

VERTICAL SEPARATION IN RAILWAYS

Lessons to reduce the risk of discriminatory practices

Report by the Advisory Board

for the Board of the *Autorità di Regolazione dei Trasporti*

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ART's core mandate is the economic regulation of the transport sector, including access to related infrastructure and services. This encompasses the establishment of service quality standards and the definition of users' minimum rights vis-à-vis infrastructure managers and service providers.

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1. INTRODUCTION: VERTICAL SEPARATION IN RAILWAYS

This document addresses the challenges resulting from the structural separation of infrastructure from train operation. The impacts of this regulatory imposition have been wide and spread in the different ways it has been implemented in the EU territory. Competition was introduced in EU although in very different contexts. Some countries have intense competition in high-speed services, while in others, only competition for the market exists in public service concession contracts, and still others have no competition at all and the market is not recognised as such.

Despite a unified regulatory approach, different challenges exist in various countries, as well as between passenger and freight services. Competition tends to increase traffic, a common challenge for both segments is the infrastructure capacity to accommodate that increase of traffic, minimising bottlenecks. This is a barrier for new entrants and a major difficulty for regulators whose ultimate objectives are to achieve a fair, open market.

Within this complex system, many components are relevant and have dominated the discussions in specific moments, some more focused on technological issues others more related to the soft components, like contracts and regulatory frameworks. Stimulating competition in the rail sector is crucial, as it often serves as a key driver for increased efficiency. Competition primarily occurs among railway undertakings competing for market access and the provision of rail services to customers. It is therefore particularly important to establish clear principles and regulatory criteria to support the development of an efficient strategic plan for rail infrastructure utilisation (i.e. an efficient operating plan, serving as a pre-operational framework), efficient capacity allocation, and effective infrastructure management, including daily train operations and disruption recovery.

A critical element for both freight and passengers is access to information. How can fair competition be ensured if bidders of competitive tenders (e.g. Public service obligations) have limited access to essential data (e.g. demand, maintenance data) to evaluate the economics of an operation, that always involve high level of investment.

The infrastructure remains a monopolistic business. In 1991 the operations were open to market with the Directive 91/440/EEC, allowing independent operators to access track slots. Since then, four key legislative packages have been launched by the Commission. In 2001, provisions on organisational separation, capacity allocation, and licensing, with the outcome of opening the market for international freight rail services on the TEN-T

Network in 2003. In 2004, the second package was focused on removing entry barriers to national markets for operators with EU licences and competition in the rail freight market was increased. The outcome of the second package was the opening of the market for international freight rail services on the entire network in 2006 and for domestic freight rail services in 2007. In 2007, the 3rd package came, including regulations on public service obligations, passengers' rights, and opened up the international passenger market for access and cabotage. The outcome was the opening of the market for international passenger rail services in 2010. In 2016, a fourth package was introduced focused on the completion of the railways area, ensuring independence of Service Operators from Railways undertakings and introducing open competition in domestic passenger markets. The outcome was the opening of the domestic passenger market services in 2020 and the enforcement of competitive tendering for domestic public services, with a time lag of implementation until December 25th, 2023.

The experience of these four packages of regulation gives an extremely clear view of the growing time gap between regulatory action and effective outcome, consequence of several barriers that continue to hamper the full benefits of liberalisation.

While railway undertakings should be encouraged to differentiate their services to meet diverse demand, this must not distract infrastructure managers from their core responsibility of optimising the efficiency of railway lines. One effective approach is line specialisation, particularly for high-speed services and certain stations. Specialisation does not mean dedicating an entire line's capacity to a single market segment; rather, it can involve allocating specific time slots during peak periods (e.g. 8–10 a.m.) or designating particular tracks within a station. Such targeted capacity allocation can substantially improve efficiency and productivity while reducing the impact of traffic disruptions on overall service quality.

Currently, in Italy, the infrastructure manager traditionally follows an “all-in” approach, seeking to accommodate every capacity request without adequately considering the effective utilisation of existing infrastructure or the resulting impact on service quality and reliability. This fundamentally flawed approach, compounded by increasing network saturation, has led to a highly inefficient system characterised by severe delays, deteriorating train-path quality, and, more broadly, a lack of network resilience. In contrast, the infrastructure manager should adopt a more selective capacity allocation strategy, guided by a strategic plan (pre-planning or operational plan) that prioritises maintaining quality standards and optimising overall network efficiency.

This document addresses the particular challenges faced in the Italian market. Chapter 2 is dedicated to the literature review, focusing on the economic implications of vertical

separation, service efficiency, insight on policy making and the comparison between EU and Asian regulation. Chapter 3 is dedicated to an in-depth analysis of the economic and financial implications of the Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area (Recast Directive). Chapter 4 provides a comparison of selected experiences. Chapter 5 addresses the Italian situation and, finally Chapter 6 draws on previous chapters to highlight key aspects that must be taken in consideration in the regulatory process.

2. LITERATURE REVIEW

Vertical separation, the structural separation of infrastructure management from train operations, has been a key policy tool in railway liberalisation efforts worldwide. This analysis examines the geographical focus, regulatory frameworks, and economic and operational impacts of vertical separation across European Union (EU) countries, Asian countries, and North America. The discussion draws on insights from multiple regions and highlights the diversity of approaches and outcomes.

2.1 Economic Implications of Vertical Separation in Railway Networks:

Infrastructure Management and Service Efficiency

The economic implications of vertical separation are complex and depend on various factors, including the level of competition, the intensity of network usage, and the regulatory framework in place.

The cost implications of vertical separation are a critical area of study. Research indicates that vertical separation can lead to cost reductions under certain conditions. For instance, studies have shown that vertical separation, when combined with effective competition, can reduce costs by promoting efficiency and innovation (Benedetto, 2016) (Smith et al., 2018). However, other studies have found that vertical separation may increase costs in high-density networks due to the loss of economies of scope (Mizutani & Uranishi, 2013) (Lijesen et al., 2005).

Service efficiency is another key area affected by vertical separation. The separation of infrastructure management from train operations can lead to improved service quality and responsiveness to market demands. For example, vertically separated systems often experience increased service differentiation and better alignment of services with customer needs (Gutiérrez-Hita et al., 2022) (Besanko & Cui, 2019). However, the efficiency gains from vertical separation are not universal and depend on the effectiveness of the regulatory framework and the level of competition in the market (Mizutani et al., 2015) (Cantos et al., 2010).

Infrastructure management plays a crucial role in the efficiency of vertically separated railway networks. The separation of infrastructure management from train operations requires a robust regulatory framework to ensure non-discriminatory access to infrastructure and to prevent monopolistic practices.

The regulatory framework is essential for ensuring the success of vertical separation. Regulators must ensure that infrastructure managers are independent and that access charges are set at levels that promote competition while ensuring the financial viability of the infrastructure (Besanko & Cui, 2019) (Bassanini & Pouyet, 2003). For example, the European Union has implemented various directives to promote vertical separation and ensure non-discriminatory access to infrastructure (Bassanini & Pouyet, 2003).

Infrastructure investment is another critical aspect of infrastructure management in vertically separated systems. The separation of infrastructure management from train operations can lead to increased investment in infrastructure, as infrastructure managers are incentivized to improve the quality and capacity of the network to attract more operators (Besanko & Cui, 2019) (Król, 2009). However, the level of investment depends on the regulatory framework and the availability of funding (Bassanini & Pouyet, 2003).

2.2 Service Efficiency in Vertically Separated Systems

Service efficiency in vertically separated systems is influenced by several factors, including the level of competition, the regulatory framework, and the ability of operators to respond to market demands.

Competition is a key driver of service efficiency in vertically separated systems. The entry of new operators into the market can lead to improved service quality, lower prices, and better alignment of services with customer needs (Gutiérrez-Hita et al., 2022) (Besanko & Cui, 2019). However, the level of competition depends on the regulatory framework and the ease of access to infrastructure (Mizutani et al., 2015) (Cantos et al., 2010).

Indeed, the effectiveness of competition in vertically separated railway systems relies not only on physical access to infrastructure but also significantly on the quality of the regulatory framework. This includes robust provisions for accounting separation, regulatory accounting, and clear rules designed to ensure genuine market contestability - such as obligations to provide access to essential assets (e.g. maintenance workshops) and to share critical information with new entrants. These regulatory aspects are crucial to fostering transparency, avoiding cross-subsidisation within integrated groups, and enabling fair and non-discriminatory competition.

When evaluating models of vertical integration and unbundling, it is therefore essential to take into account not only the organisational structure (whether a holding model or

full legal separation) but also the effectiveness of the applicable regulatory framework. In this respect, measures such as ART Decisions Nos. 120/2018 and 95/2023, which set out detailed obligations on accounting separation and regulatory accounting for the infrastructure manager, play a fundamental role in ensuring transparent intra-group financial relations. Likewise, ART Decision No. 154/2019 provides important safeguards for the allocation and management of essential facilities (e.g. maintenance workshops), which are critical to the contestability of tenders and to guaranteeing non-discriminatory access for all operators. Together, these instruments illustrate how an effective regulatory framework is indispensable to realise the potential benefits of vertical separation in practice.

Service differentiation is another important aspect of service efficiency in vertically separated systems. Operators in vertically separated systems often engage in service differentiation to attract specific customer segments, leading to a more diverse range of services (Gutiérrez-Hita et al., 2022) (Besanko & Cui, 2019). For example, operators may offer different service levels, such as high-speed services for business travellers and budget services for price-sensitive customers.

Despite the potential benefits of vertical separation, there are several regulatory challenges that can impact service efficiency. For example, the setting of access charges and the allocation of network capacity are critical issues that require careful regulation to ensure fairness and efficiency (Besanko & Cui, 2019) (Bassanini & Pouyet, 2003). Additionally, the regulatory framework must be designed to prevent monopolistic practices and ensure that all operators have equal access to infrastructure (Mizutani et al., 2015) (Cantos et al., 2010).

2.3 Practical Insights for Policy-Making

The findings from the research papers provide several practical insights for policymaking in the context of vertical separation in railway networks.

Policymakers should aim to strike a balance between promoting competition and ensuring effective regulation. While competition can drive service efficiency and innovation, it must be accompanied by a robust regulatory framework to prevent monopolistic practices and ensure non-discriminatory access to infrastructure (Mizutani et al., 2015) (Cantos et al., 2010).

Policymakers should prioritize infrastructure investment to ensure the long-term viability of vertically separated systems. This includes investing in the maintenance and upgrade of infrastructure to support the increasing demand for railway services (Besanko & Cui, 2019) (Król, 2009).

Policymakers should encourage service differentiation and market responsiveness by creating an environment that allows operators to innovate and respond to customer needs. This can be achieved through flexible regulatory frameworks that allow operators to experiment with different service levels and pricing strategies (Gutiérrez-Hita et al., 2022) (Besanko & Cui, 2019).

Finally, policymakers should establish mechanisms for monitoring and evaluating the impact of vertical separation on the overall efficiency of the railway network. This includes tracking key performance indicators such as service quality, cost efficiency, and customer satisfaction (Benedetto, 2016) (Smith et al., 2018).

Vertical separation in railway networks has the potential to improve service efficiency and promote competition, but its success depends on a range of factors, including the regulatory framework, infrastructure investment, and the ability of operators to respond to market demands. Policymakers should carefully consider these factors when designing policies to promote vertical separation and ensure the long-term sustainability of the railway network.

Table 1. Comparison of unit trends and productivity trends

Country	Unit Cost Trends	Productivity trends	Citation
Sweden	Reduced unit costs	High productivity	(Arrigo & Foggia, 2015) (Arrigo & Foggia, 2014)
Germany	Reduced unit costs	High productivity	
Italy	Reduced unit costs	Increased productivity	
Spain	Relatively low unit costs	Weak traffic	
Great Britain	High production costs	Partially offset by intense traffic	
France	Average production cost	Below-average productivity	

This table provides a comparison of unit cost trends and productivity trends across six European countries, highlighting the economic implications of vertical separation in

railway networks. The citations provided are based on the research papers used in this analysis.

2.4 European Union Countries: Regulatory Frameworks and Vertical Separation

The EU has been at the forefront of promoting vertical separation as a means to introduce competition and improve efficiency in the railway sector. The EU's railway reform packages, starting from the early 2000s, have mandated the separation of infrastructure management from train operations to create a more competitive market (Pelkmans & Pietrantonio, 2004) (Nash & Rivera-Trujillo, 2007). This approach has been complemented by the establishment of independent regulatory bodies to oversee access to infrastructure and ensure non-discriminatory conditions for all operators (Benedetto, 2016) (Friebel et al., 2010).

The Key Features of EU Regulatory Frameworks have been:

- **Vertical Separation:** The unbundling of infrastructure from operations has been a cornerstone of EU policy. This separation is intended to prevent cross subsidization and enhance transparency in cost allocation (Pelkmans & Pietrantonio, 2004) (Finger & Messulam, 2015).
- **Independent Regulators:** EU member states have established independent regulators to monitor compliance with separation rules, allocate capacity, and set infrastructure charges (Benedetto, 2016) (Nash & Rivera-Trujillo, 2007).
- **Market Opening:** The EU has progressively opened both passenger and freight markets to competition, with a focus on cross-border services (Ali & Eliasson, 2021) (Pelkmans & Pietrantonio, 2004).

The economic impacts of vertical separation in the EU have been mixed. While some studies suggest that separation can reduce costs, particularly in low-density networks, others highlight the challenges of coordination and potential increases in costs for high-density networks (Mizutani & Uranishi, 2013) (Benedetto, 2016). For instance:

Research indicates that vertical separation can lead to cost reductions in networks with lower train density, but may increase costs in high-density networks due to coordination challenges (Mizutani & Uranishi, 2013) (Benedetto, 2016).

The introduction of competition has led to improved service quality and increased market share for rail in some regions, but incumbent operators often retain significant market power (Friebel et al., 2010) (Nash & Rivera-Trujillo, 2007).

The separation of infrastructure from operations has sometimes led to underinvestment in infrastructure, as the incentives for infrastructure managers and operators may not align (Thiebaud, 2016) (Pelkmans & Pietrantonio, 2004).

Germany: Germany has adopted a holding company model, where infrastructure and operations remain under a single corporate structure but are legally separated. This approach has allowed for some competition while maintaining coordination (Nash et al., 2013) (Nash et al., 2011).

Sweden and Britain: Both countries have implemented full vertical separation, with infrastructure and operations managed by separate entities. Sweden has seen improvements in efficiency, while Britain has experienced higher costs but increased competition (Nash et al., 2013) (Nash et al., 2011).

2.5 Asian Countries: Regulatory Frameworks and Vertical Separation

In Asia, the approach to vertical separation has been more varied, with some countries adopting partial separation and others maintaining integrated structures.

Japan has maintained a vertically integrated structure for its railway system, with a focus on efficiency and service quality. However, there has been some liberalization in passenger services, particularly in urban areas (Holvad et al., 2003) (Kurosaki & Okuda, 2013).

South Korea implemented vertical separation in 2005, separating infrastructure ownership from operations. The state-owned Korail operates trains on a nationwide network owned by the Korea Rail Network Authority (KRNA). Plans to introduce on-rail competition are underway, particularly for high-speed networks (Kurosaki & Okuda, 2013).

China has maintained a vertically integrated structure, with a strong focus on state ownership and control. However, there are signs of gradual liberalization, particularly in freight services (Ozkan et al., 2016) (Holvad et al., 2003).

The economic impacts of vertical separation in Asia have been shaped by the region's unique characteristics, such as high population density and rapid urbanization.

The integrated structure has allowed for efficient operations and high service quality, but has limited competition in passenger services (Holvad et al., 2003) (Kurosaki & Okuda, 2013).

The introduction of vertical separation has led to some improvements in efficiency, but challenges remain in introducing on-rail competition, particularly in the passenger sector (Kurosaki & Okuda, 2013).

The integrated structure has facilitated large-scale investment in infrastructure but has limited competition and private sector involvement (Ozkan et al., 2016) (Holvad et al., 2003).

2.6 North America: Regulatory Frameworks and Vertical Separation

In North America, the approach to vertical separation has been different from that in Europe and Asia. The United States and Canada have maintained vertically integrated structures, with a focus on horizontal competition, that is, competition between vertically integrated companies.

The U.S. rail industry is characterized by vertical integration, with companies like Union Pacific and BNSF operating both infrastructure and services. Competition is achieved through parallel competition between railroads (Nash & Rivera-Trujillo, 2007) (Gomez-Ibanez & Mendoza, 2006).

Similar to the U.S., Canada has maintained vertically integrated structures, with companies like Canadian National Railway (CN) and Canadian Pacific Railway (CP) operating both infrastructure and services (Cairns, 2013) (Nash & Rivera-Trujillo, 2007).

The North American approach has had distinct economic and operational outcomes. The vertically integrated structure has allowed for efficient operations and high levels of service quality, particularly in freight services (Nash & Rivera-Trujillo, 2007) (Gomez-Ibanez & Mendoza, 2006). While parallel competition has driven efficiency, it has limited the scope for on-rail competition, particularly in passenger services (Nash & Rivera-Trujillo, 2007) (Gomez-Ibanez & Mendoza, 2006).

The integrated structure has facilitated investment in infrastructure, particularly in freight corridors (Cairns, 2013) (Nash & Rivera-Trujillo, 2007).

2.7 Comparative analysis

The comparative analysis of vertical separation across regions—Europe, Asia, and North America—reveals a strong interdependence between the **regulatory design** of separation models and their **economic and operational outcomes**. The diversity of approaches in each region reflects different historical trajectories, market conditions, and policy objectives.

European Union Countries have implemented the most structured and heterogeneous reforms under the EU railway packages. As shown in **Table 1**, countries like **Sweden, Germany, and Italy**—each with differing degrees of vertical separation—have achieved **reduced unit costs and high or increasing productivity**. Sweden, for instance, adopted full legal separation early on and stands out for its **high productivity and reduced unit costs**, supported by a transparent regulatory regime. Germany and Italy, despite operating under **holding models**, also demonstrate **positive economic outcomes**, likely due to robust regulatory frameworks and strong enforcement mechanisms that mitigate some of the structural limitations inherent in vertically integrated groups.

In contrast, **France and Great Britain** offer more nuanced results. France, despite average production costs, shows **below-average** productivity, raising concerns about the effectiveness of its integration model under a public holding. The UK, with full **ownership separation**, has faced **high production costs**, albeit partially offset by **intense traffic and expanded competition**. These mixed results illustrate that institutional separation alone is insufficient without effective coordination mechanisms and regulatory oversight.

This diversity of experiences is contextualized in **Tables 2 and 3**, which summarize the key features of regulatory frameworks and their economic/operational consequences:

Table 2. Key features of regulatory frameworks

Region	Key Features of Regulatory Frameworks	Citation
EU Countries	Vertical separation, independent regulators, progressive market opening, focus on crossborder services	(Benedetto, 2016) (Pelkmans & Pietrantonio, 2004)
Asian Countries	Varied approaches, with partial separation in South Korea and integrated structures in Japan and China	(Holvad et al., 2003) (Kurosaki & Okuda, 2013)
North America	Vertically integrated structures, competition through parallel competition	(Nash & Rivera-Trujillo, 2007) (Gomez-Ibanez & Mendoza, 2006)

Table 3. Economic and operational impacts

Region	Economic Impacts	Operational Impacts	Citation
EU Countries	Mixed cost impacts, improved competition, challenges in coordination	Improved service quality	(Benedetto, 2016) (Pelkmans & Pietrantonio, 2004)
Asian Countries	Efficient operations in Japan, gradual liberalization in China, challenges in introducing competition	High service quality in Japan	(Holvad et al., 2003) (Kurosaki & Okuda, 2013)
North America	High efficiency, limited on-rail competition, significant investment in infrastructure	High service quality	(Nash & Rivera-Trujillo, 2007) (Gomez-Ibanez & Mendoza, 2006)

The alignment between **Table 1** and **Tables 2–3** is particularly visible in **EU countries**, where the combination of vertical separation and regulatory rigor correlates with favourable economic performance in some cases.

The **Swedish** model exemplifies how clear institutional separation and proactive regulatory governance can translate into both **low unit costs** and **high productivity**, echoing the operational benefits cited in Table 3. Similarly, the **Italian** case demonstrates how targeted regulatory interventions—such as **capacity planning, framework agreements, and congestion declarations**— can counterbalance the risks of a holding structure and support market openness and innovation.

Asian Countries, particularly **Japan** and **South Korea**, have adopted less fragmented models. Japan's integrated model, while efficient and delivering **high service quality**, limits competition and thus does not benefit from the innovation and price differentiation driven by market rivalry. South Korea's partial separation reflects a transition phase, where regulatory and institutional constraints still hinder the emergence of full competition. These outcomes, summarized in Tables 2 and 3, are consistent with the observation that **integration can secure operational efficiency**, but may sacrifice **market dynamism**.

North America presents a distinct case: vertical integration remains the norm, and competition occurs through **parallel infrastructure ownership** rather than shared access. As a result, freight services are efficient and well-funded, but **on-rail competition**, especially for passengers, is virtually absent. This configuration supports **high service quality** in freight and significant **infrastructure investment**, but lacks the benefits associated with liberalized access markets.

3. THE EU LEGAL FRAMEWORK: VERTICAL SEPARATION IN DIRECTIVE 2012/34

3.1 What degree of vertical separation?

Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area (Recast Directive), sets the rules on vertical separation in the European Union. These rules are flexible in the sense that they allow different models to be implemented by the Member States. In order of intensity, the following degrees of vertical separation are established in the Directive:

Firstly, the Recast Directive imposes in all cases **accounting separation** “relating to the provision of transport services by railway undertakings and, on the other, for business relating to the management of railway infrastructure” (Art. 6(1)). More specifically, it imposes “separate profit and loss accounts and balance sheets are kept and published” and “public funds paid to one of these two areas of activity shall not be transferred to the other” (Art. 6(1)).

The Recast Directive informs of the scope of such separation: “shall be kept in a way that allows for monitoring of the prohibition on transferring public funds paid to one area of activity to another and the monitoring of the use of income from infrastructure charges and surpluses from other commercial activities” (Art. 6(4)). The separation is required also within railways undertakings for the provision of freight and passenger services and for services provided under public service obligations (Art. 6(3)).

Secondly, the Recast Directive accepts mere **functional separation** between transport services and the management of railway infrastructure but only in case a body independent in its legal form and independent in organization and decision making is established to decide on infrastructure charging and path allocation (Arts. 6(2) and 7a(3)). These are the functions in which discrimination would be more harmful. Under these circumstances, it is only required to organize different divisions within a single undertaking, not requiring a distinct legal personality.

Thirdly, the Recast Directive requires **legal separation** between transport services and the management of railway infrastructure when the body in the previous paragraph is not established. However, legal separation can take different forms, and this is why the

degree of vertical separation was subject to infringement procedures initiated by the Commission against Member States (for Italy, Judgment 3 October 2013, Case C-369/11, ECLI:EU:C:2013:636 in Delsignore 2013).

Particularly contentious was whether a so-called “**holding model**” (referred to also as “vertically integrated undertakings” in Art. 2(31)) was in line with the original wording of the existing Directives. In this model, the infrastructure manager and the railway undertaking, while legally separate, are subsidiaries of the same holding company, and therefore subject to common strategic and commercial objectives. The Court of Justice of the European Union adjudicated the dispute and interpreted that EU directives did not exclude a holding model (Judgement of 28 February 2013 in Case C-556/10, *Commission v. Germany*, ECLI:EU:C:2013/116). As described below, the Recast Directive imposes specific obligations on these “vertically integrated undertakings”. The holding model exists today in Germany, France and Italy, among other Member States.

The Recast Directive does not require **ownership separation**. This is the ultimate separation as it ensures complete independence in decision making. Conflicts of interest are excluded when different entities own transport services and infrastructure. This puts all railway undertakings on equal footing. This was the case of the franchise model in the United Kingdom after 1991, as no railway undertaking shared ownership with the infrastructure manager.

3.2 Obligations to exclude discrimination

The Recast Directive does not require ownership separation and neither does it require full independence between the legally separated undertakings in a holding, so it does not outlaw the holding model. However, it defines principles and specific obligations to make mere legal separation effective and reduce the risk of discrimination against newcomers in the management of monopolistic infrastructure. The Recast Directive defines the legal category of “vertically integrated undertaking” and imposes specific obligations on them.

“Vertically integrated undertakings” are defined as (a) an infrastructure manager is controlled by an undertaking which at the same time controls one or several railway undertakings that operate rail services on the infrastructure manager's network; (b) an infrastructure manager is controlled by one or several railway undertakings that operate rail services on the infrastructure manager's network; or (c) one or several railway undertakings that operate rail services on the infrastructure manager's network are controlled by an infrastructure manager” (Art. 3(31)).

On the one hand, the Recast Directive establishes principles for vertically integrated undertakings. Firstly, the **principle of no decisive influence on essential functions of the infrastructure manager**: “none of the other legal entities within the vertically integrated undertaking has a decisive influence on the decisions taken by the infrastructure manager in relation to the essential functions” (Art. 7(1)). More specifically, it means that infrastructure managers have organization and decision making independence on the following functions: “decision-making concerning train path allocation, including both the definition and the assessment of availability and the allocation of individual train paths, and decision-making concerning infrastructure charging, including determination and collection of charges, in accordance with the charging framework and the capacity allocation framework” (Art. 3(2f)). Secondly, **the principle of impartiality of the infrastructure manager**, which applies to the functions of traffic management and maintenance planning. Impartiality requires transparency, non-discrimination and absence of conflicts of interest (Art. 7b).

On the other hand, the Recast Directive defines specific obligations on Member States to make such principles, and more in general legal separation, effective:

- **No Dual Appointments:** Article 7(3) prohibits the same individuals from being appointed or employed in certain positions simultaneously in an infrastructure manager and in a railway undertaking. In particular, the same person cannot at the same time serve as a member of the management board of an IM and of an RU or be responsible for essential functions in the IM while also sitting on a railway undertaking’s board. Likewise, if there is a supervisory board overseeing the companies, an individual cannot be on the IM’s supervisory board and the RU’s supervisory board at the same time. These prohibitions ensure that the key decision-makers running the infrastructure are completely separate from those running train operations, removing conflicts of interest.
- **Independent Management Incentives:** In a vertically integrated undertaking, Article 7(4) bars the infrastructure manager’s top executives – and anyone in charge of essential functions – from receiving performance-based pay from any other entity in the group. They also cannot receive bonuses tied to the financial performance of any particular railway undertaking. However, they are allowed incentives based on the overall performance of the railway system. This rule aligns the infrastructure manager’s goals with network service quality rather than the success of an affiliated RU.
- **Management of human resources:** In a vertically integrated undertaking, Article 7a bars management practices that could diminish the independence workers

and managers in the exercise of essential functions. In particular, a railway undertaking shall not have “decisive influence on appointments and dismissals of persons in charge of taking decisions on the essential functions”, and “the mobility of persons in charge of the essential functions does not create conflicts of interest”.

- **Protection of sensitive Information:** Article 7(5) addresses the handling of information in integrated structures. If certain information technology systems or databases are shared within a railway group, access to sensitive information related to essential functions must be restricted to authorized infrastructure manager staff. Any sensitive commercial information (e.g. about train path requests, or one operator’s planned services) cannot be passed on to other entities in the group. This information firewall prevents an integrated railway undertaking from giving its own trains an unfair competitive advantage using insider data from the infrastructure side.
- **Impartial Decision-Making:** As a general obligation, Article 7(1) also requires members of the infrastructure manager’s management and supervisory boards – and those reporting to them – to act in a **non-discriminatory manner**, with their **impartiality unaffected by any conflict of interest**. This is a broad duty that underpins all the specific rules above: everyone involved in running the infrastructure must avoid conflicts and treat all railway undertakings equitably in their decisions.
- **Transparency and non-discriminatory practices:** The Recast Directive defines very specific obligations to guarantee impartiality in traffic management and maintenance planning. The same information will be provided, with the same timing, to all railway undertakings, and they will all be consulted regarding disruption in traffic, long-term planning and maintenance of the infrastructure.

3.3 Financial transparency

The Recast Directive imposes specific conditions to ensure the financial transparency in the relations between infrastructure managers and railway undertakings in vertically integrated undertakings:

- **Separate accounting:** Railway undertakings must keep and publish separate **profit and loss accounts and balance sheets**, clearly distinguishing their passenger transport services provided under public service obligations (PSOs) from other activities. The financial flows must be transparent to ensure no cross-subsidization occurs.

- **Prohibition on dividends:** Income from infrastructure management shall not be used to pay dividends to entities which exercise control over both the infrastructure manager and a railway undertaking, that is, to a holding company (Art. 7d(1)).
- **Loans.** Loans between infrastructure managers and railway undertakings are prohibited (Art. 7d(2) and (3)). Furthermore, loans between legal entities of a vertically integrated undertaking, shall only be granted, disbursed and serviced at market rates and conditions which reflect the individual risk profile of the entity concerned (Art. 7d (4)).
- **Intra-group services:** Services offered by legal entities within a vertically integrated group to the infrastructure manager shall be provided on the basis of contracts and be paid either at market prices or at prices which reflect the cost of production, plus a reasonable margin of profit.
- **Debt:** Debts attributed to the infrastructure manager shall be clearly separated from debts attributed to other legal entities within vertically integrated undertakings. Such debts shall be serviced separately. This does not prevent the final payment of debts being made via an undertaking which is part of a vertically integrated undertaking and which exercises control over both a railway undertaking and an infrastructure manager, or via another entity within the undertaking (Art. 7d (7)).
- **Transparent intra-group transactions:** Vertically integrated undertakings must disclose clearly and transparently all financial transfers and commercial arrangements between infrastructure management entities and other entities within the group (including railway undertakings). This includes transparency about prices charged, terms and conditions, payments, guarantees, and other financial or economic arrangements (Art. 7d (6)).
- **Documentation and publication:** Vertically integrated entities must document clearly the methodologies used for the cost allocation and transfer pricing. These methodologies must be available publicly and reviewed regularly (Art. 7d(9)).
- **Regulatory oversight and audit:** Regulatory bodies have the authority to oversee compliance, inspect documentation and accounts, and request detailed explanations of intra-group transactions. They can carry out or initiate external audits of legal entities in a holding (Art. 56(12)).

It is important to underline that obligations imposed on “vertically integrated undertakings” do not apply when an infrastructure manager and a railway undertaking

are both controlled directly by a Member State without an intermediary entity. However, the condition is both are fully independent of each other (Art. 3(31)).

4. IMPLEMENTATION OF VERTICAL SEPARATION IN MEMBER STATES: SELECTED EXPERIENCES

Directive 2012/34/EU establishes a common framework for the single European railway area, which provides for the separation of the functions of railway infrastructure management and the operation of transport services. However, the concrete way in which Member States have implemented this separation varies substantially, resulting in different models reflecting both national institutional traditions and specific railway policy strategies.

This section takes a comparative look at the implementation of vertical separation in various EU Member States. It examines representative models illustrating different forms of implementation: from institutional separation to regulated vertical integration. It also considers elements such as functional independence, capacity allocation, station management and prevention of discrimination, as well as the associated regulatory challenges.

4.1 Germany: a model of vertical integration with functional separation

In Germany, the state-owned Deutsche Bahn AG (DB) maintains an integrated corporate structure, albeit with internal functional and legal separation. Infrastructure management functions are performed by DB Netz AG, a subsidiary of the DB group. This model has been criticised by the European Commission, as the functional separation has not prevented potential conflicts of interest and discriminatory practices.

German legislation reinforces the operational independence of DB Netz by requiring separate accounting and the existence of an independent sector regulator, the Bundesnetzagentur, which oversees capacity allocation and fees. However, concerns remain about the effectiveness of these measures due to the DB Group's influence over its subsidiaries.

4.2 United Kingdom: pioneer in structural separation

The United Kingdom was one of the first countries to implement full structural separation in the 1990s, with the creation of Railtrack, later replaced by Network Rail, as the infrastructure manager. The operation of rail services was concessioned to private operators on a franchising basis.

Although the British model sought to increase efficiency and encourage competition, it has been subject to major revisions following a number of operational and financial

incidents. The introduction of the Great British Railways model, which provides for greater coordination between infrastructure and operations, signals a recognition of the limitations of the strict separation model, especially in terms of capacity planning and service quality.

4.3 France: separation within a public holding company

France initially adopted a model of institutional separation by creating Réseau Ferré de France (RFF) in 1997, separating the infrastructure from the incumbent operator SNCF. However, the lack of real independence between the two entities and coordination problems led to a reform in 2015 that integrated the functions within a unified public group (SNCF).

In the new model, SNCF Réseau is in charge of infrastructure and SNCF Voyageurs of services, operating under a holding structure. The regulation of access to the network and transparency in the allocation process is the responsibility of the Autorité de régulation des transports (ART), which plays a key role in preventing discriminatory behaviour.

4.4 Sweden: early institutional separation and progressive opening

Sweden was one of the first European countries to implement a clear institutional separation, creating in 1988 the state agency Banverket, today integrated in Trafikverket, responsible for infrastructure. The operation of transport services was progressively liberalised, allowing the entry of both national and international operators.

The Swedish model is notable for its transparency in capacity management and the absence of vertical integration. However, the lack of operational coordination has led to difficulties in situations of high demand, underlining the need for effective planning and conflict resolution mechanisms.

4.5 Spain: institutional separation with progressive market opening

In Spain, the separation between rail infrastructure and rail services is articulated through two public entities: Administrador de Infraestructuras Ferroviarias (ADIF) and Renfe Operadora. ADIF manages both the conventional and the high-speed network, and Renfe has been reorganised into several companies to comply with EU obligations.

Market opening has taken place mainly in the high-speed segment, with the entry of operators such as Ouigo and Iryo. However, competition in regional and commuter services is still limited, and transparency in access to facilities such as stations or workshops still needs to be improved.

4.6 Portugal: institutional separation with progressive market opening

In Portugal, the separation between rail infrastructure and rail services is articulated through two public entities: Infraestruturas de Portugal (IP) that manages rail and road infrastructure, resulting from the merger of two previous modal companies; and CP comboios de Portugal, the operator. Market opening has slowly taken place first in passenger segment, with the entry of operators such as Fertagus. However, regarding freight transport, there is some resistance from private operators given the fact that infrastructure has a public management and the main operator (CP) is also public. There is an evident need to improve transparency in access to facilities such as stations or workshops.

4.7 Italy: mixed model with strong regulation

Italy adopted a mixed model in which Rete Ferroviaria Italiana (RFI), part of the public group Ferrovie dello Stato Italiane (FSI), acts as infrastructure manager, while Trenitalia and other operators such as Italo provide transport services.

The existence of several operators in the high-speed market has encouraged competition, and the sector regulator ART has played a key role in ensuring non-discriminatory access, including advance capacity planning and the declaration of congested infrastructure. This model is considered one of the most advanced in terms of balancing unbundling and operational efficiency.

4.8 Netherlands: functional separation and integrated concession

In the Netherlands, the rail infrastructure is managed by ProRail, an independent entity funded by the government, while most rail services are provided by Nederlandse Spoorwegen (NS) under an exclusive national concession.

This model combines functional separation with a long-term concession, which has raised concerns about fair market access. The European Commission has questioned this scheme as limiting effective competition.

4.9 Austria: integration under regulatory safeguards

In Austria, ÖBB operates under a holding structure, with separate subsidiaries for infrastructure (ÖBB-Infrastruktur) and services (ÖBB-Personenverkehr). Although there is corporate integration, national legislation provides for strict rules on functional independence, separate accounting and supervision by the regulator Schienen-Control.

This model has allowed a progressive opening of the market, especially in international transport, although the participation of new entrants in the domestic market remains limited.

4.10 Comparative considerations

The above examples show that vertical separation in the railway sector is implemented in a wide variety of ways in Europe. The main modalities can be grouped into

- Ownership separation: UK.
- Full legal separation: Portugal, Spain and Sweden.
- Holding model: Austria, Italy, France, Germany and Netherlands.

International experience shows that the form of separation alone does not guarantee neutrality of access or non-discrimination. It is essential that unbundling is complemented by effective regulation, transparent capacity allocation systems and proactive action by competent authorities. In addition, forward planning, framework agreements and declaration of congested infrastructures emerge as key instruments to enhance transparency and mitigate risks of discrimination.

Table 4. Country analysis

Country	Separation Model	IM	Main RU	Regulatory Body	Third-Party Access
Germany	Holding model	DB Netz AG	DB Fernverkehr	Bundesnetzagentur	Limited
United Kingdom	Ownership separation	Network Rail	Private franchises	Office of Rail and Road	Expanded
France	Holding model	SNCF Réseau	SNCF Voyageurs	ART	Moderate
Sweden	Full legal separation	Trafikverket	Various operators	Transportstyrelsen	Expanded
Spain	Full legal separation	ADIF	Renfe	CNMC	Increasing
Portugal	Full legal separation	REFER	CP	AMT / IMT	Increasing

Similar to what has been observed in other network sectors - such as energy or telecommunications - the effectiveness of vertical separation depends not only on the institutional design, but also on its practical implementation and the degree of actual functional autonomy of the different actors involved.

5. ANALYSIS OF THE ITALIAN EXPERIENCE

5.1 Corporate structure of Ferrovie dello Stato

In Italy there is a vertically integrated undertaking in railways. A holding company, Ferrovie dello Stato SpA, owns 100% of corporations managing rail infrastructure and passenger stations, providing rail passenger transport services and rail freight transport services:

- **Rete Ferroviaria Italiana S.p.A. (RFI)** is a corporation in charge of the management of rail infrastructure in Italy. It is fully owned by Ferrovie dello Stato SpA.
- **Grandi Stazioni Rail, S.p.A.** is a corporation in charge of the management of the largest passenger stations in Italy. It is fully owned by Ferrovie dello Stato SpA.
- **Trenitalia S.p.A.** is a corporation in charge of the provision of rail passenger services. It is fully owned by Ferrovie dello Stato SpA.
- **Mercitalia Logistics S.p.A.** is a corporation in charge of the provision of rail freight services. It is fully owned by Ferrovie dello Stato SpA.

Ferrovie dello Stato meets the legal requirements in the Recast Directive: there is legal separation between the infrastructure management activities and the provision of rail passenger and freight services. Legal separation ensures accounting separation.

However, there is no full vertical separation, as “an infrastructure manager is controlled by an undertaking which at the same time controls one or several railway undertakings that operate rail services on the infrastructure manager's network” (Art. 3(31)). As a consequence, according to the Recast Directive, Ferrovie dello Stato is a vertically integrated undertaking.

Being a vertically integrated undertaking, Ferrovie dello Stato is subject to the specific provisions in the Recast Directive with the scope to guarantee there is no discrimination between the vertically integrated corporations providing rail transport services, and the rest of railway undertakings active in Italy.

5.2 Competition and the holding model

Italy provides an optimum case study to analyse the effectiveness of the current regulatory framework as it is a pioneer in the introduction of competition among railway undertakings, not only in freight services, but also in passenger services, specifically in commercial high-speed services. The experience of a strong Regulatory Body is equally interesting (Cambini & Perrotti 2015).

As competition was introduced in high-speed passenger services, it was possible to identify some examples of discriminatory practices despite the existing regulation on vertical separation. Some discriminatory practices were identified at an early stage of competition in the market. They were related to the management of space in passenger stations for services such as ticketing, as well as to the management of rail capacity in large stations. Beyond early examples of discrimination, a more recent discriminatory practice has been identified in the management of framework agreements, under investigation by the National Competition Authority (AGCM).

Italy not only was a pioneer in the introduction of competition, but also in the definition of some regulatory techniques to reduce the risk of discrimination. Such techniques were a response to specific situations in the market. A trend can be identified, not only in Italy but beyond, to reduce the risk of discrimination by imposing on the infrastructure manager a more formal planning of the use of capacity, after consultation with the stakeholders, advancing in time the decision-making process and making it more transparent for all the stakeholders. In this way, new more formal coordination mechanisms have been introduced, reducing the risk of discrimination through informal communications within the holding. We can identify very specific examples on the planning of the use of passenger stations, the management of congestion in rail infrastructure and the management of Temporary Capacity Restrictions (TCR).

5.3 Stations

Experience in Italy shows that the allocation of space in passenger stations has been one of the main sources of disputes for discrimination. This was particularly the case in the early days of competition in high-speed passenger services, and even if more tempered, it continues until today.

The National Competition Authority (AGCM) opened a procedure on 22 May 2013 against Ferrovie dello Stato for a **exclusionary strategy** including discrimination and obstructionism against NTV activities in numerous stations belonging to the high-speed network (failure to provide signage and information desks inside stations; delays in the installation of self-service ticket offices, as well as discrimination, including economic discrimination, in the use of advertising space inside stations) and inefficiencies in the management of numerous stations served by NTV (Desmaris & Croccolo 2018). The case was closed with **commitments** by Ferrovie dello Stato that guaranteed non-discrimination in signage, information desks, ticketing spaces and advertising space within the stations (Decision of 19 February 2014) (Bergantino 2015).

Italo-Nuovo Trasporto Viaggiatori S.p.A. filed a complaint before the Authority against two station managers for failing to ensure the full and effective application of the

principles of equal and adequate accessibility and visibility of the areas assigned to railway undertakings for the installation of ticket machines and information desks in accordance with measure 11.1 of Decision no. 130/2019. This measure mandates that every railway undertaking providing passenger transport services must be allocated spaces and services based on transparent and non-discriminatory criteria at the station where it provides or intends to provide its services. This includes providing customers with ticketing services (both automated and manual), passenger reception and assistance services, and information desks. These criteria are designed to ensure that all interested companies are granted equal and adequate visibility and accessibility for passengers. The proceeding was initiated under Decision no. 20/2024 with respect to the stations of Roma Termini, Florence Santa Maria Novella and Verona Porta Nuova.

The principle of guaranteeing minimum allocation of spaces - such as at least two self-service ticket machines per station for each passenger railway undertaking - was established even earlier under previous regulatory measures, notably through commitments made by the infrastructure manager in 2015 pursuant to measure 10.6.3 of Decision No. 70/2014, as formalised in Decision No. 66/2015.

Pursuant to Decision no. 66/2015, Annex 3 and its appendices no. 1) and no. 2), regarding the location of self-service ticket offices and mobile information desks, the station manager had committed to allocating these spaces based on the principle of "**equal visibility**". This involves predetermining specific areas within each station for the services in question and ensuring that all RUs are represented in each area, with a number of spaces allocated according to the following factors:

i) the number of trains operated by the requesting RU; ii) the total number of trains operated at that station; iii) the total number of spaces available in the relevant area. In addition, to avoid the strict application of these factors a minimum allocation of spaces (at least two) is guaranteed for each requesting RU in each area.

While the major restrictions have not been common over the last years, there have been a number of **disputes** for the use of space in station managed by Ferrovie dello Stato (Chirulli 2023). For instance, there have been disputes for the use of space for ticket counters in the stations in Milan and Venezia (finally decided by TAR Piemonte 23 June 2021), and ART had to solve a dispute in 2021 as Trenitalia benefited of a space in Napoli Centrale for customer assistance, but not Italo. (Decision no. 116/2021).

Beyond the solution of disputes, in 2019 ART adopted an **ex-ante obligation** to reduce the risk of discriminatory practices in the management of stations consisting on the obligation imposed on Grandi Stazioni Rail S.p.A. to preplan the use of stations, through the adoption of a **station usage plan**. Visibility about the available resources,

consultation with the railway undertakings and supervision by the regulatory body and information on existing contracts and expiry dates provided the necessary transparency to reduce the risk of discrimination. This is the wording of the obligation imposed on FS:

“For passenger stations where there is more than one company operating rail passenger transport services, as well as for all passenger stations with more than 50 trains per day with commercial stops, the passenger station manager: - publishes the station usage plan, which indicates the consistency, location and availability for lease of the spaces intended for companies operating rail passenger transport services for the provision of ticketing services (automatic and nonautomatic) and reception services (with restricted access) to their customers. of the spaces intended for companies operating in rail passenger transport services for the provision to their customers of ticketing services (automatic and non-automatic), reception (with restricted/free access) and assistance and information desks, as well as the size and location of the spaces intended for commercial activities. For stations where there are also open access services, as well as for stations serving (or adjacent to) an airport, the plan is submitted for consultation to the interested parties and also indicates the end dates for the leasing of spaces already assigned for the provision of services related to rail transport, and in particular those intended for ticket services (automatic and non-automatic), reception (with restricted/free access) and assistance and information desks, as well as any other useful information on the possible transformation of existing spaces or creation of new spaces with a similar purpose.” (ART, Decision no. 130/2019, point 11.6).

A more active management by the station operator can reduce friction by proactively identifying Railway Undertakings’ needs, optimizing the available capacity, and ensuring *ex ante* that such demands are met in a transparent and non-discriminatory manner.

5.4 Allocation of rail capacity

Capacity allocation is one of the essential functions in which discriminatory practices against newcomers can have a deeper impact. This is particularly the case when infrastructure is congested, capacity becomes a scarce resource and the allocation of scarce capacity the most delicate of decisions.

Concerns regarding capacity allocation should be properly addressed to prevent or minimise discriminatory practices favouring incumbent operators, specifically in the following areas: i) railway stations - both terminal and intermediate (“pass through”) stations - including the allocation of specialised or dedicated tracks versus common-user tracks; ii) railway lines, with respect to delays in capacity allocation to new entrants, a limited or insufficient number of train paths below the “minimum efficient scale”, and the overall quality of train paths, taking into account factors such as suitable

intermediate stops to meet demand, the urban centrality of served stations, planned travel times, and the robustness and resilience of train paths; and iii) access to and management of maintenance facilities.

There have been cases of discrimination in the allocation of capacity in Italy. RFI adopted delaying tactics with regard to the request for train paths made by Arenaways, which led to a delay of over 18 months in allowing access to an essential infrastructure. The train paths requested for the first time in April 2008 were obtained by Arenaways only in November 2010, and even then without any intermediate stops. For this offense the Authority has decided to impose a joint fine of 100 thousand euros on the companies Ferrovie dello Stato and RFI (AGCM Decision 25 July 2012) (Chirulli 2023).

The Recast Directive provides tools to manage congestion in rail infrastructure (Arts. 47-54), and in such circumstances reduce the risk of discrimination. A formal declaration of congestion by the infrastructure manager is required when it is not possible to satisfy requests for infrastructure capacity adequately (Art. 47(1)). The declaration triggers the obligation to carry out a capacity analysis (Art. 50) and to produce a capacity-enhancement plan (Art. 51).

A critical issue with the current allocation system is the absence of a precise regulatory definition of “conflict” in train path allocation procedures. In particular, it is unclear under which technical circumstances — such as competing capacity requests by different railway undertakings — the existence of a capacity allocation conflict can be formally recognised. Examples might include the impossibility of ensuring acceptable quality for both train paths and a physical capacity limit in terms of trains per hour. In addition, the concrete actions to be implemented by the infrastructure manager in cases of saturation and/or conflicts in capacity allocation should be specified. This could involve setting diverse priorities for traffic segments and applying distinct allocation criteria across various timeslots, line sections, or network segments.

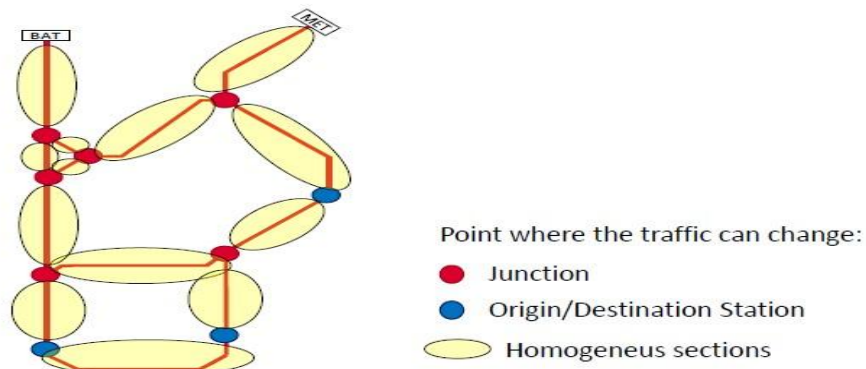
However, there are wide divergencies in the declaration of congestion across Member States: (1) There are no common rules for the geographical delimitation of infrastructure segments to be analysed to identify congestion. It might be a very specific segments, or it might be a whole line; (2) There is no precise definition of when demand exceeds capacity. (3) Congestion in a very specific point in time might trigger the declaration of congestion in some Member States but not in others, and the declaration might be just for specific dates or for the whole timetable.

Italy provides a best practice in terms of congestion declaration after the implementation of ART Decision no. 118/2018. Segments are defined very granularly, and congestion

declaration is triggered very early, when there is the risk of reaching congestion. As a result, planning to reduce congestion starts earlier than in other member states.

Firstly, segments are defined very granularly, including sections between junctions and stations, as opposed to full lines.

Figure 1. Segment definition



Source: UIC/FSR 2022.

Secondly, the distinctive element is that other than congested segments, a new category has been created, that of “limited capacity”, which is not congested yet, but might evolve into congestion. This is why the number of congested segments is so high in Italy when compared with the rest of the European Union. The total number of segments in the network is around 1,700. Starting in 2019, and as a result of the adoption of new rules by the Regulatory Body, the number of segments declared as congested went up from 0 to 314, most of them declared as “limited capacity” rather than “congested”:

Table 5. Number of congested segments per Member State

	2018	2019
France	0	0
Germany	1	0
Italy	0	314
Spain	0	3
Sweden	19	12

Source: IRG-Rail (2019): *A survey of congested infrastructure, priority criteria and capacity charges in Europe*, 15 November 2019, pp. 5-6.

The underlying objective was to advance the line of intervention, and to ensure a reaction in terms of capacity enhancement plan before the segments become overly congested. The rules in Italy can be understood as an example of active capacity management. The Infrastructure Manager does not wait for the infrastructure to be saturated to trigger the reaction in terms of 1) allocation of capacity in such segments; and 2) work for the better use of the capacity or increase the capacity to ease congestion in the segment. The Infrastructure Management proactively analyses the situation of the infrastructure and reacts before the infrastructure becomes congested.

5.5 Framework Agreements

Framework agreements are an instrument in the Recast Directive to provide certainty to railway undertakings as to the availability of capacity in infrastructure for a period beyond the annual allocation of capacity. However, as they block capacity for longer periods of time, they are an instrument that can be used to foreclose the market and discriminate against newcomers.

In May 2025, the Italian Competition Authority has launched an investigation into Rete Ferroviaria Italiana S.p.A. and its parent company Ferrovie dello Stato Italiane S.p.A. for suspected abuse of dominant position, in breach of article 102 of the TFEU. According to the Authority, access to the national railway infrastructure and, as a consequence, entry into the high-speed passenger transport market by new player SNCF Voyages Italia S.r.l. appears to have been slowed down, and in some cases hindered. In its decision to open the proceedings, the Authority alleges that Rete Ferroviaria Italiana S.p.A. implemented an exclusionary strategy by engaging in various practices related to the allocation of infrastructure capacity.

“33. In this context, RFI seems to have implemented a variety of behaviours which, as a whole, have slowed down/hindered SVI's entry into the Italian high-speed passenger transport market. These behaviours would have consisted of: i) having outlined a system of rules and procedures for the allocation of framework capacity which, even where they comply with the regulation, on the whole aim to hinder the entry of a new operator capable of eroding, in particular, Trenitalia's market share; ii) having assigned excess framework capacity to the incumbent operators, exacerbating the anti-competitive effects of the aforementioned system; iii) having implemented coordination between conflicting requests and interpreted the criteria provided therein, disadvantaging SVI also following the second AQ request submitted by this company, despite the anti-competitive effects of the system having already become evident”.

“36. These criteria, being based on the intensity of use of the network, would tend to favour operators who already have framework capacity to the detriment of new

applicants. In particular, the use of the criterion of the number of homologous tracks would mean that the historical operators (especially Trenitalia, which has an absolutely prominent position), covering a wider and denser network of services than that required by the new entrant, have a greater probability of being given “priority”. Therefore, the strict application of this criterion on a route-by-route basis could be a disadvantage for the new entrant, especially in relation to the most economically attractive routes, which are typically saturated and/or better served.

37. The first draft of the 2026 RIO shows that the way in which the criterion of homologous train paths adopted by the IM is applied, which among other things has been found to be in contrast with the intentions of the ART, would make this criterion even more disadvantageous for a new entrant. In fact, when applying the criterion, the GI considers the applicant to have priority over the service to which the highest number of homologous routes corresponds. This implies that an operator with a high market share is favoured over a new entrant for the same requested service”.

This case, which has just opened, suggests that despite the existing legislation, the principles and obligations to reinforce the independent decisions by the infrastructure manager, and the enforcement by the Regulatory Body, there is room for distortive practices that favour the incumbent operator. Therefore, several key areas should be strengthened to ensure fair and efficient access to rail infrastructure. To name but a few, capacity allocation and train path allocation should be supported by innovative and transparent methodologies for conflict resolution. Temporary capacity restrictions should be applied consistently and in a non-discriminatory manner. Real-time traffic management, including the response to service disruptions and the timely implementation of recovery measures, should be further enhanced. Additionally, the infrastructure manager should provide timely and transparent information on planned network upgrades - including quality improvements - and the deployment of additional capacity. This is essential to enable new entrants to plan investments, secure future capacity, and operate new rail services. By contrast, the infrastructure manager has frequently withheld critical information about the network, creating a structural information asymmetry that puts competing railway undertakings at a disadvantage. As an overarching principle, the infrastructure manager should develop and implement robust operational plans to ensure equal access to information, improve network efficiency, and enhance both service quality and reliability.

Again, preplanning and consultations in the long-term planning of the allocation of capacity can reduce the risk of discrimination. The new Commission proposal on Capacity Regulation (COM(2023) 443, of 11 July 2023) builds on this approach.

Strategic planning on the allocation of capacity, five years in advance, is required to Infrastructure Managers. Such planning requires consultations with all the stakeholders. In this way, coordination is not limited to the vertically integrated Railway Undertaking through informal means, but formally extended to all parties. Strategic planning enables to integrate framework agreements with less chances of exhausting capacity blocking market access. Finally, preplanning enables rail undertakings to initiate disputes before the Regulatory Body with enough time to have an effective impact on the allocation of capacity. The supervisory role of the Regulatory Body is the ultimate guarantee of the effectiveness of the preplanning and consultation approach to capacity management.

5.6 Temporary Capacity Restrictions (TCR)

The allocation of track capacity is too often affected by so-called Temporary Capacity Restrictions (TCRs), a term encompassing different types of construction works and events which lead to a reduction of railway infrastructure capacity.

It is widely understood that Temporary Capacity Restrictions are necessary to keep infrastructure in good condition and to allow infrastructure development, but TCRs can have a very detrimental effect on traffic, and even on the competitiveness of rail against other transport modes, if they are not properly managed. Furthermore, these restrictions can have **discriminatory** effects across railway undertakings, particularly if the vertically integrated railway undertaking has privileged access to information and can better prepare for the disruption.

A **more active management of Temporary Capacity Restrictions** (TCRs) is being implemented as a result of the adoption of Commission Delegated Decision (EU) 2017/2075. The Commission Delegated Decision adopted a demanding schedule for the publication of the TCRs, particularly those with a more substantial impact on operations. The Decision imposes the obligation to publish such restrictions for the first time at least 24 months before the change of working timetable. The scope is to complete a first coordination in time for the submission of path requests by applicants, 12 months before the change of working timetable. Requests would already take into consideration TCRs, and in this way, TCRs would not disrupt allocated paths. Such a long period, 24 months, was introduced in order to empower all Railway Undertakings and even Service Facility Operators, to actively participate in the coordination of available capacity in case of TCR. After the first publication, an in-depth consultation is undertaken. Based on this consultation, the Infrastructure Manager coordinates TCRs according to the existing needs identified by applicants, resulting in a second publication and the subsequent consultation with Railway Undertakings, to ensure a proper coordination (UIC/FSR 2022, p. 26).

Preplanning and consultations with all the interested parties reduce the risk of discrimination. All the parties have the opportunity to participate in the consultation on equal footing, and all the parties have access to the information time in advance. Finally, there is time to file disputes before the Regulatory Body in case the decision is considered discriminatory.

By Decision no. 121/2024 of 5 September 2024, the Authority has initiated a sanctioning proceeding against RFI for failing to comply with the rules and principles relating to the communication of temporary capacity restrictions and the related activities. The procedure is currently underway.

5.7 Enforcement of existing rules

Enforcement of existing rules on accounting and legal separation, as well as the principles and obligations to make such separation effective, is of key importance. The Authority should periodically monitor compliance. The Commission has underlined the relevance of these obligations and the role of the Regulatory Bodies (Commission, 2025).

In 2020, the Authority carried out a supervisory activity to assess compliance with the provisions of Legislative Decree No. 112 of 15 July 2015, in particular focusing on the following principles: a) the managerial, administrative, and accounting autonomy and independence of railway undertakings; (b) the independence of the infrastructure manager in performing essential functions, and (c) accounting and legal separation for the management of railway infrastructure and the operation of transport services (article 2 (1)).

Thereupon, sanctioning proceedings were initiated against the following regional operators: Ferrovie Udine Cividale S.r.l. (Decision no. 63/2021), Società Unica Abruzzese di Trasporto S.p.A. (Decision no. 64/2021), Ferrovie del Gargano (Decision no. 71/2021) and Ferrotranviaria S.p.A. (Decision no. 71/2021) and La Ferroviaria Italiana S.p.A. (Decision no. 72/2021) for violating the provisions requiring the railway infrastructure manager to exercise essential functions in compliance with the principles of independence and impartiality with respect to the railway undertaking operating transport services on the local network. Specifically, these operators were fined for failing to entrust the essential functions to a third party that is independent of the railway undertakings, both legally and in terms of decision-making powers. However, all operators complied either during the proceedings or after their closure.

6. CONCLUSIONS AND PROPOSALS

1. **Vertical separation** has been introduced in several regions in the world, and particularly in the European Union, to promote competition in the provision of rail transport services.
2. **Efficiency** in separation is dependent on capacity to accommodate demand with an acceptable level of quality, and with transparency in allocation of tracks. Open information is an important or even indispensable asset for a successful separation.
3. Risk of **discrimination** in access to infrastructure is a main barrier to new private entrants whenever the infrastructure management is in public hands. This argument is strongly co-related with the previous one since a severe impact on efficiency of operators can accrue from this risk
4. There is **no legal obligation in EU law to go beyond legal separation** and enforce ownership separation. On the contrary, the Recast Directive explicitly accepts “vertically integrated undertakings” and more in particular the **holding model** in Ferrovie dello Stato, which is very similar to the models in Germany and France: “an infrastructure manager is controlled by an undertaking which at the same time controls one or several railway undertakings that operate rail services on the infrastructure manager's network” (Art. 3(31)(a)).
5. Excluded ownership separation, which entails a major transformation of the industry, arrangements other than the holding model do not ensure different outcomes. For instance, when the infrastructure manager and a railway undertaking are both controlled directly by a Member State (Spanish model), incentives for discrimination are not very different.
6. Absent ownership separation, there will always be **incentives for infrastructure managers to discriminate** in favour of their vertically integrated railway undertakings. It is important to enforce the principles and obligations in the Recast Directive to reduce the risk of discrimination in the essential functions. Particularly insidious are discriminations in long term planning of capacity.
7. It is important to **enforce the specific obligations** imposed in the Recast Directive to exclude discrimination within vertically integrated undertakings against newcomers: (1) No Dual Appointments; (2) Independent Management Incentives; (3) Management of human resources; (4) Protection of sensitive Information; (5) Impartial Decision-Making; and (6) Transparency and non-discriminatory practices. It is the role of the Regulatory Body to enforce these measures.

8. A further obligation can be considered on **ticketing data management**. As railway undertakings vertically integrate to manage also ticketing systems for different transport services and beyond, transparency obligations in the management of ticketing systems might be considered. Unbundling of this service is a policy option under consideration at a EU level.
9. **Audits** as foreseen in Art. 56(12) Recast Directive should be periodically carried out as to enforce financial obligations in the Recast Directive: (1) Separate accounting; (2) Prohibition on dividends; (3) Loans; (4) Intra-group services; (5) Debt; and (6) Transparent intra-group transactions. The audits can be undertaken by the Regulatory Body or by third parties at the request of the Regulatory Body.
10. **Dispute** resolution by the Regulatory Body is an effective instrument to identify and put an end to discrimination by the infrastructure manager in the exercise of essential functions. The procedure is simple, faster than judicial intervention and entails no cost for the parties. However, this *ex post* intervention has limitations: (1) when used in the framework of the annual allocation of capacity, it is not guaranteed that the final decision will provide an effective solution; (2) it is difficult to solve structural limitations in the infrastructure and to influence the long-term evolution of capacity allocation through single disputes.
11. **Closer coordination** between the infrastructure manager and all the railway undertakings is necessary to overcome the efficiency losses derived from the existing separation rules. The informal communication procedures within the traditional fully integrated incumbent need to be substituted through formal communications on equal footing with all railway undertakings. This is the scope of instruments as the network statement and the procedure for the annual allocation of capacity. However, further instruments are necessary to coordinate temporary capacity restrictions, long-term capacity allocations of capacity, traffic management. Coordination of the fragmented ecosystem is a loophole in the regulatory framework not only in railways but across the network industries.
12. **Planning and consultations** are instruments that reduce the efficiency losses derived from separation. The Recast Directive has introduced some preplanning after consultations, starting with the Network Statement, and more recently for Temporary Capacity Restrictions (Annex VII). Italy has led in the implementation of alternative instruments beyond the Recast Directive to use preplanning and consultations across the ecosystem. The Station Utilization Plans are a good example. Early declaration of congestion in the rail infrastructure is another example.

13. As the infrastructure manager is required to consult stakeholders, they participate in the elaboration of the plan for the use of the capacity (stations, rail capacity or another facility). As the plan has to be published in advance, stakeholders have **equal access to information**, reducing the risk of discrimination in access to information. Finally, preplanning enables newcomers to initiate **disputes** before the Regulatory Body before the plan is implemented. The Regulatory Body has the opportunity to obstacle discriminatory practices before they are implemented.
14. At the moment, such instruments are not used for the **long-term planning of the use of the rail infrastructure**. As there is more pressure from an increasing number of newcomers, the allocation of a scarce resource becomes more contentious. The recent case opened by AGCM on framework agreements is a good example. There is no coordination in the long-term planning of the use of the infrastructure. The conflicting requests from railway undertakings are not analysed in a systematic form. The Regulatory Body has limited instruments to intervene as it has no information.
15. The new tools on strategic planning in the Commission proposal for a Capacity Regulation (consultations, 5-year plans, etc.) will facilitate coordination and reduce the risk of discrimination against newcomers. Early implementation of these tools could reduce both the efficiency losses derived from separation and the risk of discrimination. These tools should empower the Authority intervene at an early stage against discrimination.

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