PRIME

Platform of Rail Infrastructure Managers in Europe

PRIME Deep Dive on "Charging and State Funding of European Infrastructure Managers"

Study summary

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European Commission

civity Management Consultants

Executive Summary

PRIME, the Platform of Rail Infrastructure Managers in Europe, has conducted a deep dive on charging and state funding of European infrastructure. The report is based on a survey about the funding systems and structure of participating PRIME members.

Where funding of infrastructure managers is concerned, a limited number of European requirements apply, notably in Directive 2012/34/EU:

- the *"profit and loss account of an infrastructure manager shall at least balance income [...] and infrastructure expenditure"*,
- the *"charges for the minimum access package and for access to infrastructure connecting service facilities shall be set at the cost that is directly incurred as a result of operating the train service"*, while mark ups can be levied, as an exception to the general charging principle, based on a sustainability criterium;
- a contractual agreement is concluded between the competent authority and the infrastructure manager covering a period of not less than five years.

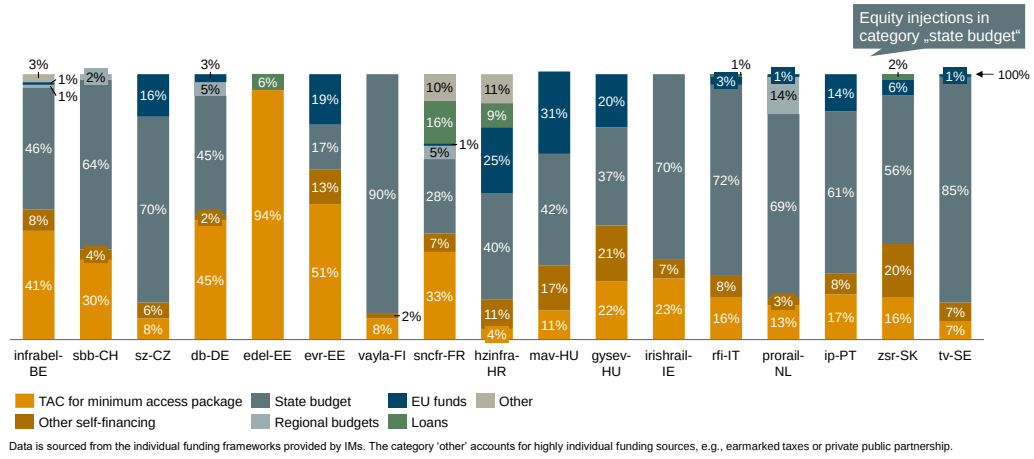
Within this framework, the deep dive highlights three main trends:

Firstly, all infrastructure managers have built a long-term vision. This often includes:

- target network strategies and long-term investment plans, picturing changes related to size and design of the network
- and commonly shared performance objectives, such as increasing modal split, safety and better conditions for rail freight

This shared long-term approach opens to the question of funding and of its visibility and stability. While most infrastructure managers are provided bindingly covered funding, it is interesting to note that many infrastructure managers face very short durations for bindingly committed budgets.

Secondly, an overview of funding sources shows how these are multiple, mainly relying on revenues from track access charges and public funding.



Number and shares of main funding sources in total funding (2019 data)

Thirdly, and as a result, coordinated linkage of state funding and track access charges is paramount. Where track access charges and state funding are not sufficient to cover the expenditure to meet the targets, loans become necessary. Five infrastructure managers use loans to fund their expenditures, with shares between 1% and 16% percent of the total funding.

These findings testify to the fact that infrastructure managers will be confronted with three main challenges in the coming years:

1. More than half of the infrastructure managers in the study are confronted with a backlog of their maintenance and/or renewal activities. These backlogs occur if maintenance and renewal is smaller than the wear and tear of the existing assets. The renewal of the infrastructure is a European priority.
2. The volume and certainty of the budget available is of considerable importance, but also important is how flexible infrastructure managers are in the allocation and use of the funds for upkeep, according to the life cycle costs of their assets.
3. Harmonizing the interplay of funding sources remains an ongoing challenge for infrastructure managers and member states. State funding and mark-ups must complement each other to cover the total cost that exceed direct cost.

Study Summary

This summary presents the main findings of a deep dive study on charging and state funding of European infrastructure managers within PRIME, the Platform of Rail Infrastructure Managers in Europe. The study was commissioned by the European Commission DG MOVE to explore the structures and mechanisms of railway funding. The national funding systems and current framework conditions of the infrastructure managers are compared and analyzed in their context, to inform the ambitious targets the European Commission and the member states have set for rail to become the backbone of a sustainable transport sector. With the Green Deal, the Sustainable and Smart Mobility Strategy and recently the new action plan to boost long-distance and cross-border passenger rail, far reaching policy plans and programs for the rail sector have been decided. The question of sufficient funding for the rail sector takes on great importance against this background.

The report is based on a survey about the funding systems and structure of participating PRIME members. The entire reports including the individual survey data on charging and state funding of the infrastructure managers are not public. To inform an interested public this summary describes similarities, differences, experiences, and difficulties of rail infrastructure managers in the area of funding. The analysis is divided into three sections:

1. **Long-term network strategies**, providing an overview of infrastructure managers' long-term network plans and their strategy for development
2. **Funding frameworks**, structuring the individual funding schemes and the respective amounts of individual elements within
3. **Contractual agreements**, describing the multi-annual contracts between infrastructure managers and the competent authority of the member state based on Directive 2012/23/EU

Long-term network strategies

Long-term network development requires sufficient investment funding over multi-annual planning periods. Nearly all infrastructure managers establish target network strategies and plans spanning a period of at least five and up to 21 years. These target networks include a concrete plan describing the future rail infrastructure, including all changes related to size and design of the network. It seems best practice to incorporate railway investment activities in national transport plans which combine the investment projects of all transport modes.

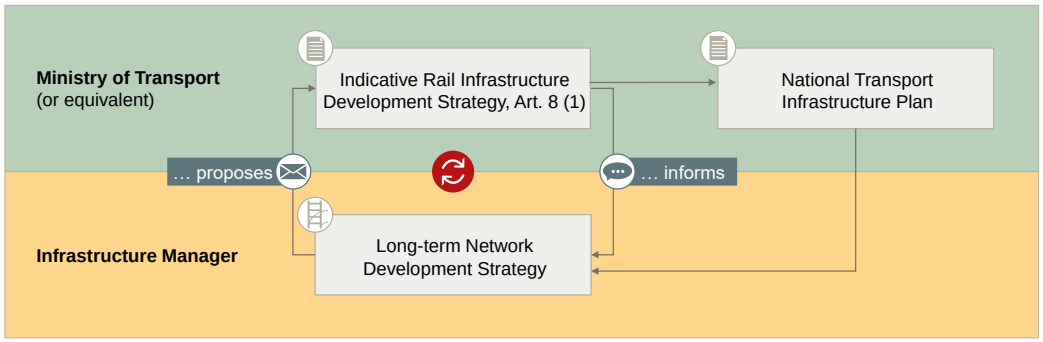


Figure 1: Linkage between strategies of infrastructure managers and member states

Considering the infrastructure managers' underlying objectives, many are aiming at an improvement of the network's performance which can be found in most strategic plans. Increasing modal split, safety and better conditions for rail freight are the most frequently mentioned.

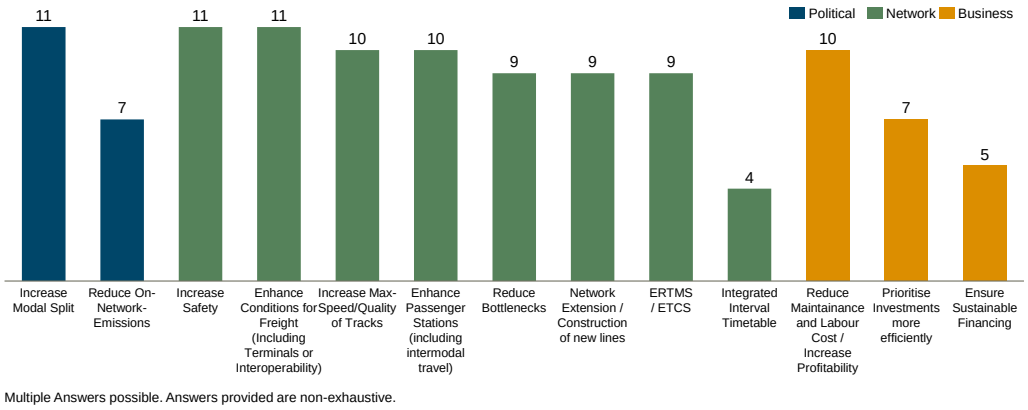


Figure 2: Number of infrastructure managers reporting main objectives of their long-term network development strategies

While the period for which long-term plans are established and the period for which investments are calculated often match, the periods for which funding (of multi-annual investment projects) is guaranteed are often as short as a year. Only very few infrastructure managers show long-term planning for all investment activities that is also fully calculated and fully covered by financial commitments. Two case studies of oebb-AT and sbb-CH show how a comprehensive and systematic approach to network development, including specific activity planning, evaluation, and optimization can be linked with funding needs and long-term funding commitments and result in long-term planned and bindingly funded target network strategies. It remains to be discussed how a long-term financial underpinning for the rail infrastructure can be realised for as many infrastructure managers as possible.

Funding frameworks

The specific **funding frameworks** of infrastructure managers reflect the long-term network strategies and the overall funding structure of infrastructure managers. The funding frameworks essentially consist of the three main funding categories of track access charges, state funding and other funding sources, including mostly EU funds and loans, to cover the expenditure categories.

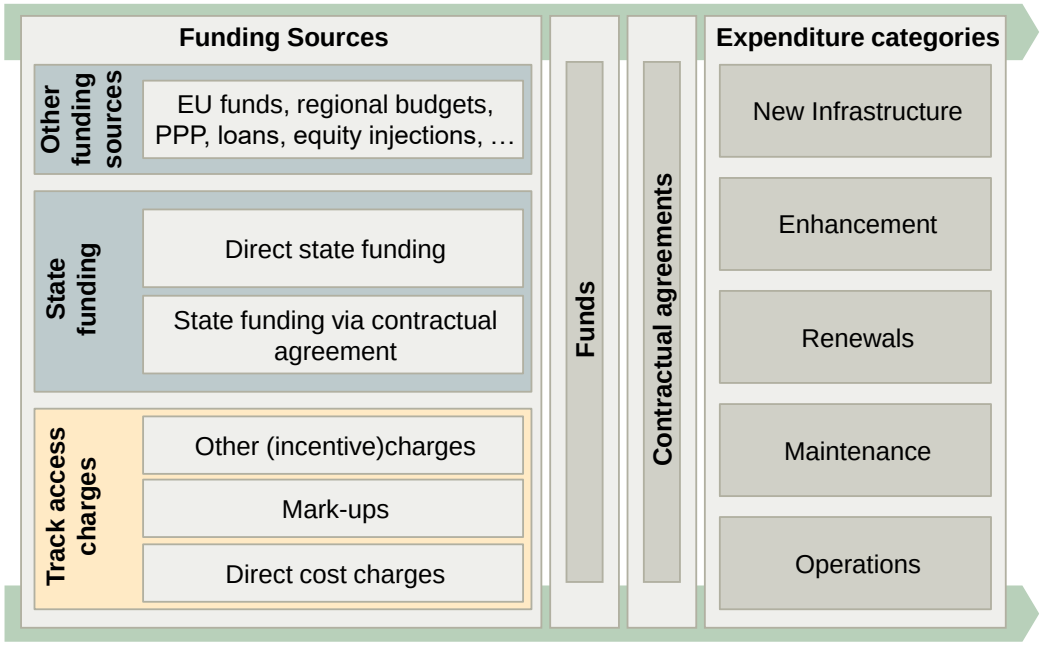


Figure 3: Overview charging and funding framework

Infrastructure managers show individual approaches in funding frameworks which mostly depend on conditions of the member state. The small number of uniform EU requirements, historically evolved national railway sectors, and national political influence provide highly diverse financial environments for each infrastructure manager. The complexity of frameworks differs significantly. Some frameworks contain multiple funding sources and different allocation contracts, others are relatively lean. This does not show a best funding framework, but rather is indicative of the mentioned various national differences and results. The following figure shows the diversity and the individual shares of the main funding sources for the infrastructure managers.

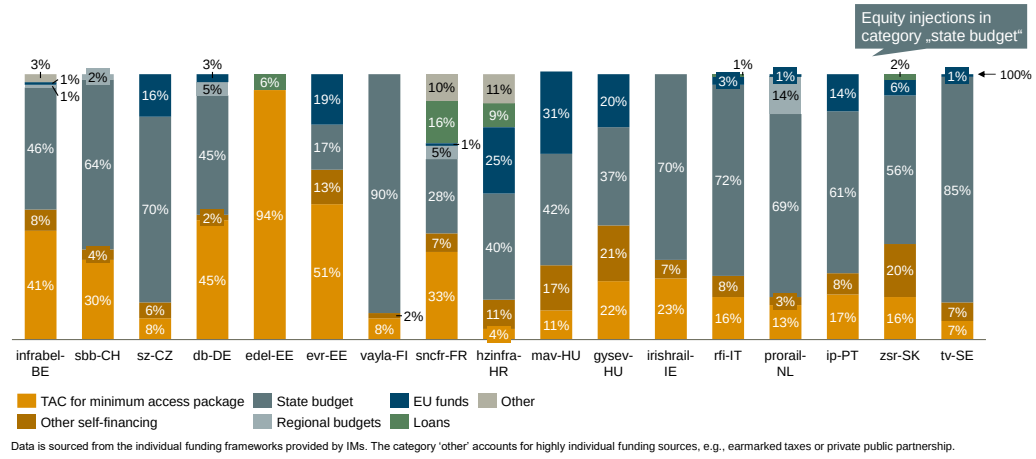


Figure 4: Number and shares of main funding sources in total funding (2019 data)

The number and the importance of funding sources available for infrastructure managers varies. In most cases there are multiple sources used. This variety of funding sources introduces a certain complexity into the funding system for an infrastructure manager. On the other hand, several sources of funding can increase the available budget and thus allow for more investment. All infrastructure managers use self-funding which is mostly track access charges (TAC). Track access charges are not, however, the most important source of funding for the majority of infrastructure managers. Except for privately owned infrastructure managers like Edelaraudtee (edel-EE) and Lisea (lisea-FR) state funding including regional budgets is an available funding source for all infrastructure managers. For the vast majority of infrastructure managers, it is also the most important source of funding. Other accessible sources are mainly EU funds and loans. While EU funds are frequently used, for western European infrastructure managers they represent only a small share of 1% - 3% in total funding and do not make a decisive funding contribution. Nevertheless, very relevant projects are financed with EU funds. The Cohesian Member States in Eastern Europe are however entitled to higher EU funds and eastern European infrastructure managers have higher shares of EU funds, reaching 31% as highest share for MÁV (mav-HU). If other sources are not sufficient to cover the expenditure to meet the targets, loans become necessary. Five infrastructure managers use loans to fund their expenditures, with shares between 1% and 16% percent of the total funding. SNCF Réseau (sncfr-FR) is one of five infrastructure manager to use loans. As the share of loans in the total budget is already relatively high, SNCF Réseau has a “golden rule” stating that no new investments can be financed by the infrastructure manager as long as net debt exceeds gross profit by a factor of six. However, over a longer period, going into debt and using loans is not possible as the Directive 2012/34 requires bal-

anced accounts for infrastructure managers. To reduce the cost of debt, some infrastructure managers received equity injections by their member states, that lowered or substituted loan funding.

Besides the different focus in available funding sources between infrastructure managers there are commonalities between the funding frameworks. Most of the funding for the contractual agreement comes from state funding. Still six infrastructure managers also use other sources for the contractual agreement, mostly self-funding (i.e., track access charges). Another common feature is the funding of operation and upkeep predominantly with self-funding and with the contractual agreement's budget on the one hand and directly state-funded network expansion on the other hand. This targeted funding focus allows infrastructure managers both individual and long-term financing security for enhancement and new infrastructure projects, as well as flexibility in the use of funds for upkeep according to the life cycle costs of their assets.

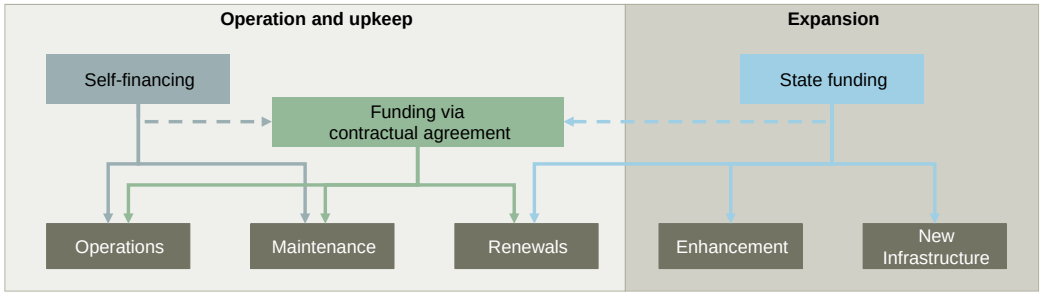


Figure 5: Schematic illustration of the allocations of funding for operation and upkeep and for network expansion

Funding instruments can be a helpful element to generate long-term funding certainty for infrastructure managers. If sustainably embedded into the funding framework, they ensure high stability and funding security for the infrastructure managers and lead to low transaction costs and high transparency. Currently three infrasteucture managers have set up funds as an instrument. The Czech "State fund for Transport Infrastruture (SFDI)" was established in 2000 and aims at the development, construction, maintenance, and modernisation of roads, motorways, railways, and inland waterways. The fund's balance can be carried to the following budget year. In the Netherlands, a fund of the Dutch government was established in 1993 to fund rail, road and water infrastructure projects. It will be replaced by a successor mobility fund in 2022. The fund's balance can also be carried to the next year. In Switzerland, there has been a dedicated railway infrastructure fund since 2016. The Swiss railway fund was even anchored into the constitution by a referendum. These cases show how

funding can be designed to be stable over a long period of time, outside of annual budget debates and changing political considerations.

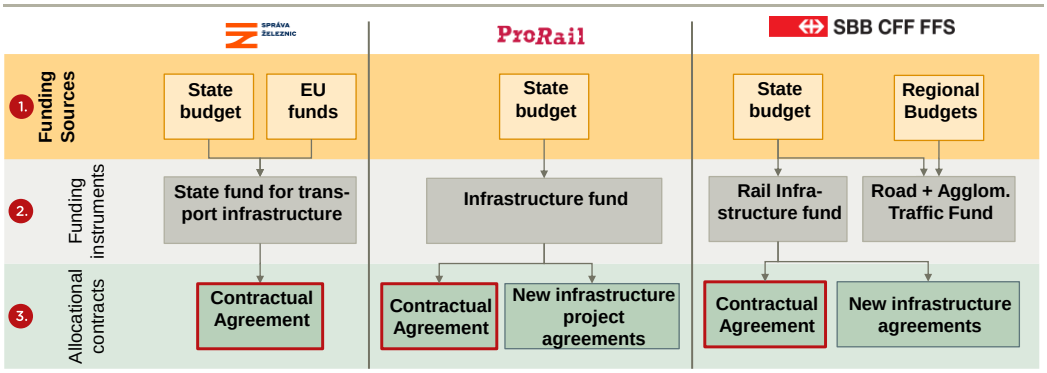


Figure 6: Integration of funds into infrastructure funding frameworks

A discussion about fund solutions for long-term funding of future rail infrastructure is necessarily a political discussion at national level, since among other things the rights of parliaments and constitutional issues are at stake.

Multi-annual Contractual Agreements

Multi-annual Contractual Agreements are the central element to fund all aspects of infrastructure management of the existing rail infrastructure and, in some cases, also fund expansion and construction of new infrastructure. In general, infrastructure managers assess their contractual agreements as a valuable basis for their business and point out more explicit budget definition, longer contract terms and greater transparency and commitment as positive developments in their more recent agreements.

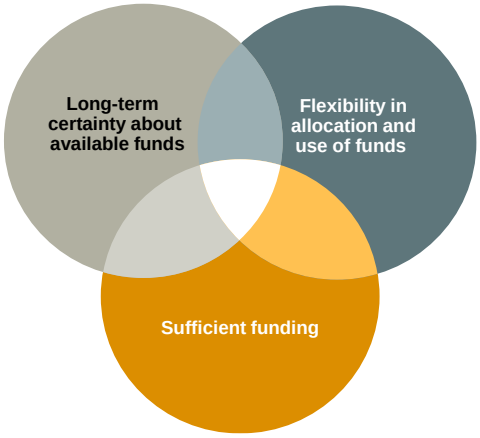


Figure 7: Infrastructure manager's key requirements for contractual agreements

Contractual agreements with a longer term of 5-10 years and bindingly covered budgets provide a stable planning basis and fulfil the infrastructure managers requirement of long-term certainty of funding. The benchmark of the contractual agreements of the infrastructure managers shows that a reliable contractual agreement and infrastructure manager's performance should be accompanied by sufficient budgetary resources from track access charges and state funding, otherwise some kind of debt funding becomes necessary.

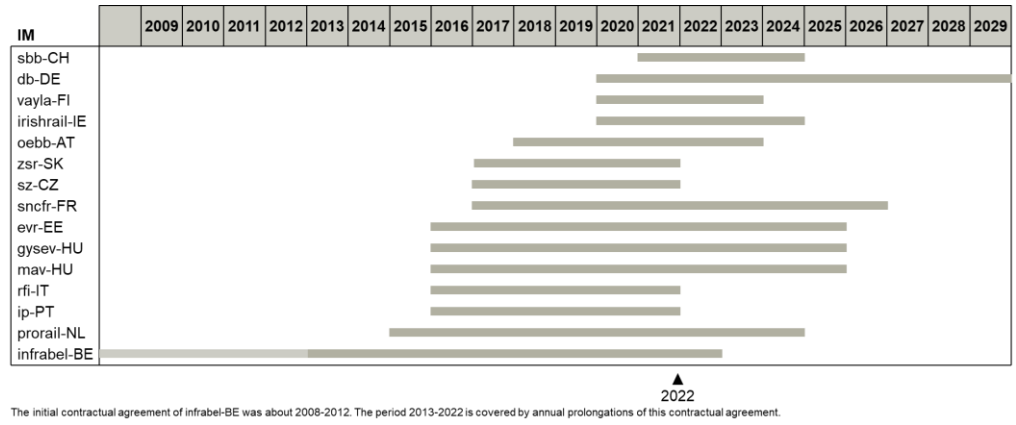


Figure 8: Periods of contractual agreements (data status beginning of 2022)

The above figure shows the terms of the contractual agreements in force at the beginning of 2022. Compared to the predeccessor agreements, there is a tendency towards longer terms.

However, many infrastructure managers face very short durations of bindingly committed budgets for their contractual agreement. The reason for this is usually the annuality principle of the household budget, according to which many member states only make binding budget commitments for the next year. This considerably reduces the budget and thus the planning certainty for long-term expenditures and investment decisions. To what extent the budget of the contractual agreements is bindingly covered is depicted in the figure below.

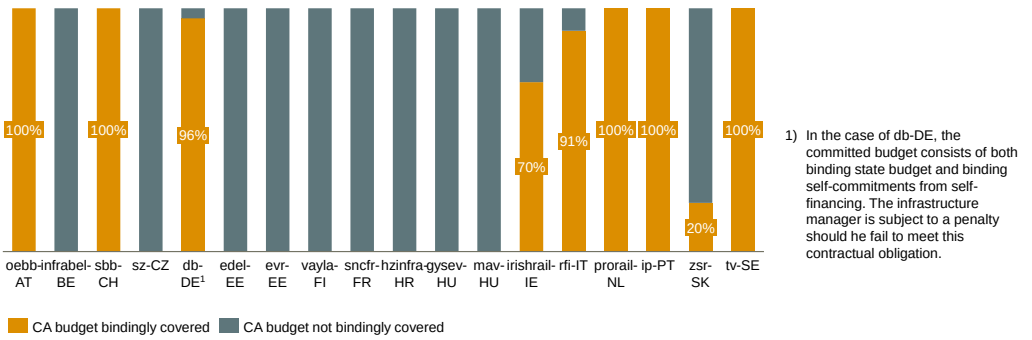


Figure 9: Share of bindingly covered budget of contractual agreements

The **volume and certainty** of the budget available is of considerable importamnce, but also important is how flexible infrastructure managers are in the allocation and use of the funds. Budget adjustments in contractual agreements seem largely possible for infrastructure managers. However, the obligation to coordinate seems high for some and flexible maintenance and renewal decisions do not always seem possible. Calculating budgetary needs based on the network conditions is essential to determine the level of funding needed. Infrastructure managers that appear to have sufficient funds to maintain their network in a stable condition are found among those that are free to calculate financing needs using a bottom-up approach and conduct regular replanning.

In addition to the calculation and planning on the infrastructure manager side, the commitment of the state to cover the funding requirements is of course needed on a permanent basis. In the absence of sufficient funding, the infrastructure manager will either have to rely on external sources of funding such as loans, or face backlogs in their maintenance and/or renewal expenditures and activities. These backlogs occur if maintenance and renewal is smaller than the wear and tear of the existing assets. In this case the investments to sustain the rail network are not in a steady state as schematically illustrated in the figure below.

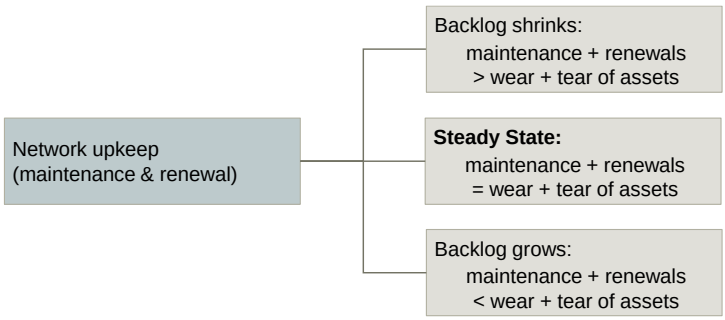


Figure 10: The connection between network upkeep and the development of backlogs

More than half of the infrastructure managers in the study are confronted with a backlog of their maintenance and/or renewal activities. The high-level analysis of the backlog situation of infrastructure managers illustrates the importance of an explicit consideration of budget in contractual agreements for the rapid and continuous reduction of backlogs[1]. Differences in the reported backlog volumes may be due to divergent definitions. Furthermore, the existing backlogs have different dimensions for the infrastructure managers and their member states, which becomes apparent when comparing the effort required to eliminate them. For example, two-thirds of the existing backlogs correspond to one to two years' worth of 2019 state funding. But there are also backlogs that are five or nine times the manager's 2019 state funding. Despite the significance backlogs can have, only four infrastructure managers account for budgets in their current contractual agreements to cover and successively reduce them.

An interesting case study is Irishrail aiming to achieve a "steady state" of its rail infrastructure in 2031. Still facing a backlog from previous years their current contractual agreement covers the steady state maintenance and renewal funding plan needed to catch up and to keep the network in a condition so that no maintenance and renewal backlog is created. If new infrastructure or enhancement projects are carried out, the follow-up expenses for operation, maintenance and renewal are added to the future steady state expenditure and transferred into the budget and long-term plan.

The emergence of backlogs highlights the fundamental problem infrastructure managers are facing: having little room for maneuver to get the funding they need to operate and upkeep their networks. They heavily depend on the coordinated linkage of the two most important funding sources, state funding and track access charges. State funding and track access charges together fund the majority of infrastructure manager's expenditures in this benchmark. In one or two cases these sources cover 50%, but in most cases they cover 70% and up to 100% of all expenditure. The study results show how a well working interaction of the various funding sources together with funding instruments and allocational contracts is important for the business of infrastructure managers. Sufficient volumes of funding sources is the most critical success factor for good performance. If these are not available, infrastructure managers are left

[1] An increase in maintenance and renewal activities may also be funded by other sources outside of a contractual agreement. However, contractual agreements are supposed to define and contain the budget for all aspects of infrastructure management of the existing infrastructure. This intention is also reflected in the Directive 2012/34/EU.

with only a few options to close funding gaps. The following figure summarises the funding sources and their interplay and concludes an ongoing challenge.

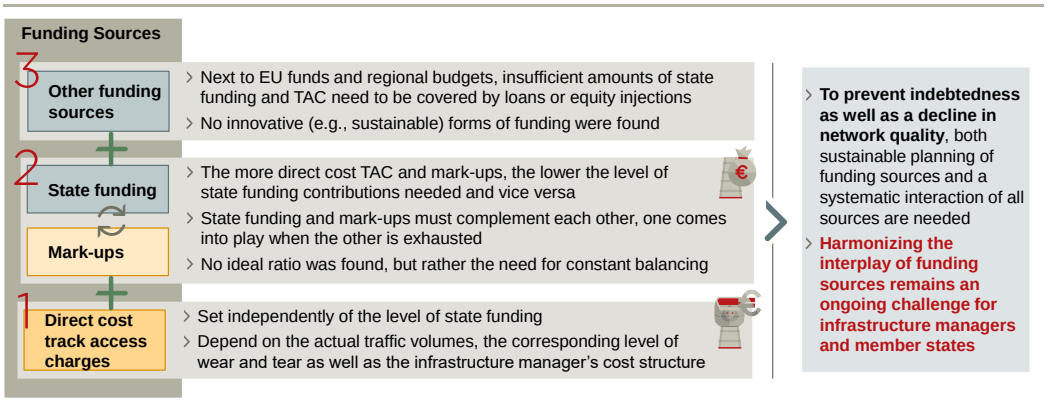


Figure 11: Interplay of funding sources from infrastructure managers

Infrastructure managers have little to no influence on the first funding component of their funding framework, **track access charges**. The revenues of the direct cost charges as the main component of track access charges depend on the actual traffic volumes and the corresponding level of wear and tear as well as the infrastructure manager's cost structure and level as examined or approved by the national regulatory authority. The charges are set according to the direct costs incurred. In addition, infrastructure managers may levy mark-ups to achieve higher cost recovery. But here, too, infrastructure managers have no influence on the level, as these are set in accordance with what the market can bear. Other track access charges such as reservation and performance charges rather serve to incentivise railway undertakings or the infrastructure managers and do in fact not constitute a source of funding with a significant amount of revenue. Consequently, infrastructure managers have virtually no influence on the amount of revenue generated by track access charges as their essential element of self-funding.

The second, equally important funding source is **state funding**. The more an infrastructure manager is able to cover infrastructure costs with direct cost charges and mark-ups, the lower the level of state funding contributions needed and vice versa. State funding and mark-ups must complement each other to cover the total cost that exceed direct cost. The benchmarking exercise in this study did not reveal any ideal ratio but rather the need for constant balancing.

If these two main funding sources are not sufficient to cover the costs of an infrastructure manager, additional sources are needed. These are usually EU funds or regional budgets. Despite one case of private public partnership, no alternative forms of funding seem to be currently used by infrastructure manag -

ers. If EU and regional budgets are not or only insufficiently available, for example because EU funds are dedicated for expansion rather than upkeep, infrastructure managers will be confronted with the aforementioned fundamental dilemma: either the network quality suffers and backlogs arise, or the infrastructure managers have to turn to debt funding. **Loans are a mixed blessing**. They enable infrastructure managers to fill potential gaps between set network targets and insufficient funding. But in a longer perspective the annuity and interest cost of debt can well increase overall funding needs. Some infrastructure managers and member states have opted for **equity injections as an alternative** to loans or a means to reduce them for the infrastructure manager.

In order to prevent the infrastructure managers from falling into debt in addition to a decline in the quality of their network, there is a need for both sustainable planning of the funding needs and the systematic interaction of all funding sources. Harmonizing the interplay of funding sources remains an ongoing challenge for infrastructure managers and member states. Sustained coordination over a long-term funding strategy, iteratively planned and discussed between infrastructure manager and member state, offers a stable foundation for the challenges of the rail infrastructure. Ideally this coordination is also the foundation for the design of the contractual agreement, as the most important instrument for allocating state funding. The member state has the ultimate decision power about the level of state funding granted, but the infrastructure manager may make a sound case for increased state funding based on long-term planned and calculated funding needs based on well monitored network conditions.

The study shows that there is no single best way to fund an infrastructure business. In addition to national particularities and constraints that may exist, there are many different ways that individual infrastructure managers have proceeded successfully to meet key funding challenges. Several case studies of infrastructure managers in the study are evidence of this. A discussion about how to achieve long-term financial security of rail infrastructure for as many infrastructure managers as possible should be continued.