center to make popular participation more professional
4. Ensure greater political legitimacy for large-scale projects	<ul style="list-style-type: none"> > Facilitate discussion of specific infrastructure projects in parliament > Demonstrate political will by requiring parliamentary approval for projects > Assume political responsibility for planned projects
5. Improve the capacity of authorities and project developers to manage approval processes	<ul style="list-style-type: none"> > Set up superregional pool of administrative experts with experience with major projects; deploy them flexibly > Create option of central handling of regional planning and plan approval procedures at national level for certain cross-regional, large-scale projects (blueprint: "electricity highways") > At peak times, facilitate temporary support through external service providers
6. Simplify administrative procedures – Make the process more stable	<ul style="list-style-type: none"> > Consider abolishing regional planning procedure > Automatically align regional plans with approved projects > Eliminate "dual" EIAs; condense EIAs into a single process step (plan approval procedure)

6) (1) Similar general conditions to Germany (2) Existence of a high-quality transportation infrastructure (3) Successful project implementation (4) Evidence of good practice

1. Set strategic priorities for infrastructure projects

Best practices in Europe

A look abroad shows that there are effective ways to align project prioritization more closely with the performance of the overall network on the basis of a superregional strategic perspective. Irrespective of the many national peculiarities and differences, the national level plays a far more prominent role in compiling medium-term investment plans in all the countries analyzed than is currently the case in Germany.

The systematic prioritization of proposed projects depending on their contribution to the performance of the overall network is particularly strong in Austria, where medium-term investment planning is handled by the semi-autonomous infrastructure companies ASFINAG⁷⁾ and ÖBB⁸⁾ within the framework of defined target networks. The definition of target networks is closely linked to relevant national traffic forecasts. It draws on a catalog of clear-cut and predefined criteria which serve as the yardstick to validate potential new construction and expansion projects.

Recommendations for action

- > Before prioritizing infrastructure construction projects to be realized, it is important to create a systematic and comprehensive fact base which provides an overview of current and projected deficits in the network and traffic demand levels. New construction, expansion and modernization projects should then be selected and prioritized on the basis of this information.
- > Removing or alleviating bottlenecks relevant for the overall network and providing relief for overloaded traffic nodes must in all cases serve as the key criterion when setting priorities. In this context, the current draft of the basic concept for the Federal Transport Infrastructure Plan 2015 already points in the right direction, emphasizing the elimination of bottlenecks as a crucial criterion. The Federal Transport Infrastructure Plan 2015 must stay true to this approach.
- > The knowledge of local traffic conditions possessed by authorities at the level of the Länder should play a pivotal role in examining and validating identified network bottlenecks and investment requirements. In the future, greater use should be made of the Länder planning agencies' knowledge regarding the regional traffic situation and regional planning issues to develop solutions which help to effectively eliminate bottlenecks.

7) *Autobahnen- und Schnellstraßen-Finanzierungs-Aktiengesellschaft*
[the Austrian freeway operator and toll collector]

8) *Österreichischen Bundesbahnen-Holding AG* [the Austrian rail operator]

2. Make funding more reliable – Try out alternative models

Best practices in Europe

The European countries examined in our comparative analysis give higher priority to investing in transportation infrastructures. This is reflected in transportation's weight in public budgets and in per-capita transportation infrastructure investment figures. Regarding the issue of releasing infrastructure funding from the constraints of annual budgeting exercises, Austria has adopted an interesting approach. Independent budgets and multi-year funding agreements enable government-owned infrastructure companies such as ÖBB to develop stable medium-term funding concepts with a multi-year planning horizon. This makes the concepts reliable and lowers the overall cost of large-scale projects.

The countries investigated also tap a much broader spectrum of funding sources. One example is the Danish "state guarantee model", which links government responsibility for projects to user-based financing for selected major projects. At a time when public budgets are tight, such alternative funding sources can mobilize the resources needed for selected new construction and expansion projects that would not be feasible with traditional budget-based financing alone. The Netherlands in particular also have a systematic approach to making greater use of public/private partnerships (PPPs). The country actively builds up PPP expertise in the administrative agencies entrusted with handling procurement procedures in order to make the best possible use of the efficiency gains afforded by PPP models in suitable projects.

Recommendations for action

- > Germany must shift its public budget priorities significantly to the benefit of investments in the transportation infrastructure. The progressive erosion of assets must be halted by ensuring the availability of sufficient funds to invest in maintenance. In light of the growing volume of traffic, more funding should also be set aside for new construction and expansion projects in order to selectively strengthen the overall network and eliminate bottlenecks.
- > Next to an adequate level of available funding, the ability to plan the financing framework on a reliable basis is crucial for the delivery of an appropriate transportation infrastructure. In Germany, the funding of infrastructure investments must be freed to the greatest extent possible from the constraints of annual public budgeting exercises. One conceivable option would be to create a fund structure via which money for transportation infrastructure investments – for example from transportation-related tax revenues or user charges – would be made available for a binding multi-year planning horizon.

- > Given the limitations on public funding, Germany should also take a close look at other countries' positive experiences with alternative financing models. User-based financing models would be one of the possible options. Analysis of other countries' experience shows that approaches such as Denmark's "state guarantee model" could allow Germany to make use of its favorable financing terms on international sovereign bond markets to effectively mobilize additional funding.
- > PPP models are already used on occasion in Germany, where the responsibility for the planning, construction, operation and maintenance of certain freeway sections is delegated to private consortia. Along the lines of the Dutch "PPP Knowledge Pool", expertise in PPP projects could be systematically disseminated and shared within the road construction authorities of the Länder to make effective use of the potential efficiency gains afforded by PPP models.

3. Make popular participation more effective

Best practices in Europe

In all the other European countries analyzed in the study, the public is normally involved at a much earlier stage of the planning and approval process than is currently the case in Germany. Stakeholders are involved at a time when it is still easier to make changes to the project that could then be realized at reasonable extra cost. Popular participation gains greater credibility as a result, which reduces the risk of escalating conflicts in the later stages of the process. In all four countries examined, the public is involved before the decision to use a certain solution for realizing the project (regarding the specific route, technical specification, etc.) has been made. In the Netherlands, for example, a public consultation is held during the study phase. Similarly, a "débat public" is held in France before the start of the actual approval procedure.

The range of approaches adopted naturally varies from country to country. In Austria, the rules governing public participation are very specific and legally binding. By contrast, legal prescriptions are complemented by an important role for voluntary approaches to participation on the part of project developers and authorities in Denmark. France even has a "commission nationale du débat public" (CNDP), a dedicated body that provides professional organization and support for the participation procedure for major infrastructure projects.

Recommendations for action

- > The adoption of the Planning Harmonization Act in spring 2013 marked an important step toward early public participation. This will allow flexible and tailor-made solutions to be found for each project. The federal government is also involving the public in the preparation of its Federal Transport Infrastructure

Plan 2015. Anyone who is interested is thus invited to have their say on the basic concept and the draft plan. Some of the Länder, too, have involved their residents in preparing the Länder lists for the new Federal Transport Infrastructure Plan.

- > The next step is to systematically add further informal means of participation to the formal process in practice. To do so, popular participation in specific projects should begin as early in the process as possible. The critical issue is to facilitate public involvement at a stage when it is still relatively easy to make significant changes to the project. Looking at the current German planning process, this would certainly have to be before completion of the regional planning and route determination procedures.
- > To ensure that all relevant target groups are reached in practice, the local public must be encouraged to participate actively in ways that go beyond written statements – for example in the form of information events, discussions and other target group-specific formats.
- > It is also of paramount importance to give the public access to information that they can readily understand and that is tailored to the need of the target group. To this end, the sometimes complex technical project information must be condensed and presented in a language that everyone can understand. Only then will the public be able to genuinely weigh up the key benefits and drawbacks of the project.
- > Creating a national, publicly funded competence center for public participation – along the lines of the French CNDP model – could be a useful approach in Germany too. This kind of organization could advise and support project developers and the authorities involved in the approval process, helping to make popular participation more prudent and professional.

4. Ensure greater political legitimacy for large-scale projects

Best practices in Europe

In all the countries analyzed in the study, the political decision to go ahead with individual projects is followed by more visible acts of political endorsement and legitimation than is the case in Germany. In the Netherlands and France, all major procedural steps in large-scale transportation infrastructure projects are concluded with official ministerial decisions, which clearly communicate a strong political commitment and backing. In Austria and especially in Denmark, the national parliament plays a crucial role in providing further legitimacy for specific projects. In Denmark, official permission to proceed with specific projects is granted not as an administrative act, but in the form of a (construction) law that is passed by parliament. In adopting this procedure, the government assumes responsibility for specific projects, giving them higher visibility and clear political backing.

Recommendations for action

- > For particularly important large-scale infrastructure projects, the existing (and still pivotal) administrative planning and approval process should be complemented by visible decision-making steps on the political level, which provide legitimacy on an individual project basis. In this context, it is vital for parliament to explicitly engage with and approve of specific project proposals which already provide a fair amount of detail.
- > A non-statutory parliamentary resolution would be one possibility, placing the main emphasis on acknowledging the project status and the procedure adopted in the planning process (public participation, provision for project risks, updated cost schedules). The actual authorization for construction would then still be granted in the form of an official plan approval decision by the competent administrative authority, whose independent assessment and authority would remain unaffected by the parliamentary resolution.
- > The parliamentary resolution could be made in the Bundestag on the one hand and in the relevant Länder parliaments on the other hand. Splitting the responsibility between the national parliament and the Länder parliaments depending on project size would be appropriate. The role of the Länder parliaments would be limited to issuing recommendations for the national government to examine a given project in detail.

5. Improve the capacity of authorities and project developers to manage approval processes

Best practices in Europe

With the partial exception of Austria, responsibility for the approval processes for infrastructure projects in the national transportation network lies with national government in all the other European countries we analyzed. Depending on the precise process step, France, the Netherlands and Denmark have administrative reviews and approvals handled either by the relevant ministry itself or by specialized administrative agencies or departments that report directly to these ministries. Since responsibility is concentrated more tightly, these countries are better able to systematically build up expertise and knowledge regarding the management of large-scale projects. This ensures that procedures remain consistent and harmonized at all times, even for superregional projects. Moreover, having all major projects handled by a single administrative body implies a relatively stable project pipeline which can be processed consistently on an ongoing basis. The number of administrative staff required to process the pending projects is thus less volatile and easier to plan than in a decentralized system.

Recommendations for action

- > To alleviate staff shortages and the risk of administrative departments entrusted with major infrastructure projects to become overloaded, a pool of experts across all the Länder should be created within the administration and earmarked for flexible deployment. This pool of professionals could systematically build up expertise in dealing with large-scale infrastructure projects, even within the existing federal (and hence decentralized) structure.
- > For certain large-scale superregional projects of strategic importance to the performance of the entire transportation network, it should be possible to have the regional planning procedure and the plan approval procedure handled by a single, central agency at the national level. This would reduce the administrative effort involved in coordination and speed up project realization. The provisions of the "Act to Accelerate the Expansion of the Power Grid" ("Netzausbaubeschleunigungsgesetz"), which came into force in 2011, could serve as a blueprint for this kind of concentrated, harmonized national approval process.
- > When the workload of approval agencies peaks, it should be possible to temporarily involve external, private-sector service providers for certain tasks and activities that do not concern the core of the government's review and approval authority. This could provide a flexible lever to mobilize additional resources in order to ease the burden on the administrative authorities.

6. Simplify administrative procedures – Make the process more stable

Best practices in Europe

In Austria and France, existing local land use plans are automatically aligned with transportation infrastructure projects as soon as the latter receive official approval. This eliminates the need for a regional planning procedure, which reviews a project's compliance with existing plans and defines which adjustments need to be made to the project to make it admissible.

In all four countries analyzed in the study, environmental impact assessments are performed in a concentrated form at only one point in time in the procedure. Unlike Germany, none of these countries has a time-consuming and resource-intensive "dual" EIA, where environmental impact is assessed first as part of the regional planning procedure and then a second time, on a more in-depth level, during the plan approval procedure.

The experience of Denmark, Austria and the Netherlands indicates that a project-specific strategic environmental assessment (SEA) could help the entire procedure to progress more smoothly. Having a first, rough assessment of specific projects already during the SEA can help identify environmental issues and explore possible solutions at an early stage of planning. Critical issues can thus be addressed before specialized authorities and technical associations begin their very detailed assessments on the basis of extensive reports.

Recommendations for action

- > Germany should examine the possibility of automatically aligning existing land use plans with proposed projects. This would eliminate the need for the regional planning procedure, during which projects are screened for potential conflicts with existing regional plans. Such a reform could accelerate the necessary procedures, as one entire procedural step could be eliminated and project developers would no longer be required to adjust their proposed projects to comply with existing plans.
- > Furthermore, the EIA should be performed in a single procedural step (the plan approval procedure) in the future. This would eliminate the current German practice of splitting the EIA between the regional planning procedure and the planning process – a split not found in any of the other countries analyzed. This change would solve the problem that a judicial challenge to the plan approval decision that points to shortcomings in the EIA performed as part of the preceding internal regional planning procedure can undo all the work that has gone into projects over a number of years due to the absence of binding milestones.
- > Bearing in mind the conditions in Germany (the size of the country and the number of projects), the option of a bundled SEA for the Federal Transport Infrastructure Plan as a whole constitutes an appropriate and practicable approach. To complement the current SEA, which refers to the network as a whole, it should be examined to what extent selective SEAs for individual construction projects of strategic national importance could be integrated into the existing process. Especially in the case of high-profile new construction projects, this could help to identify key acceptance problems at an early stage and effectively address them in the following steps of the planning process.

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