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EUROPEAN TRANSPORT REGULATION OBSERVER

25th Florence Rail Forum: Evaluating the Recast Directive

The Recast Directive opens the single European railway area to competition. Competition is gradually emerging across the EU but there are obvious asymmetries among Member States, in particular in the commercial passenger sector, which includes high-speed services (see RMMS 2023, Figure 79). While some markets have vibrant competition in high-speed services, others have competition for the market in public service obligation services, yet in some markets no significant evolution has taken place.

Barriers to entry in railway markets are particularly relevant. Rail infrastructure is a natural monopoly. Traditionally, infrastructure managers were vertically integrated and enjoyed exclusive rights to provide downstream rail services (freight, passenger, etc.). The elimination of these exclusive rights enables competition in commercial services and public service obligation (PSO) services. However, barriers to entry can deter newcomers. Access to infrastructure is a key factor, as in other network industries, as is access to service facilities.

The Recast Directive aims to reduce the barriers to entry related to access to infrastructure: rules on capacity allocation, traffic management, temporary capacity restrictions, etc. Furthermore, it defines the basic principle of non-discrimination by infrastructure managers in favour of vertically integrated railway undertakings when vertical integration exists, and specific rules for the governance of vertically integrated undertakings.

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Article 63 of the Recast Directive requires the Commission to evaluate the impact of the Directive by the end of 2024, and in particular to draft a report assessing whether discriminatory practices or other types of distortion of competition persist in relation to infrastructure managers which are part of a vertically integrated undertaking, and in particular to evaluate the development of high-speed rail services and assess the existence of discriminatory practices regarding access to high-speed lines.

The 25th Florence Rail forum, co-organised by the Transport Area of the Florence School of Regulation together with the European Commission's DG MOVE, discussed the current situation of competition in the Single European Railway Area. Are there discriminatory practices or other types of distortion of competition in relation to vertically integrated infrastructure managers? What is the impact on the market? How is competition in high-speed evolving? Has vertical integration impacted the evolution of competition? How are the rules to govern vertically integrated infrastructure managers implemented? Are they effective? What new rules should be introduced?

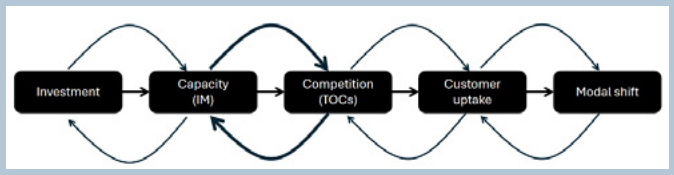
Evaluating the Recast Directive: do not forget the value chain!

A comment by Juan Montero and Matthias Finger, Florence School of Regulation – Transport Area

The Recast Directive aimed to reduce the barriers to entry related to access to infrastructure by setting among other rules ones on capacity allocation, traffic management and temporary capacity restrictions. It also defined the basic principle of non-discrimination and governance in the case of vertically integrated railway undertakings. The Commission is in the process of evaluating the impact of the Recast Directive by the end of 2024. We consider that this evaluation should be done while keeping in mind the overall railway value chain and the overarching public policy objective. Let us explain.

The railway value chain is in fact more or less identical to any other infrastructure value chain. There are, first, substantial investments, which historically have been made by governments and now are increasingly made by infrastructure managers themselves if they can afford them, yet will be more and more made by private investors. The second step pertains to the monopolistic infrastructure, which can roughly be equated to infrastructure capacity. The third step in this value chain are the train services provided by railway undertakings, in which competition should have set in, at least to some extent. The final step is customer uptake or patronage, which is typically related to price, quality, convenience, etc. This value chain is itself embedded in a public policy framework, the aim of which can be equated to a modal shift, as the central contribution of the single European railway area to the Green Deal and carbon neutrality.

However, this value chain is unfortunately not so simple, i.e. as linear as economists would like to have it. In fact, there are interdependencies between each of these steps. For a start, there is a strong interdependence between investments and capacity. While infrastructure capacity obviously more or less directly correlates with investment, investment needs, on the other hand, also depend on the use of the already existing infrastructure (among other things). Especially in railways, it is well known that slower traffic reduces the available capacity. In other words, optimising traffic flows significantly reduces investment needs. The same is true for the interdependence between competition and customer uptake. While better service offerings in terms of price, quality and innovative products, etc. (all thanks to competition) increase customer uptake, rail offerings are increasingly digitally mediated and therefore need access to high quality data, which is generally proprietary. At a more political level, and further down the value chain, a modal shift will require physical (not only digital) integration of transport modes to make multimodal mobility more attractive. However, public policy must also ensure a level playing field between transport modes. The following figure illustrates both the value chain and the interdependencies between the different steps.



In other words, for customer uptake of rail services and ultimately a modal shift to happen, policy interventions will be needed all along this value chain. The Recast Directive focuses exclusively on step two of this value chain (bold arrows) yet must of course also take into account what happens upstream and downstream. To be precise, the Recast Directive focuses on the interdependence between infrastructure capacity use and competition by way of rules on unbundling, capacity allocation, traffic management, temporary capacity restrictions, etc., not to mention the technical pillar of the Directive addressing interoperability and technical harmonisation. On the one hand, competition is very strongly determined by access to tracks, paths, berths, storage facilities, etc., including timetables and priority rules, all of which could certainly be refined but made more flexible in a revised Recast Directive. Research shows that competition is equally strongly determined by access charges, which could also be refined, made more flexible and probably also more incentive-based. But on the other hand, available capacity also strongly depends on traffic management and especially on the nature of traffic. To put it simply, the more homogenous the traffic, the more capacity and so the more competition.

This is probably why competition in the market can be more successful in high speed than in the case of mixed traffic.

This brings us to the question of unbundling, which originally was conceived quite simplistically in a linear way. The more unbundled the historically vertically integrated operator is, the more competition is possible. If only it were that simple. While unbundling is a purely structural remedy for monopolies, the interdependence between infrastructure and services will not disappear with unbundling. Instead, it will have to be regulated in order to force the now structurally independent actors to coordinate in the interest of the customer and ultimately in the interest of a modal shift. Rules about coordination (e.g. the Recast Directive) are in fact necessary regardless of the degree of unbundling. In other words, one may question whether strong unbundling is even needed when there are strong regulations and powerful regulators.

In fact, wherever strong institutional unbundling has happened, such as in Spain and to a certain extent also in Italy, the power relationship between (monopolistic) infrastructure managers (IMs) and (competing) train operating companies (TOCs) gradually tilts towards the IMs, which actually become the active managers of the railway system, probably in the future also at the EU level (e.g. 'Eurocontrol of rail'). This is an evolution we have already observed in aviation with the powerful role of air navigation service providers (ANSPs), the infrastructure managers at the national level, which are increasingly coordinated by the EU-wide network manager, a function delegated to Eurocontrol. Similarly, in the electricity sector, high-voltage grid managers, the so-called transmission system operators (TSOs) are becoming the active managers of the entire national electricity system and have now developed a Europe-wide system-management function empowered by the Commission (ENTSO-E). On the one hand, EU regulatory policy has become easier thanks to this evolution (easier to legitimise because IMs are monopolies), yet on the other hand, we are moving one step up the value chain, which is unfortunately also a step away from customer needs and demand.

Main takeaways from the discussion

By Anouk van der Veer, Ph.D. Candidate at the European University Institute

The 25th Florence Rail Forum took place to inform the European Commission about the impact of the Recast Directive (2012) on the railway sector. The Directive opened the single European railway area to competition. According to Article 63 of the Recast Directive, the Commission has to evaluate the impact of the Directive on the railway sector and draft a report containing its findings by the end of 2024. In particular, the evaluation must cover the development of high-speed rail services and the existence of discriminatory practices in access to high-speed lines. Moreover, the persistence of discriminatory practices and other types of distortion of competition in relation to infrastructure managers which are part of a vertically integrated undertaking will be evaluated. In the forum, the current situation of competition in the single European railway area was discussed.

Following the Directive, competition is gradually emerging across the EU but noticeable differences exist among Member States, especially in the commercial passenger sector. Countries vary from vibrant competition in high-speed services to competition for the market in public service obligation services, but in some no significant evolution has taken place. Moreover, barriers to entering railway markets are significant. Rail infrastructure is a natural monopoly and competition is enabled by removing the exclusive rights of infrastructure managers to provide downstream rail services. However, barriers to entry, such as access to infrastructure and service facilities, can deter newcomers. The Directive aims to reduce the barriers to access, it defines the principle of non-discrimination by infrastructure managers in favour of vertically integrated railway undertakings when vertical integration exists and it lays down specific rules for the governance of vertically integrated undertakings.

The Directive aimed to introduce competition in the railway sector and now is the moment to evaluate its merits. The subsequent three sections cover the specific topics discussed. For each topic, the key points in the presentations and roundtables are summarised.

Evolving competition in the single European railway area

The discussion focused on the reality of the market, entry strategies and whether vertical separation rules (e.g. HR, information, financial ones) are effective. It became clear in the discussion that the market is opening successfully, competition is evolving and consumers are benefitting. Operators experience growth in both long distance and high speed train services, and in regional services. The market share of passenger railway transport has increased compared to bus and flying, and annual passenger per kilometre records are broken year after year. In addition to domestic markets, operators need to expand internationally. To this end, both competition and cooperation are crucial. Some operators offer cross-border train services, such as Trenitalia's operations between Milan and Paris and Renfe's services connecting Barcelona with Lyon and Madrid with Marseille. Moreover, a tunnel is currently under construction that will connect Germany to Denmark. It is to be completed by 2029. Meeting the rising demand for both national and international railway services also poses significant challenges, particularly in terms of capacity and infrastructure investment.

The current state of competition in the European railway industry is highly diverse. A few country-specific examples show diverse approaches and outcomes. The UK pioneered a franchise model that created competition for the market and significantly increased passenger numbers but failed in terms of cost control.[1] Continental pioneers like Austria and Sweden saw limited, although beneficial for passengers, competition confined to a few (sometimes just one) route(s). Two distinct models of competition can be identified in Europe: the 'Golden Triangle' (Italy, Spain and France, in that order), characterised by large-scale market entries in high-speed networks via framework agreements, and the 'Silver Triangle' (the Czech Republic, Slovakia, Germany and Poland, in that order), which relies on gradual organic market entry in conventional networks, often facilitated by multi-modal

1 Although the UK is no longer part of the European Union, its approach remains an interesting learning experience.

transport operators. The Golden Triangle contains two different systems – a high-speed and a regional one – with new infrastructure to enhance capacity. It was highlighted in the discussion that the prices of train tickets in the Golden Triangle countries are significantly falling, showing the benefit of competition. In contrast, the Silver Triangle is based on cooperation and network complexity. In this regard, concern was expressed that competition, although essential, might harm incumbents and undermine the significant investments already made, such as in purchases of new rolling stock and expanding routes. Ensuring fair slot allocation is therefore critical. A general comment was made that these success stories only cover a small part of the market and are not true for most of the routes in Europe. This discrepancy raises questions about the effectiveness of current regulatory approaches and real barriers to entry.

Another example of rail reform can be found in Germany, where the railway market was fully opened to competition in 1994. Strict separation of entrepreneurial and sovereign tasks was implemented, combined with regionalised financing for regional public transport. This reform led to an intermodal shift favouring rail transport. The competitive landscape in Germany continues to evolve, with intramodal competitors gaining market shares in various sectors and new entrants significantly increasing their market presence. The main challenge in the German railway system, however, is underinvestment in infrastructure for many years resulting in insufficient capacity and quality to support growing demand and compromising reliability. This hampers further development of the long-distance market, in particular due to a lack of the security needed for long-term investments.

Several complications hinder the creation of a totally competitive market. First of all, challenges in integrating national railway networks in a cohesive single European network remain due to a lack of interoperability across historically and technologically diverse national systems. Moreover, large fixed costs and investment in running stock and infrastructure are crucial, while profitability is not guaranteed in the absence of price regulation. Innovation, cost reductions and enhancing profitability are essential to sustain expansion. While the network expands, high-quality standards need to be maintained to ensure that railways remain competitive with other modes of transport. Other challenges that remain are transforming governance structures and creating dedicated companies to operate regional services effectively. Finally, increasing numbers of requests for framework agreements, particularly from entrants, challenge incumbent practices and contribute to the overall complexity and require adaptation to the new competitive environment. Going forward, understanding of the drivers of investment is needed, such as market conditions and profitability. Stakeholders need to identify conditions conducive to investment and consider how regulatory frameworks can be adjusted to support a more competitive and integrated European railway market.

Specific practical hurdles experienced by entrants were highlighted in the discussion. Conflicts arise in, amongst other things, the allocation of train paths, access to real-time data, space allocation and promotional activities in passenger stations. For example, an infrastructure manager refused an entrant access to real-time data on connecting trains to better inform passengers, arguing that it not part of the minimum access package. The Court of Justice, however, ruled that access to real-time data was indeed required. Regarding ticket office allocation in stations, a station manager refused to allow a ticket office to an entrant which did not have a safety certificate for Austria, regarding which the regulatory body ruled that it was not required to operate a ticket office. Finally, entrants face challenges in finding suitable locations for billboards and promoters, and when they are granted, contracts are signed with unpublished conditions for unjustified fees. Vertically integrated incumbents whose brands are displayed at stations and on road signs for historical reasons hold a significant advantage over entrants, which may lack the financial resources to build a comparable brand presence.

Regarding the Directive, in particular the desirability of allowing Member States to choose the structural model – whether integrated or separated – that best fits their national situation instead of imposing one was debated. Some participants responded positively, as it allows fine tuning of regulations to the specificity of the market. They also noted that

their markets, which are characterised by integrated models, show a high level of competition, suggesting that the correlation between integration and market competition is not clear. It was argued that operators as system integrators even positively contribute to advancing the rail system, particularly in areas like digitalisation and technological innovation. In contrast, some argued that integrated structures cause underperformance because effective oversight and accountability of the infrastructure manager is prevented. Since the manager is part of the same holding company, inefficiencies and mismanagement remain hidden, leading to a lack of transparency and financial mismanagement, indicating competition problems that need to be addressed.

Finally, difficulties relating to the broadness of the Directive were discussed. Participants experienced the opening of the market as learning by doing, due to a lack of clear capacity allocation criteria . Moreover, the market definition and the scope of the Directive are unclear. For example, it is unclear which infrastructure managers fall under the Directive, particularly between the technical and market pillars and regarding smaller and regional managers.

Barriers to entry

The discussion focused on identifying barriers to entry, such as technical barriers, authorisations, rolling stock, service facilities, ticketing and track capacity, and how to overcome them.

Historically, Member States have maintained different technical standards for rolling stock and infrastructure, resulting in a lack of interoperability between rail networks and a highly fragmented market. In particular, older infrastructure poses higher costs and complicates entry. Despite significant strides towards harmonisation across Europe, substantial work remains to be done to address these technical barriers. Initiatives such as the European Train Control System (ETCS) have great potential yet its implementation has been slow and fraught with delays. Administrative barriers related to the authorisation and certification processes were also highlighted in the discussion. These procedures are time-consuming, complex, costly and often inconsistent across different countries. Clear and consistent cross-border requirements can help streamline these processes. Regulatory barriers were discussed, such as the multitude of policy priorities and layers of regulation, varying from the European to the national level with varied interpretations and multiple regulatory entities. For example, night trains face significant logistical challenges due to this fragmented regulation. To support entry and increase competition, harmonisation, a single regulatory entity, precise and limited interpretation of regulations and independence of the actors promoting competition are needed.

The industry faces economic barriers in terms of insufficient funding, particularly of smaller operators and those purchasing fewer trains. High costs are associated with complying with different technical standards and limited economies of scale, due to fragmented rail markets and also high track access charges, especially for long-distance high-speed services. Data show that the highest track access fees are charged in countries with a vertically integrated model and the lowest fees in countries with a separated one. Moreover, there is insufficient funding to implement European railway policies. Tender processes take a long time, which particularly affects financing structures for new entrants. Private money and sector involvement are needed to overcome future challenges concerning public funds, such as geopolitical issues, increasing fiscal constraints, demographic challenges and a need for the railway sector to become more efficient and affordable. In addition, more support is needed for innovative ideas and solutions in the sector, as current homologation processes deter introductions of new technologies. Long-term track access framework agreements are crucial for innovation and the entry of new operators, as they provide the stability needed for private investments. State-owned incumbents enjoy an advantage over entrants and small incumbents as they have access to cheaper more liquid borrowing. This creates an uneven playing field, which hinders private investment in high-speed rail. The new state aid guidelines are a step in the right direction as they allow Member States to issue guarantees for rolling stock, which especially benefits new entrants which are perceived less favourably by private funds. Other potential solutions include taxing state incumbents for their implicit government guarantees providing EU-level loan access to all operators, ensuring fair competi-

tion and enabling the necessary capital expenditure in the sector.

Capacity barriers have been raised due to a lack of available track capacity on the main routes, rolling stock and service facilities. Entrants face a lack of commercially viable train paths on highly frequented routes due to a general lack of capacity. In the long-distance market, the dense structure of some networks creates strong network effects, which hinder entrants from offering comparable services. There is tension between incumbents and entrants in infrastructure allocation. Entrants seek access to secure investments, while incumbents want to retain their slots to protect their investments. Therefore, a balance must be found between providing entrants with access and protecting investments. Framework agreements were proposed as a solution to provide entrants with certainty. Another issue is a lack of rolling stock, which is caused by production bottlenecks and amplified by a lack of standardisation, and technical and interoperability barriers, providing no guarantee for new operators. Moreover, there is a lack of availability in service facilities, in particular in storage facilities, resulting in operators running empty trains. It was argued that this is due to vertical integration, which removes incentives to solve these issues and avoid public criticism.

The final entry barrier identified is in the railway ticket distribution market. Independent ticket distributors struggle to evolve due to the dominance of national monopolies controlling the vast majority of their own ticket sales and lacking incentives to collaborate with independent sellers. This situation hampers competition and market entry for new players. Regulation can mandate access for independent distributors and promote fair competition, fostering digital innovation and cross-country ticket purchasing options for consumers.

The discussion showed that especially entrants face persisting barriers to entry and a slow pace of progress. The push for digitalisation is essential for the future but has inadvertently complicated the railway system and made it less adaptable. Despite initial optimism and regulatory efforts aimed at making railways more accessible and efficient, the reality has been disappointing. The industry remains hindered by outdated practices and an inability to implement effective change.

Regulatory solutions were proposed to address these barriers. These include better transparency and adjustments to booking rules to allow more efficient use of spare capacity, potentially through a secondary market. Digitalisation on the part of the infrastructure manager is needed to provide insights into whether, for example, there are trains parked or not and the length of the storage facility. To reduce the high initial costs of purchasing rolling stock, pools of rolling stock can be introduced, partly managed by competent regional authorities and using commercial leasing providers as viable alternatives for new entrants. The downside of this is that it would come at the cost of competition between different products, reducing the ability of operators to stand out and convince passengers of the quality of their services. Regarding high track access charges, proposals included introducing discounts or subsidies, considering marginal cost pricing, although this would require compensation for fixed costs, public funding for significant methodological changes and market segments dedicated to entrants.

Competition in high-speed services

The final discussion focused on how competition is evolving in high-speed services and whether or not there is room in the market for entrants. While high-speed services are not yet widespread in Europe, the market is opening up. There is a mix of competition for the market and in it in Spain and Italy, and there is competition for the market in the UK. France is currently in an early stage of competition, with multiple operators entering specific parts of the network. Competition has led to an increasing number of seats on offer for lower prices, higher quality, frequency and variety of services and innovation over the past decade. Competition has also led to more affordable fares by catering to different customers based on their willingness to pay, offering both premium flexible options and lower-cost advance bookings. The consumer surplus is increasing, so passengers are benefitting from liberalisation. High-speed railway services are experiencing significant growth and some operators are active across several Member States, following the trend of expansion and competition across Europe. Growth in demand matches growth in supply, indicating a healthy market response. Competition has, however, not been evenly distributed across

all regions. Some areas are lagging behind due to selective service offerings by operators focusing on more profitable routes.

Entrants with the ambition to offer high-speed services across Member States have to navigate different national requirements for safety systems, electricity systems, infrastructure managers and regulators. This complexity has to be dealt with by a small team, resulting in logistical and financial challenges. One of the primary challenges is to ensure sufficient track capacity, particularly in busy regions. A potential solution could be to introduce new European regulations that prioritise international high-speed trains over national services. The question was raised of whether current incentives are sufficient to encourage market entry in service facilities and to attract private and public investments. Similar to the barriers to entry discussed previously, a major concern for investors is the uncertainty regarding the availability of infrastructure and service facilities. Currently, framework agreements provide entrants and investors with guarantees and certainty in countries like France, but such agreements are lacking in Belgium and the Netherlands. Other concerns relate to operational reliability such as stabling yards and high-speed maintenance facilities. The ability to secure long-term access to these facilities well in advance is essential for financial planning and operational security. The discussion revealed a need for a secondary layer of framework agreements with a longer lead time, ideally five years, to ensure access to these vital facilities. These agreements should be standardised across borders, so common practices regarding the model, procedures and timelines would be beneficial. The role of regulators is crucial in addressing these challenges. Strong decisive regulatory bodies are needed to enforce agreements and ensure fair treatment of new entrants. This includes the ability to impose financial penalties swiftly in cases of non-compliance and substandard maintenance practices, as delays can lead to significant revenue losses in high-speed services.

A solution to address capacity issues and safeguard investments is the Spanish example of offering pre-assigned routes in packages. These packages are categorised as large, medium and small, and each covers major routes to avoid cherry-picking and ensure comprehensive service coverage. To ensure non-discriminatory, transparent and objective capacity allocation, capacity is awarded based on who proposes the most extensive use of these packages, measured in train kilometres. This approach aims to increase the available capacity, optimise the use of infrastructure, reduce waiting times at terminals and support intensive use of rolling stock. In addition, the interests of both incumbent operators and new competitors are balanced by ensuring all path applications are compatible with each other. While these agreements do not exhaust capacity and they allow private investment in the market, thus maintaining flexibility, the system provides both operators and investors with certainty. It ensures that capacity constraints are effectively managed and that new entrants can confidently plan their services. Strategic capacity planning enables optimal and efficient use of infrastructure while taking into account the needs of passengers, as is expressed through the demands of rival operators. The weaknesses of this solution are that the market does not self-organise according to demand, private investors are absent and it is challenging for new operators to enter such a fixed and rigid system.

Opposing the Spanish example, it was argued that infrastructure managers should not be responsible for determining which routes are included in route packages, as they do not engage with passengers. Moreover, this solution carries the risk of concentrating all responsibilities in the hands of infrastructure managers, potentially leading to a single entity handling all railway issues, which could be counterproductive. The aim of the railway system is not to optimise infrastructure but to ensure that passengers benefit. Accordingly, the solution proposed was to only employ a strategic approach in congested corridors while allowing freedom to combine certain paths, thus ensuring that different operational models can coexist without rigid prescriptions. This solution balances strategic planning and flexibility.

Conclusion

In 2012 the Recast Directive opened the single European railway area to competition. By the end of 2024, the Commission has to report its findings regarding the impact of the Directive on the rail sector. Its evaluation will focus on the development of high-speed rail services, the existence of discrim-

inatory practices regarding access to high-speed lines and the persistence of discriminatory practices and other types of distortion of competition in relation to infrastructure managers which are part of vertically integrated undertakings. The 25th Florence Railway Forum was organised to inform the Commission. It provided a platform to evaluate the Directive and its implications for the rail industry, in particular regarding the evolving competition in the single European railway area, barriers to entry and competition in high-speed services.

The participants recognised that competition is gradually emerging in the EU, albeit unevenly among Member States, particularly in the high-speed rail sector. They experience persistent barriers to entry, including technical standards, capacity constraints and regulatory complexities, which hinder the seamless integration of national networks in a cohesive European system. Moreover, while high-speed rail competition has driven growth and consumer benefits, issues like interoperability, investment in infrastructure and the need for effective regulatory frameworks remain pressing. The forum concluded that while the market is opening successfully and consumers are benefiting, achieving a fully competitive and integrated European railway network will require nuanced regulatory approaches, substantial investment and a balance between strategic planning and market-driven flexibility.

The following takeaways are relevant for the Commission to consider when evaluating the impact of the Directive. First and foremost, the Directive has initiated notable competition within the single European railway area, particularly in high-speed rail services, although the extent of competition varies among Member States and routes. The rail sector has seen significant growth in passenger numbers and has gained a larger market share compared to buses and flying, and consumers benefit from increased options, lower prices and improved service quality.

Second, challenges remain to meet the rising demand, most particularly regarding investment and capacity. Significant investment in infrastructure and rolling stock is crucial but uncertainty about capacity poses challenges to securing funding. Public and private funding are needed, and framework agreements can provide the stability required for long-term investments. Another challenge is to manage space constraints in densely populated areas. More coordination and strategic planning are needed to effectively address these issues. The need for effective timetabling, priority rules, access to tracks and access charges can ensure fair distribution and utilisation of capacity.

Third, significant barriers to entry and international expansion persist. These barriers include technical standards, economic and administrative barriers, capacity constraints, regulatory complexities and access to framework agreements, service facilities and rolling stock. Diverse technical standards and regulatory approaches make interoperability across national systems a persistent challenge, which hampers seamless operation of cross-border services. Moreover, high costs and investment requirements for international expansion also pose challenges and highlight the need for effective regulatory frameworks and investment incentives. Furthermore, vertically integrated models remain controversial, with proponents advocating their benefits and critics highlighting their drawbacks. These barriers are particularly challenging for new entrants trying to compete with established incumbents. Strategic capacity planning and framework agreements are proposed solutions, but they must balance the interests of incumbents and new competitors.

Fourth and finally, effective European regulation is critical to foster competition. Clear and consistent rules across Europe, along with strong regulatory bodies, are necessary to ensure fair treatment of all operators and to address any discriminatory practices.

In conclusion, while the market is successfully opening and competition is evolving, achieving a fully competitive and integrated European railway network will require overcoming significant barriers, ensuring effective regulation and substantial investments. Balancing strategic planning with market-driven flexibility and addressing interoperability issues are essential for the future development of the railway sector.

On the need for long-term track access framework agreements to open the market

Comment by Laurent Fourtune, CEO of Kevin Speed

Kevin Speed is a new private operator in the French high-speed rail market. Kevin Speed will offer the first rail service dedicated to long-distance commuting in France. Our omnibus services will make high-speed travel accessible to everyone thanks to a low-cost model. The industrial experience of our partners shows that good safe inexpensive railway operations need long time scales, heavy investment and very strong cooperation between infrastructure managers (IMs) and railway undertakings (RUs). This has been proven by the channel tunnel operations of Eurotunnel and Eurostar, for example, and also by the track access rights imposed by the STB in the US.

Fully separating infrastructure managers from railway undertakings is not needed to open the market as long as a strong regulation authority stipulates the end result of a real opening of the market. Separating IMs from RUs today comes at an operational and legal cost. In a given market, once private RUs are in the market they will probably concentrate on a minimum number of players tolerated by the competition authorities. Long term track access framework agreements are the tool to impose opening of the market by making their availability mandatory, as would the proposed new capacity management regulation.

Long term track access framework agreements are the key to attracting private capital to the railways that will lower ticket prices and increase IM revenue

In the high-speed rail market, even when RUs and IMs cooperate well RUs tend to be very inefficient monopolies that are Malthusian and lead to a vicious circle of higher track access charges, fewer trains, less service, lower IM revenue and higher ticket prices for travellers. It is urgent to allow private capital to enter this profitable market to increase the number of trains and the number of available seats, and therefore decrease ticket prices and increase overall IM revenue.

A level playing field on debt rating is needed to improve ticket prices

State-owned incumbent railway undertakings benefit from rates by rating agencies one ‘notch’ below their governments because the rating agencies consider that they will benefit from government support as they are too big to fail and they operate an essential service. This means that they have an implicit state guarantee leading them to have cheap liquid borrowing available to finance their expansion in all the EU markets.

Private firms cannot access this, which leads to an unlevel playing field, which in turn leads to higher prices and a lack of innovation and new entrants.

We see two options to make a level playing field:

1. make state owned railway undertakings pay the value of the guarantee that they in fact receive from their shareholders: this would be fair but Malthusian for railways; or
2. make liquid and inexpensive borrowing available at the EU level for profitable private RUs. The Invest EU mechanism could be a good way to achieve this.

A comment by Stefan Remmert, Chief Expert General, Regulatory Policy of Deutsche Bahn AG

The entry into force of the Recast Directive, the modifications of it in the 4th EU Railway Package and the national transposition of them have been milestones in the creation of the single European railway area. At the end of intense discussions on the 4th Railway Package the European legislator took the wise decision to maintain the openness of EU law to different railway models as long as certain conditions are met regarding the independence and impartiality of the infrastructure manager.

Already 30 years ago, the German legislator took a courageous decision to comprehensively and profoundly reform the railway system[2], which is still laying the basis for the system today in Germany. In the course of German reunification, a solution had to be found for the two railways, Deutsche Reichsbahn and Deutsche Bundesbahn, which were both run as administrations but with ever-deteriorating finances and decreasing market shares. The national legislator decided to completely open the German railway market to competition in 1994 and to strictly disconnect entrepreneurial and sovereign tasks. Furthermore, a new system of financing local and regional public transport was set up: so-called 'regionalisation.'

Following that time three decades ago, competition evolved very positively with continually increasing market shares of intramodal competitors, an (inter-)modal shift in favour of rail (from 6.7% to 9.3% in passenger rail and from 16.7% to 19.3% in rail freight from 1994 to 2022). At the same time, the pressure on the federal budget was considerably relieved (roughly halved by 2014). The transport volumes sold and infrastructure utilisation both strongly increased between 1994 and 2022. Rail passenger transport rose overall by 46%, of which 71% was in PSO services and 25% in long-distance transport. In rail freight transport, the increase was even higher, at 91%. Operating performance rose by 29%.

According to a recent market monitoring report by the Federal Network Agency,[3] the intramodal competitors of Deutsche Bahn continue to gain market shares in all three market segments and in 2023 accounted for 61% (two percentage points more than the previous year) in the rail freight sector, 37% (three percentage points more) in the PSO sector and 5% (one percentage point more) in the long-distance sector. Regarding long-distance services, the competitors of Deutsche Bahn increased their transport performance between 30% and 50% from one year to the next. With a total market share of less than 1% in 2019 and a share of 5% in 2023, the competitors succeeded in increasing their share of long-distance services in Germany fivefold. A shortage of infrastructure capacity constitutes the major barrier against further development (not only) of the long-distance market in Germany.

Generally speaking, the success of the German rail reform gradually turned into a problem in terms of capacity and quality. With the aim of consolidating federal budgets, railway infrastructure became heavily underinvested in over the years. The backlog currently amounts to around EUR 90 billion. Measured against other European countries, the investment level in Germany in 2021 was 43% below the average. Today the infrastructure can hardly cope with the constantly growing volume of rail traffic. The system lacks robustness, resilience and reserve capacity. The result is considerable quality deficits. In parallel, it has become apparent that rail is the only mode of transport that has succeeded in reducing its CO2 emissions since 1990 (-70%) and therefore has played a key role in fighting climate change. Against this background, the Federal Government and Deutsche Bahn launched a comprehensive reform programme with high investments to expand and modernise the infrastructure.

The overall development of the market shares of the intramodal competitors, the pure number of non-DB-group railway undertakings operating on the German rail network (438 in 2023) and the constantly increasing use of the rail network over three decades (28% more train-path kilometres from 1994 to 2023) show the ongoing attractiveness of

2 www.deutschebahn.com/30JahreBahnreform

3 https://data.bundesnetzagentur.de/Bundesnetzagentur/SharedDocs/Downloads/DE/Sachgebiete/Eisenbahn/Unternehmen_Institutionen/Veroeffentlichungen/Marktuntersuchungen/MarktuntersuchungEisenbahnen/MarktuntersuchungEisenbahnen2023.pdf

the German rail market with Deutsche Bahn as the system integrator. These figures indicate that the integrated group structure of DB did not impede the development of competition. On the contrary, the role of DB as a system integrator is bringing the rail system forward, e.g. in the field of digitalisation.

Again, the European legislator found the right equilibrium with the 4th EU Railway Package. It remains up to each Member State to choose the structural model which best fits the national situation. For good reasons this can be a separate model or an integrated model. In any case, the infrastructure manager must observe specific requirements under the strict control of the national regulatory bodies:

- legal unbundling between the infrastructure manager and rail operators;
- strict accounting separation and prohibition of transfers of public funds;
- operational unbundling as regards essential functions (decisions on track access and on track access charges);
- impartiality as regards traffic management and planning of maintenance and renewal works;
- information unbundling.

Scientific analysis demonstrates that there is no general superiority of any specific railway model. Empirical findings show that the more the network is utilised, the more favourable integrated systems are. The same applies to railway systems with a high degree of mixed use of infrastructure by freight, PSO and high-speed long-distance passenger services like in Germany. The success of a rail system is determined by numerous framework conditions. Adequate infrastructure financing and good regulation as implemented by the Recast Directive in the form of the 4th EU Railway Package are of utmost importance.

Increasing competition in the European railway market: proposals to improve the timing and cost of rolling stock homologation

Comment by Enrique Riesco García, International Sales Rolling Stock and Marketing Director at Talgo

The European Green Deal aims to mitigate climate risks. The role of the railway sector in this is crucial. However, authorisation processes have become complex and costly due to issues like capturing requirements, language barriers and discrepancies between national safety authorities (NSAs) and the European Union Agency for Railways (ERA), despite the important effort made with the Fourth Railway Package (4RP) and the aim of creating a single European railway area (SERA).

The capturing requirements process has led to confusion and additional evaluation activities, which is contrary to the objectives of the 4RP. In some cases, this process is also an opportunity to reintroduce national rules previously rejected by ERA as result of the so called 'cleaning up process' and to demand requirements beyond those specified in the Technical Specifications for Interoperability (TSIs), the notified national technical rules (NNTRs) and other pieces of EU legislation. These additional requirements often affect the design of rolling stock and should have been notified earlier in the process.

Discrepancies between NSAs and the ERA regarding rejected NNTRs also contribute to the complexity of the process. NSAs often consider these rejected rules to still be applicable and mandatory, while the ERA deems them not applicable. This lack of alignment creates confusion and uncertainty for applicants.

Certification and authorisation processes are also overly complex and time-consuming. The 4RP, which aims to simplify the process, has not yet achieved its full potential, with associated regulations, guides, clarification notes, requests for understanding and other texts needing to be clarified as much as possible, and sometimes published without the participation of the sector.

One of the most significant barriers to authorisation is obtaining track access permission for testing, which can be equivalent to a parallel authorisation process with experts other than NOBOs, DEBOs and ASBOs evaluating compliance even with national rules out of RDD, and raising 'unreasonable' conclusions at times. Dynamic bridge compatibility is also a blocking point in certain infrastructure due to the huge amount of work required over the years, which is not easily foreseen in terms of cost, which is often in the M€ range.

The concepts of types, variants, and versions are often not useful in practice, as modifications during the lifecycle of a vehicle require analysing the 'delta' between configurations before and after the change. A modification that needs authorisation will lead to the creation of new types unless the 'delta' is considered based on the parent type, which is more expensive.

TSIs should not refer to specific standards unless necessary as the voluntary list of harmonised standards is an acceptable mean of compliance. In addition, new technologies need research and development before the inclusion of related requirements in TSIs. This will make possible an open market with operators offering economic trips, while others offer luxury travels in 'state of the art' trains.

The frequency of TSI publications, and the new content included, runs faster than developments in trains. This jeopardises the future of European manufacturers and limits the stock of railway vehicles/services, considering the cost of development of a type and the time to obtain authorisations in conformity with that type.

Another significant barrier is language. While vehicles must meet a large number of mandatory requirements, some Member States do not accept documents in English. The cost of translating in a project could be huge, which is unjustified.

Other factors could probably be improved, for instance the time to have certificates and declarations published in the ERADIS and the upcoming obsolescence of GSM-R, which triggers a new risk. Even if FRMCS is properly specified in good time, if there is no deadline for it to be implemented everywhere it will become a new case of an additional system onboard, as currently happens with ERTMS and Class B systems.

To address the challenges in the railway sector and simplify the authorisation process, several improvements are proposed:

- **Streamline the capturing requirements process** to ensure only TSIs, suitable NNTRs and any applicable non-railway EU legislation are considered, avoiding further national requirements that could affect the design of rolling stock.
- **Accept English as the 'interoperable language'** for documentation by both ERA and all NSAs to reduce translation costs.
- **Align the interpretation of NNTRs between NSAs and the ERA** to ensure consistency. This requires commitments by all NSAs and ERA to finalise the cleaning up process with total agreement on each rule.
- **Simplify TSIs and certification processes** to create a more competitive market with more precise directives and regulations, and stable, flexible (with easy transition regimes) and lean TSIs being the 'greatest common divisor' and not a 'least common multiple.'
- Clearly define **documents accompanying applications** for authorisation to harmonise criteria, bearing in mind that documents already assessed by NOBOs/DEBOs/ASBOs are not intended to be double-checked by NSAs/ERA.
- **Accept IRIS certification** by NOBOs to release SD/CD certificates.
- **Harmonise the conditions to obtain track access permission** for testing, avoiding unforeseeable high cost, time and obstacles to completing certification.
- **Recognise laboratories with the capacity to simulate cases to check ETCS** and Radio System Compatibility (ESC/RSC), making checks safer, cheaper and quicker.
- **Improve the clarity of test cases,** procedures and means to perform checks for ESC/RSC.
- **Improve IT tools and databases**, like OSS to get a fail-safe interface to minimise issues. Improve the usability of RINF to make it easier to find information (e.g. installed ETCS versions) and the integration between databases and tools.
- **Promote complete deployment of ERTMS** to foster a single signalling solution.

By addressing these issues and implementing these improvements, the authorisation process can become more efficient, cost-effective, and aligned with the objectives of the 4RP in the SERA. This will promote the establishment of new railway companies in an open and interoperable market, contributing significantly to the aim of the European Green Deal of protecting people from climate risks.

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