Position Paper

Brussels, 05 May 2025

A High-Speed Rail Master Plan for Europe

CER aisbl – **COMMUNITY OF EUROPEAN RAILWAY AND INFRASTRUCTURE COMPANIES**
Avenue des Arts 53 – 1000 Bruxelles | T: +32 (0)2 213 08 70 | F: +32 (0)2 512 52 31 | @CER_railways | E: contact@cer.be | www.cer.be

EXECUTIVE SUMMARY

High-speed rail (HSR) is transforming the way Europe moves. Fast, comfortable, and climate-friendly, HSR is increasingly the first choice for travellers—whether commuting for business, visiting family, or exploring new places. It brings cities closer together, connects people and regions, and makes long-distance travel more inclusive than ever before.

But HSR is more than just a mode of transport—it's a catalyst for a better rail system overall. When connected to strong local and regional services, HSR becomes the backbone of truly integrated mobility.

The vision is clear: a seamless European high-speed network linking all capitals and major cities. If we deliver it, HSR could carry over **half of long-distance travellers (54%) by 2070**, while conventional rail would also gain—reaching a **13% share** of these travellers and many more short-distance travellers. That's a game-changer for Europe's green and digital future.

To get there, we need a bold and reliable funding strategy. Sufficient public funding for the TEN-T core network is the first priority. Public investment is absolutely key. This is why the new EU budget should have a dedicated envelope for the implementation of EU HSR master plan. When insufficient it could go hand in hand with private capital—through innovative financing models like PPPs, RABs, and cross-financing. The good news: HSR projects can be financially sound; once the HSR infrastructure is in place profitable operation of HSR services is possible. But to unlock this potential, we need competitive track access charges, for both Railway Undertakings and Infrastructure Managers, striking a fair balance that reflects factors such as route type, financial contributions at the national level, low-cost infrastructure and rolling-stock financing and stable regulation. With the right incentives and predictability, the funding gap for some projects can be closed.

HSR also means cleaner skies and quieter roads. It's central to delivering the European Green Deal. But obstacles remain. Cross-border services are too often held back by technical and regulatory barriers. The EU must act decisively—accelerating full ERTMS rollout, harmonising national rules, and enabling easy, seamless ticketing. The CER Ticketing Roadmap and tools like Open Sales and Distribution Model (OSDM) are already paving the way.

To succeed, we must also level the playing field. Rail still pays too much while other modes get off too easy. Fair taxation (on fuel and VAT), balanced track access charges, and increased investment are essential. And while we build new HSR lines, we must urgently upgrade and complete the existing TEN-T core and comprehensive network. A modern, digital, and capacity-boosted network is the foundation for success.

With the right political decisions, CER members are confident they will provide commercially viable services to continental EU capitals and major cities

HSR is not just the future—it's happening now. Let's scale it up, speed it up, and make it the heartbeat of long-distance European mobility.

1. Introduction

High-speed rail (HSR) is fast, modern, climate-smart—and where implemented, it's already the preferred choice for medium and long-distance travel. Countries like France, Italy, Germany, and Spain have shown how HSR can transform mobility, strengthen connectivity, and cut emissions. As a low-emission alternative to road and air, HSR is essential for meeting the EU's climate targets while boosting economic competitiveness across regions.

CER members are leading the way with around 600 daily cross-border connections, and fully support the EU's objective to triple high-speed rail by 2050. But to turn this ambition into reality, we need coordinated action: targeted infrastructure investments, smart financing, full interoperability, and a level playing field between all transport modes.

This position paper presents our key recommendations for unlocking the full potential of high-speed rail. The annex provides detailed proposals across each policy area.

2. Network that is economically viable

A viable European HSR network is a strong instrument to foster economic growth and sustainable mobility. Completing the TEN-T network will be a first important step towards such a coherent HSR network. But to unlock the immense potential HSR must be the fastest and most cost-effective option for distances between 350 km and 1,000 km to compete with air and road travel. It should connect EU capitals and major cities (depending on Member state specificities like geography and cities with big tourist potential) to ensure commercial viability. It will also be crucial to ensure seamless integration with existing lower-speed rail networks to accommodate the diverse travel needs of passengers.

Furthermore, a comprehensive concept of a European HSR system, including all its relevant components, is necessary to ensure a viable system, beyond the purely infrastructure perspective, focusing on the final target of provision of efficient and competitive HSR services to passengers in Europe. Strategic links between national HSR systems should prioritize routes with demonstrated market demand to ensure commercial viability and timely improvements. For High-Speed rail to become the most attractive travel option, services must be fast, reliable, and affordable—key factors identified in CER members' passenger research. Policymakers should recognise that in many Member States, high-speed trains share infrastructure with slower regional and freight services, and efforts to harmonise speed limits across mixed-use tracks could undermine travel times and reduce passenger uptake. CER therefore stresses the importance of maintaining flexibility in operating models.

All components of the HSR system, such as facilities and capacity of the stations, rolling stock, depots and workshops, etc., have also to be taken into account.

3. Ensuring long-term funding solutions for Europe's HSR vision

The construction costs of HSR master plan comprehensive as 49,400 km requires €546 billion with an average construction cost of €16.5 million per kilometres. Overall, this would amount around €20 billion at historical costs per year for the next 27-30 years. Such budget to HSR investments is financially possible but requires additional funding. Financing for HSR infrastructure investments and its maintenance comes from either public funds (subsides) or market (track access charges). Given the substantial upfront capital costs, governments often provide initial funding through public investments, grants, and low-interest loans. Additionally, it is imperative to account for ongoing maintenance costs to

ensure the long-term sustainability and efficiency of both new and existing HSR networks. In order to match the funding gap, private financing models, such as public-private partnerships (PPPs) may also be considered. Classical PPPs or Regulatory Asset Base (RAB) models can facilitate collaboration between governments and private entities, attracting private capital while maintaining public oversight. However, they represent only some of the possible approaches within a broader mix of financing solutions.

Additionally, innovative financial instruments like green bonds and infrastructure funds can be leveraged to attract long-term investors committed to sustainable transport solutions. There are also opportunities to address external costs by tackling the market failure and using cross-financing to support clean mobility. A well-structured funding model is essential to balance affordability, financial returns, and public benefits, ensuring the successful delivery and maintenance of HSR networks.

In conclusion, financing the European HSR master plan demands a strategic mix of public funding, private capital, where necessary, and innovative mechanisms. EU policy should guide Member States in developing viable funding structures that balance future vision with present-day infrastructure needs.

PPPs can fast-track implementation but require cautious design due to the long-term financial contract and complex risk allocation. France's SEA line (Tours-Bordeaux) used a concession model with commercial risk, while other projects used DBFM contracts. The Czech Republic is piloting several PPP-based HSR projects, with tenders expected from 2026. The RAB model, under discussion in Italy, involves financing through debt instead of grants, with returns secured via track access charges and state fees. This can attract capital while spreading state commitments over time. However, legal harmonisation and alignment with other mechanisms like Green Bonds must be addressed.

Carbon revenues and special taxes (e.g., Eurovignette surcharges) are increasingly earmarked for HSR. Italy's "Railway Fund," funded by motorway tolls, and Austria's toll-based financing of the Brenner Base Tunnel illustrate cross-financing success. Such models could be scaled up using EU Emissions Trading System (ETS) revenues, potentially covering €10 billion annually for HSR construction.

A sustainable financial framework must account for the cost of capital and seek a right balance for track access charges (TACs), which play a crucial role in ensuring fair competition among operators while generating revenue for infrastructure maintenance and upgrades. The cost of capital, influenced by interest rates and investor confidence, directly impacts the financial feasibility of HSR projects, requiring mechanisms to secure low-cost financing. TAC levels will be essential to attract private investors in infrastructure development. The recommendations outlined in this paper emphasize the need for stable long-term funding sources, regulatory frameworks that encourage private investment, and policies to complement public funding to deliver the EU HSR master plan. To support the economically viability of HSR services, particularly during the early stages of operation, the Action Plan could explore the possibility of targeted adjustments to TACs as a way to foster network usage and limit the risk of underutilization. Such measures would need to be carefully balanced so as not to undermine the overall revenue stability for infrastructure managers. However, TACs vary widely across EU Member States due to differences in subsidies, revenue potential and cost structures. Establishing clear financial incentives, ensuring predictable revenue streams, and fostering cooperation between public and private stakeholders are critical to achieving a sustainable and competitive high-speed rail network.

4. Ensure simple cross-border operations

One of the biggest challenges for international high-speed rail services is the lack of compatibility across borders, requiring adaptations for different signalling systems, power supplies, track gauges (where applicable), safety regulations and specific certification requirements, vehicle-route compatibility, and having access to appropriate maintenance and service facilities. To address this, the European High-Speed Master Plan key measures must ensure interoperability for HS lines and include accelerating rolling stock certification processes through the European Union Agency for Railways (ERA), harmonizing train path allocations to reduce bureaucracy, and improve interoperability of the high-speed rolling stock, particularly through standardized ERTMS deployment. Additionally, national regulations should be aligned to eliminate entry, technical and operational barriers, facilitating intramodal competition and access of new entrants.

The European High-Speed Master Plan should build on existing Technical Specifications for Interoperability (TSIs), particularly the Locomotive and Passenger (L&P) TSI, which already provides a solid foundation for high-speed operations. Rather than creating new standards, the focus should be on upgrading legacy trains and infrastructure to align with existing TSIs, as newly designed models are already compliant by default.

5. Make ticketing seamless

For high-speed rail to compete effectively with short-haul and long-distance flights on key European corridors, a seamless and customer-friendly ticketing experience is essential. While national rail journeys are easily booked, international high-speed rail tickets including transfers are sometimes more difficult to secure,. To address this, CER members have committed to the CER Ticketing Roadmap in 2021, outlining steps for a more integrated and accessible system. Key actions are needed to improve the passenger experience and competitiveness of rail include enabling 12-month advance booking across all operators, harmonising ticketing conditions for international travel, and officially recognising and extending the membership of the CIT Agreement on Journey Continuation (AJC) to protect passengers facing delays or missed connections. Additionally, integrating the Open Sales and Distribution Model (OSDM) into EU interoperability standards would streamline ticket distribution, reduce costs, and enhance accessibility for passengers and vendors alike.

6. Competing on the same level with other modes

Today, rail transport faces an unfair disadvantage compared to less climate-friendly modes due to imbalanced intermodal framework conditions. Overcoming this requires political action to ensure railway undertakings can expand services in an economically viable way. One major issue is infrastructure costs—while rail passengers contribute to funding tracks through ticket prices, road transport often remains free despite its higher environmental impact. Competitive TACs and increased public investment in rail infrastructure are essential to making high-speed rail more affordable and attractive. Additionally, energy taxation policies put rail at a further disadvantage, as rail operators must pay energy taxes while aviation fuel remains untaxed across the EU. Given that railways rely primarily on green energy and with a high level of efficiency, reducing energy taxes would create a fairer competitive environment, allowing rail to better compete with cars and air travel while supporting Europe’s climate objectives.

ANNEX

1. Introduction

High speed rail is a modern, fast, attractive, comfortable and successful way of traveling on medium and long distances. Where implemented (for instance, Paris -Lyon, Milan-Rome, Madrid-Barcelona, Berlin-Munich, Paris-London, Paris-Brussels-Cologne-Amsterdam, Japan, China, etc) it has become the preferred way of traveling

High-speed railways play a crucial role in achieving sustainability and environmental goals. As the EU focuses on climate action and reducing carbon emissions, expanding high-speed rail networks provides a sustainable alternative to air and road travel. Trains are notably more energy-efficient and emit fewer greenhouse gases per passenger-kilometre compared to cars or planes. By encouraging the use of high-speed railways, the EU can lower its carbon footprint, ease congestion on roads and at airports, and lessen the environmental impact of transportation, aligning with its dedication to a greener future.

Furthermore, a European high-speed rail network can make an important contribution to the EU's competitiveness, as outlined in Enrico Letta's report "Much more than a market".

With around 600 daily cross-border connections offered, CER's members are already today contributing strongly to a growing long-distance passenger transport in Europe. And they are committed to expanding their offers beyond that, thus fully supporting the European Commission's goal of tripling high-speed rail in the EU until 2050.

The significance of high-speed networks for railway companies is evident, as these networks enhance efficiency and represent major leaps in achieving sustainable mobility. This enables railway operators to deliver superior services, attract more passengers, and contribute to a greener and more interconnected future in transportation. Recognizing these benefits, railway undertakings within CER have in recent years published, presented, and participated in studies highlighting the importance of high-speed rail. To achieve a thriving EU High-Speed rail network the EU must address multiple challenges. The aim of this position paper is to give views on how such a network could be defined and what regulatory measures regarding infrastructure, financing, interoperability, and an intermodal level playing field are needed to achieve it.

2. A Network that is economically viable

A robust high-speed rail (HSR[1]) network should be designed to link all major cities in the European Union, as defined by Eurostat, alongside national capitals. All these regions have a population of at least 250,000 inhabitants, however proper threshold will have to be defined for each Member State, which have a different geography and different sizes of urban areas. This ensures that a broad geographical area benefits from high-speed connectivity, fostering economic integration, regional development, and sustainable mobility solutions.

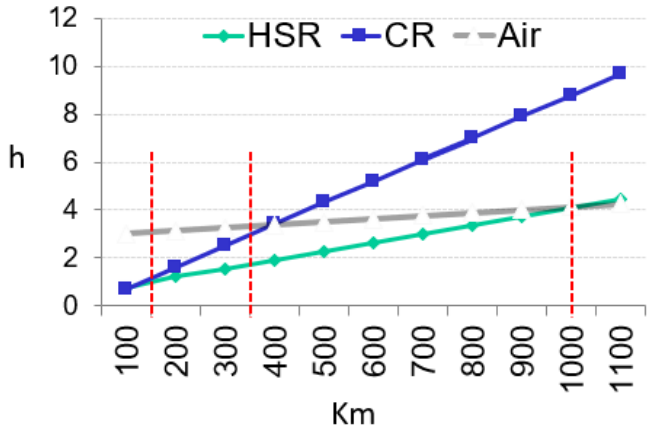
The network should be structured around:

[1] For High Speed Rail we use the definition of Directive 2016/797 on the interoperability of the rail system within the European Union of what constitutes high-speed rail. Therefore it is defined as rail lines specifically equipped for speeds equal to or greater than 250 km/h and upgraded lines equipped for speeds in the order of 200 (200-250 km/h).

1. **Nodes:** Representing capitals and major metropolitan areas (above 250,000 inhabitants)[2], serving as interchange hubs with regional rail and multimodal connections.
2. **Links:** High-speed rail corridors connecting these nodes, ensuring a seamless and efficient transport network across Europe.

Recent studies highlight the potential of a well-integrated HSR-system to become the backbone of European mobility, reducing reliance on air and road transport. The "Metropolitan Network" study conducted by several CER members[3] show based on a transport demand model, that the infrastructure needed to achieve the goals set out by the Smart and Sustainable Mobility Strategy has to exceed the lines included in TEN-T. The study assumes an approximately 33,500 km-long HSR-network, which could form a basis for more detailed discussions. Such a network would result in a 27-32% modal share for rail in 300-1,000km distance-classes. According to a study by Europe's Rail[4], connecting key nodes as defined above even could create a 49,400 km-long network, generating a significant response from travellers, with more than 2,089 billion passenger-kilometres (pkm) and a 54% modal share by 2070.

However, for rail to compete effectively with other modes of transport, pricing remains a crucial factor. Ensuring competitive pricing alongside network expansion will be essential to achieving the projected growth in passenger demand. To determine the appropriate rail service on such a network, the relationship between travel time, price elasticity, and demand plays a crucial role and varies for different distances. For trips up to 150 km, conventional rail is generally fast enough to remain competitive with other transport modes. Beyond 350 km, high-speed rail (HSR) becomes necessary for rail to maintain a speed advantage over cars and short-haul flights. For distances up to 1,000 km, HSR remains the fastest option when considering total journey time, including airport transfers and security checks, making it the most efficient alternative to air travel.



[2] CER would consider this a minimum requirement, Member States can expand their own network.

[3] Metropolitan Network: A strong European railway for an ever closer union, Deutsche Bahn, Frankfurt am Main 2023: https://www.deutschebahn.com/resource/blob/10878412/fadda7e9a3233aa044fa73fada00bf18/Studie_Metropolitan-Network-_A-Strong-European-railway-data.pdf

[4] Smart and affordable rail services in the EU: a socio-economic and environmental study for High-Speed in 2030 and 2050. Published on 23 January 2023

For railway undertakings to realize connections between the nodes of a European high-speed network, there are three necessities:

- The infrastructure needs to allow for high-speed operations and sufficient capacity. Since this is not the case today in large parts of Europe and a timely completion of the TEN-T network is required as the first step, infrastructure financing should be a core issue addressed in the High-speed rail master plan. CER's proposals on how to secure the necessary level of infrastructure financing are outlined below.
- Furthermore, given the existing open access market in the EU, the High-speed rail master plan should aim at allowing for a commercially viable offer on the routes connecting all EU capitals and metropolitan regions. To compete effectively with other modes of transport, attractive ticket prices will be essential to achieve the projected growth in passenger demand and to make the benefits of an HSR network visible to EU citizens. This should be ensured by including effective measurements in the master plan, which keep the costs of infrastructure usage reasonably low. On routes where passenger volume and revenues prove to be insufficient for railway undertakings , several solutions should be considered:
  - PSOs or adaptations to open access should be considered for the whole or for part of connection concerned, in accordance with the different roles PSOs play in the Member States' respective long-distance markets.
  - incentive mechanisms in the TAC pricing system, which could take the form of a modulation of these charges encouraging railway companies to serve less commercially attractive areas such as medium-sized towns involving a significant journey time in view of the traffic potential, without prejudice to maintaining the total volume of TACs received by the IM at an equivalent level.
- In addition, intermodal/multimodal framework conditions must be fair and the interoperability for cross-border transport must be improved.

A European high-speed rail network should ultimately ensure that rail is the most attractive travel option for passengers. Passengers particularly expect high-speed trains to be fast, reliable, and reasonably priced based on the level of service. CER members' own market research shows that this triad is key when it comes to convincing passengers to opt for the train and not for cars or aviation.

When designing a network, European policy makers should take into account that in some Member States long-distance and high-speed trains share the infrastructure with slower regional and freight trains. CER members know from their operations that dedicated high-speed infrastructure is very important especially for providing attractive travel times. But as this infrastructure does not exist in some parts of Europe today, railway undertakings need to be able to operate as fast as possible also on mixed-use infrastructure. CER therefore does not support ideas of harmonizing the speed of all trains on mixed-use infrastructure, since that would lead to high-speed trains slowing down to the speed of regional or freight trains. This would make travel times a lot less attractive and, as a consequence, probably lead to less passengers choosing the train.

Addressing the high-speed rail integration requires balancing efficiency, cost, infrastructure constraints, and operational complexity. In Europe, there are several models that differ in the degree of usage of conventional and dedicated tracks by High-Speed services, respectively:

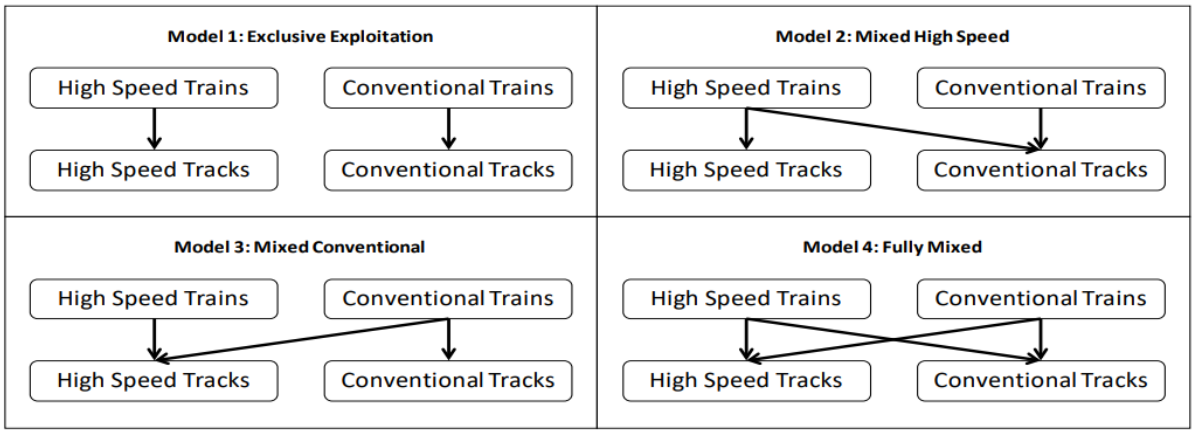
Model 1: Exclusive Exploitation – In this model, high-speed trains operate only on dedicated high-speed tracks, while conventional trains remain on conventional tracks. This

ensures optimal speed, efficiency, and reduced infrastructure wear for high-speed services but requires significant investment in separate rail networks, limiting flexibility and increasing overall costs. France's and Spain's high-speed network partly follow this model.

Model 2: Mixed High-Speed – High-speed trains primarily use high-speed tracks but can switch to conventional tracks when needed, while conventional trains stay on their own lines. This approach allows high-speed services to extend beyond the high-speed network, improving coverage at a lower cost, though it may cause operational inefficiencies when speeds vary between shared tracks. France's TGV, and Italy's Frecciarossa operations as well as Alvia services in Spain which use rolling stock that changes gauge when passing between high-speed (standard gauge) and conventional track (Iberian gauge) apply this model.

Model 3: Mixed Conventional – In this system, conventional trains operate on high-speed lines in addition to their regular routes on conventional tracks. This approach optimizes infrastructure use, allowing more trains to benefit from high-speed corridors without requiring dedicated high-speed rolling stock. While it enhances network connectivity and flexibility, it may also introduce operational challenges, such as managing speed differentials between high-speed and conventional trains.

Model 4: Fully Mixed – Both high-speed and conventional trains share tracks freely, allowing full integration of rail services. This provides maximum network flexibility and reduces infrastructure costs but introduces significant operational challenges, including potential delays and complex scheduling. This model is applied on the majority of the German ICE network.



3. Financing

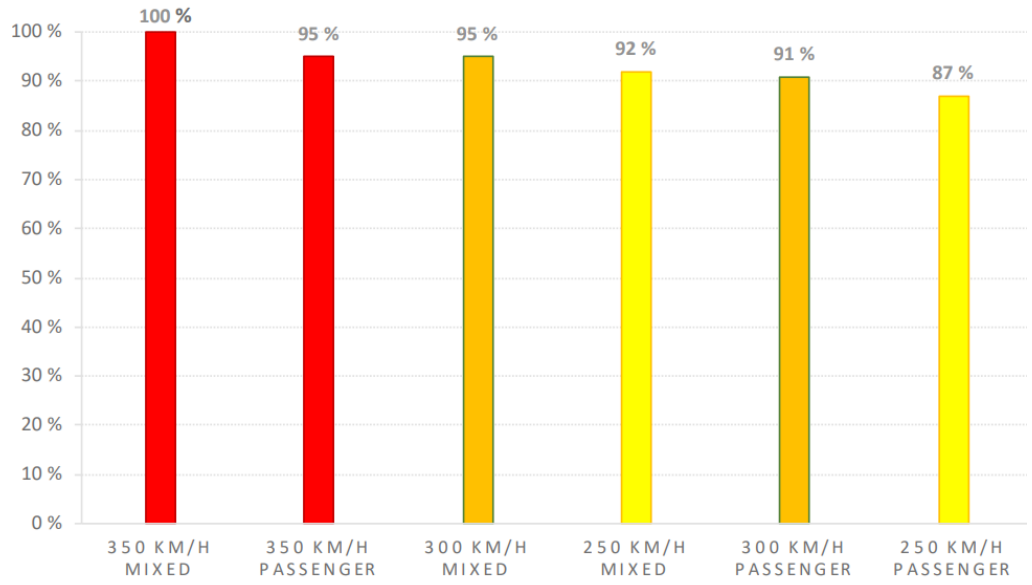
EU expenditure on rail infrastructure heavily relies on public budgets. According to the European Court of Auditors (ECA), since 2000 the EU has been co-funding €23.7 billion into HSR infrastructure to realise only a limited and fragmented HSR network. The European studies[5] on HSR indicate that the construction costs of HSR master plan comprehensive as 49,400 km, including existing lines requires €546 billion with an average construction cost of €16.5 million per kilometre. The construction costs are between €12 and €25 million per kilometre making the total construction cost between €410 and €855 billion. The costs will be higher in high land value areas with high population densities,

[5] Smart and affordable rail services in the EU: a socio-economic and environmental study for High-Speed in 2030 and 2050 https://rail-research.europa.eu/publications/smart-and-affordable-rail-services-in-the-eu-a-socio-economic-and-environmental-study-for-high-speed-in-2030-and-2050/

unfavourable topography and strict biodiversity regulations. Overall, this would amount around €20 billion at historical costs per year for the next 27-30 years. On average €94 per inhabitant per year is spent on rail infrastructure in the EU so such budget to HSR is financially possible but require additional funding.

ECA provides a literature on the HSR construction costs based on traffic type and the maximum speed. Lines with maximum speeds of up to 160 km/h are cheaper to build than lines with speeds above that limit, although the difference between the respective speed limits is not that big. Furthermore, passenger-only high-speed lines are less expensive to build compared to mixed traffic lines.

Figure: Differences in construction costs of HSR



Source: 2009 RAVE Study of 5.8.2009 of the University of Lisbon; comparison with a mixed 350 km/h high-speed line (100 baseline).

It must be underlined that a balance should be found between the long-term vision for the European HSR network and urgent needs. Whilst CER members strongly support building a vision for the future European HSR network, it is also important to remind policy makers that all efforts should be made to urgently ensure the upgrade and the modernisation of the existing European network (including ERTMS roll-out) and completing the TEN-T network. Upgrading and modernising the European rail network, as well as making it more interoperable, is key to allowing it to welcome a much higher number of trains and achieve, in this way, the European Green Deal targets. A better functioning of capacity relies foremost on robust and well-maintained infrastructure. Therefore, this HSR master plan initiative should not divert funding available for the completion of the TEN-T.

3.1. Funding sources

There are several sources to fund the HSR infrastructure construction and maintenance: i) public subsidies (via taxpayers), ii) cash-flow generation (through track access charges), (iii) asset sales, (iv) for integrated railway groups free cash-flow generation, enabling investments in rail infrastructure, (v) banking or capital markets indebtedness (to pre-fund infrastructure shall it gets equalized by future revenues dragged from TACs) and (vi) Public-Private Partnerships (PPPs) or Regulatory Asset Base (RAB) model via private sector

capital injection in (compensation of concession paybacks), (vii) blending-calls (mixing Public grants with private sector or EIB banking loans). The success of the HSR master plan will depend on significant and long-term financial commitments both at EU and national level due to their high capital requirements and long payback periods. Public grants, both European and national ones, are and will continue to be the most important funding instrument for railway infrastructure development thus public funding should be the key contributor to the realization of the HSR master plan. The financing of at least some of the HSR projects could require a mix of public and private investments, innovative funding mechanisms and an overall strategic planning to ensure long-term financial sustainability. In order to provide an input to the EU Action Plan, CER explored the various financing mechanisms, the HSR cost structure, challenges and relevant case studies of HSR projects at global level.

Grants and Subsidies:

Sufficient budgetary resources should be allocated to HSR projects. Direct subsidies should be the main financing instrument to support HSR infrastructure development.

A key tool being used for the realisation of the HSR in Italy is the Recovery and Resilience Facility, which for instance is supporting the realisation of HS/HC Naples-Bari, Salerno-Reggio Calabria, Palermo-Catania lines together with the further realisation of HS/HC lines on the Brescia-Verona-Vicenza, Liguria-Alpi and Verona-Brenner sections. To this can be added further financed works on the Rome-Pescara, Orte-Falconara and Taranto-Battipaglia sections. All the above-mentioned works are receiving a contribution of €13.4 billion. This tool has been used differently among the Member States depending on the governments' priorities after the Covid crisis.

The Connecting Europe Facility (CEF) Transport instrument was used both with the previous 2014-2020 programming and with the current 2021-2027 programming. Specifically, both studies and works as well as technological installations (ERTMS) have been financed at and towards the main nodes: Bologna, Milan, Verona, Venice Mestre. It is worth highlighting the important contribution underway for the preparatory work for the Brenner tunnel and related access excavations, as well as the contributions received for studies and the construction of the Turin-Lyon base tunnel. In total, for both programmes, the contribution made by CEF Transport amounts to approximately €1.4 billion.

In France, the CEF Transport has supported projects such as the implementation of ERTMS between Paris and Lyon (€117 millions), GPSO (€130 millions) etc.

Czech HSR projects also count on CEF Transport for design financing of Dresden-Prague-Brno- Břeclav. In the future, CEF Transport could be a co-financing for Public Private Partnerships above €2 billion.

The newly published guideline for the Member States on the information requirements for the medium-term financial and structural plans states that the national co-financing of CEF-financed infrastructure projects is not relevant for the Maastricht regime. The European Commission has thus already taken a first, encouraging step. We call for this step to be extended in principle to the creation, maintenance and renewal of railway infrastructure, particularly for HSR.

Infrastructure Bonds:

Bonds will raise capital, which investors purchase with the promise of future returns, often backed by tax revenues.

The Ferrovie dello Stato Italiane group, to which Rete Ferroviaria Italiana (RFI) belongs, took part in the EMTN (Euro Medium Term Note) Programme, in which the Green Bond

instrument resides. Specifically, FSItaliane has selected Eligible Green Projects (among all group companies were selected RFI, Trenitalia and MercItalia Rail with the aim to cover the entire value chain) in its portfolio to access this programme by taking part through two methods: i) "EMTN Public Issuances" (underwritten by both traditional and green/ESG Institutional Investors), ii) "EMTN private placement" (i.e. EIB). The selected projects underlying the placed Green Bonds are compliant with ICMA Green Bond Principles and aligned with EU Taxonomy.

The last emission of Green Bonds took place to finance the Florence Node rail link and the completion of the Turin-Milan-Naples high-speed network for approximately €500 million.

Loans & Debt Financing:

Commercial banks and institutional investors offer loans, often secured by government guarantees or projected fare revenues. Debt financing through private investment vehicles is quite uncommon.

European Investment Bank (EIB) is the long-term lending institution of the European Union, owned by its Member States and to continue contributing to HSR projects financing for rolling stock and infrastructure investments. Since 2020, the EIB has provided more than €30 billion to support the construction of HSR lines but the experience show that the EIB is not always the most financially attractive loan when compared to lower rates offered by conventional banks. EIB should, nevertheless, be ready to make a significant contribution with their loans to the HSR master plan, which should be exempted from the Maastricht regime. EIB's financial capability should for this be increased. One of the key success factors will be the ability of the EIB to offer loans with rates below commercial banks (or rates from the States). Moreover, as it is the subject for every loan, the economic model needs to be sufficient to reimburse the EIB in the end.

Apart from infrastructure financing, an important European source of loans for the acquisition of rolling stock is Eurofima (European Company for the Financing of Railroad Rolling Stock), which was stablished based on an international treaty (the "Convention") between sovereign States. Today it is composed of 25 states and 26 shareholders.

Cross financing:

Fuel surcharges, special taxes, and the utilization of EU Emissions Trading System revenues will help generate revenue for rail investments based on the carbon avoidance of HSR when compared to more polluting modes such as road and aviation. Assuming a carbon price range of €95-120 per tonne of CO_2 for the next decades, more than €10 billion/year (95,3% of the projected total investment costs of the HSR network) could be utilised to build 31,849 km of HSR. The ETS Directive also includes a dedicated Modernisation Fund, which provides opportunities to the development of HSR projects. Here, negotiations with the Ministry of Environment are ongoing in Czech Republic. When demonstrating a contribution to tackle transport poverty, in terms of availability, accessibility, affordability and adequacy of services, some rail infrastructure investments (secondary lines, but maybe also HSR) could also be promoted in the national Social Climate Plans and receive additional funding. A few national best-practices on successful cross-financing are presented in this paper.

One of the Italian instruments that could be presented as a best practice is the "Railway Fund" established by the Law 449/1997. The fund is financed by the A22 Autostrada (Brenner Motorway), a key route running from Modena to Bolzano. The fund amounting to €800 million supports renewal of the railway infrastructure through the Brenner Pass and the construction of the related tunnels as well as the railway connections and connected infrastructures up to the Verona station hub as well as the initiatives related to

the Trento interport, the railway interport of Isola della Scala (Verona) and the river port of Valdaro (Mantua).

The Eurovignette Directive is implemented in Germany, stipulating that approximately 40 percent of the road toll revenue is to be used in the area of the federal rail network, which includes HSR infrastructure .

Back in 2006, the Republic of Austria introduced cross-financing on the A13 Brenner motorway for the construction of the Austrian section of the Brenner Base Tunnel (BBT) also on the basis of the provisions of the Eurovignette Directive. This takes the form of a cross-financing surcharge on the tolls for heavy goods vehicles. Since January 2012, the heavy goods vehicle toll on parts of the A12 motorway have also been used to finance the BBT by means of cross-financing surcharges. The surcharges currently amount to 25% of heavy goods vehicle toll and are used exclusively to finance the BBT.

Given the pressures on public financing financial burden on the EU and national budgets, private sector participation is sometimes sought to share the risks and costs of HSR projects. Several schemes have been implemented to finance infrastructure, beyond traditional public financing:

- schemes based on a holding structure (Special Purpose Vehicle or SPV type) the capital of which can be divided between the public and private sectors, using an equity-type approach; this SPV can hold a delegation contract (PPP type) or have an institutional mission due to specific law,
- private financing with structured arrangements (project financing) under a PPP (concession, Design-Build-Finance-Maintain and/or Operate Contract - DBFM, DBFO,) ...),
- dedicated structures ("financing project society") that benefit dedicated revenues and/or can borrow on capital markets or collect taxes,
- the funding may also be based on an expanded asset base, which makes it possible to leverage financing capacity from the added value created by new infrastructure, either on existing real estate or on the development of new buildings or real estate facilities ("value capture").

These funding models are as interesting as they are complex to implement. One of the major points of complexity is the legal feasibility of such arrangements in light of the regulatory framework. For example, in France, the infrastructure manager SNCF Réseau does not own the network but is the assignee (the owner being the State). The implementation of such innovative arrangements allowing private financing will almost certainly involve rethinking the legal and regulatory framework.

We support the development of financing models that enable the possible deconsolidation of Infrastructure Managers' debt from the public administration perimeter, thereby freeing up fiscal space for Member States. This possibility should be granted also to European Investment Bank's loans directed to railways' infrastructure maintenance and development. Those measures would facilitate the development of the HSR network across Europe. The EU Action Plan should, therefore, provide guidance to design a suitable mix which matches the funding gap of public resources using the following main private financing models:

Public-Private Partnerships (PPPs):

PPPs involve collaboration between governments and private entities, where private firms may (co-)finance design, build, operate, and maintain rail systems in exchange for long-term revenue opportunities.

There is a legal framework (specific law) in France for those contracts that ensure the infrastructure financing, whether through public or private funding, or various combinations for a "blended financial" approach. This contractual framework has already been used for many infrastructure projects (railway projects, highways, ...) :

- either a concession scheme, with commercial risk (ex HSL SEA between Tours and Bordeaux)
- either a DBFM (Design Build Finance Maintain) scheme with only an availability risk (ex. HSL between Le Mans and Rennes).

For a DBFM, a mandatory project assessment process has to compare a project under a "standard scheme" and a project under a PPP scheme. Moreover, for transportation projects, a specific legal framework requires a socio-economic analysis with a positive assessment, otherwise the entire work authorization procedure will be cancelled.

To summarize, the use of PPP has to be carefully considered as it can fasten the implementation of projects, but it can also narrow the perspectives of the IM as the risk related to a certain amount of traffic is only assumed by the infrastructure manager. The good functioning of the PPP also depends of the value of the assets and the perimeter of the project.

There is a Czech pilot project PPP PRAK (conventional connection to the Prague Airport), which is in the tender phase. Other two PPP projects for HSR will be prepared for the tender in 2026 (Rapid speed connection Brno - Přerov and HSR Přerov – Ostrava).

Regulatory Asset Base (RAB):

The economic regulatory framework may enable involvement of a third (private) party to act as the infrastructure manager to receive a reliable rate of return in the early stages of a project. Both the Letta and the Draghi Reports take a first step, making reference to the possible application of the RAB model to railways' infrastructure investment. In a RAB-based model, rather than relying on grants, differently from today, investments are financed through debt, providing greater access to capital markets. The incomes to cover for the expenses (opex, depreciation, WACC) are composed of TACs and State Fees. The RAB model would attract debt capital in a context where public funding would remain central, as the State continues to pay back to the Infrastructure Manager the amortisation of the investments it has financed, now also directly accessing debt capital markets, as well as their capital's remuneration (WACC). One of the main benefits of the involvement of debt capital to the system is that it allows to dilute the State's financial commitments over time, while keeping the ambitious level of desired investments. European rail regulations currently in place do not limit the possibility to implement such a financing scheme.

The RAB model, under discussion in Italy. The introduction of a tariff-setting system based on the RAB principles could have several advantages:

- Reduce costs and improve the reliability and quality of services.
- Secure a medium-long term approach, facilitate a realistic financial planning of the project and to guarantee the complete funding of the project at the time needed.
- Ensuring the return on equity and borrowed capital at the level of market profitability in industries/sectors with a similar risk level.
- Setting long-term tariffs which contribute to the transparency and predictability of companies' cash flows.
- To mitigate risks by implementing a bonus/malus system.

The implications of the possible implementation of the RAB model to the railway sector have still to be further analysed. The need to harmonise and create a legal framework in Europe should be explored further. Legal frameworks for this subject are not harmonized in Europe and distortion of competition between infrastructure managers may happen because of that. It should also be considered the possible consequences of the RAB model regarding other way of financing such as green bonds.

To supplement funding, infrastructure managers may explore additional revenue sources for the later stage of infrastructure development such as:

- Land Development and Real Estate: Transit-oriented development projects, including commercial and residential properties near stations, contribute to financial viability.
- Ancillary Revenues: Advertising and leasing of station retail spaces to generate income. However, such options would be subject to clearance under state aid, competition regulatory law.

Finally, equity investments are also being studied to finance HSR projects. Private investors or railway operators provide upfront capital in exchange for ownership stakes and future earnings from the rail network.

3.2. Mobilisation of private investments

The EU Action Plan should cover the financial planning of HSR projects, which requires an understanding of various cost components concerning infrastructure:

- CAPEX (infrastructure costs): land acquisition, tunnelling, bridges, and rail tracks, including signalling and power systems;
- OPEX (maintenance costs): monitoring and regular maintenance of fixed installations.

The cost of capital needs to be considered carefully in deciding the potential of private finance to complement public funding. The following table presents an example of capital costs, using the following scenarios on private financing models assuming €546 billion investment value, 8% cost for PPP and 3% cost for RAB[6] for 40 years duration in HSR investment horizon. There are many factors influencing the cost of capital such the allocation of risks, guarantees to the investor, etc.

	Amount of annual payment (capital and interest) in the PPP model	Amount of annual payment (capital and interest) in the RAB model
15% private capital	€8,3 billion	€5,5 billion
25% private capital	€13,9 billion	€9,2 billion
50% private capital	€27,8 billion	€18,4 billion

HSR financing is in some cases a balance between the taxpayer (grants, subsidies) and the market (TACs). With operators needing to pass on TACs as part of their ticket prices, there is today a de facto co-financing of the infrastructure by the passenger. Since this is not the case for road transport in large parts of Europe, where cars can use the road infrastructure free of charge, rail is disadvantaged in the competition with less climate-friendly modes of transport. The HSR master plan should address this issue, especially

[6] https://www.orr.gov.uk/sites/default/files/2023-10/18-pr23-final-determination-policy-position-financial-framework.pdf and https://www.itf-oecd.org/sites/default/files/dp_2016-01_makovsek_and_veryard.pdf

since TACs are one of the single biggest cost drivers for railway undertakings and the main source of revenues for infrastructure managers.

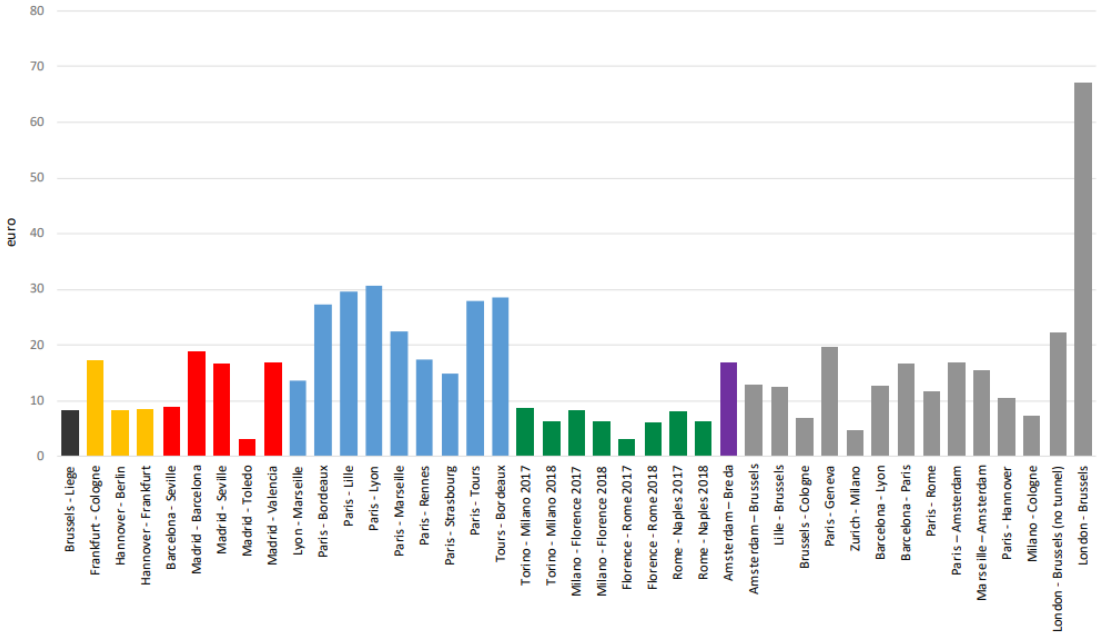
TACs vary substantially among EU Member States, but a discount on TACs, specifically during the first years will be useful to ensure a substantial level of economically viable high speed services and a ramp-up from the opening of the new line avoiding underutilization of available capacity.

The figure below shows a mixed picture on TAC applied to HSR services in the EU due to a lack of uniform approach in calculation rules. It has be noted that HSR infrastructure charges are quite expensive when compared to rail's competitors (road and aviation). Defining a uniform level of TACs for the entire EU is not possible since also the level of potential revenues varies significantly across Europe, depending for example on the concrete line, the demand in the cities it connects, and the willingness to pay in the respective part of the EU. Moreover, it should be duly taken into account that the level of financial contribution is determined differently at the Member State level and not predefined at the European level. An overly harmonized approach could also lead to under-optimization of TACs, and therefore to a lack of financing for infrastructure. Also, TACs are meant to cover at least direct costs, such costs vary from country to country and as such cannot be entirely harmonized.

The EU Action Plan must provide a guidance on these issues.

The level of TAC in the EU today range from the direct cost share of TAC (i.e. without mark-up) to be 1.24 Euro per Train-km for long distance passenger trains, a sub-estimate for HSR) from the cost that is directly incurred as a result of operating the railway service (minimum level) up to the full costs (maximum level), but only if the market can bear this (so called "mark-ups"). It is best practice that mark-ups are set uniformly for specific market segments of the network. Furthermore, for specific future investment projects, the infrastructure manager may set - according to Article 32(3) of Directive 2012/34/EU - higher TAC on the basis of the long-term costs of such projects if they increase efficiency or cost-effectiveness or both and could not otherwise be undertaken.

Track access charges for selected origin-destination pairs in the EU per km (2017)



Source: ECA from UIC High-Speed Rail brochure

3.3. Best practices in financing and a way forward

Private financing and PPPs can be an attractive solution for railway infrastructure funding under certain conditions, both for new lines (particularly high-speed rail lines) and for other assets (whole lines, or parts of railway systems: telecoms, buildings, etc.).

However:

- Each asset has a critical size (minimum and maximum). Indeed, it is necessary to take into account the maximum (financing) amount with regard to the market capacity (bank debt, counter-commitments requested from shareholders by the banks, etc.), the minimum size of the segment under PPP (approximately 60 km of new line, otherwise it is too small), and also the maximum size of the segment (the SEA project with 340 km is undoubtedly the maximum size).
- The key point is to limit the interfaces between operators (infrastructure managers mainly),
- Strong maturity of the financing ecosystem (lenders, law firms, civil works companies, suppliers, engineers, etc.),
- It is easier if market practices and standards exist.

Risk allocation must be considered to be as relevant as possible (many studies are required before the tender process).

Finally, two key factors must be taken into account:

- The time required to prepare calls for tender for PPPs;
- A dedicated team with appropriate skills to monitor the contract.

As illustrated in this paper, the costs of the different financing arrangements must also be considered in the comparative analysis: while additional costs are entirely justified due to the profitability expected by private operators (without which they would not invest), without tight management, the use of public-private arrangements can significantly increase project costs.

It should be noted that the RAB is not a new financing tool and that it is not incompatible with PPPs; it can even be combined with them.

By way of illustration, in the context of the SEA high-speed rail link project mentioned above, the pricing of the concession contract was submitted to the French Transport Regulatory Authority (ART). In the motorway sector, where concession contracts are used, we can also note that the French Transport Regulatory Authority has already been able to exercise control over the economic models when it comes to project financing.

Several non-European countries have successfully implemented different financing models for HSR projects. A few notable examples include:

Japan's Shinkansen was initially financed by government loans but later privatised for improved operational efficiency and financial sustainability. The project required a dedicated HSR network reaching over 2,951 kilometres at a massive per-kilometre cost over €22 million in today's value. Since 1987 HSR are constructed and owned by the Japan Railway Construction, Transport and Technology Agency, although they are operated and maintained by the Japan Rail. Assuming a 30-year project life, railway undertaking pays a usage fee, which is calculated based on the difference between the operating profit with and without the Shinkansen. The construction costs excluding the usage fees are subsidized by national and local governments by a ratio of 2:1.

China's HSR network was developed through a mix of state funding, bank loans, and bond issuances, making it the world's largest HSR system reaching a total length of 50,000 kilometre in 2025. It connects major cities with population greater than 500,000 people located at distances between 200 and 500 km. Although labour costs are lower in China, it was the standardization of designs and procedures that delivered lower costs and rapid HSR construction in the country. China maintained a stable HSR investment programme for the construction and its rail supply industry. Heavily used 350 kilometre/hour lines with average traffic densities of more than 40 million passengers per year lead to an average revenue per passenger-kilometre of €0.065, being able to generate enough ticket revenue to pay for train operations, maintenance, and debt service. A lower traffic density of 10-15 million passengers per year on slower 250 kilometre/hour lines delivers €0.036 average passenger-kilometre revenue and can barely cover train operations and maintenance. This situation lead to a consideration of measures, including pricing policy for fares. Overall, the financial rate of return for the Chinese HSR network was at 6% by the end of 2015.

If a Member State opts in for PPP, CER recommends the following design features in developing innovative schemes involving private participation for the HSR master plan:

- Target setting: The public sector should retain control over target setting, focusing on guarantees rather than fulfilment functions.
- Management of private funds: Private funds should be managed by a professional services provider or a highly specialized in-house unit. Lean management structures with experience in the target areas, along with transparent cost and performance accounting, are essential.
- Regulatory predictability: A sufficient degree of predictability in the regulatory environment is indispensable.

- Collateralization: Investment collateralization should be possible to counteract de facto partial expropriation in the event of regulatory changes or other discretionary public interventions with similar effects.
- Creditworthiness: The high creditworthiness of the public sector should be leveraged to negotiate funding conditions. In this context, infrastructure projects may present a long-term investment opportunity for private investors, offering the lowest possible correlation to other asset classes.

4. Regulatory adjustments

Interoperability and a fair intermodal playing field are crucial for the success of the European High-Speed Master Plan, ensuring that high-speed rail can compete effectively with other modes of transport. Seamless cross-border operations require standardized technical systems, such as ETCS and FRMCS, to eliminate costly adaptations and to streamline certification processes. At the same time, fair competition with aviation and road transport must be ensured through competitive TACs, balanced taxation, transparent state aid rules, and coordinated infrastructure investments. With these measures, high-speed rail will be able to fully integrate into a competitive, sustainable European transport network.

4.1. Ensure simple Cross-border operations

One of the key challenges for (high-speed) international through-services lies in the complexity of rolling stock compatibility across borders. Currently, high-speed trainsets must be adapted for different national systems, including variations in track gauge, signalling, power supply, and safety regulations. This fragmentation significantly increases procurement and operational costs, limiting the competitiveness and expansion of international high-speed services.

The European High Speed Master Plan must rely on the now decade long work to integrate High Speed rolling stock in the existing TSIs. An efficient high-speed train must operate on every kind of infrastructure. The current L&P TSI ensures the common base and the required specificity for high speed. Hence, the technical and administrative burden to recreate a high speed TSI would be difficult to justify. The issue at hand is: how to efficiently improve legacy trains and infrastructures, new designed models being TSI compatible by design and regulation.

To achieve this, several key measures should be addressed:

- **Accelerated certification processes**: The role of the European Union Agency for Railways (ERA) should be strengthened to enable a faster and more streamlined vehicle authorization process for high-speed rolling stock, reducing the cost for railway undertakings.
- **Train paths assignments**: In order to realise a new cross-border connection, a railway undertaking must today apply for the train paths individually in all the Member States concerned. However, the deadlines and required documents vary between states, making it more difficult to launch new international routes. To address this, an EU-wide approach of the train path allocation process is essential. The relevant provisions in the draft Capacity Management Regulation should be d implemented swiftly to streamline procedures and facilitate international rail connectivity. They should further be implemented to harmonise as most as possible all aspects of capacity allocation (i.e. about framework agreements and managing of conflicting requests).

- **Interoperable high-speed rolling stock**: CER would call for the train control systems (in particular ETCS) and homologation requirements to be entirely standardized, so that aside from physical changes which are required due to compatibility with the country-specific infrastructure (e.g. overhead line voltage, additional train control systems), no software and hardware changes and no homologation processes will be required anymore when homologation is extended to further countries. On the other hand, competition between suppliers and operators must be preserved, certain elements of the train specification like comfort level and maximum speed should be left to the market.
- **Cost efficiency**: To improve the competitiveness and decrease the costs, a modular design must be the goal of the TSIs. A replacement component must be independent from the supplier, to sustain competitivity and to level down constraints for international trains maintenance by improving spare parts availability.
- **Various individual national regulations**: Currently, the Single European Rail Area does not exist in the politically desired form in view of the various individual national regulations for railway operations that still exist. For railway undertakings, these regulations pose major bureaucratic barriers in cross-border operations. As long as there are legacy issues inducing national rules, we need to improve the description of the application field of these rules, to help RUs focus on just needed requirements. As the network and rolling stock will evolve, these requirements will disappear.
- **ETCS** –There is a need to streamline the implementation of ETCS on the European High-Speed Network, for example by standardizing the System architecture and /or the by the interfaces of the trackside part (EULYNX), or by maintaining backward compatibility while developing ETCS. ETCS needs to be seen as a key tool for the digitisation of the whole railway system and given due attention and adequate financial support. However, backward compatibility must be taken into account as a serious issue, so that further new challenges in interoperability are not unnecessarily imposed and the competitiveness of the railway will not be reduced by new recurrent costs for fitting new ETCS on-board units to vehicles.
- CER calls for a stronger mandate for the EU to coordinate the ETCS trackside implementation on the high-speed network with Member States, focusing on the topics of timeframe implementation and uniformized engineering rules. Additionally, railway undertakings will need to be supported by public funding when equipping their rolling stock accordingly, so that they can operate on the ETCS-equipped infrastructure. Especially railways operating a three-digit number of high-speed trains will not be able to finance the necessary investments from their revenues only.
- **FRMCS**: The current GSM-R telecommunications system, based on 2G technology, needs to be replaced by its successor, the Future Rail Mobile Communication System (FRMCS). FRMCS is based on the latest 5G technology and designed to adapt to future standards. FRMCS is a key technology for the future European railway system and is recognised as one of the Key Technology Enablers. The obsolescence of GSM-R (projected between 2030 and 2035) necessitates the FRMCS specifications to reach maturity and be released within the TSI framework as soon as possible ensuring a sustainable migration towards the FRMCS implementation and safeguarding the current trackside and on board ERTMS investments. It is crucial to finalise the FRMCS specifications (FRMCS V3 „FRMCS 1st Edition") in the next TSI CCS, as it will legally ensure compatibility with FRMCS and will enable the development and realization of the secured procurement of ETCS products equipped with FRMCS and a cost-effective migration of vehicles already equipped with ERTMS to versions compatible with FRMCS.

By addressing these issues, railway undertakings can play a leading role in delivering an efficient and competitive European high-speed rail network that ensures passenger satisfaction. It is however not necessary to design a new specific TSI regarding high-speed rail. The existing TSIs are sufficient to tackle the different aspects mentioned above.

4.2. Make ticketing seamless

For high-speed rail to compete with short-haul flights and long-distance road trips on key European corridors, it must also offer a seamless and customer-friendly ticketing experience. Currently, while national rail journeys are easily arranged, booking an international high-speed rail ticket with transfers is sometimes more challenging. Business and leisure travellers alike often face difficulties in securing tickets well in advance. Recognizing these challenges, CER members committed to improving ticketing in 2021 through the CER Ticketing Roadmap, which outlines key steps towards a more integrated and accessible international ticketing system. To successfully implement the European High-Speed Master Plan, the following actions are essential:

- Ensuring long booking horizons for high-speed services: To effectively compete with air travel, passengers must be able to book high-speed rail journeys as early as 12 months in advance. This requires harmonized advance booking periods across operators and Member States.
- Ticketing conditions harmonization: A single set of conditions governing international high-speed rail travel should be established, allowing passengers to easily understand tariff policies.
- Recognition and membership extension of the CIT Agreement on Journey Continuation (AJC): The AJC should be formally recognized as the European standard for journey continuation, ensuring that passengers affected by delays or missed connections can complete their trips with minimal disruption.
- Integration of OSDM (Open Sales and Distribution Model) into the Technical Specifications for Interoperability (TSI): OSDM should become the EU-wide ticketing standard, facilitating distribution, lowering costs, and improving access to international high-speed rail services for both passengers and ticket vendors.

Achieving a seamless international ticketing experience is important to make high-speed rail the preferred mode of travel across Europe. The rail sector appreciates any support the European Commission can provide to accelerate the implementation of these ticketing solutions. By prioritizing ticketing standardization within the High-Speed Master Plan, Europe can unlock the full potential of its high-speed rail network and provide a true alternative to air travel.

4.3. Competing on the same level with other modes

Today, the intermodal framework conditions disadvantage rail compared to less climate-friendly modes of transport. Overcoming this status quo is crucial to ensure that railway undertakings can offer more connections in an economically viable way. The main issues that need to be addressed politically are the following:

- **Infrastructure costs**: Rail passengers actively contribute to funding the infrastructure their trains use through ticket prices, while road transport in many parts of Europe remains free of charge for users despite its greater environmental impact. To create a fairer and more sustainable transport system, competitive track access charges, for both Railway Undertakings and Infrastructure Managers, are essential. Since TACs are one of the main cost factors for railway undertakings—and one of the few that can be influenced

politically—lawmakers have a unique opportunity to support the growth and competitiveness of high-speed rail. Increasing public investment in infrastructure is not only a strategic choice but also the most effective way to enhance the affordability and attractiveness of rail travel while advancing Europe's climate goals.

- **Energy taxation**: While no Member State currently applies taxes on aviation fuel, railway undertakings need to pay taxes on energy. Since railways are among the companies with the highest energy consumption in Europe (while in most cases using green energy for their operation and with a high level of efficiency), energy taxes amount for a huge share of railways' costs. An EU-wide lowering of energy taxes is therefore necessary for railways to be able to compete with cars and aviation on a level playing field.