

**EU PASSENGER RAIL  
LIBERALISATION: EXTENDED  
IMPACT ASSESSMENT**

**Executive Summary**

**Report**

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## 1. STUDY PURPOSE

- 1.1 This report summarises the findings of an extended impact assessment of the gradual opening-up of the market for passenger services by rail in Europe, undertaken by Steer Davies Gleave on behalf of the European Commission. The study was undertaken to support the Commission’s preparatory works for a proposed new Directive aimed at the further liberalisation of at least international passenger rail services in Europe, while, for its part, the European Parliament had expressed its support for **full** market opening (including domestic services).
- 1.2 Following conciliation on the second railway package, we understood that the Commission’s proposals for further passenger liberalisation are envisioned to be implemented as part of a third package of EU railway legislation.
- 1.3 The passenger market-opening model envisaged by the Commission would thus replace the rights under Directive 91/440 of **international groupings** to provide international rail services by rights open to **all** licensed railway undertakings. The Commission is also contemplating a Regulation on the competitive procurement of public services, including public service obligation (PSO) railway services, and a Regulation on international passengers’ rights and obligations.
- 1.4 We evaluated the potential impacts of extending passenger liberalisation on this basis.

### Study scope

- 1.5 Our remit required us to examine the impacts of three market-opening variants:
- International services without a right of cabotage;
  - International passenger services with a right of cabotage; and
  - All domestic and international rail passenger services.
- 1.6 The remit required us to undertake work in five areas:
- **Assess existing regulatory regimes**, including studying the effectiveness of the existing regimes in four selected case study countries;
  - **Evaluate the attitudes and interests of stakeholders** regarding liberalisation;
  - **Simulate the effects of rail passenger liberalisation**, for at least two case studies of the High-Speed services market;
  - Present the preliminary results of the work to a **Stakeholder Hearing** organised by the Commission; and
  - Based on these activities, **prepare an extended impact assessment** for each of the three defined market-opening variants, **and develop recommendations** for a preferred market opening model and any necessary complementary measures.

### Our approach and main conclusions

- 1.7 We were required both to diagnose the existing regulatory situation and the perceived need for further change in the European rail passenger markets, and to examine the potential impacts of such further changes, within relatively tight timescales. Accordingly we agreed with the Commission to undertake different work activities in

parallel, and to share emerging results with stakeholders in December 2003, before finalising our own conclusions.

- 1.8 This enabled iteration and refinement of the quantitative aspects of our work, which were based on the development of a bespoke dynamic simulation model to evaluate the potential market effects of liberalisation under various policy scenarios. Drawing on the feedback and simulation results, and the extrapolation of demand and financial impacts at the European level, undertaken with the assistance of a network model prepared by Intraplan for the UIC, we then finalised our policy recommendations during January 2004.
- 1.9 These recommendations are summarised below, before the findings from the main elements of our research are then described, and suggestions for follow-up work set out.

**FIGURE 1.1 SUMMARY ON MAIN POLICY CONCLUSIONS**

- On the basis of our research, we concluded that the most appropriate market-opening variant would be **international services with cabotage, because;**
  - Without domestic cabotage the market is insufficient to attract significant competition; and
  - Full domestic liberalisation would be premature in advance of further clarification of the basis and criteria on which Public Service Obligation (PSO) services are procured.
- We recommend that the international rail passenger liberalisation forms part of a third railway package and the most appropriate method would seem to be an amendment of Directive 91/440.
- Passenger liberalisation is unlikely to be effective unless it is introduced contemporaneously with complementary legislation in the areas of;
  - The definition and procurement of **PSO services**,
  - A regulation setting out European minimum standards to protect international **passengers' rights**,
  - Amendments to existing European legislation covering **access charges**, to place the charges paid by operators of open access international passenger services on a consistent footing to those paid by undertakings in the liberalised freight sector,
  - Legislative provisions providing for separate accounting and transparency for the costs of **rolling stock** used to provide international passenger services, to assist in the effective operation of existing competition law in this area.
- It would be unrealistic to expect domestic enactment of such a package before 2008 and any significant market impact before 2010.

## 2. SUMMARY OF STUDY RESEARCH FINDINGS

### Experience with existing regulatory frameworks

- 2.1 Our regulatory overviews covered the fifteen members of the European Union, and eight Accession Countries (Poland, the Czech Republic, the Slovak Republic, Hungary, Slovenia, Latvia, Estonia and Lithuania), plus Norway and Switzerland – 25 countries in all. We agreed with the Commission to exclude a number of Accession Countries on the bases of the relative sizes of their railway sectors and uncertainties surrounding the timing of their accession.
- 2.2 The overviews sought to identify the key factors influencing the extent of compliance with the European Union’s first (infrastructure) package of rail Directives and related legislation, and other influences on prospects for passenger liberalisation. We collected information on:
- Key institutional stakeholders in the rail market;
  - The extent to which the First Package has been adopted in domestic law;
  - The legal process for obtaining entry to the market;
  - The economic and safety regulatory arrangements;
  - The extent to which countries have entered into relevant treaties; and
  - Technical and interoperability barriers to entry.
- 2.3 Taken as a single group, around half of EU Member States and Accession Countries still have some way to go before they fully comply with the first package. Legislation has often been delayed, and in some cases is still under development, and many of the supporting independent regulatory institutions have not been created.
- 2.4 The approach to economic and safety regulatory oversight varies between countries at the moment, such that regulation remains a patchwork of national regimes. A greater level of regulatory standardisation across countries would ease the understanding of the market and the procedures in the rail sector; railway undertakings are currently confronted with a complex array of different arrangements. This has particular relevance for undertakings contemplating the provision of international services.
- 2.5 Moreover, an attitude of implicit protectionism, despite full or partial compliance with the letter of the legislative and institutional arrangements, prevails in a significant number of countries. Without a pro-active stance from the national Government to promote competition, the existing structures have often not encouraged market entry into the passenger sector. For example:
- In the majority of countries, a dynamic commercial rolling stock market, supported by appropriate regulatory structures, is not available and this provides a significant barrier to new entry by passenger undertakings;
  - In many countries the dominant market position of the incumbent state operator has remained largely intact, and in some countries actions have been taken in (in response to the threat of increased competition) to strengthen this dominant position; and
  - Experience from airline deregulation suggests that the freedom of access to information provision, reservation systems and ticketing can be critical for effective competition in some types of passenger service provision. These issues

need to be addressed through additional regulatory measures and are likely to be within the scope of the further legislation on passenger rights mentioned above.

- 2.6 In the Accession Countries, the institutional and legal framework to support the first package will take time to become fully established, even where the relevant legislation is already in place. However, the poor state of repair of a large part of the countries' rail infrastructure, the poor financial health of the State rail companies, and the fact that existing fares are typically set well below long-run cost levels, may all provide significant additional constraints on increasing competition in or for the market.

### Case study findings

- 2.7 To complement the country overview research, we also undertook more in-depth investigations into four case study countries – Germany, Sweden, Spain and Hungary. These were selected in consultation with the Commission to provide a reasonable cross-section of different market, legal and structural environments within the European rail industry, against which to assess the potential barriers to liberalisation.

- 2.8 In each country, through questionnaires and discussions with a variety of industry stakeholders, we examined the market, institutional and technical barriers to liberalisation to date, and drew conclusions for our policy development work. The key findings were that:

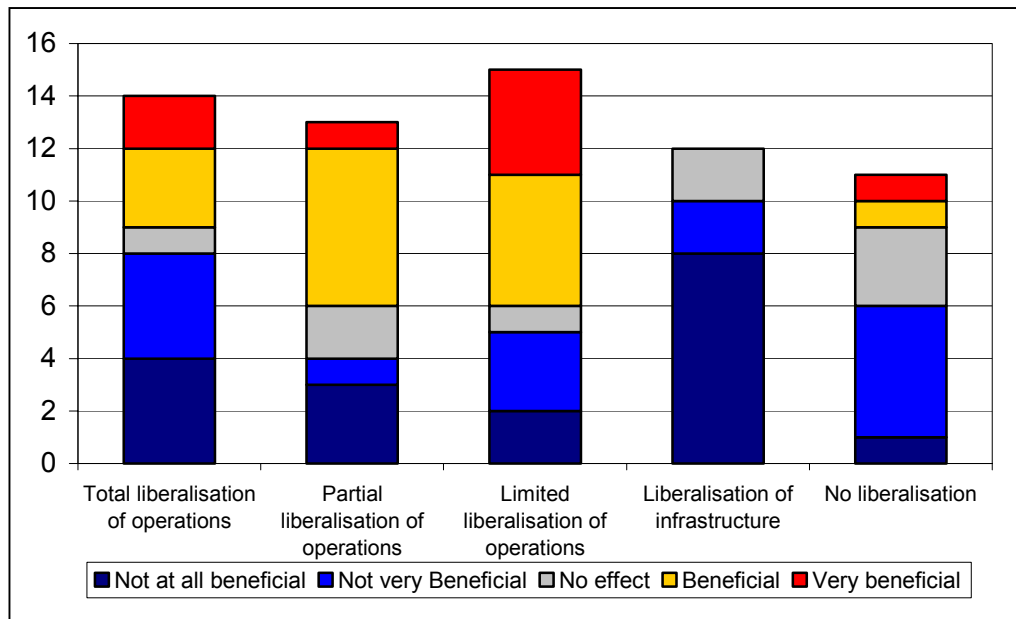
- **Route densities are a key determinant of the scope for on-rail competition.** In particular, where short journey lengths and passenger requirements for higher frequencies dictate, only a single operator can be commercially viable. As such services are often already (and efficiently) organised via PSO procurement arrangements, a clear definition of such arrangements is necessary before the scope of the (residual) commercial open access market can be defined;
- **Fare levels generally appear too low** to enable new entrants to identify attractive commercial opportunities, often because fares have historically been regulated within the PSO support frameworks noted above. Accordingly, while the current pricing of some high-speed services would support on-rail competition, on many other routes fares may have to rise to enable commercially sustainable operations. This contrasts with the aviation industry position, where high pre-existing fares attracted lower-cost competition upon liberalisation; and
- **The extent and degree of success of competition (even for the market) has been mixed** to date, due to the strong advantages enjoyed by incumbent railway undertakings. Significant regulatory effort is likely to be needed to lower entry barriers, while preserving and enhancing passengers' network benefits from rail travel, under models of further European liberalisation.

### Stakeholder views

- 2.9 Our remit required us to determine the views of relevant stakeholders on the issues affecting the liberalisation of European passenger rail services. These views helped to shape and influence our evaluation of options, and were intended thereby to enable the European Commission to develop practical and viable proposals in this area.
- 2.10 We agreed with the European Commission to contact three broad types of stakeholder: Pan-European organisations, specific organisations within the four case study countries, and individual countries, generally represented by the Transport Ministries concerned. We obtained views using a combination of interviews and questionnaires.

2.11 Overall, we found no strong consensus between Member States over the extent of further liberalisation that would be desirable, as illustrated in the figure below: views ranged from firm support to a belief that the industry was not suited to open access.

FIGURE 2.1 MEMBER STATES' ATTITUDES TO PASSENGER LIBERALISATION



2.12 The majority of respondents believe that either a ‘limited’ or ‘partial liberalisation of operations’ would be the best scenario, with no respondent in favour of liberalisation of infrastructure provision. Despite the variety of views obtained, a number of consistent themes emerged, including:

- In many cases, broad support in principle for some further liberalisation to inject efficiency pressure into the industry, and thereby reduce its call on the public purse to meet social transport objectives and widen opportunities for passengers;
- Equally however, a common understanding that the constraints and hurdles to be overcome to ensure such benefits are realised are very significant: and that some of the market entry barriers cannot be overcome by EU legislation alone;
- A shared understanding that the social benefits and objectives for passenger rail transport in the Community may not be delivered by unrestricted open access competition, and that substantial public funding of the industry (even beyond the funding of infrastructure charged to operators at marginal social costs) will be a continuing inevitability;
- Against this reality, an awareness that direct competition **in** the market may often not be as efficient as concession-based competition **for** the market, where network synergies, infrastructure constraints and/or market size militate unrestricted open access, and that clarity over European policy towards public service contracting should be secured in parallel with any moves towards “open access” at the European level;
- A generally shared view that infrastructure charge levels and structures – by varying so widely across the Community – undermine the emergence of efficient cross-border services and new entry in certain markets. Whether the Infrastructure package goes far enough to secure the necessary harmonisation to support passenger liberalisation is not clear to most respondents;

- The critical importance of efficient access to rolling stock within any liberalised arrangements, particularly given the view that full implementation of infrastructure interoperability across borders will take considerable time and money. In the meantime, the substantial residual value risks associated with specific rolling stock assets may be difficult for new entrant railway undertakings to manage efficiently;
- The dangers that liberalisation may pose to the preservation and enhancement of “network benefits” enjoyed by passengers, which should be a key modal advantage of rail: coordinated timetabling, streamlined access to tickets across service, mode and national boundaries, comprehensible fares structures etc. At minimum this points to the need for some economic regulation to complement liberalisation in these areas; and
- The wide variations in legacy arrangements and countries’ existing policies and programmes relevant to liberalisation, implying that simplistic “one size fits all” models, enforced through European legislation, could be counterproductive – yet an acceptance that the real benefits of liberalisation can only be obtained if major countries commit to an equitable opening of their networks.

2.13 To complement the input from individual stakeholders, we also took note of the views expressed in a Stakeholder Hearing organised by the Commission in Brussels in December. The following key points were made at the Hearing:

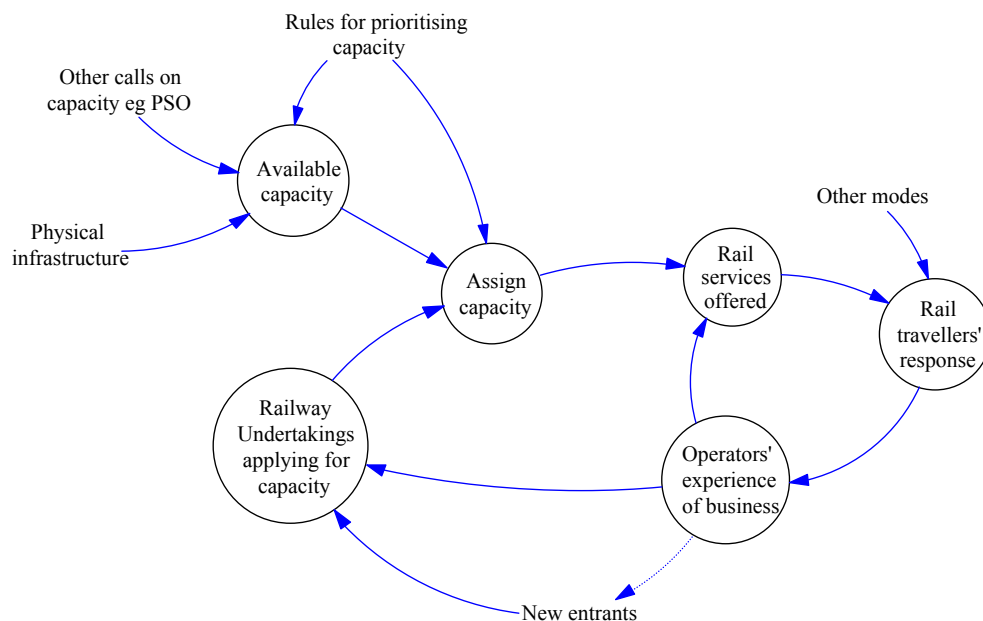
- The scope for new entry based on serving **new markets**, defined in terms of service quality as well as origin-destination pairs, needs to be considered. A number of attendees commented that innovation and entrepreneurial behaviour of this kind is likely to be an important benefit of liberalisation, as evidenced by the development of low cost carriers following the liberalisation of air transport markets;
- The **interaction of cabotage traffic and other domestic traffic** is complex and must be taken into account in formulating a robust definition of the market to be liberalised. Consideration needs to be given to the practical and regulatory issues of liberalising the market for international services including cabotage when domestic services (with regulated fares and service levels, often supported via cross-subsidy frameworks) also compete for the traffic concerned; and
- Open access competition could take a number of different forms, including **competition between established national operators** as well as involving new entrants. The potential effect of competition from established undertakings, that do not face the same levels of disadvantages as new and niche operators, needs to be understood.

2.14 Overall, the general view was that any further opening-up of the rail passenger market in Europe would require care and caution to be exercised, to overcome the substantial entry barriers that exist, while protecting and enhancing the quality of service to passengers and enabling the introduction of new and innovative service offers. There was significant scepticism, faced with these constraints, about the economic impacts of liberalisation. In particular, stakeholders expressed doubt that the benefits would be as large or dramatic as have been observed in other liberalised sectors.

2.15 While we would not expect all stakeholders to agree with these views, or to identify them as being the most important conclusions to draw, they nevertheless provided us with some important lessons and themes to bear in mind in developing our impact analyses and recommendations.

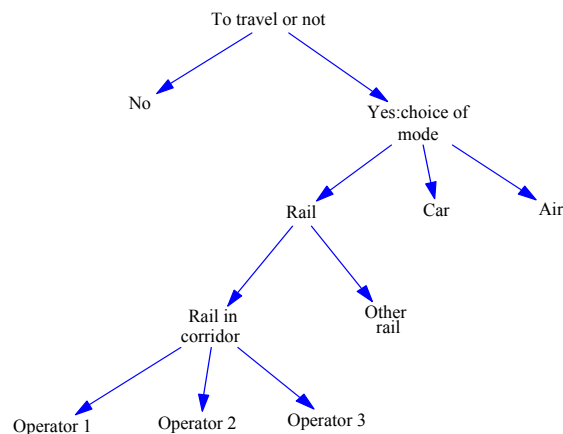
- 2.16 Our remit required an economic simulation of the effects of liberalisation for at least two cases in the high-speed services markets, based on existing data. This enabled a comparison of competition on the tracks versus a single operator or a tendered service ('competition for the tracks'), and the identification of potential outcomes for passenger ridership, price levels and profit and losses. Factors that were to be examined included different levels of ticket integration, and modal competition.
- 2.17 This approach reflected the Commission's view, which we share, that a focused examination of potential market responses was more important for the purposes of framing policy than attempts at accurate EU-wide projections of the outcomes. It was particularly important to understand how outcomes in terms of service levels and fares would be affected by purely commercial behaviour, as distinct from decisions taken by public sector transport authorities mindful of the wider economic and social benefits of rail transport. We selected two test corridors, based on real-world examples where the high-speed network is due to be implemented during the study timescales (Madrid-Barcelona and Brussels-Cologne), for the simulations, in agreement with the Commission.
- 2.18 Based on our experience with an earlier Fourth Framework project, EUROPE-TRIP, we developed a dynamic simulation model to explore how railway undertakings' businesses might evolve over time following liberalisation. We considered that only a dynamic model would adequately explore how the different economic actors (passengers, undertakings, infrastructure managers, regulators) would interact under liberalisation. The model was built using the modelling software Vensim, linked to Excel databases. A draft specification was circulated to external experts in the field for comments, leading to further adaptations and improvements.
- 2.19 Figure 2.3 below illustrates the main dynamic linkages in the model. As it was focused on a single corridor, 'capacity' and service levels could be defined reasonably easily for modelling purposes. Network-wide impacts across Europe were then explored using a network model, developed by the German consultants, Intraplan.

**FIGURE 2.3    SCOPE OF THE DYNAMIC MODEL**



- 2.20 The dynamic model assumed that infrastructure managers assigned available infrastructure capacity, defined as the number of daily services that could be operated, to railway undertakings in limited-duration framework agreements with preset rules. The allocation rules could be input – e.g. highest projected passenger-km, highest project revenues, or lowest projected fares. Undertakings applying for capacity projected their expected outcomes based on known prior operating experience. However, the model also allowed for new entrants to ‘get it wrong’, by adding a degree of random error to the actual costs and revenues experienced.
  
- 2.21 Using this infrastructure capacity, the undertakings provided rail services in competition with other modes and each other, which yielded service revenues and costs. Based on their competitive experience, the undertakings adjusted their service offers, attempting to meet and outperform their business targets. The model examined the emerging situation in monthly increments.
  
- 2.22 When the framework agreements expired, undertakings reapplied for capacity based on their experience, while new entrants also sought capacity, but potentially at a disadvantage in terms of market knowledge. The model could be run for several input contract durations (e.g. 5 or 10 years) within an overall simulation period of 20 years or more.
  
- 2.23 We assumed that commercial undertakings would seek to maximise their operating ratios (revenues less avoidable costs) while setting a minimum target. The model calculated the rolling stock and staff requirements and costs for given services, and assumed that these were variable with services, but that relinquishing resources would incur additional delay and costs. Based on these input costs, undertakings were required to determine a contribution-maximising combination of fares and service levels (within the envelope of initial infrastructure capacity allocated) using a series of input decision rules.
  
- 2.24 Passengers’ responses to other modes were simulated using a standard transport modelling device – the hierarchical logit model – customised to the requirements of the study. The logit model allows for a hierarchy of traveller choices, illustrated in Figure 2.5. To this standard logit formulation were then added lagged passenger response assumptions, and built-in train capacity limits.

**FIGURE 2.5 THE HIERARCHY OF TRAVELLERS' CHOICES**



- 2.25 The model generated graphical and tabular outputs of passengers carried, by undertaking and mode. It also projected fares and service levels, and revenues, costs and operating margins, by undertaking. It was calibrated against the Intraplan model of the EU rail network by ensuring that both models generated the same volumes of travel and mode shares, and the same changes in travel volumes, in response to test changes in rail fares and service frequencies, in each corridor.
- 2.26 A number of liberalisation scenarios were then explored and informed the further development of the model. The European Commission then specified a variety of other scenarios to be examined, following our Interim Report<sup>1</sup>.

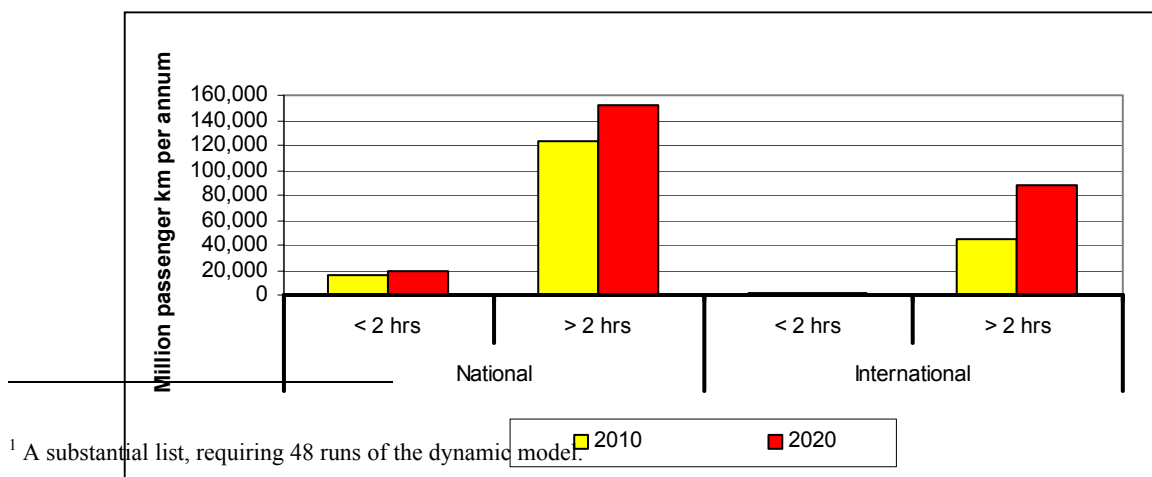
**Reference and liberalisation scenarios examined**

2.27 In order to assess the impacts of liberalisation, we agreed a base case, or reference, scenario, with the Commission. This described the potential evolution of the industry in the **absence** of further passenger liberalisation at the European level, particularly in the period beyond 2010 when liberalisation might be expected to take effect. Among the key assumptions we agreed with the Commission for this purpose were that:

- The first and second packages of rail legislation would be fully implemented, and the interoperability directives would become fully effective;
- The proposed Regulations on Public Service contracting and international rail passengers’ rights would be passed on substantially the same bases as envisaged by the Commission; and
- No further European-level legislation would be enacted to address existing perceived barriers to entry in the infrastructure and rolling stock markets.

2.28 As part of the reference scenario, we then estimated the future volumes of rail traffic likely to emerge in different market segments between 2010 and 2020, in response to planned investments in rail capacity (particularly the development of the high-speed network), modal competition (including development of the roads network) and transport demand. The Intraplan model was used for this purpose and the results are shown below for the high-speed markets in 2020, at a time when high-speed infrastructure will have quadrupled, according to Intraplan assumptions.

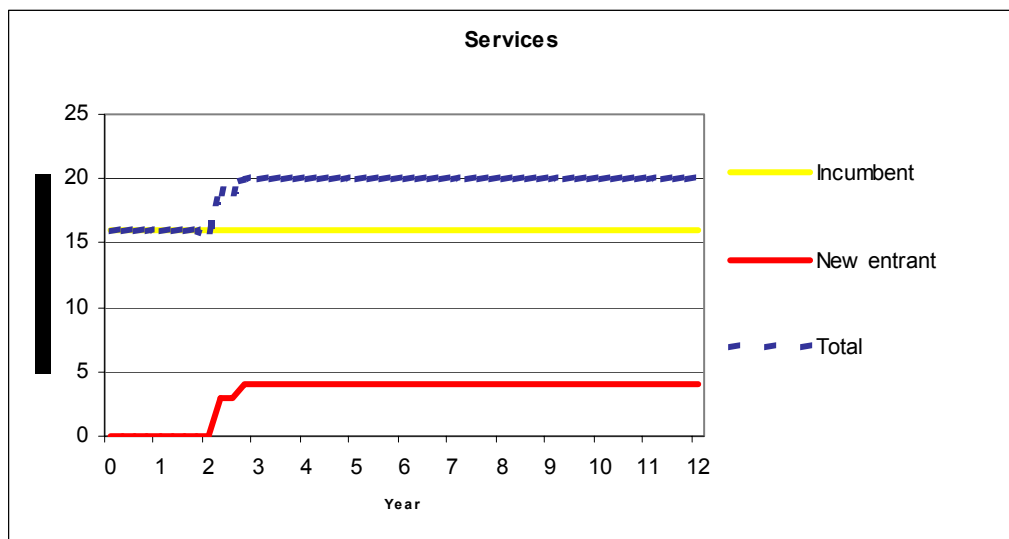
**FIGURE 2.4 PROJECTED HIGH-SPEED DEMAND IN 2020 IN REFERENCE SCENARIO**



<sup>1</sup> A substantial list, requiring 48 runs of the dynamic model.

- 2.29 For the purpose of our impact analysis, we sought to distinguish between the different market segments of international and domestic (national) services, high-speed services (using high-speed infrastructure for at least part of their journey) and conventional services, and long distance services (over 2 hours) from shorter distance services.
- 2.30 We used the dynamic simulation model first to examine the relative impacts of a wide range of potential liberalisation scenarios on our sample corridors. These scenarios, a number of which were suggested by the Commission, selected different combinations of possible policy and market variables including:
- The type of competition (open access versus competition for the market);
  - The extent of fares regulation and revenue sharing between operators;
  - The priorities for allocating infrastructure capacity, and the criteria for selecting undertakings tendering under competition for the market;
  - The different undertakings’ rolling stock and infrastructure access costs;
  - The durations of access framework contracts and concession contracts;
  - The market densities on the corridors; and
  - The nature and commercial objectives of the competing undertakings.
- 2.31 We evaluated the impacts of these various scenarios (relative to the reference scenario) according to simple quantitative criteria, generated as outputs from the modelling: passenger-km carried, service and fares levels provided, and the ongoing financial viability of the undertakings concerned.
- 2.32 A number of the scenarios were not viable, and it was apparent that liberalisation outcomes were in fact quite sensitive to the policy and other assumptions used. Nevertheless, we established that, under some circumstances, a basic scenario of international liberalisation with cabotage would enable high-speed services to increase due to sustainable commercial new entry, as illustrated in the figure below.

**FIGURE 2.5 SIMULATED IMPACT: HIGH-SPEED INTERNATIONAL SERVICES**



- 2.33 In the case illustrated, we assumed that a route such as Brussels-Cologne would be upgraded to high-speed, but access charges were assumed to remain at existing levels, and that the entrant's passengers would be allowed access to the incumbent's trains via through tickets. While service levels increased, fares did not reduce.
- 2.34 With higher densities, on a corridor such as Madrid-Barcelona, new entry did lead to fares reductions and substantial shifts of passengers from other modes to rail.
- 2.35 However, when the incumbent's financial objective was increased to that of the entrant in the Brussels-Cologne case, service levels and passenger volumes fell sharply, indicating that the above position is relatively fragile.
- 2.36 While commercially robust outcomes were indicated for international services with cabotage, removing the entrant's access to the cabotage market resulted in its services becoming unviable. Similarly, removing the entrant's ability to access higher incumbent frequencies via through-ticketing created financial difficulties for entrants. Scenarios involving longer contract lengths and providing entrants with access to rolling stock on more equal terms substantially improved viability, as did access charges that reflected marginal costs. Restricted competition provided more stability than open access in some cases, but it did not generate better outcomes in all cases.
- 2.37 Using these modelling results we therefore constructed five scenarios for use in our extended impact evaluation:
- **One:** open access international liberalisation, with cabotage, existing access charges and 5 year access contracts, and limited new entry;
  - **Two:** open access international liberalisation, with cabotage, marginal cost access charges, and two evenly matched undertakings with lower financial targets;
  - **Three:** international operations, with cabotage, marginal cost access charges, and two evenly matched undertakings with lower financial targets (as Two), but replacing open access with concession bids based on seeking to maximise passenger volumes;
  - **Four:** international operations, with cabotage, marginal cost access charges, and two evenly matched undertakings with concession bids seeking to maximise cash tendered, with higher targets for undertakings and no through-ticketing; and
  - **Five:** open access liberalisation, with cabotage for international services, marginal cost access charges, and two evenly matched undertakings with lower financial targets (as Two), but extended to non-PSO domestic services.

### **Summary of extended impact results**

- 2.38 In order to examine the potential impacts of liberalisation in the wider European rail market we needed to extrapolate the corridor-level results generated by the dynamic model to the European network. This was done with a European rail network and multimodal model that our partners, Intraplan, had developed for the UIC, and which had been used to test the TEN-T priority rail projects for up to 20 years ahead.
- 2.39 For each of the above five scenarios we therefore estimated the potential impacts on service levels and fares in a variety of market segments and on a variety of types of route, relative to the reference scenario. These impacts were then fed into the Intraplan model, by matching the impacts for each service and route type to the services and

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routes in Intraplan's model. The two models had first been calibrated to give similar responses, enabling the Intraplan model to estimate the corresponding effects on passenger volumes (by mode) and train volumes at European level.

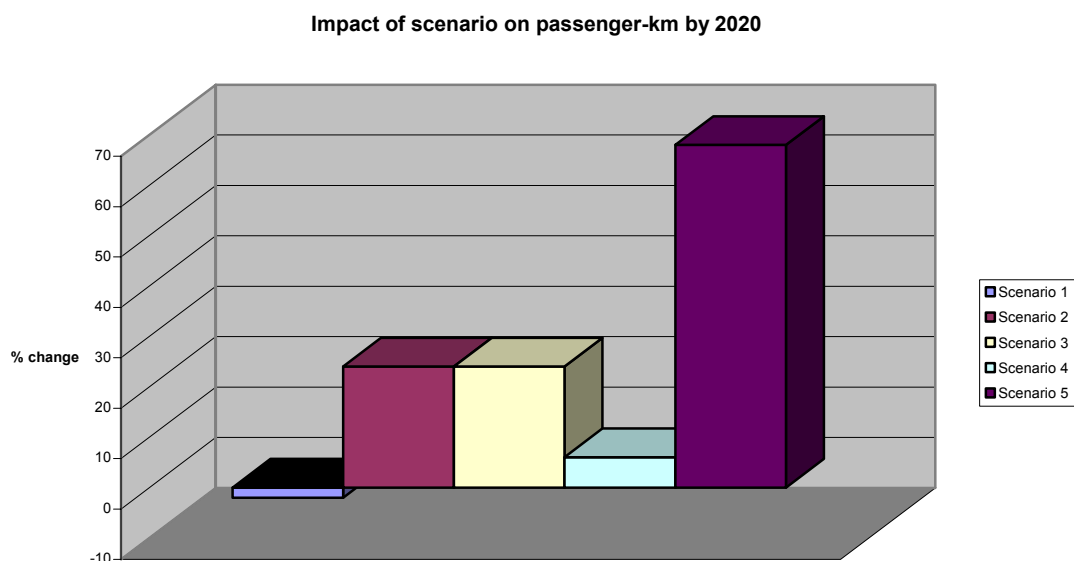
2.40 Using these aggregate volume impacts, we then derived estimates of corresponding financial and economic impacts at Community level, by applying appropriate unit values. It should be emphasised that the results were not intended to be reliable predictions of outcomes, but rather to provide indications of the broad direction of change and the relative effects of the different scenarios, to identify which combination of policy measures would be more likely to provide positive outcomes across a number of dimensions.

2.41 The key service level and fares results obtained from the dynamic modelling of the five scenarios were that:

- The open access scenarios created more positive service level outcomes than the reference scenario and the restricted competition scenarios in most market segments, but only with evenly-matched competitors;
- Where market conditions enable it, open access with limited entry by an undertaking with a high financial target could result in fares increases in tandem with service reductions; more balanced competitors with lower financial targets would compete mainly on service levels;
- Restricted competition based on bid passenger levels could engender substantial fares reductions, whereas tenders based on highest cash bids would focus fares reductions on the high-speed long-distance segments; and
- In all scenarios, conventional short-haul services on low-density corridors would be highly vulnerable to liberalisation.

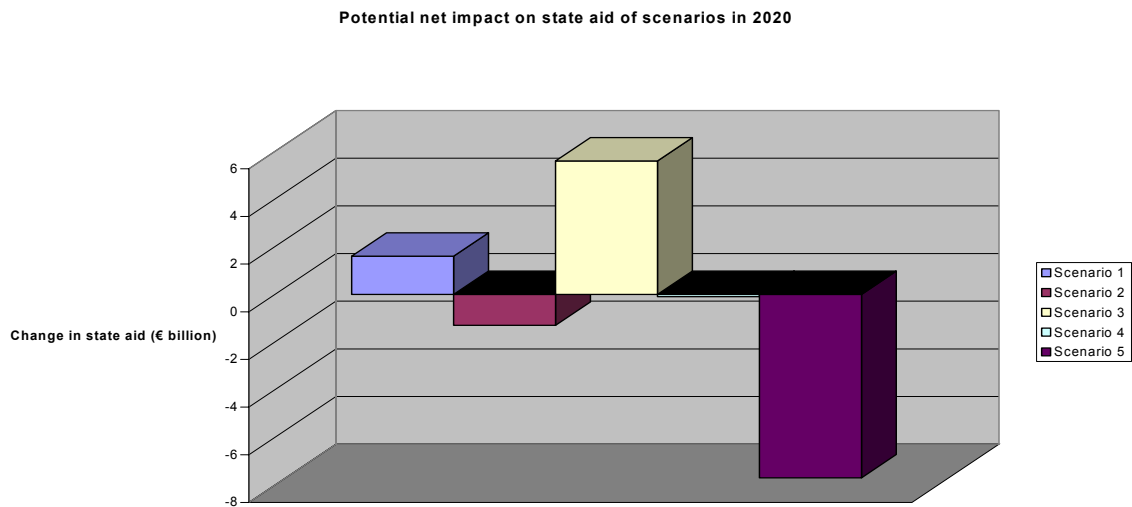
2.42 When extrapolated to EU level, these effects saw increases in international rail passenger volumes in both Scenarios 2 and 3, as shown in the figure below.

**FIGURE 2.6 IMPACT OF SCENARIOS ON PASSENGER VOLUMES IN 2020**



- 2.43 In the first place, the increases are mainly stimulated by the improved service levels, and in the second by reduced fares. The Scenario 2 impacts were correspondingly greater when applied to domestic services in Scenario 5. Scenario 4 (cash-bid concessions) saw increases in some segments but exposed the vulnerability of others to commercial decisions. Scenario 1 saw a small net reduction in total passengers, with increases in some segments being outweighed by reductions in others.
- 2.44 While both open access and restricted competition could therefore apparently yield positive results for passengers, they had quite different implications for industry profitability and finances, as illustrated in the figure below.

**FIGURE 2.7 IMPACT OF SCENARIOS ON STATE AIDS IN 2020 (€ BILLION)**



- 2.45 Open access, by increasing volumes through service increases, generated additional revenue and some cost efficiencies, and increased profitability. In contrast, encouraging bid passenger levels through restricted competition generated volume through price reductions and reduced revenue and profitability. Accordingly, Scenario 2 implied net reductions in state aid to the industry whereas Scenario 3, by removing key existing sources of cash generation, increased the state aid needed to sustain other rail services. Scenario 4, which did not lead to large fares reductions, had a broadly neutral effect on state aids, before taking account of the net value of any cash bids.
- 2.46 The environmental impacts of the scenarios were in line with the volume results – with Scenarios 2 and 3 having broadly similar beneficial effects, reflecting the transfers of passengers from air and, particularly, road. Similarly, our review of net safety, security and employment impacts suggests that liberalisation effects of the form estimated should generally be positive when volumes increase, provided vulnerable market segments are appropriately protected from open access competition.
- 2.47 One exception may be when two incumbent operators compete head-on, when historic terms and conditions of employment may come under direct threat. However, we suggest that these effects would be expected in any event from parallel competition in the larger PSO markets after 2010, as assumed in the reference scenario.

### 3. IMPLICATIONS OF RESEARCH FINDINGS FOR POLICY

#### Liberalisation of domestic services

- 3.1 The relevant extended impact analysis (Scenario 5) confirmed that, on certain assumptions (lower access charges, balanced competition, etc), open access in the more profitable domestic market segments would have positive impacts in a range of dimensions at the European level.
- 3.2 However, the analysis also indicated that some segments would be vulnerable to competition. The Intraplan model does not consider very short haul domestic services (<80 km), which we assumed would be subject to PSO arrangements in any event, but clearly PSO arrangements are also likely to extend to a range of other domestic services in practice. Until the PSO/open access boundaries are clear, it will remain very difficult to predict net outcomes from liberalisation in the domestic segments.
- 3.3 Moreover, our modelling inevitably had to extrapolate common impacts across domestic European markets that are in practice extremely diverse, not least because of the different subsidy, ownership and structural arrangements in place. Market behaviours will therefore be very different in practice. We therefore accept CER's suggestion that the subsidiarity in the organisation of domestic markets renders a single European model of liberalisation for these markets premature at best.

#### Liberalisation of international services

- 3.4 In contrast, many international services are now run on convergent commercial lines in Europe, and this trend is likely to accelerate in the period to 2010, as the new high-speed networks are developed on an interoperable basis. Further, as the Commission has noted, defining a common regulatory approach to international services is clearly more relevant to the competence of the European institutions.
- 3.5 Our modelling confirmed however that open access would only be effective in stimulating significant increases in passenger volumes with the right conditions. These include a level playing field in terms of market access, through permitting cabotage, and in terms of access to the key resources of rolling stock, infrastructure and through ticketing. Failure to create the right conditions would increase the chances of international liberalisation being a "damp squib" (as many observers have labelled the market-opening measures in 91/440).

#### Reducing barriers to entry

- 3.6 Our modelling confirmed that infrastructure access and relative rolling stock costs were the most significant factors in determining whether new entrants would be competitive in international markets. While existing provisions in 2001/14 should facilitate non-discriminatory access, they still enable a wide range of access charges to be levied by different countries for the same international paths. The modelling confirmed that the prospects of sustaining additional services from new entrants are improved if access charges are towards the lower end of the spectrum permitted under current legislation, and that a structure closer to that expected for international freight services would foster more competition.

- 3.7 The modelling could not of course simulate the qualitative aspects of gaining access to infrastructure – in particular the processes of obtaining international paths from various infrastructure managers. In our view, the one-stop-shop processes being pioneered for international freight will need to be appropriately customised for passenger services to facilitate new entry.
- 3.8 Our simulations did confirm that the service frequency benefits of open access for passengers could be undermined unless they had access to appropriate through ticketing provisions. We suggest that, to complement these measures, entrant undertakings should be allowed to include their services in published timetables (extending provisions already contemplated by the Commission in the context of passenger rights legislation and assumed for the reference scenario). The modelling suggested that service competition would also be more effective if entrant undertakings could access rolling stock on broadly comparable terms to incumbents in the market.
- 3.9 Hence our modelling supported the feedback from many stakeholders that reducing each of these entry barriers with the assistance of further European legislation would constitute necessary, though not by themselves sufficient, conditions for successful liberalisation of the market.

**Implications for PSO/open access interfaces**

- 3.10 Similarly, our modelling results confirmed stakeholder feedback that unrestricted liberalisation could have adverse effects on service levels in some market segments, where current services are being sustained through cross-subsidy.
- 3.11 In some cases, the services concerned (including regional cross-border services) generate important social and economic benefits that would justify their continuation via PSO procurement arrangements. But it is clear that such services need to be defined by the public authorities concerned, and not by the market alone. The advent of liberalisation would effectively accelerate the need for clarity in this area, such that concessions for defined PSO services could be let through competitive tenders.
- 3.12 While we have suggested that international liberalisation with cabotage would be both appropriate and feasible, this would imply the potential onset of direct competition with some domestic (as well as cross-border) PSO markets, or a redefinition of PSO requirements and specifications to protect these markets. However, our modelling suggests that typical cabotage flows on international high-speed services could remain viable in the face of domestic commercial competition.
- 3.13 In any event, the modelled impacts confirm our view that liberalisation and the regulation of PSO procurement need to proceed in parallel, as integrated policy initiatives, to avoid confusion, inefficient competition and subsidy leakage.

#### 4. THE WAY FORWARD

##### **Our understanding of the Commission's approach**

- 4.1 At the time of our study, the Commission had not developed its own rail passenger liberalisation proposals, but intended to do so early in 2004. Accordingly our recommendations predate the Commission's proposals, which drew on experience and feedback from affected stakeholders.
- 4.2 We understood however that the Commission envisaged focusing on the liberalisation of international services, as part of a third package of European rail legislation. For the reasons discussed, we believe this is the correct approach to the gradual opening up of the markets concerned.
- 4.3 Within this context, our own recommendations, which were summarised at the end of section 1, were intended to help inform the development of policy proposals and the debate over them that is likely to occur through consultation in the coming months. This will need to be conducted against the background of anticipated agreement over the timing of further freight liberalisation and other measures in the second package.

##### **Liberalisation elements of third package**

- 4.4 We recommend that the third package is developed in parallel with progress towards a public service procurement Regulation. As the latter Regulation could have profound effects beyond the rail industry, there may be merit in amending the Regulation to focus on rail services, if rapid progress on international rail liberalisation is contemplated.
- 4.5 In any event, we believe the key legislative provisions of a third package should include:
- Providing for licensed undertakings to operate international services with cabotage across a designated European network;
  - Regularising access charges for international passenger services;
  - Enabling efficient regulation of the international rolling stock market;
  - Improving the processes of gaining access to international passenger paths;
  - Preserving the network benefits of through ticketing and access to information for passengers;
  - Allowing the protection of specific international PSO services, while providing for compensation of existing open access operators adversely affected by new PSO arrangements; and
  - Providing for transition arrangements that take account of the need of particular Member States to adapt their international services ahead of liberalisation.

##### **Subsequent research work that may be beneficial**

- 4.6 The scenario and extended impact modelling we undertook in the course of our study demonstrated that the impacts of liberalisation are in practice likely to be highly variable by route and country, reflecting the great variety of conditions within the markets concerned. Accordingly, further analysis to explore and validate the potential effects of the Commission's proposals once they are published would in our view be

beneficial. As some of the relevant market and cost data are confidential, and unique to individual countries, individual Member States and their industry stakeholders may be best placed to undertake such exercises.

- 4.7 In this respect our own modelling assumptions were made for analytical purposes in advance of these policy proposals, and we would expect that some of our policy assumptions would be overtaken. In addition, our market and cost data were in general broad approximations, and more detailed assumptions (on access charges, rolling stock costs, revenue yields, etc) for individual markets could generate more accurate bases for decisions on derogations and phasing, and the interplay of PSO and open access services in individual markets.
- 4.8 Nevertheless, our work has demonstrated that suitable analytical tools and techniques can be developed for the purposes of examining impacts in individual markets, to assess commercial, economic and social outcomes and hence inform the policy debate.
- 4.9 In this respect, we would also note that our own impact analysis has, in line with our remit, examined effects across a range of economic and financial criteria. It has demonstrated that liberalisation, of whatever form, is likely lead to a mixture of positive and adverse impacts. This creates the need for systematic economic cost benefit analysis, to weight and compare the different monetised effects in policy-making.
- 4.10 We would also highlight that the ongoing liberalisation of freight and implementation of interoperability provisions at the European level should offer important lessons for passenger liberalisation. In particular, the influence and importance of network synergies and industry incumbents are greater than in, say, aviation, and the collaborative involvement of industry players in developing workable mechanisms will be vital.
- 4.11 A particular example is the process for acquiring international paths: full account of the lessons learnt from the early months of RailNet Europe should be taken before (potentially modified) processes for international passenger open access are developed.
- 4.12 Similarly, the further development of effective markets in international passenger rolling stock should draw on the lessons learnt both from the limited operation of 91/440 services by international groupings, and from experiences in more mature domestic PSO markets such as the UK, where recent reports have confirmed the difficulty in balancing risks between the public sector, commercial undertakings, leasing companies and manufacturers.
- 4.13 The general conclusion is that the commercial markets are still evolving away from public-sector procurement models, and will need to be nurtured through effective competition regulation to become fully efficient in the liberalised sector.

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