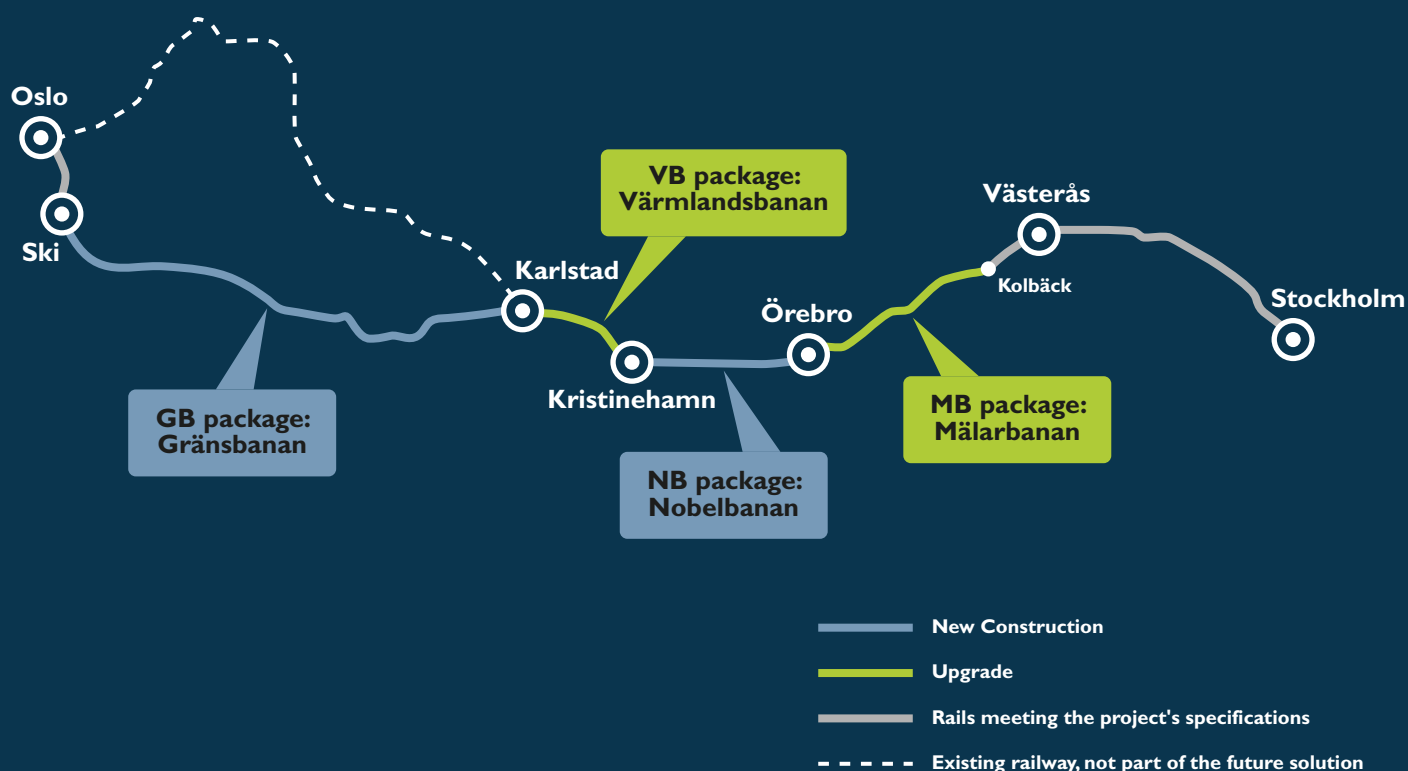


SHORT VERSION

INVESTMENT STUDY

OSLO-STHLM 2.55

- A declaration of intent is needed between Sweden and Norway to appoint a special investigator tasked with examining the conditions for implementing a new railway between Sweden and Norway as a PPP (Public–Private Partnership) project.
- An assignment is needed for the Swedish Transport Administration to initiate a location study for a new cross-border railway line, in cooperation with Norwegian authorities, in accordance with the proposal from the Swedish Transport Administration and the Norwegian Railway Directorate in the 2022 Feasibility Study.



Investment study

An initiative to improve the railway connection between Stockholm and Oslo is more urgent than ever. The potential to generate economic growth, strengthen sustainable travel, and contribute to a safer Nordic region is significant.

At the same time, public investment funds are limited. In this report, we present an alternative in which the Cross-Border Line – part of the Stockholm–Oslo corridor – could be completed by 2040. With the Cross-Border Line's unique commercial potential, there are substantial opportunities for a PPP solution, in which the private and public sectors together ensure the development of a modern railway.

The needs and opportunities are clear. We have worked together with the business community, legal advisors, and experts to develop a realistic financing and implementation model. What is needed now is political will and decisiveness. Let us therefore take the next step and continue the planning efforts for an improved railway between Stockholm.



A better railway connection between Stockholm and Oslo is needed now more than ever

The Stockholm–Oslo corridor encompasses 40% of the combined population of Sweden and Norway. Despite the fact that the distance between the two capitals is no greater than between Stockholm and Gothenburg, only 10–15% of travelers choose to take the train. Travel times are long – over 5 hours and 30 minutes – while reliability is low. As many as 62% (2024) of trains on the route arrive late, making it the most delayed railway line in Sweden.

The security situation in Europe has further reinforced the need for robust east-west infrastructure. For total defense and NATO cooperation, fast and reliable cross-border transport is essential – something also emphasized by the Swedish Defense Commission.

Current national transport infrastructure plans in Sweden and Norway are, however, not expected to meet the growing

capacity needs of the corridor, for either freight or passenger traffic. At the same time, the Swedish government is set to appoint a special investigator to strengthen the use of PPP models, in order to more systematically involve private actors in major infrastructure projects. Taken together, this therefore creates a window of opportunity to enable the construction of the Cross-Border Line under a PPP model.



The Cross-Border Line has the strongest potential for a PPP

The Stockholm–Oslo corridor includes sections with differing requirements in terms of necessary measures, investment costs, and suitability for a PPP solution. The project has therefore been divided into four distinct investment packages.

GB investment package:

Gränsbanan (Karlstad – Ski)

VB investment package:

Värmlandsbanan Karlstad – Kristinehamn

NB investment package:

Nobelbanan (Kristinehamn – Örebro)

MB investment package:

Mälärbanan (Hovsta – Kolbäck)

The Cross-Border Line involves constructing a new railway between Ski (approximately 24 km south of Oslo) and Karlstad. This would reduce travel time between Karlstad and Oslo from 3 hours to 1 hour and 20 minutes, providing significant time savings for the Stockholm–Oslo route². If the Cross-Border Line is built according to the proposed model, the railway could be fully operational by 2040, much earlier than would otherwise be possible. This includes time for planning, procurement and construction. The first step required is for Sweden and Norway to initiate a joint Norwegian–Swedish concept selection study (KVU) or location study (LOK) to clarify the alignment and impact of the Cross-Border Line.

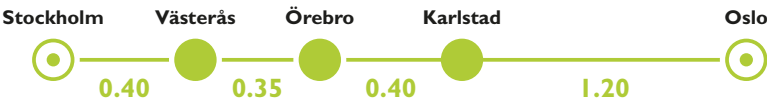
Implementation		Line	Cost ¹	Length (km)
PPP	The Swedish Transport Administration	GB package Gränsbanan Start: Ski End: Karlstad	~51.0	~170
		VB package Värmlandsbanan Start: Karlstad End: Kristinehamn	~4.0	~40
		NB package Nobelbanan Start: Kristinehamn End: Örebro	~18.0	~70
		MB package Mälärbanan Start: Hovsta (Örebro) End: Kolbäck	~3.5	~60

¹ Investment costs (SEK billion, 2024 price level).

Current travel time Oslo–Stockholm



Expected travel time Oslo–Stockholm



² A route between Oslo and Arvika has also been studied previously. The detailed alignment and design of the Cross-Border Line need to be examined in the upcoming planning phases.



Possible timetable for the completion of the Cross-Border Line

Timetable		2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041
PPP	GB package	Planning				Railway plan, design, and concession procurement				Construction								
		Location studies (concept selection [KVU] and location [LOK]) ³ in parallel with intergovernmental negotiations				Completion of the railway plan and design (~4 years), along with parallel procurement of the concession agreement (~2 years)				Construction and implementation of the railway infrastructure								
		~3 years in total				~5 years in total				~6 years in total								

Illustrative

Identified actions			Status
Trafikverket	VB package	Upgrade to an electrified double track between Karlstad and Kristinehamn	All measures are expected to be implemented before the end of 2040
	NB package	New construction connecting Kristinehamn and Örebro	
	MB package	Upgrading to an electrified double track between Hovsta (Örebro) and Kolbäck	

³ Concept location (KVU) and location (LOK) are the Norwegian and Swedish equivalents of a railway location study.

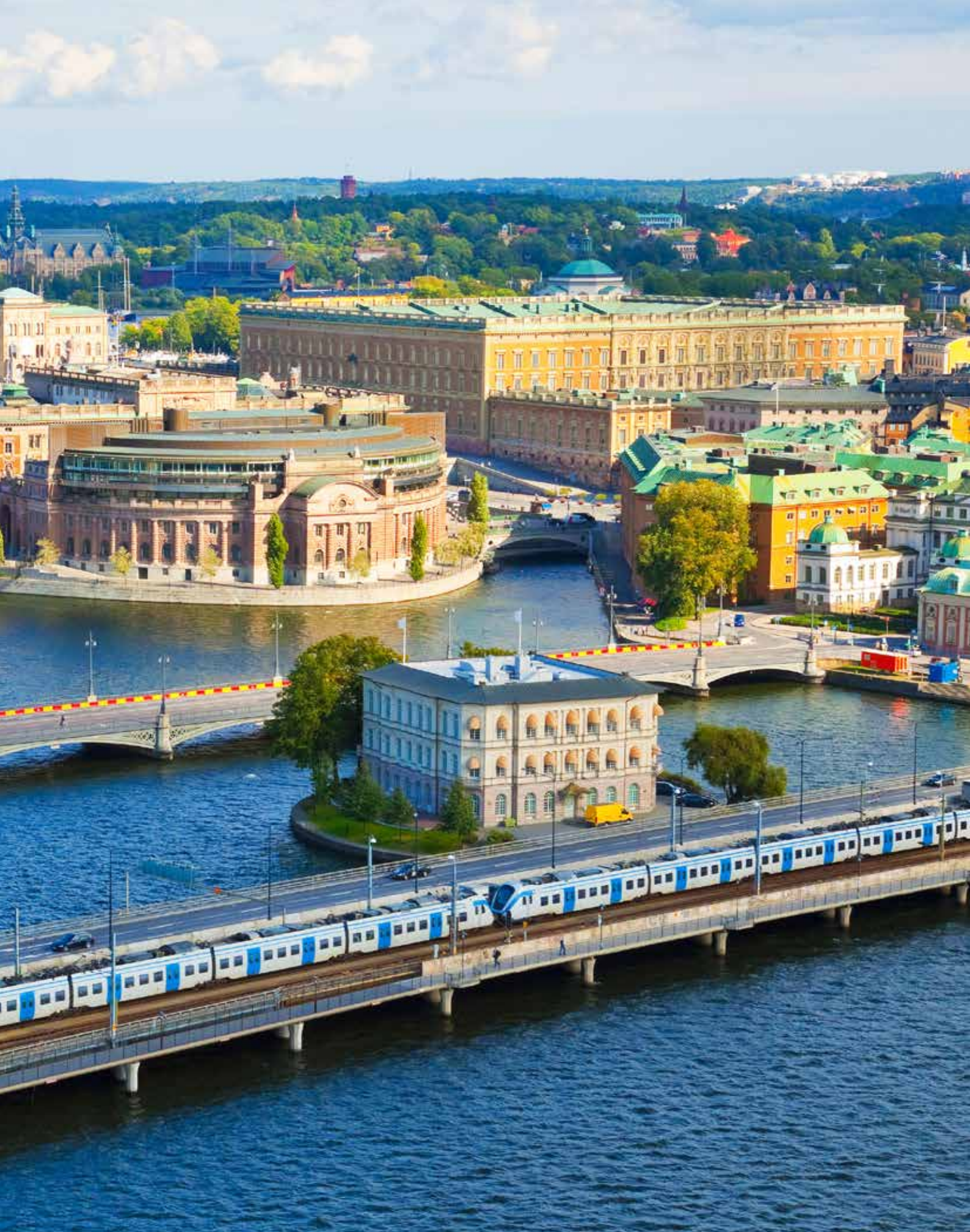
In Sweden, the use of PPP models has generally been limited. Internationally, however, PPP models have proven to be attractive alternatives for implementing infrastructure investments without directly burdening government budgets. The Swedish government has also identified a need for new implementation models for infrastructure projects and has appointed an inquiry in which PPP models are expected to be highlighted.

There are several reasons why the Cross-Border Line is particularly suitable for a PPP solution. Cross-border infrastructure often tends to be overlooked in national transport infrastructure plans. As with the Öresund connection, alternative cooperation and financing models are required. At the same time, the Cross-Border Line has clear commercial potential to attract long-distance travelers with a high willingness to pay, creating conditions for partial financing through user fees.

Construction of a completely new railway, such as the Cross-Border Line, is legally and technically better suited for a PPP than the upgrading of existing railways. The Cross-Border Line also offers greater commercial potential for user fees than, for example, the Nobel Line, which is more oriented toward regional travelers. Other investment packages are therefore considered more suitable for state sponsorship in accordance with the Swedish Transport Administration's regular planning and implementation processes.

At the same time, the investment packages must continue to be viewed from a holistic perspective. The revenue potential and the greatest benefits are realized only when the railway becomes a competitive alternative to air travel between Oslo and Stockholm.







A balanced model for private investment

PPP solutions can be structured in several ways, with varying degrees of private and public involvement. For multiple reasons, we propose that the Cross-Border Line be developed under a concession, using Design-Build-Finance-Operate-Maintain as the project delivery model.

A concession means that a private actor (a concessionaire) is granted the right to construct and, for an extended period, operate and use the new railway. The concessionaire's financing of the infrastructure is often carried out through a combination of private investment, loan financing, and public contributions, following a model that allows the recovery of invested capital and the generation of returns. After the concession period has expired, the infrastructure reverts to public ownership or to a newly appointed concessionaire.

In some cases, the concessionaire's revenue model is based on direct user financing, for example through ticket revenues. Since the revenue potential and number of passengers on the Cross-Border Line depend on public investments in the rest of the corridor, this poses a significant risk for the private actor. Therefore, it is instead proposed to use an accessibility-based compensation model.

An accessibility-based compensation model means that the public party pays the concessionaire an ongoing fee, provided that the railway is maintained and kept accessible according to agreed-upon criteria. In turn, the public sector bases part of the compensation on the specific user fees charged for using the railway. This provides predictability in revenue streams, reduces risk for private investors, and enhances the ability to attract capital to the project.

DBFOM – a model with incentives for long-term efficiency

A concession can be combined with different project delivery methods. Design, build, finance, operate, maintain (DBFOM) is an internationally accepted project delivery method. A private actor then assumes, through a project company, full responsibility for:

Design: Designing the infrastructure based on functional and operational requirements.

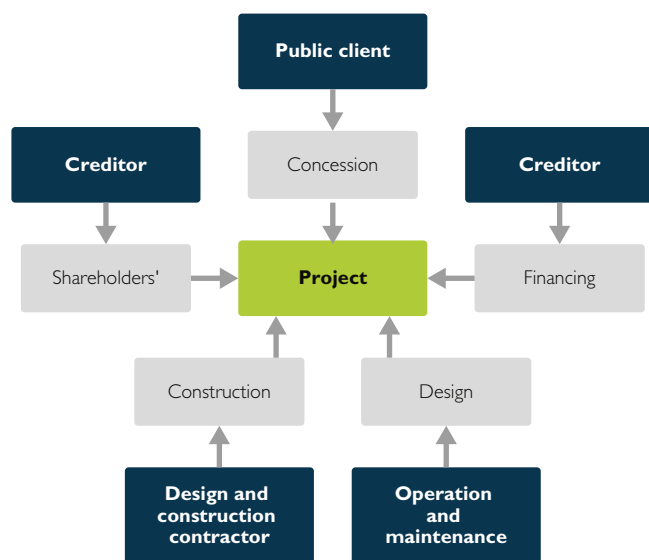
Build: Building the facility in accordance with the agreed technical and environmental specifications.

Finance: Financing the project, often through a combination of loans, invested capital, and public contributions.

Operate: Operating the infrastructure during the concession period.

Maintain: Maintaining the facility and ensuring long-term functionality and quality according to agreed standards.

General DBFOM organization



In practice, this means that the contracting authority announces a procurement of a concession with DBFOM as the project delivery method. The bidders in the procurement are various consortiums, which in turn consist of different actors responsible for design, construction, financing, operation, and maintenance. The concession is procured competitively and awarded to the best bid based on established criteria. The winning bidder forms a project company for the implementation of the Cross-Border Line. The procurement can be structured in several ways, and the Concession Procurement Act (LUK) provides considerable

legal flexibility for the contracting authority to tailor the process.

The DBFOM model has clear incentives for more efficient implementation. Since private actors are responsible for the entire life cycle of the project, they have a very clear incentive to optimize material selection and construction methods in a way that provides a long-term reliable and cost-effective facility. From the Øresund Bridge, we know that a well-organized project company can carry out a construction project efficiently and in a way that minimizes the risk of deferred maintenance.

This allows states to exercise control and ensure quality

The public sector has several ways to ensure quality and manage risks in the DBFOM model. One method of managing financial risk between the public and private actors during the construction period is the use of CAPEX contributions (milestone payments).

These contributions are linked to completed construction milestones, allowing for a gradual management of financial risk as the construction risk decreases. For the private project company, this means a lower need for external financing, which in turn reduces interest costs. At the same time, the public actor can better monitor progress and ensure quality through clear delivery points tied to the compensation.

In addition to delivering on time and on budget, the infrastructure must meet clearly defined technical requirements

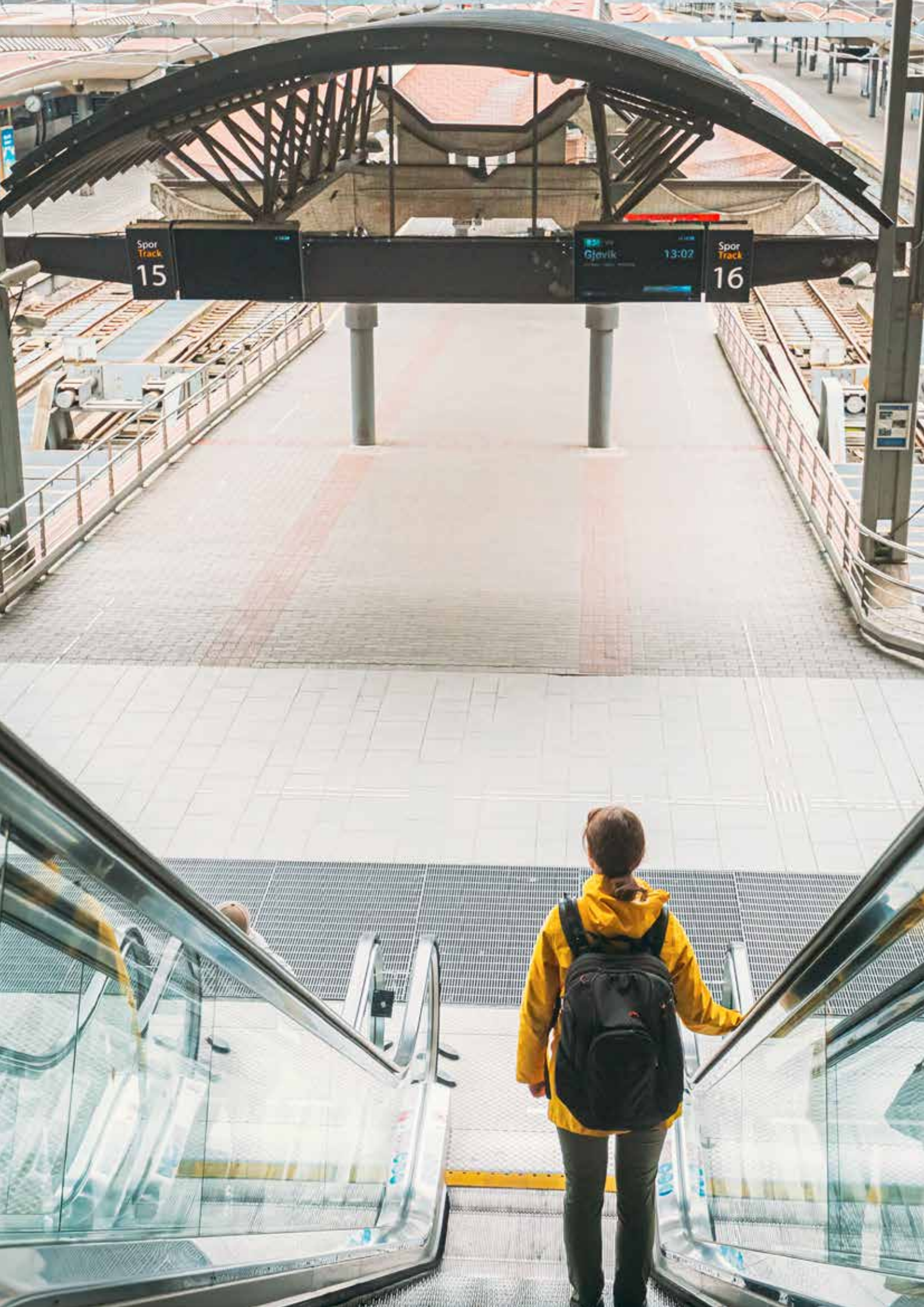
and functional specifications. For this purpose, requirements such as performance guarantees, the use of proven technology, and function-based contracts should be applied. By linking these risks to the private party through contractual commitments, the public client's exposure to future shortcomings is reduced.

The distribution of risk between the public and private sectors is a central aspect of DBFOM as a project delivery method. With this method, the risk is distributed to the actor who is best able to manage it:

Main risk	Subcategory	Main responsibility	Management tool
Regulatory risks	Permit processes, regulatory requirements	Public	Compensation clauses, conditional renegotiation options
Construction risk	Delays, cost overruns	Private	Fixed budget and timeframe for construction (e.g., turnkey contract), incentive structure (compensation/penalties)
	Technical quality and delivery reliability	Private	Function-based contracts, guarantees linked to performance and quality, proven technology
	Unforeseen events and external disruptions	Approved	Clear contract terms and compensation mechanisms
	Resource shortages and supply chains	Approved	Clauses for unforeseen cost increases
Financial risk	Financing during construction	Approved	CAPEX contribution, compensation linked to completed construction milestones
	Inflation	Public	Inflation-adjusted compensation payments (e.g., operating subsidies)
	Interest rate risk	Private	Fixed-rate debt, hedging
	Refinancing risk	Public	Public risk bearer, long-term loans (e.g., private placements)
Demand risk	Traffic volume	Public	Availability-based compensation
Performance and availability risk	Operation and maintenance	Private	Incentive structure linked to maintenance and availability requirements
Contractual risk	Contractual	Approved	Long-term and flexible contract mechanisms
Residual value risk	The value of the infrastructure asset	Private	Incentive structure (compensation/penalties) linked to agreed maintenance requirements

Overall coordination between Sweden and Norway can be managed in the same way as was done for the construction of the Öresund connection.

In that project, the Swedish and Danish governments concluded an agreement on how coordination for the construction would be carried out.

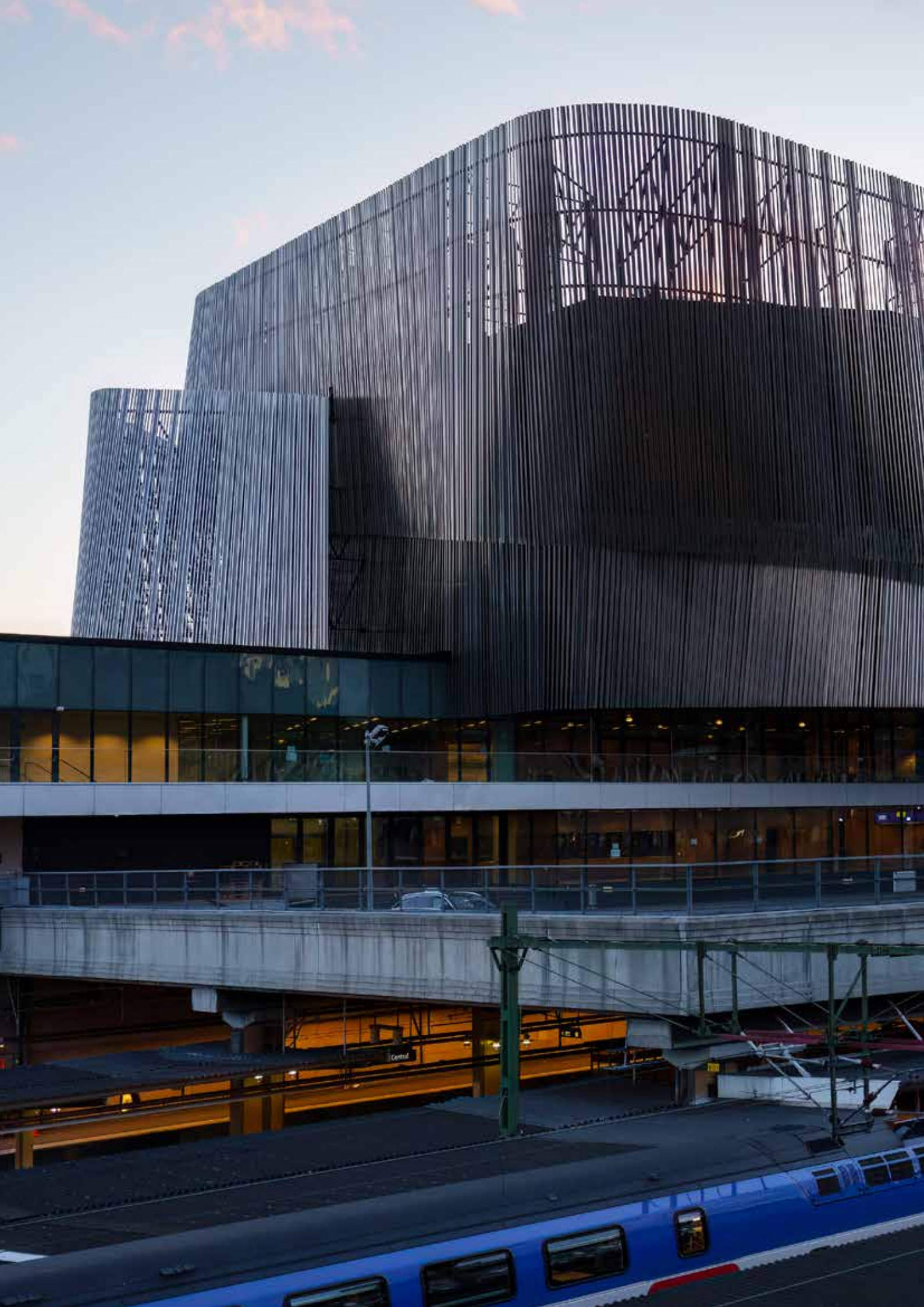


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Revenue potential from ticket sales reduces the need for government funding

What makes the Cross-Border Line unique is the potential to partially finance the railway through ticket revenues. At present, the vast majority of the 1.6 million annual trips between Stockholm and Oslo are made by air. With a train travel time of three hours between Stockholm and Oslo, there is significant potential to shift air travelers to the train and use ticket revenues to partially finance the Cross-Border Line. Approximately 70% of the new train passengers are estimated to be former air travelers.

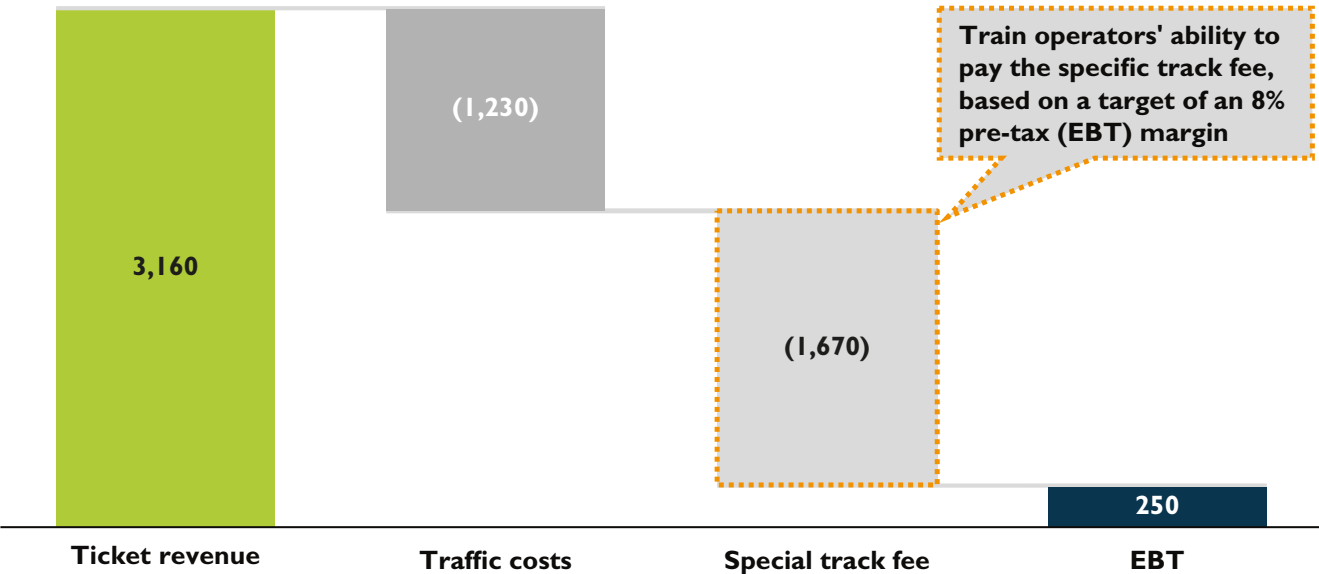
With the Cross-Border Line and other measures along the Oslo–Stockholm corridor implemented, the number of passengers crossing the national border is estimated to reach approximately 2.7 million per year. Overall, this provides the basis for 16 departures in each direction between Oslo and Stockholm per day by 2041, a figure that is projected to grow to 22 round trips per day by 2064.

Oslo–Stockholm 2.55 has developed a revenue model for the train operators, in which the ticket price is based on two components: a variable fee per kilometre and a fixed crossing fee of SEK 100 for passengers crossing the national border. For the entire Oslo–Stockholm route, this amounts to SEK 900 (2024 price level), comparable to current high-speed train fares within Sweden. The revenue model is based on a price elasticity of -0.25, which aligns with studies on the estimated price sensitivity for long-distance train travel.

As air travel faces rising climate-related costs and fuel prices, the competitiveness of rail can be further strengthened.

Ticket revenues go to the train operators, who in turn pay a specific track fee to operate on the Cross-Border Line. The fee is based on the train operators' ongoing financial results and means that any surplus, after an assumed pre-tax profit margin of 8% for the operators (EBT), is allocated to the project company.

The special track fee is expected to increase from approximately 1.7 billion SEK per year in 2041 to approximately 3.7 billion SEK per year (nominal terms) at the end of the concession period in 2064. This means that the governments, through the train operators, have significant opportunities to partially finance the infrastructure using a portion of the profits generated from operating the new railway.



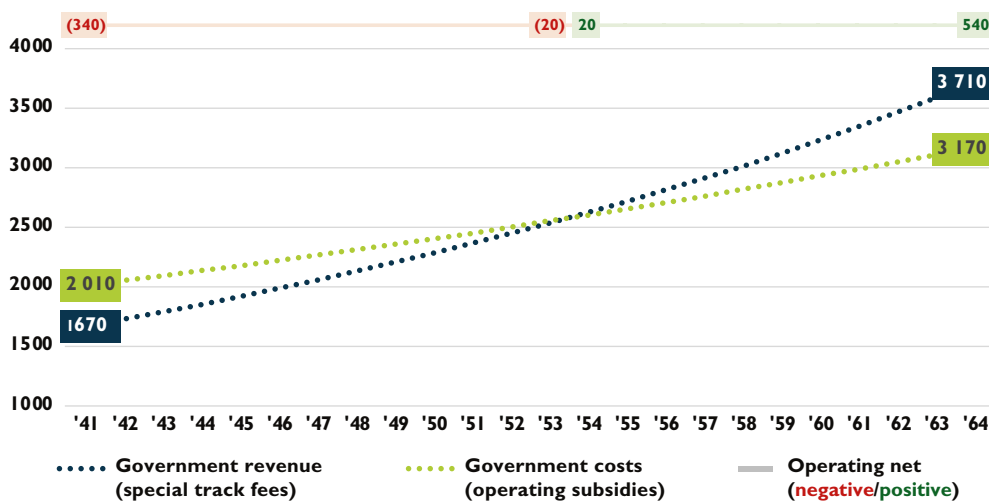
The states are expected to be able to repay the investment after 40 years

Financing model 2034, prior to the start of construction in 2035 (SEK million)

Investment			Financing		
CAPEX	63,600	100 %	CAPEX contribution	31,800	50 %
– Investment cost (2024 price level)	51,000	80 %	– Government funding (Sweden and Norway)	–	–
– Reserve for cost increases (+20%)	10,200	16 %	– EU funding	–	–
– Capitalized interest during construction	2,400	4 %	Invested capital	3,100	5 %
			– Private SPV operators	–	–
			– Financial investors	–	–
			Loan financing	28,700	45 %
Total funding	63,600	100 %	Total funding	63,600	100 %

Sweden and Norway finance the project through a CAPEX contribution and an operating subsidy, which the governments pay annually to the project company. The total CAPEX contribution is 32 billion SEK, which corresponds to approximately 50% of the total investment cost. The governments can achieve significant relief depending on the extent to which the project succeeds in securing EU funding. The Stockholm–Oslo corridor has recently been included in the EU's TEN-T infrastructure network, which greatly increases the potential for co-financing.

The revenues that the governments receive through specific track fees from the train operators can cover a significant portion of the governments' contributions. This operating net is initially negative but turns positive during the second half of the concession period. In addition, a value of the infrastructure asset remains at the end of the concession period. Assuming that the governments continue to operate revenue-generating activities, Sweden and Norway are estimated to have repaid the total investment approximately 40 years after the start of construction.



For the accessibility-based operating subsidy, CAPEX contribution, and government-provided guarantees to be considered permissible state aid, they must be granted on market terms.

This can be achieved by, for example, subjecting the Gränsbanan to competition in a public procurement in which all the conditions for the grants and guarantees are determined.



The strategic value of the Cross-Border Line goes beyond the financial calculations

In the Swedish Transport Administration's proposal for the 2022–2033 national plan, the average net present value ratio for railway projects was -0.2, meaning that for every krona of tax money invested, society is expected to receive 80 öre in return. The proposal included several projects, such as expansions of the East Coast Line, West Coast Line, Norrbotnia Line, and Malmaban, which, despite negative financial calculations, are considered strategically important. The expansion of the Oslo–Stockholm corridor, in which the Cross-Border Line is a key component, has a comparatively high net present value ratio of +0.21 (ASEK7)⁴.

At the same time, the socio-economic calculation does not fully take into account the important strategic reasons for developing the Cross-Border Line:

- An expanded railway connection between Sweden and Norway can promote economic integration between the two countries, which is not fully captured by the current calculation.
- The Cross-Border Line forms a strategic west–east corridor between two NATO countries and is therefore of particular importance for total defense. The new railway would contribute to a more resilient transport system in the event of a crisis or conflict.
- An expanded railway connection between Oslo and Stockholm would offer a competitive and fossil-free transport alternative to air travel and thus contribute to Sweden's climate goals.



⁴ In the new social benefit calculation model (ASEK8), the benefits for all railway projects have been reduced. The same applies to Oslo–Stockholm, which then shows a net present value ratio of -0.19.

From analysis to action – time to move on to the next step

The Cross-Border Line is one of the few Nordic infrastructure projects that combines strategic benefits, climate goals, and strong commercial potential. It creates a new connection between Oslo and Stockholm – a corridor with six million people and one of Europe's busiest air routes – and thus offers a strong alternative to air travel. With a travel time of three hours, the railway could become the first choice for both passengers and freight, while also providing the Armed Forces with access to a robust and fast west–east corridor.

What makes the Cross-Border Line particularly feasible is the combination of a PPP model and the potential to partially finance the project with future ticket revenues. With an accessibility-based compensation model and specific track fees from train operators, the project can be implemented

without fully burdening the state budget – and the societal benefits can be realized sooner.

To realize this potential, a first joint step is required. The Swedish and Norwegian governments need to appoint a joint concept selection and location study for the Cross-Border Line. Let us now take the next step and continue the planning work for an improved railway between Stockholm and Oslo.

**This version is
a short version of:
Investment Study,
Oslo–Stockholm 2.55
March 2025**





OSLO-STHLM 2.55

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