Further Action at European Level Regarding Market Opening for Domestic Passenger Transport by Rail and Ensuring Non-Discriminatory Access to Rail Infrastructure and Services

Final Report

November 2012

Prepared for:
European Commission
Directorate General for Mobility and Transport
MOVE.SR3-Resource
DM 24 01/010
B-1049
Brussels
Belgium

Prepared by:
Steer Davies Gleave
28-32 Upper Ground
London SE1 9PD

+44 (0)20 7910 5000
www.steerdaviesgleave.com

APPENDICES

A STAKEHOLDER CONSULTATION

B STAKEHOLDER QUESTIONNAIRE

C STAKEHOLDER CONTACTS

D STAKEHOLDER COMMENTS

E LITERATURE REVIEW

F PROBLEM EVIDENCE

G THE IMPACT OF UNBUNDLING ON EFFICIENCY AND PERFORMANCE

H POLICY OPTIONS

I IMPACT ASSESSMENT

J GLOSSARY

APPENDIX

A

STAKEHOLDER CONSULTATION

A1 INTRODUCTION

A1.1 This Appendix provides an overview of the Stakeholder Consultation, dealing in turn with:

- Background
- Organisations responding
- The quality of rail services
- The issues affecting the quality of rail services
- The objectives of this policy initiative
- Policy options on framework conditions
- Policy options for open access
- Policy options for compulsory competitive tendering
- Policy options comparison and combinations
- Policy options and employment issues

A2 BACKGROUND

A2.1 The Task Specifications required us to organise a robust stakeholders' consultation process under the guidance of the Commission and according to the Commission's minimum standards for public consultation. This comprised two principal elements:

- An online stakeholder survey inviting both responses to specific questions and free format comments, including invitations to provide evidence
- Interviews with key stakeholders in a number of Member States

A2.2 Our Inception Report of March 30 set out in further details our proposals for this process, which was by then under way. The online stakeholder survey was structured to include a number of common questions, plus satellite questions to be answered by respondents identifying themselves as a particular type of organisation.

A2.3 Table 2.1 of our Inception Report, setting out key dates for the stakeholder consultation, is repeated here as Appendix Table A.1.

APPENDIX TABLE A.1 KEY DATES IN STAKEHOLDER CONSULTATION PLAN

Action	Date
Letter of Introduction and Questionnaire issued to Stakeholders	9 March 2012
Interviews to be arranged with Stakeholders in selected Case Study Member States and others	26-30 March 2012
End of formal 4-week Consultation Period	5 April 2012
End of Consultation Period extension	16 April 2012
Interviews with selected Stakeholders	9-27 April 2012
Stakeholder Hearing	29 May 2012

Stakeholder survey

A2.4 The stakeholder survey was sent to 427 organisations. A list of the stakeholders invited to answer is reported in Appendix C.

Main survey

A2.5 The survey comprised a set of Common Questions that all stakeholders invited to take part were able to complete. These questions covered material on:

- The nature of their organisation
- The countries in which they operated
- The important factors associated with quality of rail services
- The problems that affect the quality of rail services
- The objectives of the Fourth Package policy initiative
- Policy options associated with market opening
- Policy options associated with enhanced independence of infrastructure management

Satellite questions

A2.6 A number of organisations were invited to respond to extra questions in 25 themes summarised in Appendix Table A.2, related to the issues that might have greatest relevance to them. The extra questions were prepared and completed by:

- Transport Ministries
- Rail Regulatory Bodies and Competition Authorities
- Public Transport Authorities (Competent Authorities)
- Passenger Railway Undertakings
- Freight Undertakings
- Infrastructure Managers
- Passenger Organisations
- Workers' Representatives
- Rolling Stock Leasing Companies

APPENDIX TABLE A.2 SATELLITE QUESTIONS

Note that these questions have been abbreviated for reasons of space (Full question text is provided in Appendix B.2)	Transport Ministries	Regulatory Bodies	PTAs	Passenger RUs	Freight RUs	Infrastructure Managers	Passenger Organisations	Workers Representatives	Rolling Stock Companies
Effect of open access on demand	✓	✓	✓	✓		✓	✓	✓	✓
Effect of competitive tendering on demand	✓	✓	✓	✓		✓	✓	✓	
Effect of market opening on strikes	✓	✓	✓	✓	✓	✓		✓	
Effect of market opening on employment	✓	✓	✓	✓	✓	✓		✓	
Availability of data on various matters	✓	✓	✓	✓		✓	✓		✓
Availability of data on market opening	✓	✓	✓	✓		✓	✓		✓
Views on PSC compulsory competitive tendering	✓	✓	✓	✓			✓	✓	
Views on transition period for PSC tendering	✓	✓	✓	✓			✓	✓	
Are there grounds for direct award of PSCs	✓	✓	✓	✓			✓	✓	
Views on EU harmonisation of PSC procedure	✓	✓	✓	✓			✓	✓	
Views on making rolling stock more available	✓	✓	✓	✓		✓			
How is ticketing organised in open markets	✓	✓	✓	✓					
How can ticketing integration be achieved	✓	✓	✓	✓					
Effects of open access	✓	✓	✓	✓					
Effects of competitive tendering of PSCs	✓	✓	✓	✓					
Main competing modes by passenger sector	✓	✓	✓	✓					
Imposing EU PSC compliance criteria on PTAs	✓	✓	✓	✓					
Avoiding market foreclosure from broad PSCs	✓	✓	✓	✓					
Consultation on EC PSC criteria	✓	✓	✓	✓					
Do you procure PSCs	✓		✓	✓					
Main competing modes by freight sectors	✓	✓			✓				
Open access in your country	✓					✓			
Competitive tendering in your country	✓					✓			
Open access in your responsibility area		✓	✓						
Competitive tendering in your responsibility area		✓	✓						

A2.7 Most satellite questions were of relevance to only some stakeholders:

- 23 themes were relevant to Transport Ministries
- 3 themes were relevant to Rolling Stock leasing companies

A2.8 Some respondents were invited to complete satellite questions relating to a number of roles. For example a railway holding company could be invited to respond as an IM, an incumbent RU in its home state, and a new entrant RU in other Member States.

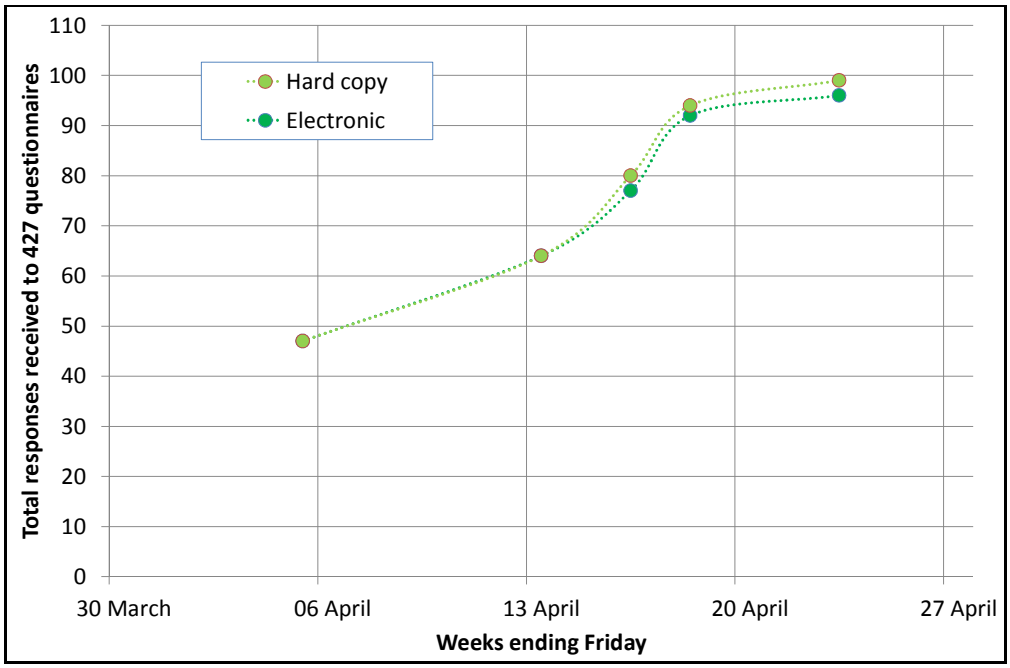
A2.9 Responses to the satellite questions are analysed and reported in this Appendix with the main survey questions on similar subjects.

Consultation period and response rate

A2.10 The consultation period was originally intended to end on Thursday 5 April, but by that date we had received only 47 responses, a response rate of only 12%. We consulted the Commission and agreed to extend the deadline to Monday 16 April, accepting that this would constrain the time available for the analysis which could inform, or be included in, the remainder of the study.

A2.11 The subsequent response rate is summarised in Appendix Figure A.1 below.

APPENDIX FIGURE A.1 STAKEHOLDER CONSULTATION RESPONSES TO 27 APRIL



A2.12 By 16 April we had received 77 electronic responses and 3 hard copies. Although no further communication was issued to stakeholders, we left the online survey open to receive additional late responses, and by 23 April we had received 99 responses, 96 electronically and 3 as hard copies, which represents a response rate of 25%.

A2.13 The response rate varied from 96% for IMs, 80% from freight RUs and 50% for Regulatory Bodies and Transport Ministries to only 7% for Public Transport Authorities (PTAs). The Commission noted that, excluding PTAs, competition authorities and passenger associations, the response rate was 41%.

A2.14 The remainder of this Appendix is based on analysis of these 99 responses. However, this does not mean that we received 99 responses to each question:

- Many responses were incomplete, with some parts left unanswered
- Some respondents chose "No opinion" or neutral responses providing no clear view
- Some responses provided identical text responses and had clearly not be completed independently

Stakeholder interviews

A2.15 The stakeholder survey was supplemented with a number of interviews, the majority in the form of face-to-face sessions, with the most significant stakeholders within the Member States for which more detailed case studies were prepared. Findings from these interviews have been included in the case studies.

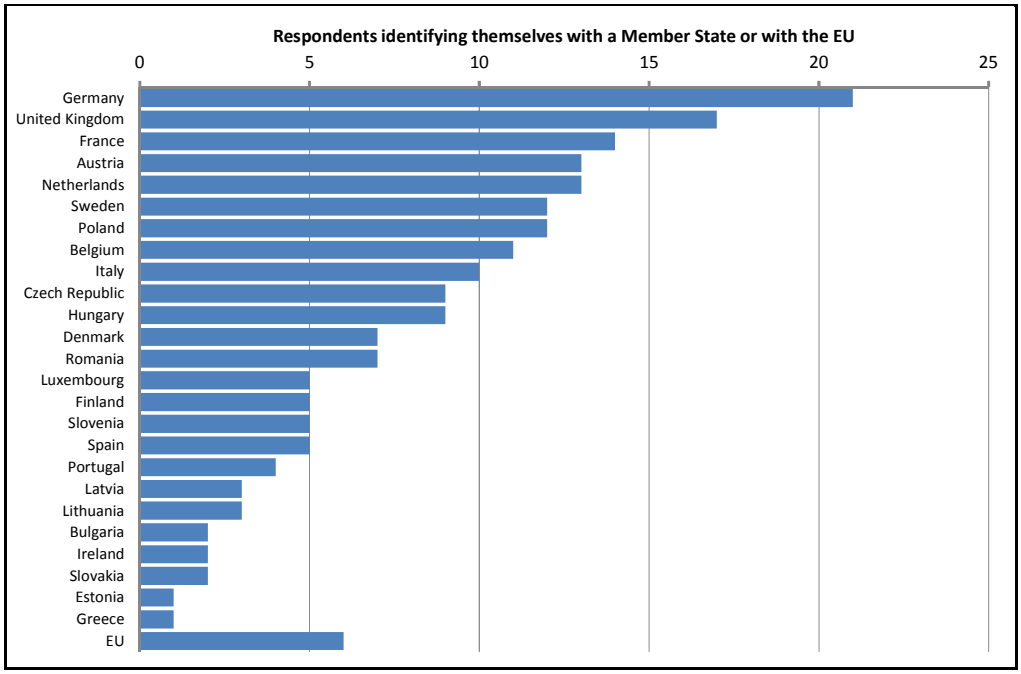
A2.16 Details of stakeholders interviews are included in Appendix C.

A3 ORGANISATIONS RESPONDING

A3.1 The effective number of independent responses to individual questions varied from over 90 to as few as 3. After consultation with the Commission we treated every response as bona fide, and did not attempt to make any adjustment for identical responses, but we note that the number of wholly independent responses may be overstated in the following analysis.

The location of respondents' activities

APPENDIX FIGURE A.2 RESPONDENTS' SELF-REPORTED LOCATION OF ACTIVITIES



A3.2 Respondents were invited to tick boxes listing the Member States in which they were active. Of the 99 respondents:

- 77 identified themselves with a single Member State.

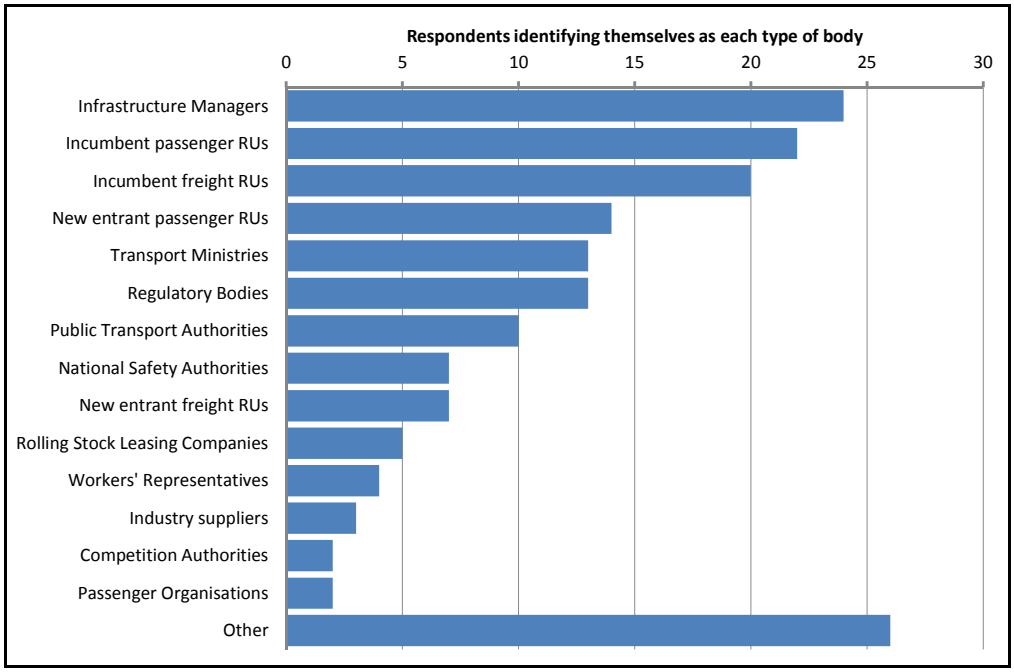
- 22, including holding groups, Railway Undertakings, rolling stock leasing companies and industry suppliers identified themselves with more than one Member State.

A3.3 In total, 9 Member States were referred to 10 or more times and 12 Member States were referred to 5 or fewer times.

A3.4 In total the 99 respondents ticked 199 boxes, as shown in Appendix Figure A.2. Of the 22 ticking more than one box, it was normally only possible and meaningful to identify holding groups to a "home" Member State.

The nature of respondents activities

APPENDIX FIGURE A.3 RESPONDENTS' SELF-REPORTED TYPE OF ACTIVITY



A3.5 The 99 respondents reported a total of 172 different industry roles, as shown in Appendix Figure A.3. Respondents might identify themselves as having more than one role for a number of reasons, such as:

- Railway undertakings identifying themselves as both passenger and freight, or as incumbent in one Member State and new entrant in one or more others
- Holding companies identifying all the roles fulfilled by their subsidiaries
- Regulatory bodies which are also competition authorities
- Representative bodies that represent different types of stakeholder

A3.6 In practice, of the 99 respondents:

- 26 described their role as "other"
- 35 described themselves as having more than one role
- 38 described themselves as having a single role

Reclassification of respondents

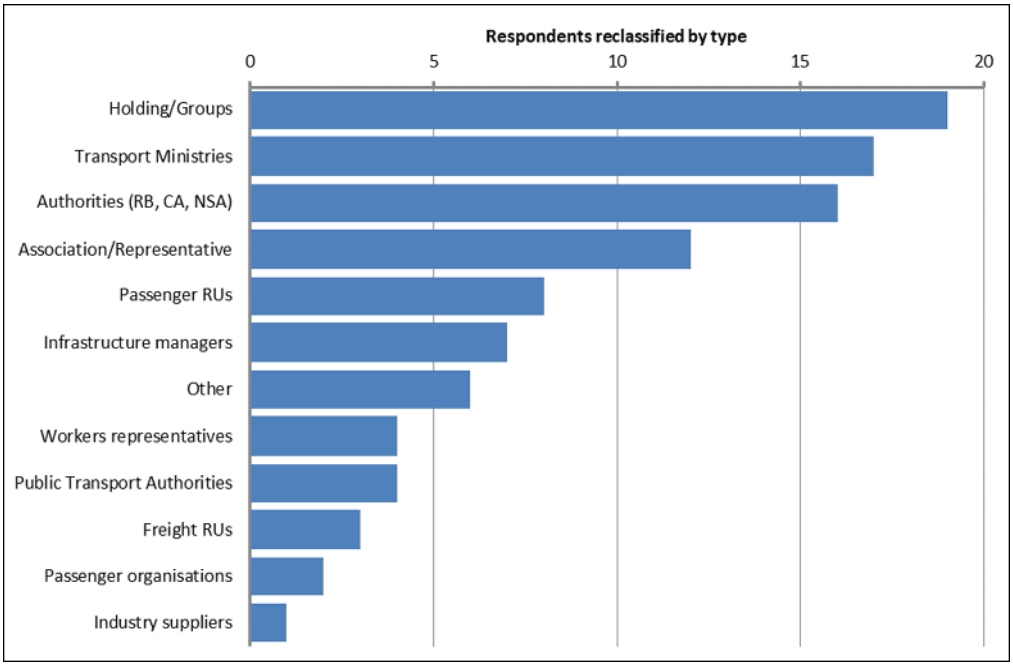
A3.7 As noted above, we received only 1 response from 2 Member States, and 5 or fewer responses from 12 Member States, and only 2 responses from 2 types of organisation, and 5 or fewer responses from 5 types or organisation. We concluded that it would not be possible to analyse systematically by both Member State and respondent type, as we received no responses for most such combinations.

A3.8 After careful review of the identity of the respondents we therefore reclassified them with the objective of providing a clearer basis for analysis:

- From the organisation name provided, we identified and distinguished:
  - Holdings/groups
  - Associations/representatives
- For Railway Undertakings:
  - We combined incumbent and new entrant passenger RUs as "Passenger RU"
  - We combined incumbent and new entrant freight RUs as "Freight RU"
- We combined into a single category of "National Authorities" three different types of respondent, all with at least some regulatory role:
  - Regulatory bodies
  - Competition authorities
  - National safety authorities

A3.9 Appendix Figure A.4 shows the results of the reclassification.

APPENDIX FIGURE A.4 RESPONDENTS RECLASSIFIED



Comments provided by stakeholders

A3.10 Respondents also provided several thousand text comments, some of them (as noted above) identical and presumably copied from a common source. These

comments were reviewed for any information relevant to the problem definition, option definition and selection, and the impact assessment.

A3.11 A summary of the stakeholder comments is provided in Appendix D.

Additional data provided by stakeholders

A3.12 Respondents were also invited to provide additional data and evidence which might support this study. We collated and reviewed all such evidence and, where relevant and robust, used it to support out qualitative and quantitative analysis in the option definition and selection, and the impact assessment.

Analysis

A3.13 We carried out a systematic analysis of the survey responses. However, even after reclassification, we only received 10 responses from 4 types of organisation, and fewer than 5 response from 5 types of organisation. This continued to limit the extent to which it was possible to carry out meaningful analysis by respondent type, or to find any consistency of response within a respondent type, as described in the remainder of this Appendix.

A3.14 In particular the small number of responses, and as few as 3 responses to some questions, meant that:

- Disaggregation of responses by Member State was not possible, as there were so few responses identifiable with many Member States.
- Disaggregation of responses by type of respondent type was rarely meaningful, as in most cases there were few or no responses from some types of respondent.
- Cross-correlation of responses was rarely possible, except on two-way or "Yes"/"No" questions, because most combinations of response did not occur.

A3.15 We were, however, able to carry out sufficient analysis to find examples in which:

- Responses were equally spread across all options, and we could only conclude that views varied.
- Responses were dominated by the extreme options, and we could only conclude that views were polarised with no consensus.
- Similar (and sometimes consecutive) questions, or different approaches to analysis of the same question, could be interpreted to support inconsistent or contradictory conclusions. For example, in some cases respondents "rated" options from positive to negative differently from how they "ranked" them from first to last.

A3.16 Given the small number of respondents to many questions, in the remainder of this Appendix the percentage of respondents giving any particular answer has been rounded to the nearest 5%.

A3.17 In the following sections of this Appendix we present our analysis of the survey responses, dealing in turn with:

- The quality of rail services
- The issues affecting the quality of rail services

- The objectives of this policy initiative
- Policy options on framework conditions
- Policy options for open access
- Policy options for compulsory competitive tendering
- Policy options comparison and combinations
- Policy options and employment issues

A4 THE QUALITY OF RAIL SERVICES

Quality and problems

A4.1 Question 1.2b and Question 1.2c asked:

> "Looking at other countries you operate in, where do you think the quality of the passenger/freight rail sector is a problem?"
>
> You can select more than one Member State

A4.2 Respondents were invited to tick boxes for all Member States with railways and for "All of the EU". Appendix Table A.3 below summarises the responses.

APPENDIX TABLE A.3 QUALITY AS A PROBLEM

Sector	Ticks	Member States
Passenger	0	Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, Luxembourg, Netherlands, Spain, Sweden
	1	Bulgaria, France, Greece, Hungary, Ireland, Lithuania, Portugal, Romania, Slovakia, Slovenia, UK
	2	Germany, Italy, Latvia, Poland
	6	All of the EU
Freight	0	Denmark, Estonia, Finland, Luxembourg, Netherlands, Sweden
	1	Belgium, Czech Republic, Germany, Greece, Ireland, Lithuania, Portugal, Slovakia, UK
	2	Austria, Bulgaria, Latvia, Romania, Slovenia, Spain, all of the EU
	4	France, Italy, Poland
	5	Hungary

A4.3 The most common response regarding the passenger rail sector was that quality was a problem in "All of the EU", although this only attracted 6 ticks from a total of 99 respondents.

Quality and competitiveness

A4.4 Q1.4 asked:

> "To what extent do you think that the quality of rail services affects the competitiveness of the rail sector in the country(ies) you operate in?"
>
> - Freight services
> - Passenger services
>
> To a great extent / To some extent / To a minor extent / Not at all / No opinion

A4.5 On freight services, there were 74 responses of which 68, or 90%, responded "to a great extent" or "to some extent".

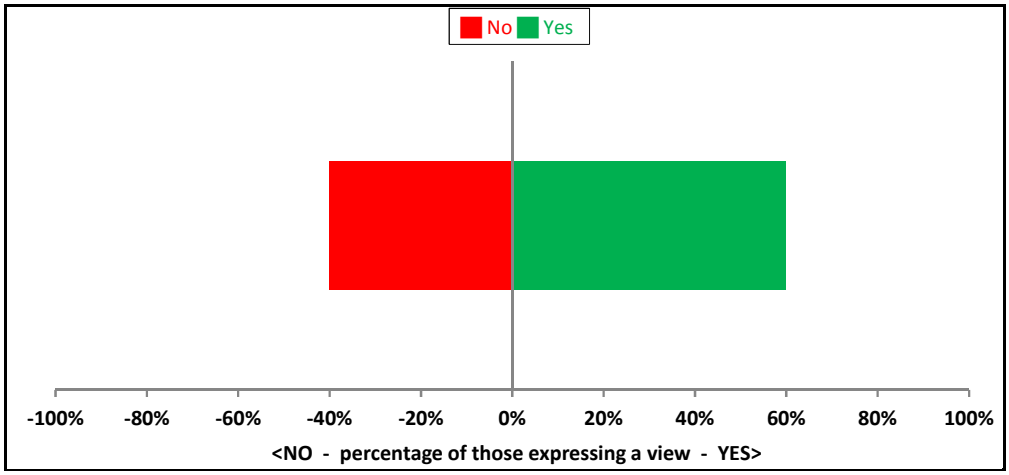
A4.6 On passenger services, there were 87 responses of which 76, or 85%, responded "to a great extent" or "to some extent".

Quality of public service contracts and open access services

A4.7 Question 1.3 asked:

> "Do you consider quality issues are different for passenger services provided under public service contracts and those provided by open access?"
>
> Yes / No / No opinion

APPENDIX FIGURE A.5 QUALITY OF PSC AND OPEN ACCESS SERVICES



A4.8 There were 91 responses. 75 (80%) presented an opinion, of which:

- 45, or 60%, said "Yes"
- 30, or 40%, said "No"

A4.9 The question was not intended to elicit any information on what quality issues respondents considered to be different.

Competitiveness and the ranking of contributory factors

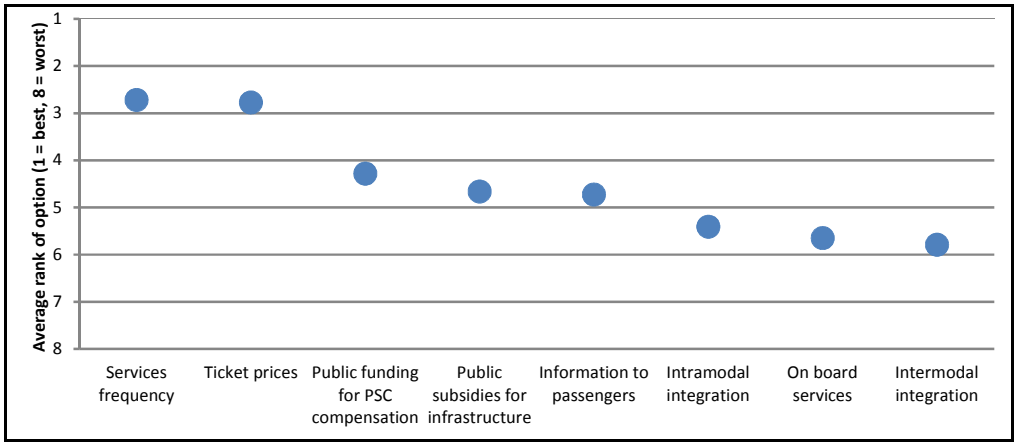
A4.10 Question 1.5c asked:

"Please rank the following elements from the one with the greatest importance to the one with the least importance for the competitiveness of the rail sector?"

- Service frequency
- Intramodal integration (between rail services of different operators including through ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

APPENDIX FIGURE A.6 COMPETITIVENESS FACTORS: RANKING

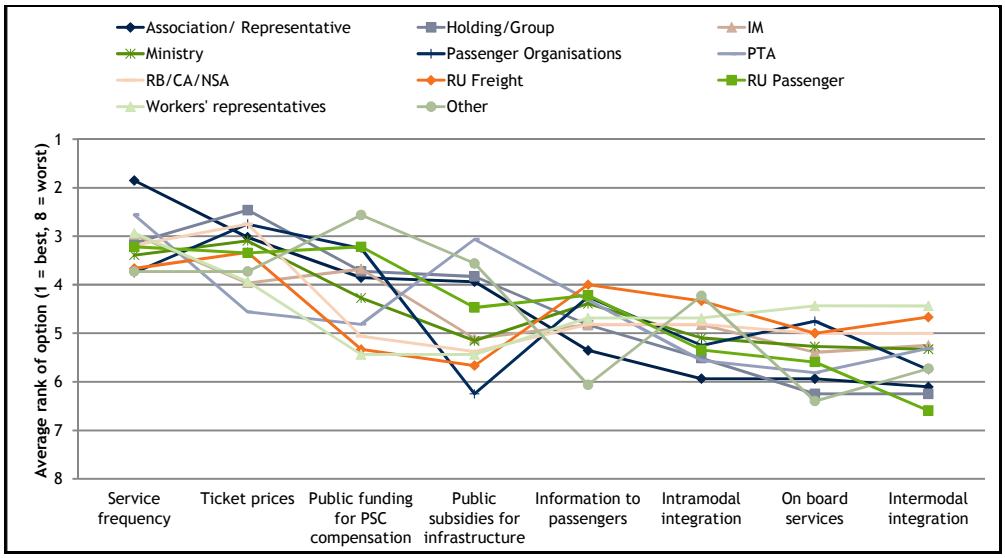


A4.11 Respondents were asked to rank the factors in order from 1 to 8. Not all respondents ranked any factors, some respondents ranked only some of the factors, and some respondents gave two or more factors equal rank. We normalised the results to give an average ranking of all factors of 4.5:

- Service frequency and ticket prices appeared generally to be ranked consistently higher than other factors
- On board services, intermodal and intramodal integration appeared generally to be ranked lower than other factors

A4.12 We attempted a more detailed analysis, with the aim of investigating whether responses varied by respondent type as reclassified in Appendix Figure A.4.

APPENDIX FIGURE A.7 COMPETITIVENESS FACTORS: RANKING BY RESPONDENT



Note: sample sizes too small to be significant, see text.

A4.13 While the total number of respondents of each type is too small for statistical analysis, the chart follows a similar pattern to that shown in Appendix Figure A.6, suggesting that there is general agreement on which factors are important to competitiveness.

Competitiveness and other modes

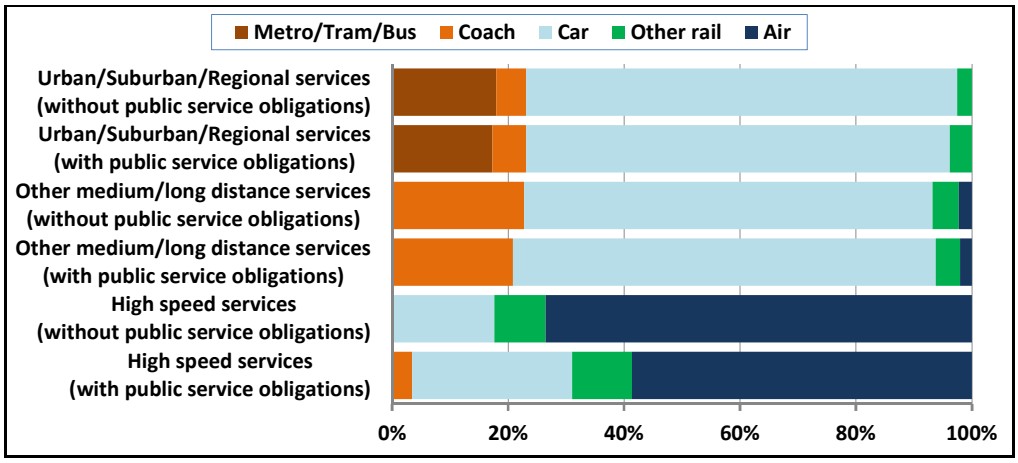
A4.14 A satellite question asked:

"For each of the passenger service categories underneath, what do you consider to be the main competing modes?"

- High speed services (with public service obligations)
- High speed services (without public service obligations)
- Other medium/long distance services (with public service obligations)
- Other medium/long distance services (without public service obligations)
- Urban/Suburban/Regional services (with public service obligations)
- Urban/Suburban/Regional services (without public service obligations)
- Other

Air / Other rail / Coach / Metro/Tram/Bus / Car / N/A

APPENDIX FIGURE A.8 COMPETITIVENESS: IMPORTANCE OF OTHE MODES



A4.15 There were up to 52 responses to this question (some respondents answered only part of the question), but an apparent consensus that:

- Air is the main competitor on high speed services, especially those with no PSO
- Car is the main competitor on all other services

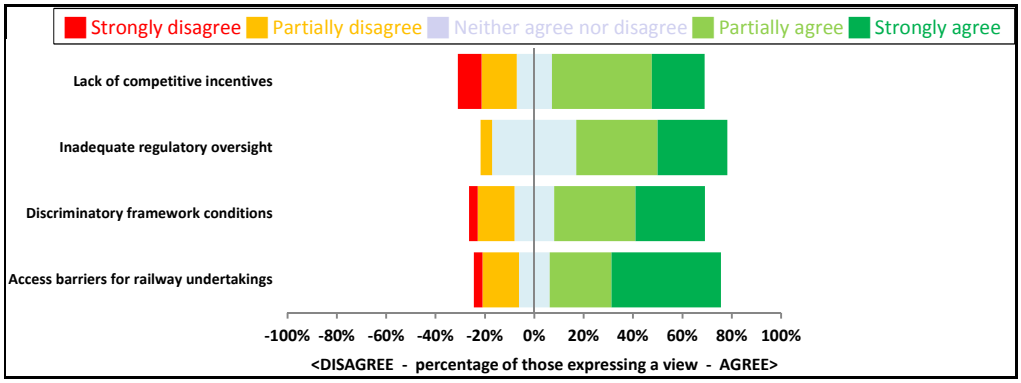
A5 THE ISSUES AFFECTING THE QUALITY OF RAIL SERVICES

Structural factors affecting the quality of rail services

A5.1 Question 2.1 asked:

> "To what extent do you agree that the following aspects affect the quality of rail services and have an impact on the competitiveness of the rail sector in the EU?"
>
> - Access barriers for railway undertakings
> - Discriminatory framework conditions (e.g. access to rail-related services and rolling stock, etc.)
> - Inadequate regulatory oversight
> - Lack of competitive incentives on railway undertakings to improve quality/reduce fares
> - Other
>
> Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

APPENDIX FIGURE A.9 QUALITY AND STRUCTURAL FACTORS



A5.2 Appendix Figure A.9 above shows the responses to the four factors suggested as affecting the quality of rail services and having an impact on competitiveness. After discussions with the Commission, we summarised the responses on the basis of "net agreement" with each factor, defined as "Strongly agree" and "Partially agree" less "Partially disagree" and "Strongly disagree".

A5.3 In general, 40-55% more respondents agreed than disagreed:

- 55% more agreed than disagreed with "inadequate regulatory oversight"
- 40% more agreed than disagreed with "lack of competitive incentives"

A5.4 However, the approach to classification based on net agreement affects the apparent importance attached to each factor, as:

- Most actual agreement (70%) was with "access barriers to railway undertakings"
- Most net agreement (55%, but only 60% actual agreement) was with "inadequate regulatory oversight"

A5.5 We also examined whether there was any apparent consistency of response by respondent type as reclassified on Appendix Figure A.4. We noted that:

- Many "holdings/groups" disagreed with "discriminatory framework conditions"
- Many "National Authorities" disagreed with "inadequate regulatory oversight"

A5.6 On balance these responses are consistent with what might be expected of the organisation types concerned.

A5.7 Respondents also mentioned 44 "other" problems, although some comments and explanations were identical to others. Over half of them referred to "financing", which the Commission reminded us is outside the scope of the current study and the Fourth Package initiative.

A5.8 Questions 2.2 asked, with reference to Question 2.1 discussed above:

"To what extent do you believe that the following factors contribute to each of the problems listed in the previous question?"

a) Access barriers for railway undertakings to the rail sector

- Constraints concerning access to rail-related services
- Infrastructure capacity constraints
- Constraints on rolling stock availability
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

b) Discriminatory framework conditions

- Insufficient independence of Infrastructure Manager functions (in relation to capacity allocation and charging)
- Lack of financial/technical transparency
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

c) Inadequate regulatory oversight

- Inadequate scope of regulatory competences (e.g. extending scope of open access and public service contracts for domestic passenger services including the definition of public service contracts)
- Inadequate resources/regulatory expertise (e.g. in terms of staff numbers necessary to react to a market with multiple operators or with sufficient experience in dealing with regulatory issues
- Divergent interpretation of legislation
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

d) Lack of competitive incentives on railway undertakings to improve quality/reduce fares

- Lack of competitive award of Public Service Contracts
- Inadequate definition and scope of public service obligations
- Lack of open access rights

To a great extent / To some extent / To a minor extent / Not at all / No opinion

A5.9 Responses other than "No opinion" were broadly evenly scattered across all responses, which suggests that there was little or no consensus on any view.

A5.10 However, three of these four responses imply at least some agreement that a factor contributes to a problem, with the effect that even random responses would have generated a level of apparent agreement.

A5.11 We therefore focused on options where there appeared to be a clear high or low net agreement with one option. The results are summarised in Appendix Table A.4.

APPENDIX TABLE A.4 QUALITY AND STRUCTURAL FACTORS

Issue	"To a great extent" "To some extent"	Response
Access barriers for railway undertakings	85%	"Infrastructure capacity constraints"
	70%	"Access to rail-related services"
	60%	"Rolling stock availability"
Inadequate regulatory oversight	80%	"Inadequate resources/experience"
	70%	"Divergent interpretation of legislation"
Discriminatory framework conditions	Low proportion saying "to a great extent" or "to some extent" Most net agreement "Lack of technical/financial transparency"	
Lack of competitive incentives	Low proportion saying "to a great extent" or "to some extent" Most net agreement "Lack of competitive award of PSC" Least net agreement "Lack of open access rights"	

Other factors affecting the quality of rail services

A5.12 Question 2.3 asked, with reference to Question 2.2 discussed above:

> "Are there any other problems within the rail sector that are hindering the creation of a high quality passenger service that can compete with other modes of transport?"
>
> Yes / No / No opinion

A5.13 Respondents were invited to provide text responses. We received comments from 60 respondents, although some were identical, leaving 52 distinct comments. The most common themes, including those where identical comments were repeated, were:

- Finance: either a lack of finance or an inadequate level of finance
- Infrastructure: in particular a lack of capacity, lack of quality, or lack of available finance

A5.14 We discussed these findings with the Commission, who reminded us that both finance and infrastructure capacity and quality are outside the scope of the current study and the Fourth Package initiative.

A5.15 We examined the principal comments from different types of stakeholder, which we summarise in Appendix Table A.5 below.

APPENDIX TABLE A.5 OTHER FACTORS AFFECTING QUALITY: VIEWS

Stakeholders	Comments
Many groups	Financing (infrastructure and PSO) is the most important factor influencing the competitiveness of the rail sector. PSO contracts should be properly compensated where necessary.
Incumbent RUs	Capacity and quality of the infrastructure. Reliability of the infrastructure (signalling systems, electrification, etc.) Frequent faults affect quality to a great extent.
	Lack of interoperability, access to depots, lack of rolling stock leasing companies, the need for employment of skilled staff.
	Disadvantages of rail compared to other modes of transport.
Associations of RUs	Success depends on developing a fair level-playing field with competing transport modes.
	Over-protection by the trade unions, with unproductive statutory human resources within the incumbent.
	Financing rolling stock acquisition may deter new entrants from competitive tenders and favour incumbent public operators.
Transport Ministries	Need for consistent legislation for different modes.
	Railway services needs large long term investments: competition may result in either less efficiency or semi-monopoly.
Passenger associations	Legacy of historic and exclusive links between national administrations and incumbent operators. Expensive bureaucracy of national safety and cross-acceptance.
Workers' unions	Discriminatory track access charges.
	Lack of competitive incentives to improve quality and reduce fares.

External factors affecting the quality of rail services

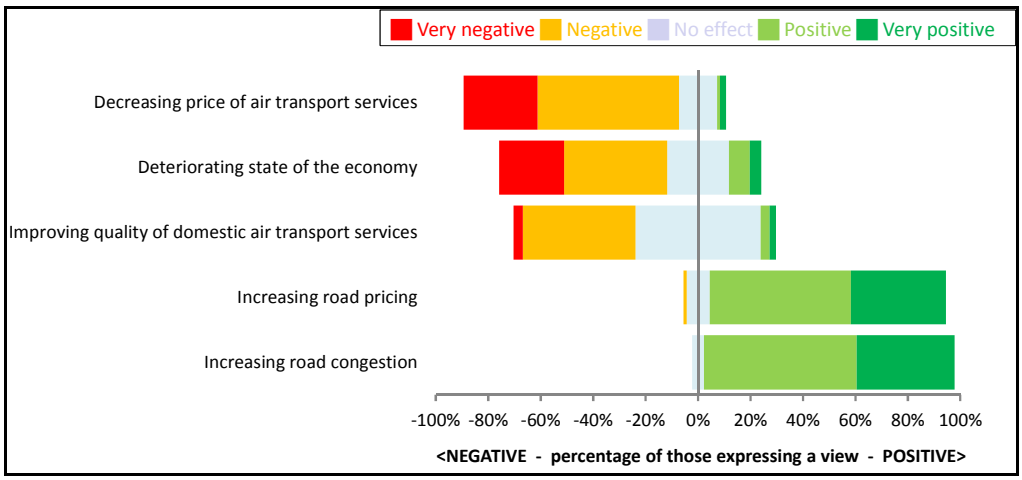
A5.16 Question 2.4 asked:

"What effect do the following external factors have on the competitiveness of the rail sector?"

- Increasing road congestion
- Improving quality of domestic air transport services
- Decreasing price of air transport services
- Deteriorating state of the economy
- Increasing road pricing
- Other

Very positive / Positive / Neither positive nor negative / Negative / Very negative / No opinion

APPENDIX FIGURE A.10 COMPETITIVENESS AND EXTERNAL FACTORS



A5.17 There was broad agreement that the competitiveness of the rail sector was:

- Negatively affected by air services becoming cheaper and better and a weakening economy
- Positively affected by road pricing and congestion

A5.18 These responses seem broadly self-explanatory.

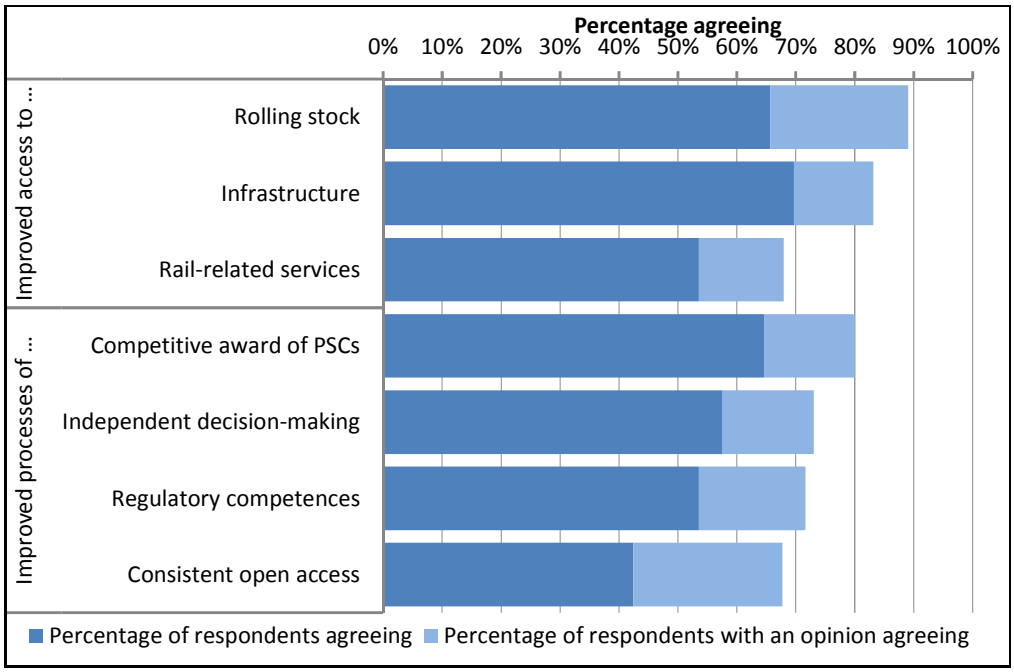
A6 THE OBJECTIVES OF THIS POLICY INITIATIVE

Objectives and the issues

A6.1 Question 3.1 asked, with reference to Question 2:

> "Do you believe that the following objectives address the issues previously discussed?
>
> - Improve access to infrastructure at cost-reflective charges that appropriate incentives for new entrants
> - Improve access to rolling stock on competitive terms for new entrants
> - Ensure independent decision-making in relation to provision of, and charges for, infrastructure management functions
> - Enhance regulatory competencies in relation to competitive award of public service contracts
> - Improve access to rail-related services (station facilities and ticketing and information systems)
> - Ensure competitive award of public service contracts
> - Ensure a consistent open access approach to domestic rail passenger markets
>
> Yes / No / No opinion

APPENDIX FIGURE A.11 OBJECTIVES OF THE POLICY INITIATIVE



A6.2 Every objective received the agreement of 40-70% of all respondents (dark blue) and 70-90% of respondents with an opinion (light blue).

A7 POLICY OPTIONS ON FRAMEWORK CONDITIONS

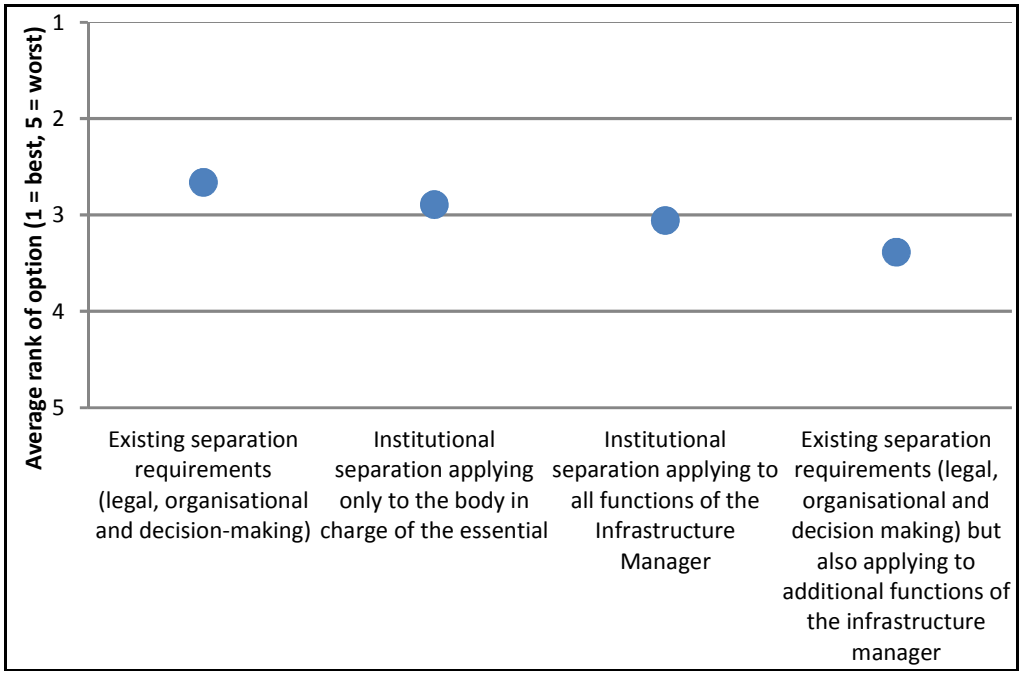
Options for framework conditions on unbundling

A7.1 Question 5.6 asked:

> "Please rank (for 1 to 5) the following options from the one you think is most appropriate to meet the objectives to the one which is least appropriate?"
>
> - Existing separation requirements (legal, organisational and decision-making)
> - Existing separation requirements (legal, organisational and decision-making) but also applying to additional functions of the infrastructure manager
> - Institutional separation applying only to the body in charge of the essential functions
> - Institutional separation applying to all functions of the Infrastructure Manager
> - Other
>
> 1 / 2 / 3 / 4 / 5

A7.2 Appendix Figure A.12 shows responses to the four options.

APPENDIX FIGURE A.12 OPTIONS FOR UNBUNDLING: RANKING



A7.3 All options received all possible rankings from 1 to 5 from at least one respondent. Not all respondents ranked any options and some respondents ranked only some of the options, with the result that we received from 63 to 68 responses on each option. Some respondents gave two or more options equal rank.

A7.4 We normalised the results to give an average ranking of all options of 3. The best average ranking, of 2.7, was for existing separation requirements.

A7.5 Further analysis of respondents by type of stakeholder showed that the results were highly polarised by respondent type:

- "Existing separation requirements" was generally favoured by: holdings/groups, IMs, Associations and representatives and Worker's representatives
- "Institutional separation applied to all functions of the Infrastructure Manager" was generally favoured by Transport Ministries, National Authorities, Passenger RUs and Freight RUs

A7.6 Respondents also provided 25 comments, in some cases to explain why they could not or would not rank options for framework conditions for unbundling.

A7.7 Vertically-integrated RUs generally argued that no further separation is required and that this would be inefficient. They suggested that the chosen model must provide efficient and non-discriminatory network access for all operators but must also remain affordable.

A7.8 Incumbent RUs also suggested that, particularly in small and technically separated national railway markets, the benefits of full separation might not offset the corresponding costs. Some proposed that Member States should be allowed to choose the most appropriate model.

A7.9 An association of RUs expressed the opinion that the objectives could be achieved through any of the unbundling options, and that the achievement would depend more on efficient regulation than on the degree of separation.

A7.10 A number of incumbent RUs referred to a study recently published by Merkert et al (2012), which analysed transaction costs in railway systems with different grades of separation. The study suggested that transaction costs in the fully-separated model implemented in Britain are three times those of the partially-integrated model implemented in Germany. We had already reviewed this research and taken it into account in our analysis of the problem definition.

A7.11 Question 5.5 asked:

> For which of the following functions do you consider that independence of decision-making must be reinforced to ensure non-discrimination?
>
> - Capacity allocation (including traffic management)
> - Infrastructure maintenance activities
> - Infrastructure charging
> - Infrastructure planning and financing
> - Other
>
> Yes / No / No opinion

A7.12 For infrastructure charging, 80% of respondents with an opinion favoured independent decision-making:

- Most Transport Ministries, National Bodies, Associations/Representatives and Passenger RUs favoured independence
- Views on each other respondent category were mixed

A7.13 For capacity allocation, 75% of respondents with an opinion favoured independent decision-making:

- Most Transport Ministries, National Bodies, Associations/Representatives and Passenger RUs favoured independence
- Views in each other respondent category were mixed

A7.14 For infrastructure planning and financing, 50% of respondents with an opinion favoured independent decision-making:

- Most National Bodies favoured independence
- Most Transport Ministries, Holdings/Groups and Passenger RUs did not favour independence

A7.15 For infrastructure maintenance activities, 40% of respondents with an opinion favoured independent decision-making:

- Most Transport Ministries, Passenger RUs and Holdings/Groups did not favour independence
- Views in each other respondent category were mixed

A7.16 Question 5.7 asked:

> "In addition to the options in Q5.6, would you support the creation of a specific body including, in a non-discriminatory manner, representatives from all infrastructure users to ensure that their interests are duly taken into consideration?"
>
> Yes / No / No opinion

A7.17 In total, 88 respondents answered this question. Of these, 69 expressed an opinion: 65% said "Yes" and 35% said "No".

A7.18 The question was not intended to elicit any information on:

- The powers or governance of such a body
- Whether a dominant incumbent would "outvote" all other representatives

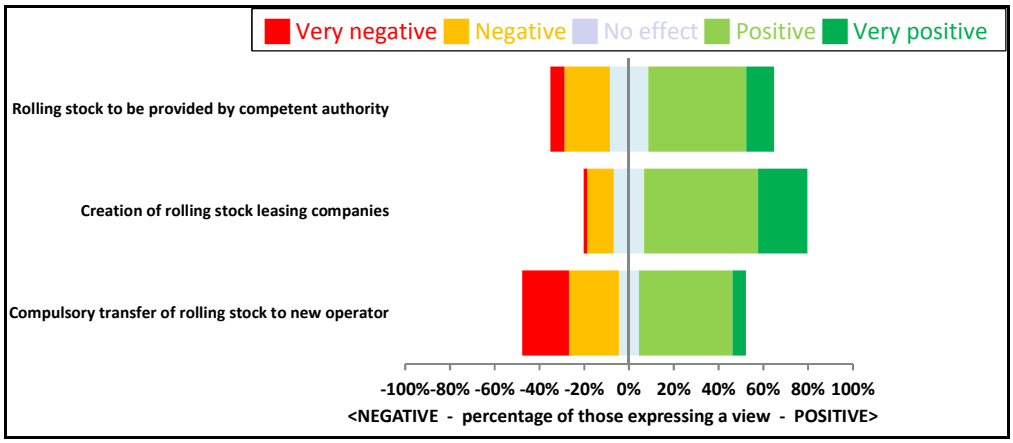
A7.19 Nonetheless, many respondents reported in text responses that one or more such bodies already existed. One referred to RailNetEurope, EIM and CER.

Options for framework conditions on rolling stock

A7.20 Question 4.5a asked:

> "What is your view of the organisation of each of the following framework conditions? – Improved access to rolling stock"
>
> - Compulsory transfer of rolling stock to new operator
> - Creation of rolling stock leasing companies that are to provide trains for public service contracts
> - Rolling stock to be provided by the competent authority
> - Other
>
> Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.13 OPTIONS FOR ROLLING STOCK: RATING



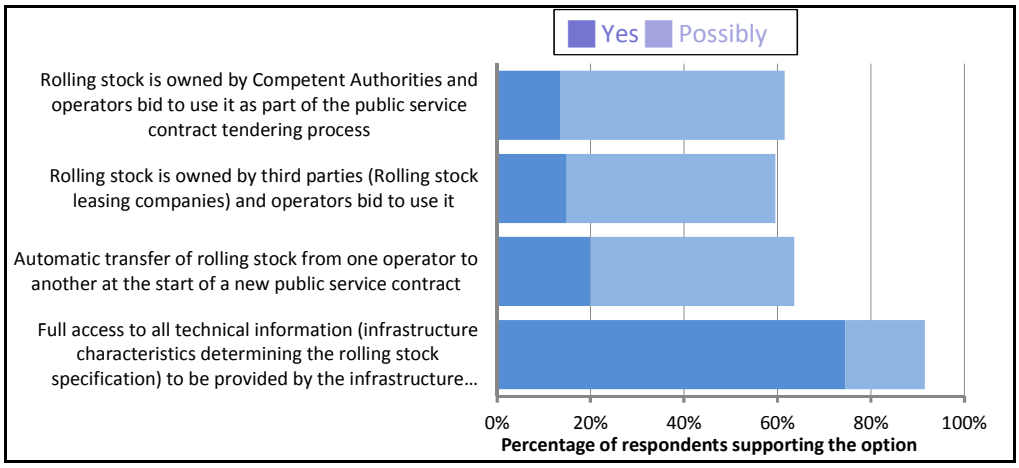
A7.21 A satellite question asked:

In what ways do you think that availability of rolling stock for new operators should be addressed? Please tick as many as you wish"

- Full access to all technical information (infrastructure characteristics determining the rolling stock specification) to be provided by the infrastructure manager and incumbent operator
- Automatic transfer of rolling stock from one operator to another at the start of a new public service contract
- Introduce measures so that rolling stock is owned by Competent Authorities and operators bid to use it as part of the public service contract tendering process
- Introduce measures so that rolling stock is owned by third parties (Rolling stock leasing companies) and operators bid to use it
- Other measures that you believe could be appropriate

Yes / Possibly / No / No opinion

APPENDIX FIGURE A.14 OPTIONS FOR ROLLING STOCK: SUPPORT



A7.22 Question 4.5a and the satellite question explored the same theme but the responses did not provide a clear view on stakeholder opinions.

A7.23 Question 4.5a received 59-67 responses which, following discussions with the Commission, we used to estimate net support ("very positive" and "positive" less "negative" and "very negative"). On this basis there was:

- 60% net support for "creation of rolling stock leasing companies"
- 30% net support for "rolling stock to be provided by the competent authority"
- 5% net support for "compulsory transfer of rolling stock"

A7.24 The satellite question was sent to only some respondents: Transport Ministries, Regulatory Authorities, Passenger Transport Authorities, Passenger RUs and IMs. It invited them to tick as many options as they wished, giving options of "Yes", "Possibly" and "No". From 49-59 responses were received to each question, but interpretation of the results depends on whether "Possibly" is taken to mean support for an option:

- If "Possibly" is interpreted positively, all options had at least 60% support.
- If "Possibly" is interpreted negatively, only one option had over 20% support.

A7.25 There were only 25 active responses of "Yes", of which the most (11) were for "Full access to all technical information (infrastructure characteristics determining the rolling stock specification) to be provided by the infrastructure manager and incumbent operator".

A7.26 The level of active support in the satellite question is much less than even the level of net support in Question 4.5a. Comparing the responses to the two questions, "creation of leasing companies" was:

- First, with most (60%) net support in Question 4.5a
- Third, with under 20% "Yes" or 60% "Yes"/"Possibly", in the satellite question

A7.27 Note that the questions were not intended to elicit any information on:

- The possible lag required if leasing companies were created but there was no requirement to transfer existing stock to them
- Which party would be required to create and funding leasing companies
- Whether and how legislation at the EU level could distinguish rolling stock owned by incumbents and owned by new entrants

A7.28 We found it difficult to draw any firm conclusions from these responses. While there was high support for full access to technical information, this was of little relevance to the selection of policy options for the Fourth Package.

A7.29 Compulsory rolling stock transfer attracted a number of comments. Respondents largely agreed that any compulsory transfer should only apply to rolling stock used for PSC services.

A7.30 RUs' opinions varied:

- Incumbent RUs mostly considered that access to rolling stock should be left to the market. However, some said that compulsory transfer for PSO services could be valuable and necessary, given that it would lower asset risk and uncertainty related to rolling stock authorisation.

- Several RUs and authorities considered that either compulsory transfer, or provision of rolling stock provided by the authorities, would remove a key element from the competitive tendering process.
- One incumbent RU suggested that further fragmentation would be inefficient.

A7.31 Passenger associations highlighted the importance of available and affordable rolling stock and the creation of a free market.

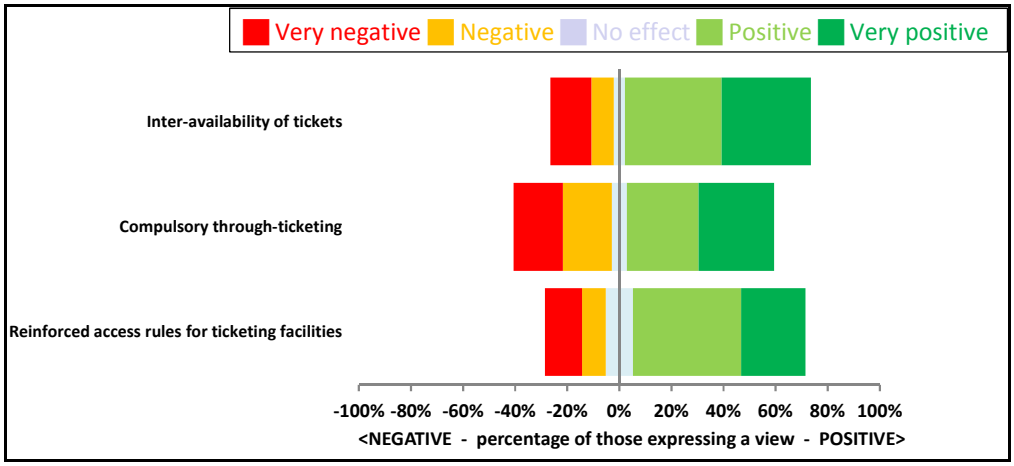
A7.32 Other respondents made a number of comments. Several stated that the different funding and financial constraints of the competent authorities meant that no universal solution was possible, and that each should be free to choose.

Options for framework conditions on ticketing

A7.33 Question 4.5a asked:

> "What is your view of the organisation of each of the following framework conditions? - Improved access to rail-related services, in particular ticketing"
>
> - Reinforced access rules for ticketing facilities
> - Compulsory through-ticketing
> - Inter-availability of tickets
> - Other
>
> Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.15 OPTIONS FOR TICKETING: RATING



A7.34 There were 69-77 responses to each part of this question, with net support of:

- 45% for "inter-availability of tickets"
- 45% for "reinforced access rules for ticketing facilities"
- 20% for "compulsory through ticketing"

A7.35 Views on compulsory through-ticketing were relatively evenly spread, with:

- Some net positive views from National Authorities, Transport Ministries and IMs
- Some net negative views from Passenger RUs and holding companies and groups

A7.36 Incumbent RUs typically stated that ticket sales are a core business, source of competitiveness, and means of product differentiation, and that compulsory schemes would frustrate the liberalisation objective of competition and differentiation.

A7.37 One new entrant RU drew attention to the Swiss model, which combines competition with compulsory through-ticketing, national discount cards and network tickets, and argued that the most effective way to increase rail's model share was through customer-friendly solutions.

A7.38 Public authorities suggested that passengers want to travel from origin to destination without having to deal with multiple tickets and sales channels, but that regulation would only be required until effective market-based cooperative arrangements emerged.

A7.39 Passenger associations reported that there was a need for customer-friendly arrangement, and some noted the failure of groups of RUs such as Railteam to establish workable interoperable systems. Some suggested a separation of ticket distribution and transport operations.

A7.40 Note that the question was not intended to elicit any information on:

- The choice between inter-availability of tickets and price competition
- How inter-available or through fares would be set in an environment with multiple operators

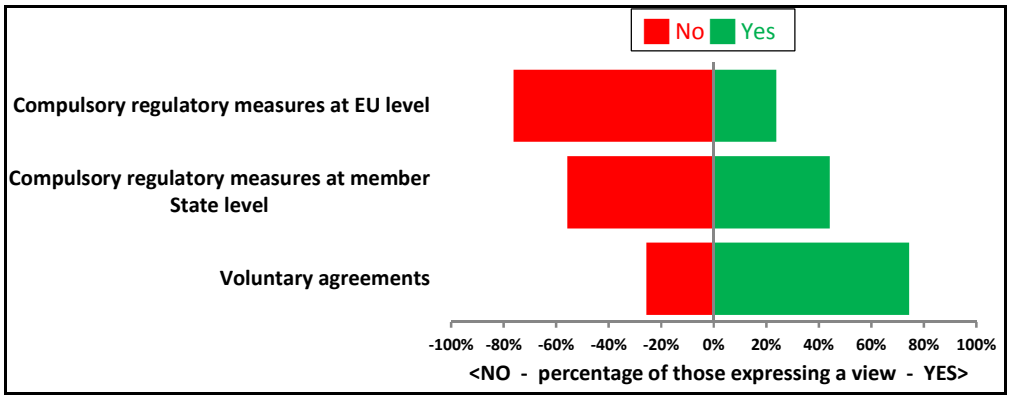
A7.41 A satellite question asked:

"If further ticketing integration was required, how should this integration be achieved?"

- Voluntary agreements
- Compulsory regulatory measures at Member State level
- Compulsory regulatory measures at EU level

Yes / No

APPENDIX FIGURE A.16 OPTIONS FOR TICKETING: INTERVENTION



A7.42 The questionnaire was sent to Passenger RUs, Regulatory Authorities, Ministries and Public Bodies. There were 42-43 responses, with:

- High net approval for voluntary agreements
- High net disapproval of compulsory regulatory measures at EU level

A7.43 Note that the question was not intended to elicit any information on:

- Whether inter-availability would be seen as anti-competitive by the competition authorities
- How compulsory inter-availability could be achieved with voluntary agreements
- How voluntary agreements could be made in Member States with over 100 RUs
- Whether dominant RUs would have an advantage in any such negotiations

Options for framework conditions on tendering procedures

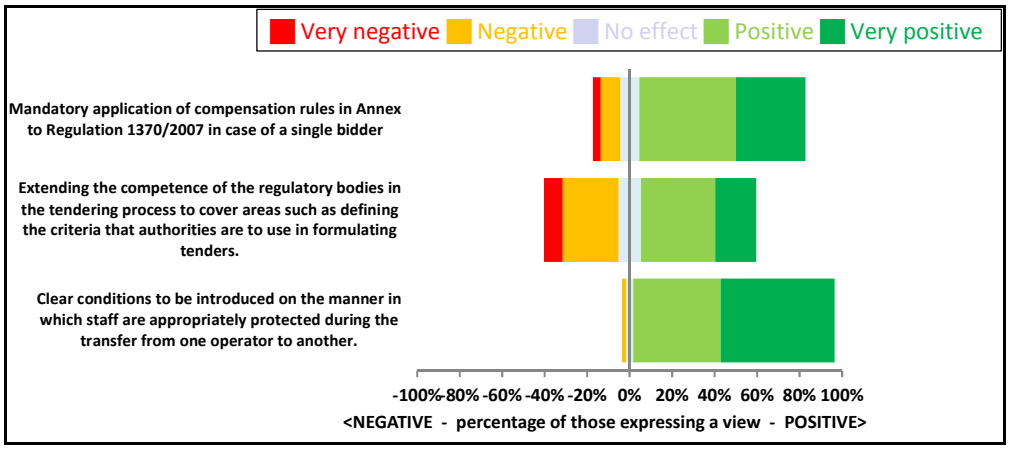
A7.44 Question 4.5a asked:

"What is your view of the organisation of each of the following framework conditions? – Tendering procedures"

- Clear conditions to be introduced on the manner in which staff are protected during the transfer from one operator to another
- Extending the competence of the regulatory bodies in the tendering process to cover areas such as defining the criteria that authorities are to use in formulating tenders
- Mandatory application of compensation rules in Annex to Regulation 1370/2007 in case of a single bidder
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.17 OPTIONS FOR TENDERING CONDITIONS: RATING



A7.45 There were 55-57 responses, with net support (positive less negative) of:

- 95% for clear conditions on staff transfer from one operator to another
- 65% for mandatory application of the compensation rules
- 20% for extending the competence of the Regulatory Bodies

A7.46 Views on clear conditions for staff transfer were mixed:

- Several incumbent RUs suggested that employee protection, and harmonisation of working conditions, were important to guarantee fair competition.
- Public authorities proposed a national legal framework to protect employees.

A7.47 Views on extending the competence of the Regulatory Bodies were evenly spread within respondent types:

- RUs said that they would refer apparent discrimination to the regulatory authorities. Incumbent RUs emphasised the importance of a clear and standardised tendering process, preferably set in law.
- Public authorities suggested that extending the competence of the Regulatory Bodies into the tendering process would have little effect.

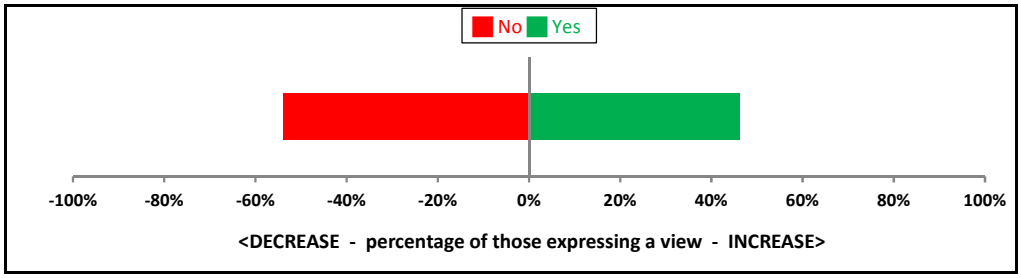
A7.48 Note that the question was not intended to elicit any information on the extent to which the employment rights of railway employees were protected by union agreements, special status, political consensus or policy, or national legal or constitutional provisions.

Intervention by the EU

A7.49 A satellite question asked:

> "Should Public Transport Authorities be subject to defined compliance criteria developed by EU legislation when defining the public service obligations?"
>
> Yes / No / No opinion

APPENDIX FIGURE A.18 OPTIONS FOR TENDERING CONDITIONS: INTERVENTION



A7.50 This question was sent to Passenger RUs, Regulatory Authorities, Ministries and Public Bodies and received 51 responses, of which 39 expressed an opinion:

- 55% said "No"
- 45% said "Yes"

A7.51 Note that the question, and those described below, were not intended to elicit any information on:

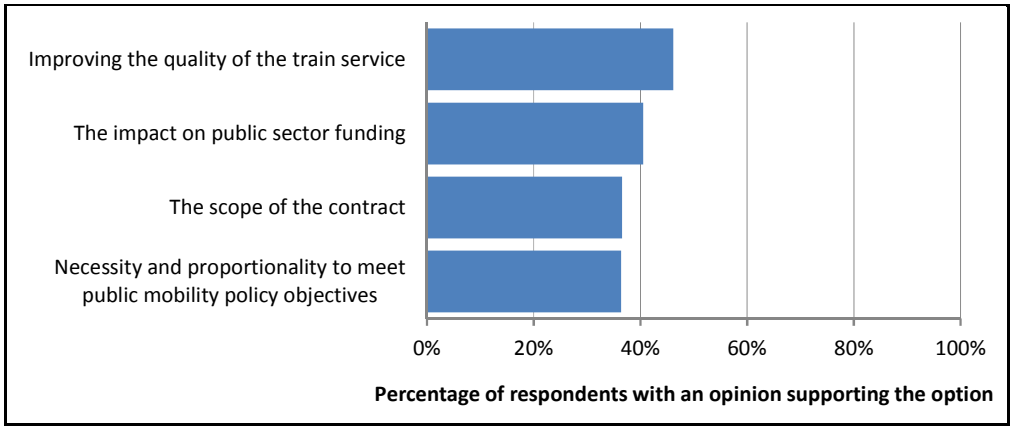
- Whether it would be possible to use compliance criteria to prevent abuse of dominance or remove barriers to entry
- What compliance criteria would include

Intervention by the EU: avoid market foreclosure

A7.52 A satellite question asked:

> "To avoid market foreclosure through excessively broadly defined public service obligations, would you agree that existing EU rules should be made more precise on the following issues?"
>
> - Necessity and proportionality to meet public mobility policy objectives
> - The scope of the contract (i.e. volume, geographical coverage)
> - The impact on public sector funding
> - Improving the quality of the train service
> - Other
>
> Yes / No / No opinion

APPENDIX FIGURE A.19 INTERVENTION: AVOIDING MARKET FORECLOSURE



A7.53 Up to 41 respondents commented on each option, but no option was supported by more than 50% of those with an opinion. Greatest apparent support was for EU rules being made more precise on the issue of improving the quality of the train service.

A7.54 We also examined whether views varied with the type of respondent:

- All PTAs responding were against new EU rules on how they define PSOs
- All other stakeholders were effectively divided equally on this issue

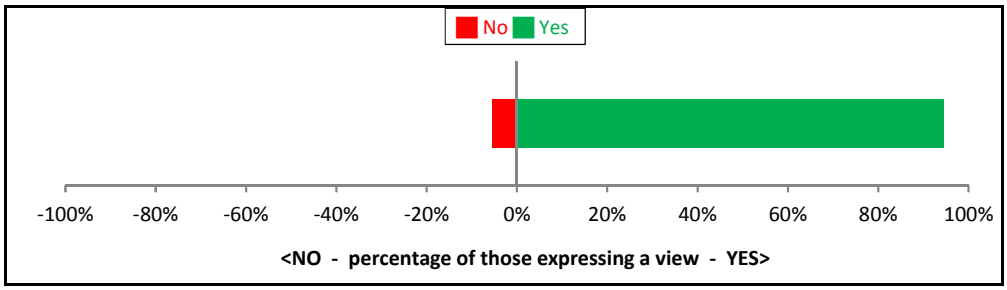
A7.55 Note that the question was not intended to elicit any information on how many "more precise rules" would be required and how they would be drafted, approved and updated.

Intervention by the EU: consultation

A7.56 A satellite question asked:

> "Should the relevant stakeholders be consulted on the above mentioned criteria before they are enacted?"
>
> Yes / No / No opinion

APPENDIX FIGURE A.20 INTERVENTION: CONSULTATION



A7.57 The question was sent to Passenger RUs, Regulatory Bodies, Ministries and Public Bodies. In total, 37 respondents provided an opinion and 95% agreed that consultation would be needed.

A7.58 Note that the question was not intended to elicit any information on the stakeholders who would be consulted or the frequency of consultation.

A8 POLICY OPTIONS FOR OPEN ACCESS

Open access: past experience

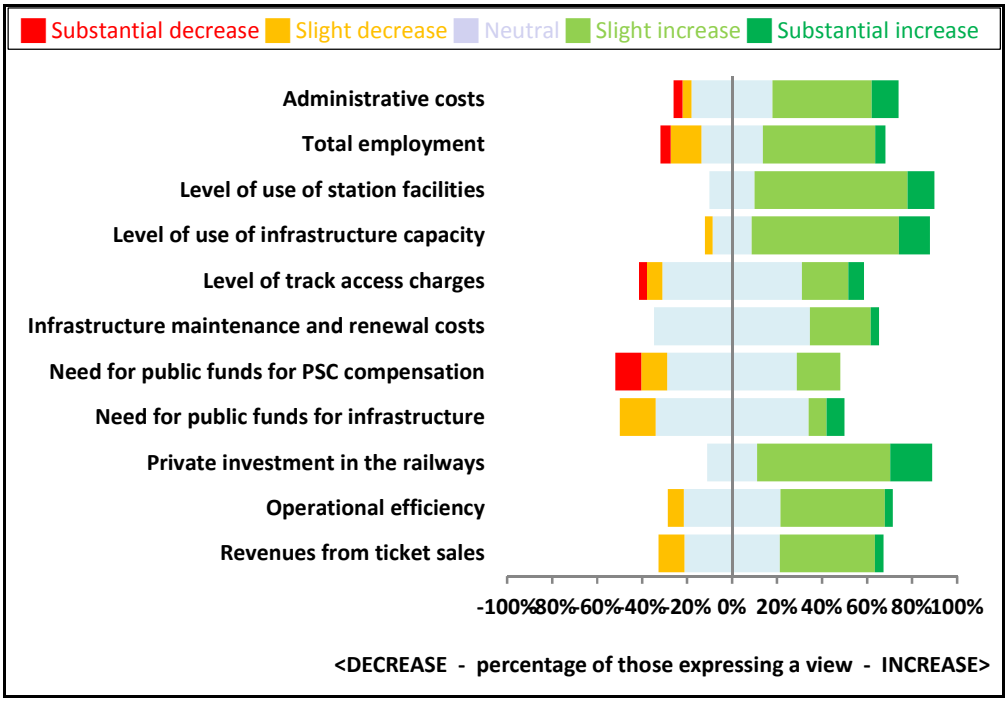
A8.1 A satellite question asked:

"Where services have been opened through open access competition, what were the effects in your area of responsibility for the following?"

- Revenues from ticket sales
- Operational efficiency
- Private investment in the railways
- Need for public funds for infrastructure investment
- Need for public funds for public service contracts compensation
- Infrastructure maintenance and renewal costs
- Level of track access charges
- Level of use of infrastructure capacity
- Level of use of station facilities
- Total employment (size of workforce)
- Administrative costs (e.g. costs of interface with other parties, costs of tendering process)
- Other

Substantial increase / Slight increase / Neutral / Slight decrease / Substantial decrease / No opinion

APPENDIX FIGURE A.21 OPEN ACCESS: PAST EXPERIENCE



A8.2 This question was sent to all stakeholders except Freight RUs. While a maximum of 21 respondents replied to any part of the question, it appears that open access was thought to:

- Reduce the need for public funds for PSC compensation, total employment and the level of track access charges
- Increase use of stations and infrastructure and private investment in the railways

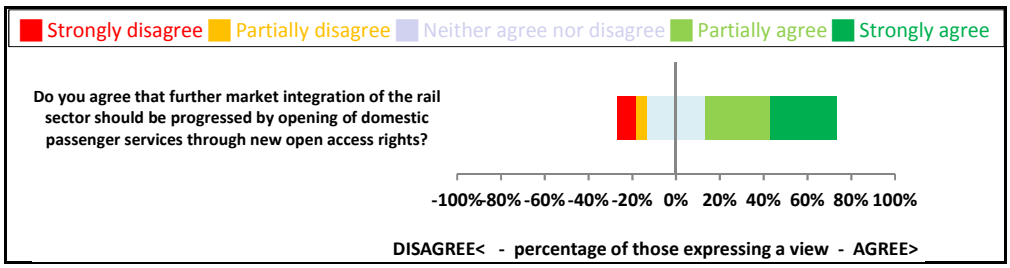
A8.3 Note that the question was not intended to elicit any information on the reasons for these responses, but it is unclear why respondents though that open access would reduce the level of track access charges.

Open access: views

A8.4 Question 4.1a asked:

> "Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through new open access rights?"
>
> Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

APPENDIX FIGURE A.22 OPEN ACCESS: VIEWS



A8.5 A total of 82 responses and 42 comments were received. Of those responding, 60% agreed and 15% disagreed:

- Most of those agreeing with Transport Ministries and National Bodies.
- Most "Holdings/groups" neither agreed nor disagreed that market integration should be progressed through open access.

A8.6 Responses varied by the type of respondent:

- Most of the supporters were Transport Ministries and National Authorities
- Most holding companies and groups neither agreed not disagreed

A8.7 Of the comments received, the most common themes were that:

- The issues were different in each Member State.
- Open access could lead to cherry-picking and worsen the industry's finances.
- Framework conditions would be needed to protect wages and working conditions and to ensure that long term investments, such as in rolling stock, could still be made.

A8.8 Incumbent RUs suggested that, rather than benefitting passengers, open access to congested infrastructure would increase complexity and the risk of disruption and hence worsen punctuality. One argued that market opening should only proceed if reciprocal conditions were guaranteed at a European level, suggesting that reciprocity would incentivise IMs not to discriminate.

A8.9 A new entrant RU mentioned that passengers value integrated services more than open access, and that competition should be by tendering (for the market) rather than open access (in the market).

A8.10 Public transport authorities commented that open access had delivered a variety of useful new services but that these focus on profitable long-distance travel. They also noted the issue of cherry-picking open access services increasing the subsidies required for existing PSO services. However, some suggested that open access in all Member States would help increase competition in the rail sector.

Open access: expected benefits

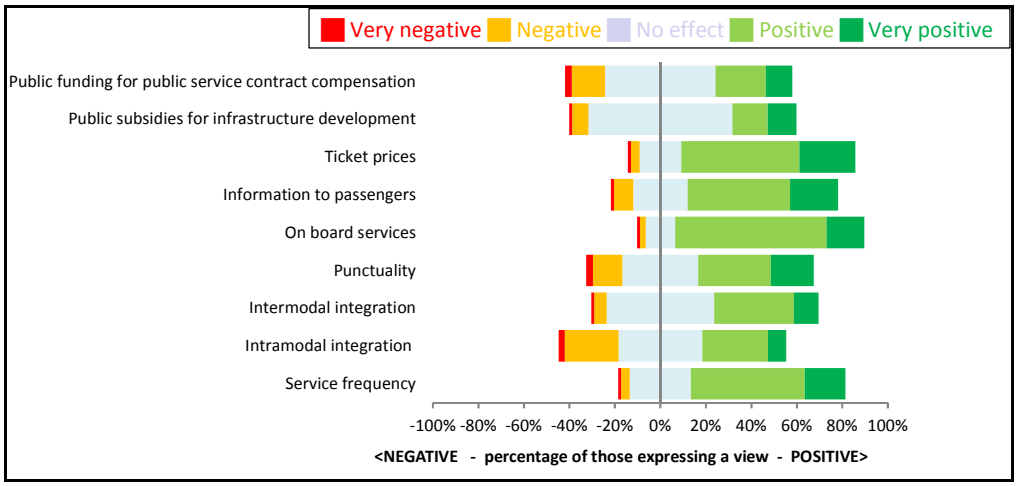
A8.11 Question 4.1b asked:

"What effect would further market opening (through new open access rights in the domestic market) have in the following areas?"

- Service frequency
- Intramodal integration (between rail services of different operators including through-ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- Punctuality
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.23 OPEN ACCESS: EXPECTED BENEFITS



A8.12 Net expectations ("very positive" and "positive" less "negative" and "very negative") varied from 20% to 80%, with:

- High net expectations for on board services and ticket prices
- Low expectations for PSC compensation and intramodal integration

A8.13 Note that the question was not intended to elicit any information on the choice between lower ticket prices and inter-available ticketing.

A8.14 Respondents provided a total of 33 comments.

A8.15 Incumbent RUs generally expected that further market opening would be detrimental, arguing that:

- Demand for open access would be greatest on congested routes where it would worsen punctuality, with little benefit elsewhere
- Price competition for market share between incumbents and open access operators might not be sustainable

A8.16 The only association of RUs responding suggested that:

- Open access services would emerge where there was customer demand and be customer-focused
- Customers do not usually want a choice of operator

A8.17 Public Transport Authorities suggested that open access would have little impact, but that a legal framework would be needed to enforce cooperation between open access operators to maintain intramodal and intermodal integration.

A8.18 Workers' representatives raised the issues of:

- Different fares on profitable and unprofitable lines
- Reduced punctuality
- The appearance of old rolling stock in the market

Open access: options

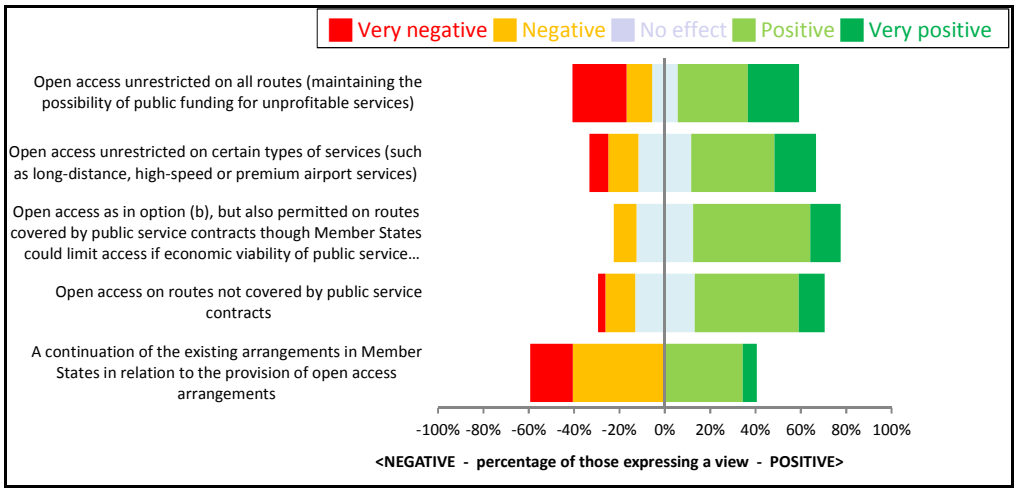
A8.19 Question 4.3a asked:

"If some or all of your network were to be opened to open access operations, please outline your views on the following ways in which such a policy might be implemented"

- A continuation of the existing arrangements in Member States in relation to the provision of open access arrangements
- Open access on routes not covered by public service contracts
- Open access as above, but also permitted on routes covered by public service contracts, though Member States could limit access if the economic viability of a public service contract is affected
- Open access unrestricted on certain types of services (such as long-distance, high-speed or premium airport services)
- Open access unrestricted on all routes (maintaining the possibility of public funding for unprofitable services)
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.24 OPEN ACCESS: OPTIONS: RATING



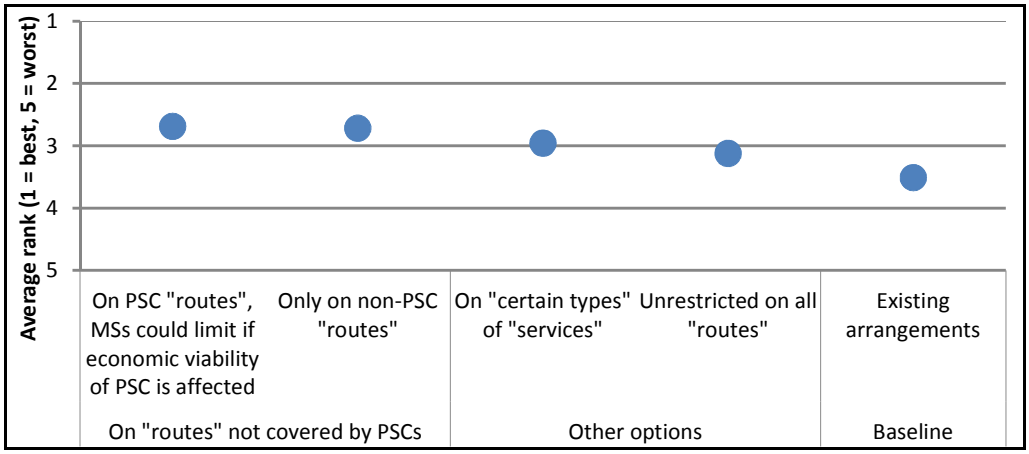
A8.20 Question 4.3b asked:

"Please rank the following options for which you believe there will be a positive or very positive effect from the one which you think is most appropriate to meet the objectives presented in Section D to the one which is the least appropriate"

- A continuation of the existing arrangements in Member States in relation to the provision of open access arrangements
- Open access on routes not covered by public service contracts
- Open access as above, but also permitted on routes covered by public service contracts, though Member States could limit access if the economic viability of a public service contract is affected
- Open access unrestricted on certain types of services (such as long-distance, high-speed or premium airport services)
- Open access unrestricted on all routes (maintaining the possibility of public funding for unprofitable services)
- Other

1 / 2 / 3 / 4 / 5

APPENDIX FIGURE A.25 OPEN ACCESS: OPTIONS: RANKING



A8.21 All options received all possible rankings from 1 to 5 from at least one respondent. Not all respondents ranked any factors, some respondents ranked only some of the factors, and some respondents gave two or more factors equal rank. We normalised the results to give an average ranking of all factors of 3.

A8.22 From 32 to 71 respondents offered a rating on Question 4.3a and from 46 to 53 offered a ranking on Question 4.3b. We concluded that the responses to the two questions were broadly consistent, and in particular that:

- Open access subject to the viability of PSC services received the best net positive rating (55%) on Question 4.3a and the best average ranking (2.7) on Question 4.3b.
- Continuation of existing arrangement received the worst net negative rating (20%) on Question 4.3a and the worst average ranking (3.5) on Question 4.3b.

A9 POLICY OPTIONS FOR COMPULSORY COMPETITIVE TENDERING

Competitive tendering: past experience

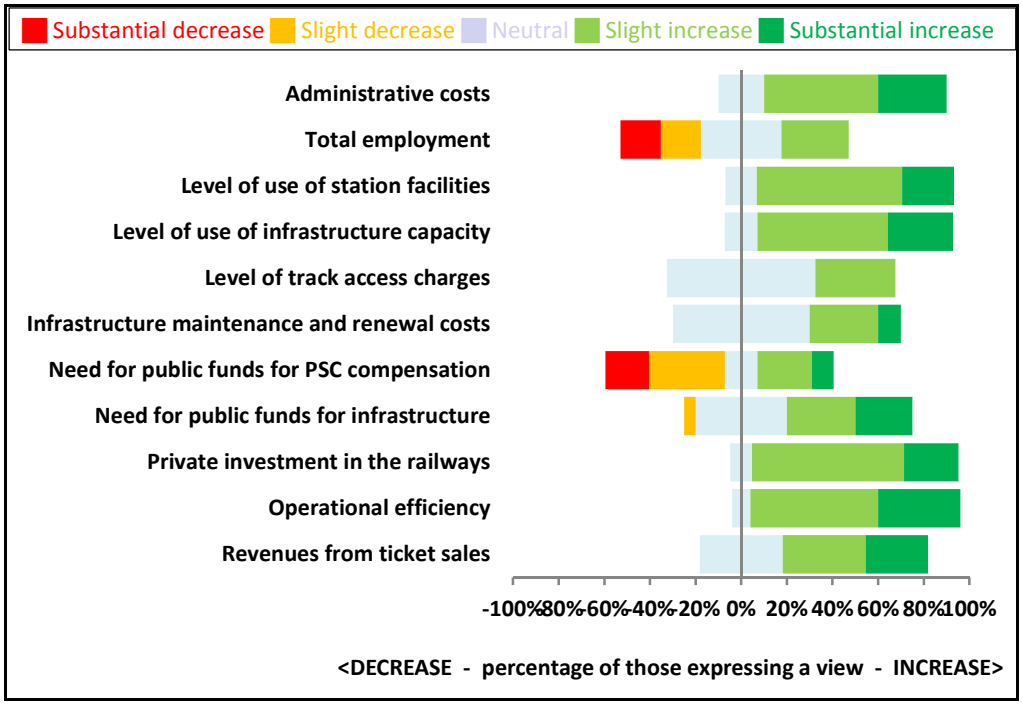
A9.1 A satellite question asked:

"Where markets have been opened through competitive tendering of public service contracts, what were the effects in your area of responsibility for the following?"

- Revenues from ticket sales
- Operational efficiency
- Private investment in the railways
- Need for public funds for infrastructure investment
- Need for public funds for public service contracts compensation
- Infrastructure maintenance and renewal costs
- Level of track access charges
- Level of use of infrastructure capacity
- Level of use of station facilities
- Total employment (size of workforce)
- Administrative costs (e.g. costs of interface with other parties, costs of tendering process)
- Other

Substantial increase / Slight increase / Neutral / Slight decrease / Substantial decrease / No opinion

APPENDIX FIGURE A.26 COMPETITIVE TENDERING: PAST EXPERIENCE



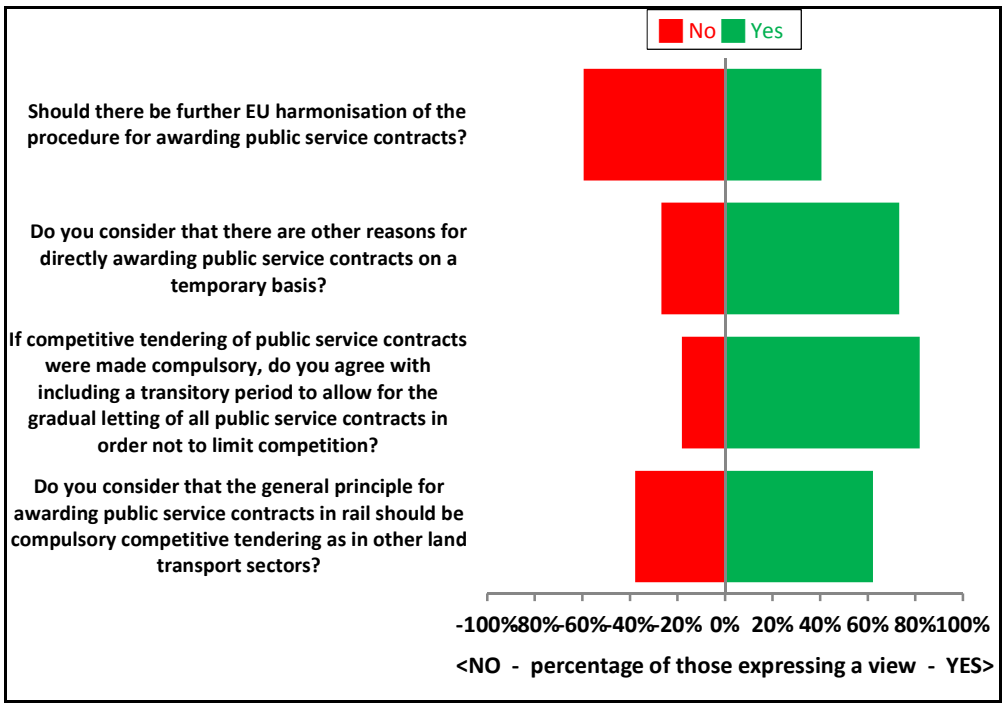
A9.2 The question was sent to all stakeholders except Freight RUs and leasing companies. While a maximum of 25 respondents replied to any part of the question, it appears that open access was thought to:

- Reduce total employment and the need for public funds for PSCs
- Increase operational efficiency, use of stations and infrastructure, revenue from ticket sales and private investment, but also administrative costs

Competitive tendering: other issues

A9.3 A satellite question asked about a number of other issues.

APPENDIX FIGURE A.27 COMPETITIVE TENDERING: OTHER ISSUES



A9.4 There were 41-45 respondents with an opinion on each question, with:

- Most net disagreement with any further EU harmonisation of the procedure for awarding public sector contracts.
- Most net agreement that, in the event that competitive tendering were made compulsory, there should be a transition period.

A9.5 We examined the responses by category of respondent and noted that:

- Workers' Representatives were generally against any compulsory competitive tendering.
- Passenger RUs were generally against further harmonisation.
- Regulatory Bodies, Competition Authorities, Passenger Transport Authorities and passenger organisations (who can be seen as representing the sector's regulators and customers) were generally for the principle of compulsory tendering.
- Ministries and PTAs all thought there were reasons for temporary direct awards.

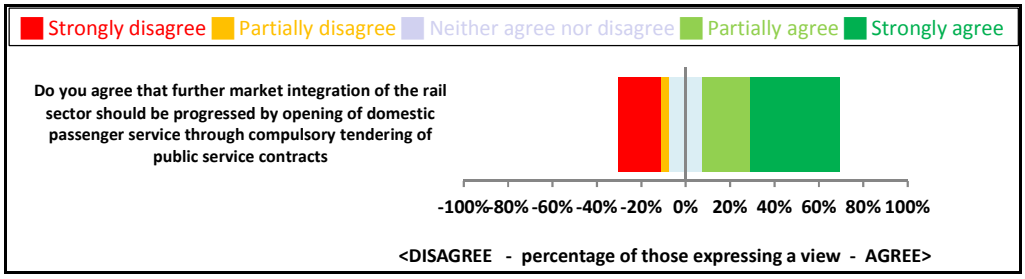
- All groups were in favour of a transition period (except of Workers' Representatives, who were most against any form of competitive tendering).

Competitive tendering: views

A9.6 Question 4.2a asked:

> "Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through compulsory competitive tendering for public service contracts?"
>
> Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

APPENDIX FIGURE A.28 COMPETITIVE TENDERING: VIEWS



A9.7 There were 79 responses, of which:

- 60% agreed
- 20% disagreed

A9.8 Note that the question was not intended to elicit any information on:

- What framework conditions would be desirable or necessary to facilitate compulsory competitive tendering
- The size of duration of contracts
- Whether contracts should be tendered on a gross cost or net cost basis
- the choice between lower ticket prices and inter-available ticketing

A9.9 Views among RUs varied:

- Several incumbent RUs commented that effective compulsory competitive tendering for PSCs would depend principally on the availability of state funding, and that there would be no new entry if this was inadequate.
- The only new entrant RU responding stated that all PSCs with a duration of more than 3 years should be competitively tendered.

A9.10 Among associations of RUs:

- Several suggested that compulsory competitive tendering would bring benefits such as increased efficiency and quality, as new entrants would develop different solutions and new ideas.
- One stated that competitive tendering would only make sense if it would actually provide higher quality and reduce the costs of these services to taxpayers and customers, and that evidence from Germany was that competitive tendering was not always the best means of awarding PSCs.

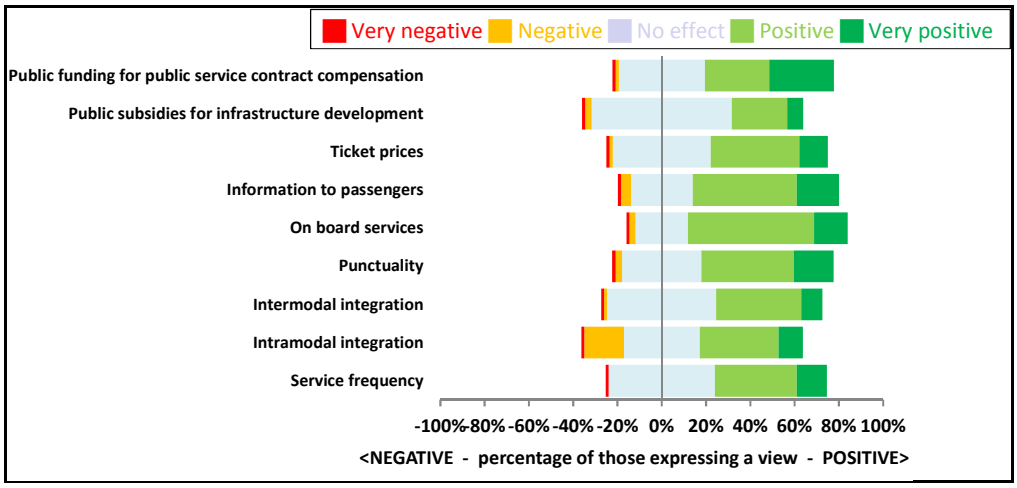
A9.11 Public Transport Authorities reported that competitive tendering had provided good services, but would increase administrative costs, and should only be applied where it could be shown to deliver value for money. Some said that the evidence from Great Britain was that it does not always reduce costs to the public sector.

Competitive tendering: expected benefits

A9.12 Question 4.2b asked:

> "What effect would further market opening (through compulsory competitive tendering for public service contracts) have in the following areas?"
>
> - Service frequency
> - Intramodal integration (between rail services of different operators including through-ticketing)
> - Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
> - Punctuality
> - On board services (e.g. train cleanliness, air conditioning, etc.)
> - Information to passengers
> - Ticket prices
> - Public subsidies for infrastructure development
> - Public funding for public service contract compensation
>
> Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.29 COMPETITIVE TENDERING: EXPECTED BENEFITS



A9.13 Net expectations (positive less negative) were positive for all options but varied from 25-70%, with:

- High net expectations for on board services and passenger information.
- Lower net expectations for public subsidies and intramodal integration.

A9.14 Many respondents suggested that the tender structure and process must be tailored to the situation.

Competitive tendering: options

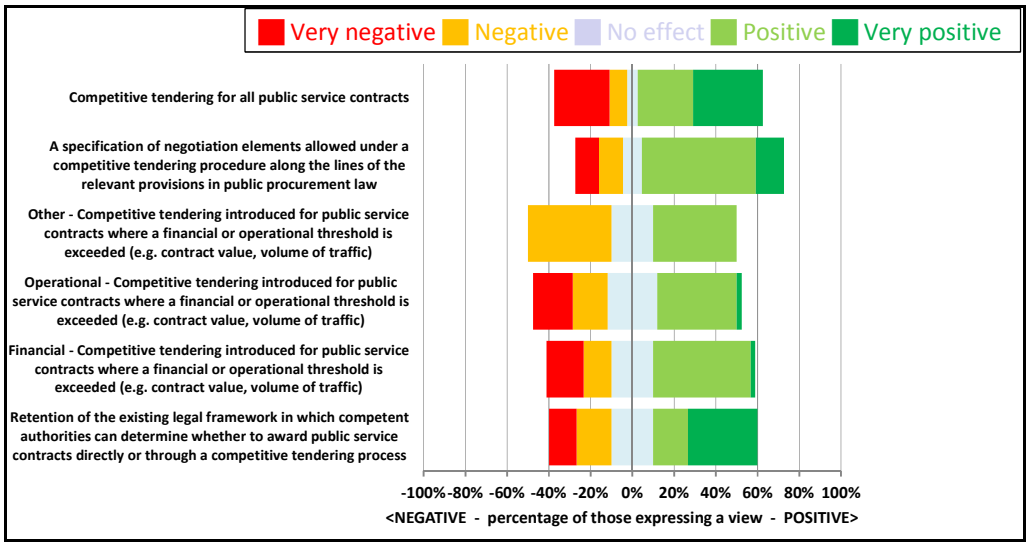
A9.15 Question 4.4a asked:

"If some or all of your network were subject to competitive tendering, please outline your views on the following ways in which such a policy might be implemented"

- Retention of the existing legal framework in which competent authorities can determine whether to award public service contracts directly or through a competitive tendering process
- Competitive tendering introduced for public service contracts where a financial or operational threshold is exceeded (e.g. contract value, volume of traffic):
- Financial: where the total contract value is greater than a predetermined figure
- Operational: where the contract covers more than a predetermined percentage of the total network according to an agreed metric
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.30 COMPETITIVE TENDERING: OPTIONS: RATING



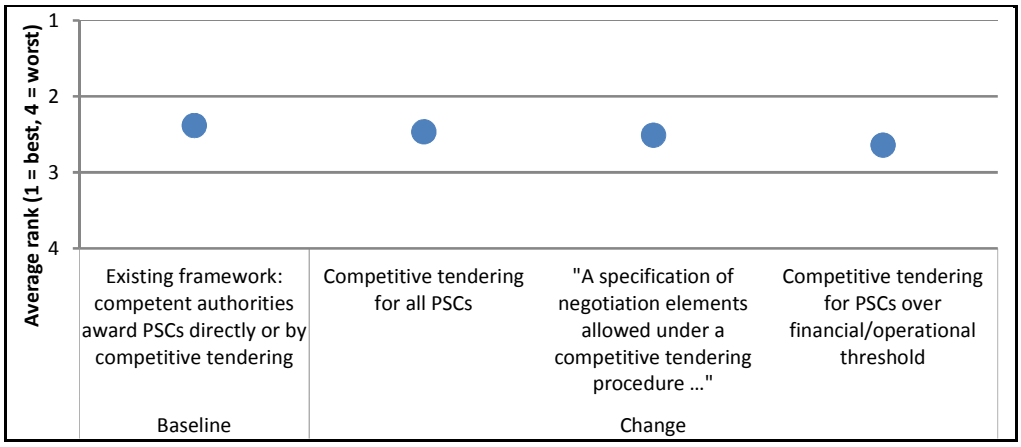
A9.16 Question 4.4b asked:

"Please rank the following options for which you believe there will be a positive or very positive effect in relation to the degree to which they meet the objectives presented in Section D"

- Retention of the existing legal framework in which competent authorities can determine whether to award public service contracts directly or through a competitive tendering process
- Competitive tendering introduced for public service contracts where a financial or operational threshold is exceeded (e.g. contract value, volume of traffic)
- A specification of negotiation elements allowed under a competitive tendering procedure along the lines of the relevant provisions in public procurement law
- Competitive tendering for all public service contracts
- Other

1 / 2 / 3 / 4 / 5

APPENDIX FIGURE A.31 COMPETITIVE TENDERING: OPTIONS: RANKING



A9.17 We found it difficult to draw firm conclusions from the responses to Question 4.4a and Question 4.4b.

A9.18 On Question 4.4a, 42-60 respondents expressed an opinion on each option. The most positive response was for "A specification of negotiation elements allowed under a competitive tendering process along the lines of the relevant provisions in public procurement law". However, a number of respondents commented that they did not understand what this meant.

A9.19 On Question 4.4b, 44-56 respondents ranked each option. All options received all possible rankings from 1 to 4 from at least one respondent. Not all respondents ranked any factors, some respondents ranked only some of the factors, and some respondents gave two or more factors equal rank. We normalised the results to give an average ranking of all factors of 2.5. The overall result was almost no variation in average ranking, from 2.4 for a continuation of existing arrangement to 2.6 for competitive tendering for PSCs above a financial or operational threshold. There was no evidence for the variation in rating given in Question 4.4a.

A10 POLICY OPTIONS COMPARISON AND COMBINATIONS

A10.1 We summarise in this section the main policy options of open access and compulsory competitive tendering:

- In comparison with each other
- In combinations with each other

Options comparison: past experience

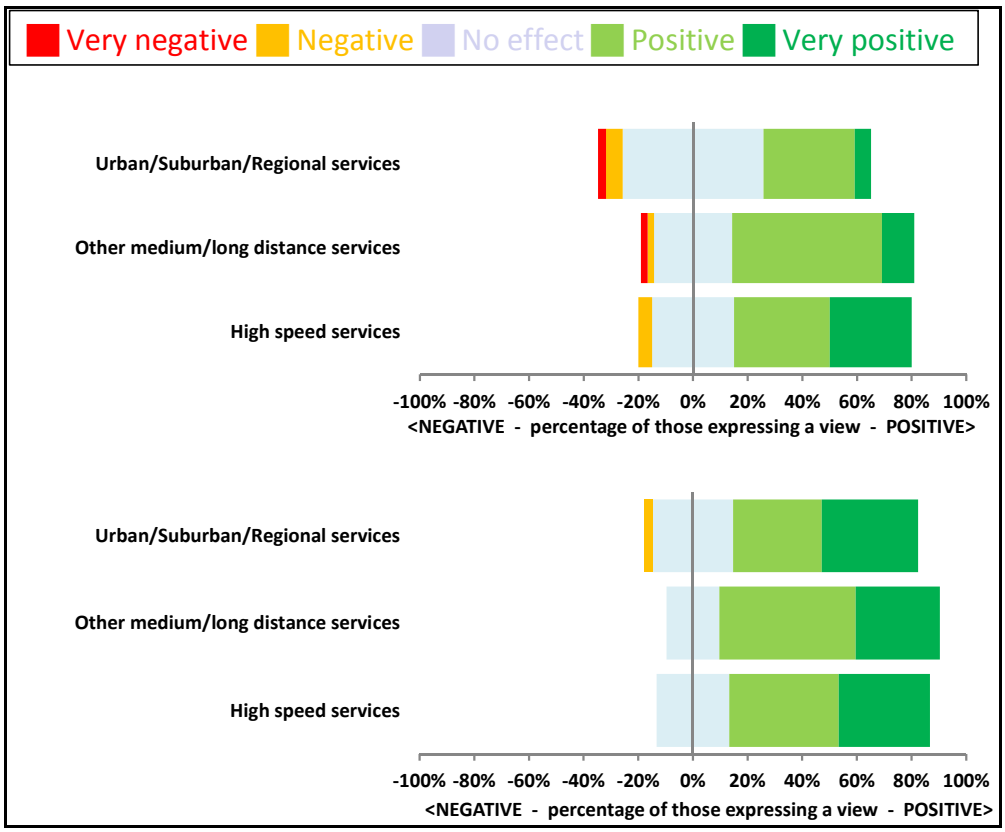
A10.2 Satellite questions asked, of both open access and compulsory competitive tendering:

"Where services have been opened through [], how successful has it been in increasing rail demand?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services
- Please specify other services

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.32 OPTIONS COMPARISON: PAST EXPERIENCE



A10.3 The satellite questions were both sent to all stakeholders except Freight RUs. There were from 20-42 responses on open access and from 15-34 responses on compulsory competitive tendering.

A10.4 The principal finding appears to be that stakeholders were generally slightly more positive about compulsory competitive tendering than open access. In particular, there were no very negative comments on compulsory competitive tendering.

A10.5 Note, however, that responses to this question relate to respondents' past experience, rather than to approval, or expectations, of any particular combination of future options and the necessary framework conditions.

Options comparison: future expectations

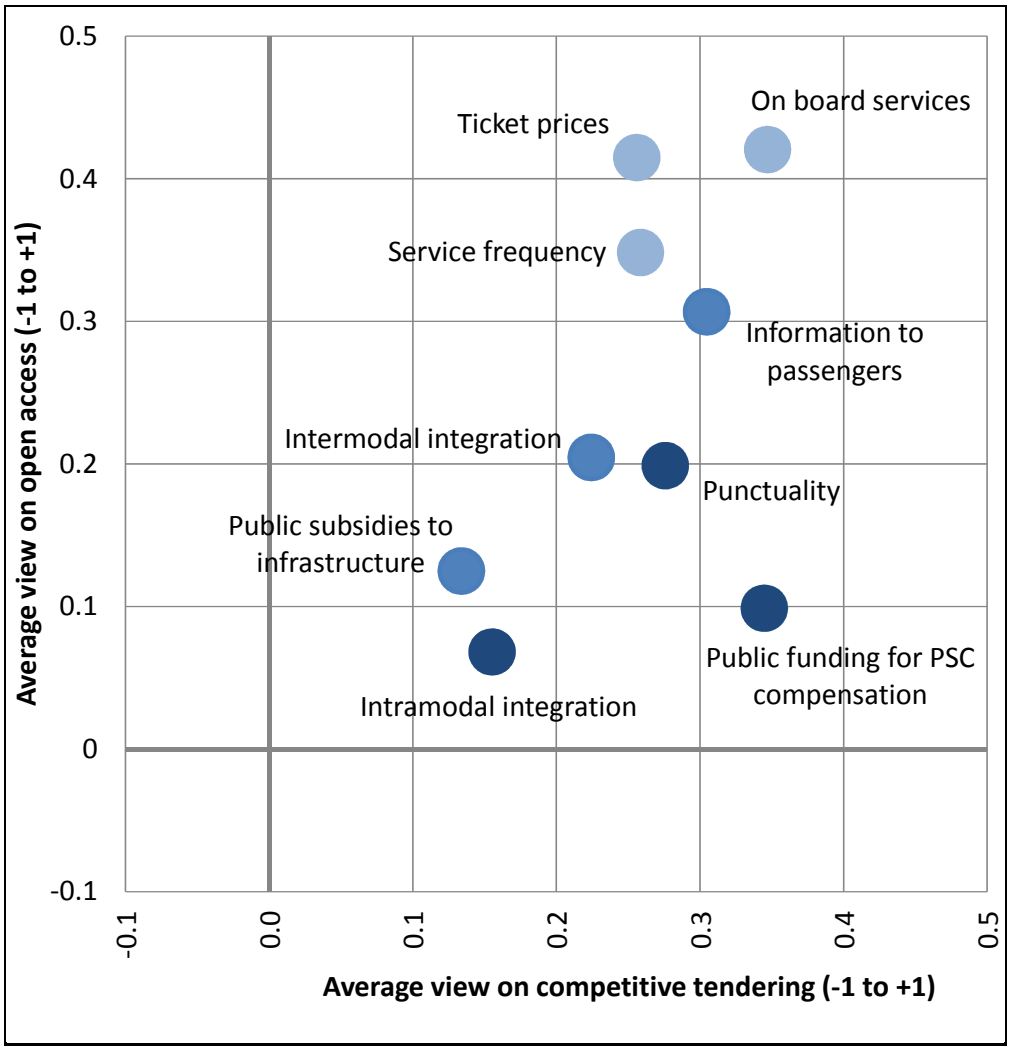
A10.6 Question 4.1b and Question 4.2b asked:

"What effect would further market opening through [] have on the following areas" [Comparison of responses on open access and competitive tendering]

- Service frequency
- Intramodal integration (between rail services of different operators including through-ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- Punctuality
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

Very positive / Positive / No effect / Negative / Very negative / No opinion

APPENDIX FIGURE A.33 OPTIONS COMPARISON: FUTURE EXPECTATIONS



A10.7 Converting the ratings for each option in Questions 4.1b and 4.2b to a linear scale from -1 to +1, we plotted them against each other on an XY grid. We found that:

- Ratings of both options were positive on all factors
- Ratings were generally consistent and close to the diagonal

A10.8 Both options were expected to have:

- Least effect on intramodal integration and subsidies to infrastructure
- Most effect on onboard services and ticket prices

A10.9 However:

- Open access was expected to have a greater effect (lighter bullets) on ticket prices, service frequency and on board services.
- Compulsory competitive tendering was expected to have a greater effect (darker bullets) on funding for PSC compensation, intramodal integration and punctuality.

Options combinations

A10.10 Question 4.3b and Question 4.4b asked respondents to provide rankings on options for open access and compulsory competitive tendering, and so we examined what pairs of options were ranked first by respondents, as shown below.

APPENDIX TABLE A.6 OPTIONS COMBINATIONS: RANKINGS

Number of respondents ranking both an open access option and a competitive tendering option as "1"			Competitive tendering options			
			Baseline	Change		
			Existing arrangements	"Specification of negotiation…"	PSCs over a threshold	All PSCs
Open access options	Baseline	Existing arrangements	6	1		2
	"Routes" without PSCs	Only non-PSC routes	1		2	5
		On other routes, with an economic viability test	3		2	6
	Other options	Certain types of services	2			2
		Unrestricted on all routes	2	1	2	11

Note: cell value is number of respondents ranking both options "1"

APPENDIX TABLE A.7 OPTIONS COMBINATIONS: RATINGS

Number of respondents rating both an open access option and a competitive tendering option "very positive" or "positive"			Competitive tendering options			
			Baseline	Change		
			Existing arrangements	"Specification of negotiation…"	PSCs over a threshold	All PSCs
Open access options	Baseline	Existing arrangements	7	6	5	6
	"Routes" without PSCs	Only non-PSC routes	8	17	15	22
		On other routes, with an economic viability test	9	10	14	24
	Other options	Certain types of services	9	10	14	24
		Unrestricted on all routes	9	19	13	22

Note: cell value is number of respondents rating both options "very positive" or "positive"

A10.11 The tables above show the small number of respondents and in particular, as a consequence, the small proportion of options combinations ranked "1". However, it is also clear that the patterns in the tables are different.

A10.12 Combinations of rankings in Appendix Table A.6 suggest that respondents favoured the corners of the table:

- 6 ranking "1" for the Baseline of existing arrangements
- 11 ranking "1" for compulsory competitive tendering of all PSC services, with unrestricted open access on all routes, with lower numbers ranking "1" for compulsory competitive tendering and other open access options

A10.13 Combinations of ratings in Appendix Table A.7 suggest that respondents favour change rather than the baseline:

- 22-24 positive responses for compulsory competitive tendering of all PSCs and some option for open access
- 10-19 positive responses for "A specification of negotiation elements …" and some open access option
- 8-9 positive responses for open access but no compulsory competitive tendering
- 5-6 positive response for compulsory competitive tendering but no open access

A10.14 We carried out a more detailed analysis of the 44 respondents who had ranked at least option "1" in both Question 4.3b and Question 4.4b. Some had ranked more than one option "1" (resulting in a total of 48 in the table), including:

- 17 National Bodies, who had collectively given rank "1" to every option
- 8 Associations/Representatives, who had collectively given rank "1" to every option except competitive tendering subject to a financial or operational threshold
- 5 Holdings/Groups, all of whom had chosen different pairs of options (including, for open access, existing arrangements, unrestricted open access, and open access subject to a test of the economic viability of PSCs)
- 4 or fewer responses from all other types of respondent

A10.15 In summary, we found no consistency either between respondents' rankings and ratings or between the rankings given by particular types of respondent.

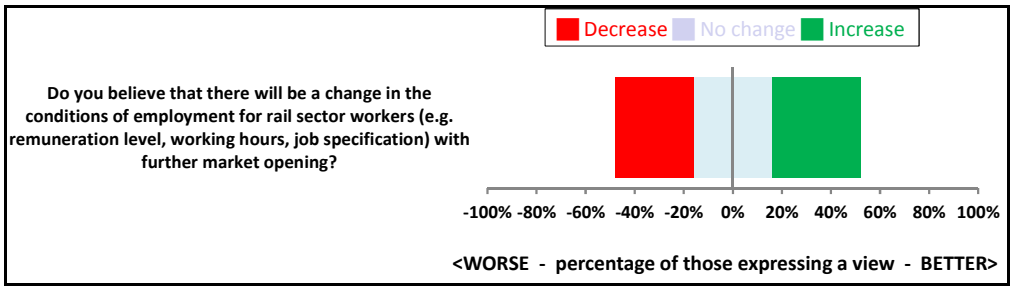
A11 POLICY OPTIONS AND EMPLOYMENT ISSUES

Workers' conditions

A11.1 A satellite question asked:

> "Do you believe that there will be a change in the conditions of employment for rail sector workers (e.g. remuneration level, working hours, job specification) with further market opening?"
>
> Improvement/ Worsening / No change / No opinion

APPENDIX FIGURE A.34 POLICY OPTIONS: WORKERS' CONDITIONS



A11.2 The question was sent to all stakeholders except passenger organisations and rolling stock leasing companies. There were 50 responses with an opinion, comprising:

- 4 Workers' Representatives, of whom:
  - 3 said that working conditions would become worse
  - 1 said that working conditions would become better
- 46 other respondents with opinions broadly evenly divided among responses:
  - 30% said that working conditions would become worse
  - 35% said there would be no change
  - 35% said that working conditions would become better
  - Industrial action

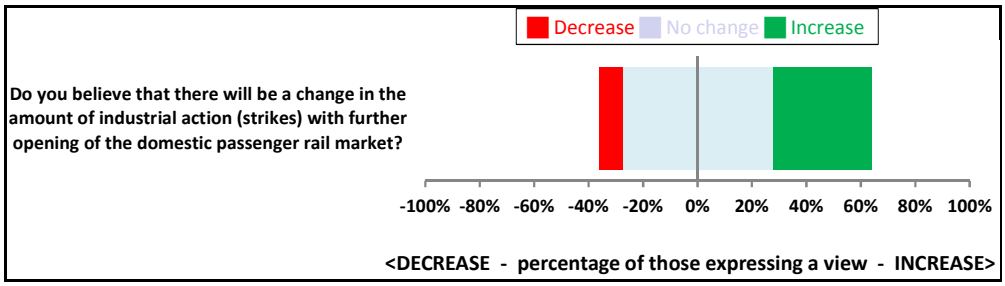
A11.3 The question was not intended to elicit any information on which policy options would have the predicted effects on working conditions.

Employment

A11.4 A satellite question asked:

> "Do you believe that there will be a change in the amount of industrial action (strikes) with further opening of the domestic passenger rail market?"
>
> Increase / Decrease / No change / No opinion

APPENDIX FIGURE A.35 POLCIY OPTIONS: INDUSTRIAL ACTION



A11.5 The question was sent to all stakeholders except passenger organisations and rolling stock leasing companies. There were 47 responses with an opinion, comprising:

- 3 Workers' Representatives, all of whom predicted more strikes
- 446 other respondents with opinions:
  - 30% predicted more strikes
  - 60% said there would be no change
  - 10% predicted fewer strikes
  - Industrial action

A12 SUMMARY

Problems

A12.1 On problems, the main concerns of stakeholders were:

- Infrastructure constraints, mentioned by 85% of respondents to Question 2.2 and 75% of all respondents
- Finance, mentioned in many comments

A12.2 The Commission reminded us that infrastructure constraints and finance are outside the scope of the current study and the Fourth Package initiative.

Objectives

A12.3 Between 40% and 70% of respondents agreed with the objectives of the policy initiative set out in Question 3.1.

Options for unbundling

A12.4 Five unbundling options all received every ranking from 1 to 5. Existing separation requirements received the best average ranking, but results were polarised:

- "Existing separation requirements" was generally favoured by holdings/groups, Associations and representatives and Workers' representatives
- "Institutional separation applied to all functions of the Infrastructure Manager" was generally favoured by Transport Ministries, Regulators, Competition Authorities, Freight RUs, new entrant Passenger RUs and passenger representative organisations

A12.5 Of those with an opinion, independence of decision-making to ensure non-discrimination received support of:

- 80%, for infrastructure charging
- 75%, for capacity allocation
- 50%, for infrastructure planning and financing
- 40%, for infrastructure maintenance activities

A12.6 Creation of a specific body including representatives of all infrastructure users to ensure that their interests are duly taken into consideration received 65% support.

Options for market opening

A12.7 Open access and compulsory competitive were both expected to have:

- Greatest benefit to on board services, ticket prices and passenger information
- Least benefit to public subsidies to infrastructure and intramodal integration

A12.8 Five open access options all received every ranking from 1 to 5:

- Open access was considered more likely than compulsory competitive tendering to lower ticket prices
- In some questions, the preferred option was open access everywhere, subject to protection of the viability of PSC services

A12.9 Four compulsory competitive tendering options all received every ranking from 1 to 4:

- Compulsory competitive tendering was considered more likely than open access to reduce funding for PSCs
- In some questions, stakeholders preferred "A specification of negotiation elements …" although some stakeholders did not understand what this meant
- In other questions, stakeholders preferred continuation of existing arrangements

A12.10 Examining combinations of policy options preferred by stakeholders, there was:

- An apparent preference for compulsory competitive tendering of all PSCs
- No apparent preference for any open access option

A12.11 In summary, depending on the question:

- For open access, there was either:
  - No preference for any option
  - Preference for open access everywhere, subject to protection of the viability of PSC services
- For compulsory competitive tendering, there was a preference either for:
  - Compulsory competitive tendering of all PSCs
  - "A specification of negotiation elements …"
  - Continuation of existing arrangements

A12.12 Workers representatives expect that any market opening will result in worse working conditions and more strikes. Other stakeholders' views are more diverse, but many expect more strikes.

Framework conditions

A12.13 The extent of support for framework conditions other than unbundling varied:

- Support for the creation of rolling stock companies depended on the question
- There was support for ticket inter-availability but not for through-ticketing
- There was support for "clear conditions" on staff transfer
- There was minority support for EU development of PSC compliance criteria on PTAs, but overwhelming support for consultation on any such compliance criteria

A12.14 Views were particularly polarised on:

- Extension of the competences of the Regulatory Bodies
- Unbundling: strong support for the existing situation and for full separation

APPENDIX

B

STAKEHOLDER QUESTIONNAIRE

B1 COMMON QUESTIONS

B1.1 The common questions comprised five sections as follows:

- Section A: Your organisation
- Section B: The quality of rail services in the EU
- Section C: Issues affecting the quality of rail passenger services in the EU
- Section D: The objectives of this policy initiative
- Section E: Policy options

Section A Your organisation

B1.2 Section A asked respondents to categorise and name their organisation and to list the EU Member States in which it was active.

Section B The quality of rail services in the EU

Question 1.1

Following from the description set out above, are there any other aspects relating to the quality

Yes / No / No opinion

Question 1.2a

How would you rate the quality of rail services in your home country?

- Rail passenger services
- Rail freight services

1 / 2 / 3 /4 /5

Question 1.2b and Question 1.2c

"Looking at other countries you operate in, where do you think the quality of the passenger/freight rail sector is a problem?"

You can select more than one Member State

Question 1.3

"Do you consider quality issues are different for passenger services provided under public service contracts and those provided by open access?"

Yes / No / No opinion

Question 1.4

"To what extent do you think that the quality of rail services affects the competitiveness of the rail sector in the country(ies) you operate in?"

- Freight services
- Passenger services

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 1.5a

"To what extent do you believe that the following quality and financial elements affect demand for rail passenger services?"

Quality elements

- Service frequency
- Intramodal integration (between rail services of different operators including through ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- Punctuality
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers

Financial elements

- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 1.5b

"To what extent do you believe that the following quality elements affect demand for rail freight services?"

- Reliability
- Punctuality
- Service offer adapted to customers' needs
- P rice
- Intermodality

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 1.5c

"Please rank the following elements from the one with the greatest importance to the one with the least importance for the competitiveness of the rail sector?"

- Service frequency
- Intramodal integration (between rail services of different operators including through ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

1 / 2 / 3 / 4 / 5 / 6 / 7 / 8

Question 1.5d

"Please rank the following elements from the one with the greatest importance to the one with the least importance for the competitiveness of the rail sector, unless you have indicated "no opinion" or "not at all" in question 1.5b."

- Reliability
- Punctuality
- Service offer adapted to customers' needs
- Price
- Intermodality

1 / 2 / 3 / 4 / 5

Section C: Issues affecting the quality of rail passenger services in the EU

Question 2.1

"To what extent do you agree that the following aspects affect the quality of rail services and have an impact on the competitiveness of the rail sector in the EU?"

- Access barriers for railway undertakings
- Discriminatory framework conditions (e.g. access to rail-related services and rolling stock, etc.)
- Inadequate regulatory oversight
- Lack of competitive incentives on railway undertakings to improve quality/reduce fares
- Other

Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

Question 2.2

"To what extent do you believe that the following factors contribute to each of the problems listed in the previous question?"

a) Access barriers for railway undertakings to the rail sector

- Constraints concerning access to rail-related services
- Infrastructure capacity constraints
- Constraints on rolling stock availability
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

b) Discriminatory framework conditions

- Insufficient independence of Infrastructure Manager functions (in relation to capacity allocation and charging)
- Lack of financial/technical transparency
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

c) Inadequate regulatory oversight

- Inadequate scope of regulatory competences (e.g. extending scope of open access and public service contracts for domestic passenger services including the definition of public service contracts)
- Inadequate resources/regulatory expertise (e.g. in terms of staff numbers necessary to react to a market with multiple operators or with sufficient experience in dealing with regulatory issues
- Divergent interpretation of legislation
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

d) Lack of competitive incentives on railway undertakings to improve quality/reduce fares

- Lack of competitive award of Public Service Contracts
- Inadequate definition and scope of public service obligations
- Lack of open access rights

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 2.3

"Are there any other problems within the rail sector that are hindering the creation of a high quality passenger service that can compete with other modes of transport?"

Yes / No / No opinion

Question 2.4

"What effect do the following external factors have on the competitiveness of the rail sector?"

- Increasing road congestion
- Improving quality of domestic air transport services
- Decreasing price of air transport services
- Deteriorating state of the economy
- Increasing road pricing
- Other

Very positive / Positive / Neither positive nor negative / Negative / Very negative / No opinion

Section D: The objectives of this policy initiative

Question 3.1

"Do you believe that the following objectives address the issues previously discussed?

- Improve access to infrastructure at cost-reflective charges that appropriate incentives for new entrants
- Improve access to rolling stock on competitive terms for new entrants
- Ensure independent decision-making in relation to provision of, and charges for, infrastructure management functions
- Enhance regulatory competencies in relation to competitive award of public service contracts
- Improve access to rail-related services (station facilities and ticketing and information systems)
- Ensure competitive award of public service contracts
- Ensure a consistent open access approach to domestic rail passenger markets

Yes / No / No opinion

Section E: Policy options

Question 4.1a

"Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through new open access rights?"

Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

Question 4.1b

"What effect would further market opening (through new open access rights in the domestic market) have in the following areas?"

- Service frequency
- Intramodal integration (between rail services of different operators including through-ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- Punctuality
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

Very positive / Positive / No effect / Negative / Very negative / No opinion

Question 4.2a

"Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through compulsory competitive tendering for public service contracts?"

Strongly agree / Partially agree / Neither agree nor disagree / Partially disagree / Strongly disagree / No opinion

Question 4.2b

"What effect would further market opening (through compulsory competitive tendering for public service contracts) have in the following areas?"

- Service frequency
- Intramodal integration (between rail services of different operators including through-ticketing)
- Intermodal integration (e.g. interchange road-rail including the possibility of integrated ticketing)
- Punctuality
- On board services (e.g. train cleanliness, air conditioning, etc.)
- Information to passengers
- Ticket prices
- Public subsidies for infrastructure development
- Public funding for public service contract compensation

Very positive / Positive / No effect / Negative / Very negative / No opinion

Question 4.3a

"If some or all of your network were to be opened to open access operations, please outline your views on the following ways in which such a policy might be implemented"

- A continuation of the existing arrangements in Member States in relation to the provision of open access arrangements
- Open access on routes not covered by public service contracts
- Open access as above, but also permitted on routes covered by public service contracts, though Member States could limit access if the economic viability of a public service contract is affected
- Open access unrestricted on certain types of services (such as long-distance, high-speed or premium airport services)
- Open access unrestricted on all routes (maintaining the possibility of public funding for unprofitable services)
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

Question 4.3b

"Please rank the following options for which you believe there will be a positive or very positive effect from the one which you think is most appropriate to meet the objectives presented in Section D to the one which is the least appropriate"

- A continuation of the existing arrangements in Member States in relation to the provision of open access arrangements
- Open access on routes not covered by public service contracts
- Open access as above, but also permitted on routes covered by public service contracts, though Member States could limit access if the economic viability of a public service contract is affected
- Open access unrestricted on certain types of services (such as long-distance, high-speed or premium airport services)
- Open access unrestricted on all routes (maintaining the possibility of public funding for unprofitable services)
- Other

1 / 2 / 3 / 4 / 5 / 6

Question 4.4a

"If some or all of your network were subject to competitive tendering, please outline your views on the following ways in which such a policy might be implemented"

- Retention of the existing legal framework in which competent authorities can determine whether to award public service contracts directly or through a competitive tendering process
- Competitive tendering introduced for public service contracts where a financial or operational threshold is exceeded (e.g. contract value, volume of traffic):
- Financial: where the total contract value is greater than a predetermined figure
- Operational: where the contract covers more than a predetermined percentage of the total network according to an agreed metric
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

Question 4.4b

"Please rank the following options for which you believe there will be a positive or very positive effect in relation to the degree to which they meet the objectives presented in Section D"

- Retention of the existing legal framework in which competent authorities can determine whether to award public service contracts directly or through a competitive tendering process
- Competitive tendering introduced for public service contracts where a financial or operational threshold is exceeded (e.g. contract value, volume of traffic)
- A specification of negotiation elements allowed under a competitive tendering procedure along the lines of the relevant provisions in public procurement law
- Competitive tendering for all public service contracts
- Other

1 / 2 / 3 / 4 / 5

Question 4.5a

"What is your view of the organisation of each of the following framework conditions?"

Improved access to rolling stock

- Compulsory transfer of rolling stock to new operator
- Creation of rolling stock leasing companies that are to provide trains for public service contracts
- Rolling stock to be provided by the competent authority
- Other

Improved access to rail-related services, in particular ticketing

- Reinforced access rules for ticketing facilities
- Compulsory through-ticketing
- Inter-availability of tickets
- Other

Tendering procedures

- Clear conditions to be introduced on the manner in which staff are protected during the transfer from one operator to another
- Extending the competence of the regulatory bodies in the tendering process to cover areas such as defining the criteria that authorities are to use in formulating tenders
- Mandatory application of compensation rules in Annex to Regulation 1370/2007 in case of a single bidder
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion

Question 4.5b

"Please rank each of the following framework conditions for which you believe there will be a positive or very positive effect in relation to the degree to which they meet the objectives presented in Section D."

Improved access to rolling stock

- Compulsory transfer of rolling stock to new operator
- Creation of rolling stock leasing companies that are to provide trains for public service contracts
- Rolling stock to be provided by the competent authority
- Other

Improved access to rail-related services, in particular ticketing

- Reinforced access rules for ticketing facilities
- Compulsory through-ticketing
- Inter-availability of tickets
- Other

Tendering procedures

- Clear conditions to be introduced on the manner in which staff are protected during the transfer from one operator to another
- Extending the competence of the regulatory bodies in the tendering process to cover areas such as defining the criteria that authorities are to use in formulating tenders
- Mandatory application of compensation rules in Annex to Regulation 1370/2007 in case of a single bidder
- Other

1 / 2 / 3 / 4

Question 5.1 asked:

Currently, Member States have chosen to adopt different approaches to vertical separation. Which of the following vertical separation models exist in your country(ies) of operation:

- Institutional separation
- Infrastructure maintenance activities
- Infrastructure charging
- Infrastructure planning and financing
- Other

Question 5.2

"Please explain what the advantages and disadvantages are of the model(s) you have selected in question 5.1"

Question 5.3

"To what extent does this model address the following aspects?"

Institutionally separated model

- Ensuring financial transparency
- Preventing discriminatory practices
- Facilitating cross-border cooperation
- Avoiding too extensive and costly regulatory oversight
- Limiting transaction costs
- Ensuring alignment/coordination between infrastructure management and provision of transport services
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 5.4

"To what extent does this model address the following aspects?"

Non-institutionally separated model

- Ensuring financial transparency
- Preventing discriminatory practices
- Facilitating cross-border cooperation
- Avoiding too extensive and costly regulatory oversight
- Limiting transaction costs
- Ensuring alignment/coordination between infrastructure management and provision of transport services
- Other

To a great extent / To some extent / To a minor extent / Not at all / No opinion

Question 5.5

For which of the following functions do you consider that independence of decision making must be reinforced to ensure non-discrimination?

- Capacity allocation (including traffic management)
- Infrastructure maintenance activities
- Infrastructure charging
- Infrastructure planning and financing
- Other

Yes / No / No opinion

Question 5.6

"Please rank the following options from the one you think is most appropriate to meet the objectives to the one which is least appropriate?"

- Existing separation requirements (legal, organisational and decision-making)
- Existing separation requirements (legal, organisational and decision-making) but also applying to additional functions of the infrastructure manager
- Institutional separation applying only to the body in charge of the essential functions
- Institutional separation applying to all functions of the Infrastructure Manager
- Other

1 / 2 / 3 / 4 / 5

Question 5.7

"In addition to the options in Q5.6, would you support the creation of a specific body including, in a non-discriminatory manner, representatives from all infrastructure users to ensure that their interests are duly taken into consideration?"

Yes / No / No opinion

B2 SATELLITE QUESTIONS

B2.1 Appendix Table B.1 lists the satellite questions and shows to which groups of stakeholders they were presented.

B2.2 Full questions are listed below.

APPENDIX TABLE B.1 SATELLITE QUESTIONS

	Transport Ministries	Regulatory Bodies	PTAs	Passenger RUs	Freight RUs	Infrastructure Managers	Passenger Organisations	Workers Representatives	Rolling Stock Companies
Effect of open access on demand	✓	✓	✓	✓		✓	✓	✓	✓
Effect of competitive tendering on demand	✓	✓	✓	✓		✓	✓	✓	
Effect of market opening on strikes	✓	✓	✓	✓	✓	✓		✓	
Effect of market opening on employment	✓	✓	✓	✓	✓	✓		✓	
Availability of data on various matters	✓	✓	✓	✓		✓	✓		✓
Availability of data on market opening	✓	✓	✓	✓		✓	✓		✓
Views on PSC compulsory competitive tendering	✓	✓	✓	✓			✓	✓	
Views on transition period for PSC tendering	✓	✓	✓	✓			✓	✓	
Are there grounds for direct award of PSCs	✓	✓	✓	✓			✓	✓	
Views on EU harmonisation of PSC procedure	✓	✓	✓	✓			✓	✓	
Views on making rolling stock more available	✓	✓	✓	✓		✓			
How is ticketing organised in open markets	✓	✓	✓	✓					
How can ticketing integration be achieved	✓	✓	✓	✓					
Effects of open access	✓	✓	✓	✓					
Effects of competitive tendering of PSCs	✓	✓	✓	✓					
Main competing modes by passenger sector	✓	✓	✓	✓					
Imposing EU PSC compliance criteria on PTAs	✓	✓	✓	✓					
Avoiding market foreclosure from broad PSCs	✓	✓	✓	✓					
Consultation on EC PSC criteria	✓	✓	✓	✓					
Do you procure PSCs	✓		✓	✓					
Main competing modes by freight sectors	✓	✓			✓				
Open access in your country	✓					✓			
Competitive tendering in your country	✓					✓			
Open access in your responsibility area		✓	✓						
Competitive tendering in your responsibility area		✓	✓						

Effect of open access on demand

"Where services have been opened through open access competition, how successful has it been in increasing rail demand?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion / N/A

Effect of competitive tendering on demand

"Where services have been opened through competitive tendering of public service contracts, how successful has it been in increasing rail demand?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services
- Other

Very positive / Positive / No effect / Negative / Very negative / No opinion / N/A

Effect of market opening on strikes

"Do you believe that there will be a change in the amount of industrial action (strikes) with further opening of the domestic passenger rail market?"

Increase / Decrease / No change / No opinion

Effect of market opening on employment

"Do you believe that there will be a change in the conditions of employment for rail sector workers (e.g. remuneration level, working hours, job specification) with further market opening?"

Improvement / Worsening / No change / No opinion

Availability of data on various matters

"Do you have any data in the following areas in your country which you could share for the purposes of the study?"

- Passenger demand and revenue
- Data on subsidy payments to the railway
- Data on costs of Railway Undertakings
- Data on the staffing composition of Railway Undertakings
- Investment in the railways (particularly rolling stock)
- Quality of current services (e.g. customer satisfaction surveys

Yes / No

Availability of data on market opening

"Do you have data (including studies you have carried out) on the impacts of market opening and new entrants in your country? In particular, do you have data/information on:"

- Impact of market opening on new entrant levels - what effect has it had on the proportion of new entrants over time?
- Impact on demand
- Impact on service levels (impact on frequency, speed, destinations served)
- Impact on modal share of railways
- Costs of new entrants relative to incumbents
- Staffing levels of new entrants relative to incumbents
- Pricing strategy of new entrants
- Response of incumbent to liberalisation - reduced costs and fare levels? Improved service?
- Impact on public funding of public services
- Impact on quality of services (reliability, cleanliness of trains, information provision, security, booking experience etc.)

Yes / No

Views on PSC compulsory competitive tendering

"Do you consider that the general principle for awarding public service contracts in rail should be compulsory competitive tendering as in other land transport sectors?"

- Passenger demand and revenue
- Data on subsidy payments to the railway
- Data on costs of Railway Undertakings
- Data on the staffing composition of Railway Undertakings
- Investment in the railways (particularly rolling stock)
- Quality of current services (e.g. customer satisfaction surveys)

Yes / No

Views on transition period for PSC tendering

"If competitive tendering of public service contracts were made compulsory, do you agree with including a transitory period to allow for the gradual letting of all public service contracts in order not to limit competition?"

Yes / No / No opinion

Are there grounds for direct award of PSCs

"Do you consider that there are other reasons for directly awarding public service contracts on a temporary basis?"

Yes / No / No opinion

Views on EU harmonisation of PSC procedure

"Should there be further EU harmonisation of the procedure for awarding public service contracts?"

Yes / No / No opinion

Views on making rolling stock more available

In what ways do you think that availability of rolling stock for new operators should be addressed? Please tick as many as you wish"

- Full access to all technical information (infrastructure characteristics determining the rolling stock specification) to be provided by the infrastructure manager and incumbent operator
- Automatic transfer of rolling stock from one operator to another at the start of a new public service contract
- Introduce measures so that rolling stock is owned by Competent Authorities and operators bid to use it as part of the public service contract tendering process
- Introduce measures so that rolling stock is owned by third parties (Rolling stock leasing companies) and operators bid to use it
- Other measures that you believe could be appropriate

Yes / Possibly / No / No opinion

How is ticketing organised in open markets

"If markets have been opened, please explain how ticketing is organised. Which of the following applies?"

- Internet only tickets for specific operator
- Bilateral arrangements on ticketing between operators
- Through-ticketing for the whole sector
- Inter-availability of tickets between operators for the whole sector

Yes / No

How can ticketing integration be achieved

"If markets have been opened, please explain how ticketing is organised. Which of the following applies?"

- Voluntary agreements
- Compulsory regulatory measures at Member State level
- Compulsory regulatory measures at EU level

Yes / No

Effects of open access

"Where services have been opened through open access competition, what were the effects in your area of responsibility for the following?"

- Revenues from ticket sales
- Operational efficiency
- Private investment in the railways
- Need for public funds for infrastructure investment
- Need for public funds for public service contracts compensation
- Infrastructure maintenance and renewal costs
- Level of track access charges
- Level of use of infrastructure capacity
- Level of use of station facilities
- Total employment (size of workforce)
- Administrative costs (e.g. costs of interface with other parties, costs of tendering process)
- Other

Substantial increase / Slight increase / Neutral / Slight decrease / Substantial decrease / No opinion

Effects of competitive tendering of PSCs

"Where markets have been opened through competitive tendering of public service contracts, what were the effects in your area of responsibility for the following?"

- Revenues from ticket sales
- Operational efficiency
- Private investment in the railways
- Need for public funds for infrastructure investment
- Need for public funds for public service contracts compensation
- Infrastructure maintenance and renewal costs
- Level of track access charges
- Level of use of infrastructure capacity
- Level of use of station facilities
- Total employment (size of workforce)
- Administrative costs (e.g. costs of interface with other parties, costs of tendering process)
- Other

Substantial increase / Slight increase / Neutral / Slight decrease / Substantial decrease / No opinion

Main competing modes by passenger sector

"For each of the passenger service categories underneath, what do you consider to be the main competing modes?"

- High speed services (with public service obligations)
- High speed services (without public service obligations)
- Other medium/long distance services (with public service obligations)
- Other medium/long distance services (without public service obligations)
- Urban/Suburban/Regional services (with public service obligations)
- Urban/Suburban/Regional services (without public service obligations)
- Other

Air / Other rail / Coach / Metro/Tram/Bus / Car / N/A

Imposing EU PSC compliance criteria on PTAs

"Should Public Transport Authorities be subject to defined compliance criteria developed by EU legislation when defining the public service obligations?"

Yes / No / No opinion

Avoiding market foreclosure from broad PSCs

"To avoid market foreclosure through excessively broadly defined public service obligations, would you agree that existing EU rules should be made more precise on the following issues?"

- Necessity and proportionality to meet public mobility policy objectives
- The scope of the contract (i.e. volume, geographical coverage)
- The impact on public sector funding
- Improving the quality of the train service
- Other

Yes / No / No opinion

Consultation on EC PSC criteria

"Should the relevant stakeholders be consulted on the above mentioned criteria before they are enacted?"

Yes / No / No opinion

Do you procure PSCs

"Do you procure public service obligation financed services?"

Yes / No

Main competing modes by freight sectors

"For each of the freight sectors underneath, what do you consider to be the main competing modes?"

- National trainload freight
- National single wagonload freight
- International trainload freight
- International single wagonload freight
- Inter-modal freight
- Other

Road / Maritime / Pipeline / Other Rail / N/A

Open access in your country

"Have any of these markets been subject to the opening of domestic passenger rail services through open access competition in your country?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services

Total / Partial / In the process / No / N/A

Competitive tendering in your country

"Have any of these markets been subject to the opening of domestic passenger rail services through competitive tendering of public service contracts in your country?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services

Total / Partial / In the process / No / N/A

Open access in your responsibility area

"Have any of these markets been subject to the opening of domestic passenger rail services through open access competition in your area of responsibility?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services
- Other

Total / Partial / In the process / No / N/A

Competitive tendering in your responsibility area

"Have any of these markets been subject to the opening of domestic passenger rail services through competitive tendering of public service contracts in your area of responsibility?"

- High speed services
- Other medium/long distance services
- Urban/Suburban/Regional services
- Other

Total / Partial / In the process / No / N/A

APPENDIX

C

STAKEHOLDER CONTACTS

C1 STAKEHOLDERS INVITED TO RESPOND TO CONSULTATION

C1.1 Appendix Table C.1 lists the stakeholders invited to respond to the Stakeholder Consultation as described in Appendix A A2.4.

APPENDIX TABLE C.1 STAKEHOLDERS INVITED TO RESPOND TO CONSULTATION

Stakeholder group	Organisation or company
Austria	
Ministry	Federal Ministry of Transport, Innovation and Technology
Regulator	Rail Control Commission
Safety	Rail Control Commission
Infrastructure Manager	Rail Infrastructure and Services Company
Passenger Train Operators	GKB - Graz-Köflacher Eisenbahn
	ÖBB Österreichische Bundesbahnen
	WESTbahn
	Salzburger Lokalbahn
	Association of the Railways
Freight Train operators	Rail Cargo Austria
Labour Unions	Vida
Competition Authority	Austrian Federal Competition Authority
Passengers Associations	Probahn Österreich
Passenger Rail Authorities	Burgenland, Karnten, Niederösterreich, Oberösterreich, Salzburg (Land), Steiermark, Tirol, Vorarlberg, Wien
Belgium	
Ministry	Department of Land Transport
Regulator	Regulatory Service for Rail Transport and the Use of Bruxelles Airport
Safety	Security Service and Interoperability of Railways - SSICF
Infrastructure Manager	Infrabel
Passenger Train Operators	SCNB
	Thalys
Labour Unions	B-rail
	SLFP
Competition Authority	Competition Council

Stakeholder group	Organisation or company
Passengers Associations	ACTP
Bulgaria	
Ministry	Ministry of Transport, IT and Communications
Regulator	Railway Administration Exec Agency
Safety	Railway Administration Exec Agency
Infrastructure Manager	Bulgarian Railway Company
Passenger Train Operators	Bulgarian Railway Company
Competition Authority	Commission for the Protection of Competition
Passengers Associations	Railway Transport Friends Association
Czech Republic	
Ministry	Ministry of Transport
Regulator	Rail Authority
Safety	Rail Authority
Infrastructure Manager	Railway Infrastructure Administration
Passenger Train Operators	Czech Railways
	RegioJet
	Leo Express
Labour Unions	Federation of Railway Workers
Competition Authority	Office for the Protection of Competition
Passenger Rail Authorities	Liberec Region
Denmark	
Ministry	Ministry of Transport
Regulator	Danish Rail Regulatory Body
Safety	Transport Authority
Infrastructure Manager	Rail Net Denmark
Passenger Train Operators	DSB – Danske Statsbaner
Labour Unions	Trade Union Confederation DK
Competition Authority	Danish Competition Authority

Stakeholder group	Organisation or company
Estonia	
Ministry	Ministry of Economic Affairs and Communications
Regulator	Estonian Competition Authority
Safety	Estonian Technical Surveillance Authority
Passenger Train Operators	Elektriraudtee Ltd
Competition Authority	Estonian Competition Authority
Passengers Associations	Consumer Protection Board
Finland	
Ministry	Ministry of Transport and Telecommunication
Regulator	Finnish Transport Safety Agency – Rail Regulation Unit
Safety	Finnish Transport Safety Agency
Infrastructure Manager	RHK - Finnish Rail Administration
Passenger Train Operators	VR
Labour Unions	FTWU - Finnish Transport Workers' Union
Competition Authority	Finnish Competition Authority
Passengers Associations	SRM
France	
Ministry	Ministry of Ecology, Sustainable Development, Transport and Housing
Regulator	ARAF
Safety	EPSF
Infrastructure Manager	RFF
Passenger Train Operators	SNCF
Passenger Train Operators Association	AGIR
Labour Unions	CGT - Fédération Nationale des Travailleurs, Cadres et Techniciens des Chemins de Fer Français
Competition Authority	Competition Council
Passengers Associations	Cheminot CGT
	FNAUT

Stakeholder group	Organisation or company
	UFC Que Choisir
Passenger Rail Authorities	GART (French Association of Passenger Transport Authorities), Alsace, Aquitaine, Auvergne, Basse-Normandie, Bourgogne, Bretagne, Centre, Champagne-Ardenne, Corse, Franche-Comté, Haute-Normandie, Languedoc-Roussillon, Limousin, Lorraine, Midy-Pyrénées, Nord/Pas-de-Calais, Pays de la Loire, Picardie, Provence-Alpes, Côte d'Azur, Rhône-Alpes, "STIF Syndicat des Transports d'Île-de-France"
Germany	
Ministry	Federal Ministry of Transport, Building and Urban Development
Regulator	Federal Networks Agency, Bundesnetzagentur (BNA)
Safety	Federal Railway Authority, Eisenbahnbundesamt (EBA)
Infrastructure Manager	DB Netz
Passenger Train Operators	Deutsche Bahn
	Veolia
	Abellio
	Keolis
	Netinera
	Benex
	HKX
	AVG - Albtal-Verkehrs-Gesellschaft mbH, Karlsruhe
	VDV – Association of German Transport Companies
	Mofair
Labour Unions	EVG
Competition Authority	Federal Cartel Office, Bundeskartellamt
Passengers Associations	ProBahn
	DBV
	EPF
Passenger Rail Authorities	BAG-SPNV (German Association of Passenger Rail Authorities)
	Bayerische Eisenbahngesellschaft mbH – BEG, Hamburger Verkehrsverbund GmbH – HVV, Landesnahverkehrsgesellschaft Niedersachsen mbH – LNVG, Landesweite Verkehrsservicegesellschaft Schleswig-Holstein mbH – LVS, Nahverkehr Westfalen-Lippe – NWL, Nahverkehrsgesellschaft Baden-Württemberg mbH – NVBW, Nahverkehrsservice Sachsen-

Stakeholder group	Organisation or company
	Anhalt GmbH – NASA, Nahverkehrsservicegesellschaft Thüringen mbH – BVS, Nordhessischer Verkehrsverbund – NVV, Region Hannover, Rhein-Main-Verkehrsverbund GmbH – RMV, Senator für Umwelt, Bau, Verkehr und Europa der freien Hansestadt Bremen SPNV, Verband Region Stuttgart, Verkehrsgesellschaft Mecklenburg-Vorpommern mbH – VMW, Verkehrsverbund Berlin-Brandenburg GmbH – VBB, Verkehrsverbund Oberelbe GmbH – VVO, Verkehrsverbund Rhein-Neckar GmbH – VRN, Verkehrsmanagement-Gesellschaft Saar mbH – VGS, Verkehrsverbund Rhein-Ruhr AöR – VRR, Zweckverband Großraum Braunschweig – ZGB, Zweckverband für den Nahverkehrsraum Leipzig – ZNVL, Zweckverband Nahverkehr Rheinland - ZV NVR, Zweckverband ÖPNV Vogtland – ZVV, Zweckverband SchienenPersonenNahVerkehr Rheinland-Pfalz Nord - SPNV Nord, Zweckverband Schienenpersonennahverkehr Rheinland-Pfalz Süd - SPNV Sud, Zweckverband Verkehrsverbund Oberlausitz-Niederschlesien – ZVON, VMS
Greece	
Ministry	Ministry of Infrastructure, Transport and Networks
Regulator	RRA - Rail regulatory authority
Safety	
Infrastructure Manager	OSE
Passenger Train Operators	TrenOSE
Competition Authority	Hellenic Competition Commission
Passengers Associations	Epivatis
Hungary	
Ministry	Ministry of National Development
Regulator	Rail Capacity Allocation Company
Safety	Railway Safety Authority
Infrastructure Manager	MÁV
	GySEV
Passenger Train Operators	MÁV
	GySEV
Labour Unions	VDSzSz
Competition Authority	Economic Competition Authority
Passengers Associations	DERKE

Stakeholder group	Organisation or company
	VEKE
Passenger Rail Authorities	BKV
Ireland	
Ministry	Public Transport Division, Department of Public Enterprise
Regulator	Department of Transport
Safety	Railway Safety Commission
Infrastructure Manager	Irish Rail
Passenger Train Operators	Irish Rail
Competition Authority	The Competition Authority
Passengers Associations	Consumers' Association of Ireland
	Rail Users Ireland
Italy	
Ministry	Ministero dei Trasporti
Regulator	Office for the Regulation of Rail Services
Safety	ANSF
Infrastructure Manager	RFI – Italian Railway Network
Passenger Train Operators	Ferrovie dello Stato Italiane Spa
	Trenitalia
	Tre Nord
	NTV
Labour Unions	Filt-Cgil
	Fit-Cisl
Competition Authority	Antitrust - Guarantor Authority for Competition and Market
Passengers Associations	UTP, Adiconsum, Altroconsumo Assoutenti
Passenger Rail Authorities	Federmobilità
	Abruzzo, Alto Adige, Basilicata, Calabria, Campania, Emilia-Romagna, Friuli Venezia Giulia, Lazio, Liguria, Lombardia, Marche, Molise, Piemonte, Puglia, Sardegna, Sicilia, Toscana, Trentino, Umbria, Valle d'Aosta, Veneto

Stakeholder group	Organisation or company
Latvia	
Ministry	Ministry of Transport
Regulator	Latvian Railway Administration
Safety	State Railway Technical Inspection
Infrastructure Manager	Latvian Railways
Passenger Train Operators	Latvian Railways JSC Baltijas Transita Serviss
Competition Authority	Competition Council
Passengers Associations	LLPA - Latvian Passenger Transport Association
Passenger Rail Authorities	Ministry of Transport
Lithuania	
Ministry	Ministry of Transport and Communications
Regulator	State Railway Inspectorate
Safety	Ministry of Transport and Communications
Infrastructure Manager	Lithuanian Railways
Passenger Train Operators	Lithuanian Railways
Luxembourg	
Ministry	Department for Transport
Regulator	ILR - Luxemburg Institute for Regulation
Safety	ACF - Railways Administration
Infrastructure Manager	CFL - National Railways Company
Passenger Train Operators	CFL - National Railways Company
Labour Unions	FNCTTFEL
Competition Authority	Competition Council
Passengers Associations	ALACF
Netherlands	
Ministry	Ministry of Transport, Public Works and Water Management
Regulator	Netherlands Competition Authority
Safety	Transport Inspectorate

Stakeholder group	Organisation or company
Infrastructure Manager	ProRail
Passenger Train Operators	NS - Nederlandse Spoorwegen
Labour Unions	Koninklijk Nederlands Vervoer
Competition Authority	Netherlands Competition Authority
Passengers Associations	Dutch Rail Passengers' Association (ROVER)
Passenger Rail Authorities	Bestuur Regio Utrecht, Provincie Drenthe, Provincie Flevoland, Provincie Fryslân, Provincie Gelderland, Provincie Groningen, Provincie Limburg, Provincie Noord-Brabant, Provincie Noord-Holland, Provincie Overijssel, Provincie Utrecht, Provincie Zeeland, Provincie Zuid-Holland, Regiokantoor Enschede, Stadsgewest Haaglanden, Stadsregio Amsterdam, Stadsregio Arnhem, Stadsregio Eindhoven, Stadsregio Rotterdam
Poland	
Ministry	Ministry of Transport, Construction and Maritime Economy
Regulator	Office of Railway Transport
Safety	Ministry of Transport, Construction and Maritime Economy
Infrastructure Manager	PKP - Polskie Linie Kolejowe SA
Passenger Train Operators	PKP Intercity
	Przewozy Regionalne
Freight Train Operators	Rail Polska
Labour Unions	NSZZ "Solidarność" - National Railway Section, All-Polish Federation of Trade Unions
Competition Authority	Office of the Protection of Competition and Consumers
Passengers Associations	Zielone Mazowsze
Passenger Rail Authorities	Dolnośląskiego, Pomorskiego Lubelskiego w Lublinie, Lubuskiego Łodzi, Małopolskiego, Urząd Marszałkowski Opolskiego, Podkarpackiego Województwa Podlaskiego, Województwa Śląskiego, Świętokrzyskiego w Kielcach, Mazurskiego Wielkopolskiego Zachodniopomorskiego
Portugal	
Ministry	Ministry of the Economy and Employment - Secretary of State for Transport
Regulator	IMTT – Transport Authority, Unit of Railway Regulation (URF)
Safety	IMTT – Transport Authority, Unit of Railway Regulation (URF)
Infrastructure Manager	REFER – National Rail Network

Stakeholder group	Organisation or company
Passenger Train Operators	CP – Comboios de Portugal Fertagus
Competition Authority	Portuguese Competition Authority
Romania	
Ministry	Ministry of Transport and Infrastructure
Regulator	Railway Supervision Council
Safety	AFER – Railway Authority
Infrastructure Manager	CFR Infrastructura
Passenger Train Operators	CFR Călători
Competition Authority	Competition Council
Slovakia	
Ministry	Ministry of Transport, Communications and Public Works
Regulator	Office for Regulation of Railway Transport
Safety	Ministry of Transport, Communications and Public Works
Infrastructure Manager	ZSR – Slovak Railways
Passenger Train Operators	ZSSK – Slovak Railway Company
Labour Unions	Railway Workers' Trade Union Association
Passenger Rail Authorities	Ministry of Transport, Communications and Public Works
Slovenia	
Ministry	Ministry of Transport - Department for Railways and Cableways
Regulator	APEK
Infrastructure Manager and Safety	Public Agency for Railway Transport of the Republic of Slovenia
Passenger Train Operators	Slovenian Railways
Labour Unions	Confederation of Slovenian Trade Unions
Competition Authority	Slovenian Competition Authority
Passengers Associations	Slovenian Consumers Association (ZPS)
Passenger Rail Authorities	MZP

Stakeholder group	Organisation or company
Spain	
Ministry	Ministry of Public Works and Transport – DG Railways
Regulator	Railway Regulatory Committee
Safety	Ministry of Public Works and Transport – DG Railways
Infrastructure Manager	ADIF – Railways Infrastructure Authority
Passenger Train Operators	RENFE Operadora
Labour Unions	FSC
Passengers Associations	FACUA
	PTP (Barcelona)
Passenger Rail Authorities	Ministry of Public Works and Transport – DG Railways
Sweden	
Ministry	Ministry of Enterprise and Energy
Regulator	Swedish Transport Agency
Safety	Swedish Transport Agency
Infrastructure Manager	Trafikverket
Passenger Train Operators	ASTOC
	SJ AB
	Other operators
Labour Unions	Swedish Transport Workers' Union
Competition Authority	KKV - Swedish Competition Authority
Passengers Associations	Swedish Passenger Federation (ResenärsForum)
Passenger Rail Authorities	Blekingetrafiken, Dalatrafik, Gotlands kommun, Hallandstrafiken, Jönköpings Länstrafik AB, Kalmar Läns Trafik, Länstrafiken i Jämtlands Län, Länstrafiken i Norrbotten, Länstrafiken i Västerbotten, Länstrafiken Kronoberg, Länstrafiken Sörmland, Länstrafiken Örebro, Östgötatrafiken, Skånetrafiken, Storstockholms Lokaltrafik, Upplands Lokaltrafik, Värmlandstrafik, Västernorrlands läns Trafik, Västmanlands Lokaltrafik, Västtrafik, X-Trafik
United Kingdom	
Ministry	Department for Transport
	Transport Scotland

Stakeholder group	Organisation or company
Regulator	Office of Rail Regulation
Safety	Rail Safety & Standards Board
Infrastructure Manager	Network Rail
	Eurotunnel
Passenger Train Operators	ATOC
	Eurostar International
	Abellio
	First Group
	Go-Ahead
	National Express
	Stagecoach
	Virgin Trains
Freight Operators	DB Schenker UK
	Freightliner
Labour Unions	National Union of Rail, Maritime and Transport Workers - RMT
Competition Authority	Competition Commission
Passengers Associations	Passenger Focus
Passenger Rail Authorities	Transport for London
	Merseytravel
	Welsh Assembly
	PTEG
Other stakeholders	
Rolling stock leasing companies	Beacon Rail Leasing Limited
	Alpha Trains
	Lloyds Bank Corporate Markets
	MRCE Dispolok GmbH
	Porterbrook Leasing Company
	Angel Trains
Pan-European organisations	Union of European Railways Industries (UNIFE)
	European Federation of Transport and Environment (T-E)

Stakeholder group	Organisation or company
	European Rail Infrastructure Managers (EIM)
	European Transport Workers Federation (ETF)
	Community of European Railways (CER)
	International Union of Railways (UIC)
	European Conference of Ministers of Transport (ECMT)
	European Investment Bank (EIB)
	European Rail Freight Association (ERIFA)
	International Association of Public Transport (UITP)
	CEMT
	European Transport Safety Council
	European Passengers Train and Traction Operating Lessors' Association (EPPTOLA)
	International Union of Combined Road-Rail Transport Companies (UIRR)
	International Union of Wagon Keepers (IUP)
	European Passenger Transport Operators
	Rail Net Europe
Rail freight organisations	CFR Marfă
	RCA
	Rail Cargo Hungaria
	ZSSK Cargo
	CFL Cargo
	Captrain
	Rail Polska
	BDZ Cargo
	VR
	TX Logistik
	RegioTrans Brasov
	DB Schenker (UK)
	CER Cargo HU
	BTS

Stakeholder group	Organisation or company
	Veolia
	CTL
	Bulmarket
	Netzwerk Bahnen
	RTC
	Floyd Zrt
	MMV
	HUPAC
	Hector Rail
	Takargo
	Freightliner Group
Permanent Representatives to the European Union	Austria
	Belgium
	Bulgaria
	Denmark
	Estonia
	Finland
	France
	Germany
	Greece
	Hungary
	Ireland
	Italy
	Latvia
	Lithuania
	Luxembourg
	Poland
	Portugal
	Romania
	Slovakia

Stakeholder group	Organisation or company
	Slovenia
	Spain
	Sweden
	Czech Republic
	Netherlands
	United Kingdom
Manufacturers	Bombardier
	Ansaldo Breda
	Alstom
	Siemens
	Vossloh
Committee of Regions	Members

C2 STAKEHOLDERS INTERVIEWED

C2.1 Appendix Table C.2 lists the stakeholders invited to respond to the Stakeholder Consultation as described in Appendix A A2.15.

APPENDIX TABLE C.2 STAKEHOLDERS INTERVIEWED

State or body	Stakeholder	Method	Date
Full case studies			
France	Ministry responsible for railways	Face-to-face	23/04/2012
	Representative of region	Face-to-face	24/04/2012
	ARAF (Regulatory Body)	Face-to-face	23/04/2012
	RFF (IM)	Face-to-face	10/04/2012
	SNCF (Incumbent RU)	Face-to-face	07/05/2012
	Keolis (Non-incumbent RU)	Face-to-face	29/03/2012
	FGTE-CFDT (Workers Representatives)		
Germany	Ministry responsible for railways	Face-to-face	20/04/2012
	Bundesnetzagentur (BNA) (Regulatory Body)	Face-to-face	20/04/2012
	Deutsche Bahn AG (DB) (IM & Incumbent RU)	Face-to-face	18/04/2012
	BAG-SPNV (Umbrella body for Competent Authorities)	Face-to-face	18/04/2012
	Keolis (Non-Incumbent RU)	Face-to-face	18/04/2012
	HKX (Open-Access RU)	Face-to-face	30/04/2012
Hungary	Ministry responsible for railways	Face-to-face	25/04/2012
	NKH (Regulatory Body and Safety Authority)	Face-to-face	25/04/2012
	VPE (Capacity Allocator)	Face-to-face	25/04/2012
	MÁV and GySEV (IMs and incumbent RUs)	Face-to-face	25/04/2012
Italy	URSF (Regulatory Body)	Face-to-face	18/04/2012
	FS (Incumbent RU)	Face-to-face	26/04/2012
	NTV (Open access RU)	Face-to-face	17/05/2012

State or body	Stakeholder	Method	Date
	CISL (Workers Representatives)	Face-to-face	26/04/2012
Great Britain	Ministry responsible for railways	Face-to-face	12/04/2012
	Office of Rail Regulation (ORR) (Regulatory Body)	Face-to-face	20/04/2012
	Network Rail (IM)	Face-to-face	23/04/2012
	ATOC (Umbrella body for passenger RUs)	Face-to-face	24/04/2012
	Freightliner (Freight RU)	Face-to-face	23/04/2012
Intermediate case studies			
Austria	ÖBB (Incumbent RU)	Face-to-face	19/04/2012
	WESTbahn (Open access RU)	Telephone	19/04/2012
Czech Republic	ČD (Incumbent RU)	Face-to-face	12/05/2012
	RegioJet	Written submission	
Netherlands	NMa (Regulator)	Face-to-face	01/05/2012
Sweden	Hector Rail (Non-incumbent freight RU)	Telephone	14/08/2012
Pan-European organisations			
	CER	Face-to-face	19/04/2012
	EIM	Face-to-face	08/05/2012
	ETF	Face-to-face	09/05/2012
	UITP	Face-to-face	10/05/2012

APPENDIX

D

STAKEHOLDER COMMENTS

D1 INTRODUCTION

D1.1 This Appendix summarises stakeholder responses to the principal themes in the stakeholder consultation questionnaire, dealing in turn with:

- The quality of rail services
- Issues affecting the quality of rail passenger services
- The objectives of this policy initiative
- Market opening by open access and competitive tendering
- Independence of infrastructure management (unbundling)

D1.2 For details of the context to the questions, see Appendix B.

D1.3 Stakeholder comments summarised in this Appendix have been taken into account in preparing:

- Appendix A informing Chapter 3 on stakeholder consultation
- Appendix F informing Chapter 4 on problem definition

D2 THE QUALITY OF RAIL SERVICES

Q1.1 Following from the description set out above, are there any other aspects relating to the quality of rail services that you think are relevant?

D2.1 Respondents identified a number of further factors relevant to the quality of rail services to those already mentioned in the questionnaire. Several respondents from different stakeholder groups named:

- Safety and security issues
- Clean and comfortable waiting rooms
- Travelling time
- Ticket price
- Integrated timetable with a coordination of different modes and types of train

D2.2 Public institutions underlined the importance of transparency and simplicity in pricing and the types of tickets and a cross-acceptance of these by different operators. Some of them argued for the definition not only of the functions of different parties within the rail industry but also of their interactions with each other.

D2.3 With regard to freight services, respondents argued that flexibility for one-off shipments and the supply of a full range of services had a particular influence on the quality of rail services.

D2.4 Further comments provided by the respondents related to the sustainability of the system, real time information from other operators and an integrated public transport and ticketing system.

D2.5 One stakeholder provided the results of their extensive survey on British passengers' perception. Passengers perceived value for money, punctuality and service frequency as the most important areas for improvement. A passenger

association mentioned the ease of getting a ticket, the chance of getting a seat and how delays are dealt with as important.

D2.6 A workers' union expressed the opinion that employees satisfied with their working conditions and social balance help companies to provide good services.

Q1.2a How would you rate the quality of rail services in your home country?

D2.7 Passenger representatives commented that the quality of rail services differs significantly across Europe.

D2.8 Incumbent RUs generally had a very positive view on the quality of the rail system in their home country. However, the following issues arose from the comments provided.

D2.9 In Belgium, a respondent cited stakeholder surveys realised in 2010 and 2011, showing that less than 55% of rail passengers are satisfied with the services offered by the rail undertaking, and that only 58% of operators are satisfied with the services offered by the IM.

D2.10 In Finland, delays were said to be caused by infrastructure constraints, as 90% of the network is single-track.

D2.11 In Germany, a stakeholder commented that quality of rail services is significantly higher where services were awarded by public tenders.

D2.12 In Hungary, stakeholders reported that both passenger and freight services in their country are expensive but of poor quality.

D2.13 In Italy, several stakeholders commented on that high-speed services are high quality but conventional long-distance and regional services perform poorly.

D2.14 In Latvia passenger volumes and market share were reported as falling, while freight volumes and market share have been increasing.

D2.15 In Lithuania, a stakeholder said that public funds are insufficient, passengers become increasingly dissatisfied. In contrast, rail freight services in Lithuania are seen as well organised, reliable and efficient. The incumbent freight operator was mentioned as transporting as much freight as Lithuanian road transport carriers and their good competitive position was out forward as proof of quality of service.

D2.16 In the Netherlands, closure of railway lines due to landslides and flooding was mentioned as a factor reducing punctuality in freight services.

D2.17 In Romania, a stakeholder commented that there is a need for substantial improvement in almost all areas of the rail system.

D2.18 In Slovenia, a stakeholder expressed the opinion that quality improvements are hindered by the poor condition of some railway lines, a close link-up between the IM and the incumbent freight operator and the presence of only one passenger operator.

D2.19 In Sweden and the United Kingdom, stakeholders expressed a very positive view of operators' performance and passenger satisfaction.

D2.20 In the United Kingdom, a survey showed a passenger satisfaction rate of 89% for rail services in Scotland and a national average of 84% for all rail services.

Q1.2b Looking at other countries you operate in, where do you think the quality of the passenger rail sector is a problem?

D2.21 RUs commented that the quality of the passenger rail sector is a problem in countries where competition is non-existent or not functioning. A respondent had the opinion that incumbent operators across Europe still tend to hold dominant positions. One stakeholder from the rail supply industry stated that the lack of transparent information to compare availability and costs of rail services with other modes forms a real obstacle to the development of the rail sector. A Ministry suggested that strikes hamper the development of the rail sector in one Member State.

Q1.2c Looking at other countries you operate in, where do you think the quality of the freight rail sector is a problem?

D2.22 Respondents commented that there are problems with reliability and punctuality of freight services all across Europe. Some said that cross-border operations still suffer from a lack of interoperability which requires operators to purchase complex technology. One freight operator complained that politicians prioritise passenger traffic.

D2.23 Respondents provided evidence of problems from different countries. One argued that market opening in France is not far advanced and that too much attention is paid to trade unions. Respondents also reported market domination by DB and ÖBB in Hungary, and DB and Trenitalia in Italy. Market barriers were described as very high In Romania and also in Poland, where two drivers are required on each train.

D2.24 A public sector stakeholder provided evidence from the Netherlands where quality suffers from the behaviour of the IM and the operators, which are optimising their own processes without taking into account the needs of other parties.

D2.25 Evidence from Sweden suggests that freight train cancellations and delays are very common. In Greece poor finance affects the availability of rolling stock and train conductors and the funds needed to maintain the infrastructure. In Bulgaria, continuous construction work lowers the quality of rail freight services.

Q1.3 Do you consider quality issues are different for passenger services provided under public service contracts and those provided by open access?

Not different

D2.26 Respondents generally had the opinion that from a passenger's perspective there should be no difference in quality issues of passenger services provided under public service contracts and those provided by open access.

Different

D2.27 Respondents largely agreed that in practice there is a significant difference from an operator's perspective. Many stated that open access operators have natural incentives to provide high quality and generate sufficient revenues to finance

better quality. In contrast, the quality of PSO services was considered to depend mostly on whether the competent authority provides adequate compensation (full costs plus reasonable profit). A new entrant commented that open access secures a maximum focus on quality in order to compete successfully with others.

D2.28 One stakeholder commented that when price and costs are the main drivers for the provision of PSOs, quality criteria must be defined in the tendering procedure.

D2.29 RUs commented that publicly procured services are often short commuter-type services used on a daily basis while commercial services are long-distance services used for business or leisure trips. All these issues affect quality, and how passengers perceive and react to quality problems.

Q1.4 To what extent do you think that the quality of rail services affects the competitiveness of the rail sector in the country(ies) you operate in?

Quality and price

D2.30 Respondents generally stated that the competitiveness of the rail sector is affected by the combination of quality and price, and also by other factors such as the timetable. Several respondents commented that quality of passenger services (often under PSO) is already high in their countries, and that price is therefore likely to have a much higher influence on the competitiveness of rail than quality. A respondent from Lithuania commented that price sensitivity is high, but passengers have little incentive to change the mode since bus fares are similar.

D2.31 Comments suggested that freight services are much more price-sensitive than passenger services. Shippers can easily shift from one mode to another, depending on their current requirements regarding quality and price. Respondents stated that without a minimum level of quality, price reductions will have no impact on the competitiveness of freight rail.

D2.32 A respondent provided evidence from Austria where the entry of an open access operator providing high quality services for higher prices increased overall demand on an airport link. In Slovenia, one comment was that the main reason travellers used other modes, in particular the private car, was the low frequency of passenger trains.

Mainly other factors

D2.33 Several RUs underlined the importance of a transport policy fair to all transport modes, arguing that European Commission's mode-based approach overlooks the need to create a level playing field for all modes.

Q1.5a To what extent do you believe that the following quality and financial elements affect demand for rail passenger services? Please specify other problem elements, quality or financial.

D2.34 Respondents identified several other elements affecting the demand for rail services. These were principally travel time, safety, network density and quality of the infrastructure, the proximity of stops, stations with good transport links, regularity and punctuality. They commented that demand for rail tends to fall with a rise in car ownership and a large supply of car parking in city centres and

business locations. They also said that subsidies and funding may be essential to provide adequate frequency, ticket prices and the overall quality of the infrastructure, which also affects punctuality.

D2.35 Several incumbent operators stated that:

- Where the quality of regional/local services (usually PSO) is high, price will be the main driver for demand.
- Where the quality of PSO services is low, punctuality will probably be as important as price.

D2.36 Competent authorities gave less weight to the influence of ticket prices on rail demand. They pointed instead to high infrastructure quality, journey time, integrated transport policy and high quality on board services.

D2.37 Other respondents from the public sector focused on the passengers' perspective. They emphasised ability to buy a ticket from one operator valid for the whole journey, including the services of other operators. This implies a need for collaboration, which can be difficult to achieve. A Ministry further stated the importance of transparency and simplicity in ticket pricing and also clean and comfortable stations.

D2.38 One respondent stated that the availability of through tickets is important, particularly in countries with a large number of operators.

D2.39 Passenger associations also underlined the importance of a comfortable journey, and in particular the ability to get a seat.

Q1.5b To what extent do you believe that the following quality elements affect demand for rail freight services?

D2.40 Price was generally perceived as one of the most important elements affecting the demand for rail freight services. However, several operators said that punctuality would have a similar impact on demand as price and reliability, given the current low quality of services in freight compared to passenger transport. Respondents also said that one of the main drivers of demand for rail freight will be services adapted to customers' needs, especially in competition with road, where flexibility is much higher and charges usually lower.

Q1.5c Please rank the following elements from the one with the greatest importance to the one with the least importance for the competitiveness of the rail sector, unless you have indicated "no opinion" or "not at all" in question 1.5a.

D2.41 RUs widely shared the opinion that ticket prices and service frequency depend strongly on the level of compensation for the PSO. They also mentioned punctuality, safety and travel time as important for the competitiveness of passenger rail.

D2.42 Public sector respondents said that intermodal and intramodal integration between different operators are a prerequisite for the competitiveness of the rail sector.

D2.43 Passenger representatives commented that poor public support for public investment in infrastructure projects may reflect the perception that there is little

point in investing in something new if current infrastructure cannot be adequately managed.

Q1.5d Please rank the following elements from the one with the greatest importance to the one with the least importance for the competitiveness of the rail sector, unless you have indicated "no opinion" or "not at all" in question 1.5b.

Please comment and provide any evidence and data that can substantiate your response.

D2.44 Respondents generally said that price is one of the most important factors for the competitiveness of the rail freight sector. However, several respondents said that, while price remains the most important factor for bulk goods, punctuality becomes more important in certain cases, such as the transport of car components.

D3 ISSUES AFFECTING THE QUALITY OF RAIL PASSENGER SERVICES

Q2.1 To what extent do you agree that the following aspects affect the quality of rail services and have an impact on the competitiveness of the rail sector in the EU?

Please explain your suggested "Other" category in more detail, comment and provide any evidence and data that can substantiate your response.

D3.1 RUs and IMs said that sufficient funding for infrastructure and transparent infrastructure charging are crucial for a quality and competitive rail service. Some said that evidence from Sweden suggested that the success of market opening was largely based on strong public investment in infrastructure and rolling stock. Several stakeholders commented that the level of financing PSO strongly influences the quality and competitiveness of rail services.

D3.2 A new entrant underlined the importance of competitive tendering for the quality of rail services. In contrast, an incumbent RU expressed the opinion that the factors listed might have an influence on the number of competitors or new entrants in the market, but do not necessarily affect the quality or competitiveness of the rail sector, and that multiple operators may worsen quality. Stakeholders from the public sector provided evidence from Sweden and Lithuania where there are no or few new entrants, despite full market opening to open access operators.

D3.3 Other incumbents said that two of the main factors influencing the quality and effectiveness of the rail sector were:

- Lack of a level playing field with other transport modes
- lack of standardisation of the acceptance processes for rolling stock

D3.4 Associations of RUs also referred to the main access barriers for new entrants being:

- Lack of standardisation
- Extensive regulation of the sector

D3.5 One stakeholder expressed the view that differences in legislation, institutional responsibilities and the different calculation of access fees for different IMs impede market access for new entrants. A regulatory body mentioned that the current system provides no incentives for many IMs to increase their efficiency.

D3.6 Public transport authorities commented that the regional and suburban passenger rail sector will only develop further when planning also integrates urban development, curbing traffic and parking. Passenger associations highlighted the need for complete and easy-to-find information about timetables and fares. Currently, this information is often hard to find, in particular when the journey involves more than one RU or is cross-border. Other stakeholders in this group said that lack of inter-available ticketing worsens the quality and competitiveness of rail.

Q2.2 To what extent do you believe that the following factors contribute to each of the problems listed in the previous question?

Please comment and provide any evidence and data that can substantiate your response.

Access barriers for railway undertakings to the rail sector

D3.7 Several incumbent RUs said that one of the main barriers to entry is the lack of standardisation and the high costs of the acceptance process for rolling stock. Associations of RUs stated that costs of entering the rail market are at least 10 times higher than the road transport market.

D3.8 Associations of RUs also mentioned a lack of available rolling stock, which is often owned by the incumbent, uncertainty regarding infrastructure capacity, and a lack of transparency of access charges. One association of RUs suggested that the harmonisation process in the EU should focus more on functional demands than on fulfilling detailed and specific technical requirements, which have proven to be costly for RUs. Different technical characteristics of the network also form an important access barrier in some countries.

D3.9 One passenger association provided examples of where incumbent operators obstructed access to information and ticket purchasing facilities to new entrants. These included SNCF relating to the Thello Paris-Milan-Venice sleeper train, ticket sales at Copenhagen Hovedbånegard for competing services on the Øresund bridge, ÖBB's reluctance to facilitate promotion of WESTbahn's services in Salzburg and DB's behaviour relating to Veolia's long-distance services.

Discriminatory framework conditions

D3.10 Several incumbent RUs commented that the discriminatory framework derives mainly from the disadvantages of rail compared to other modes of transport, particularly in terms of infrastructure charging and financing. One association of RUs also mentioned the requirements for drivers' language skills and the general working conditions of railway personnel. Further to this, they said that a lack of technical transparency and harmonisation amongst Member States, including the authorisation process of rolling stock and the different signalling systems, lead to discriminatory framework conditions.

D3.11 One incumbent RU identified a number of discriminatory framework conditions. These were lack of track capacity, the methodology of the assessment of whether the economic equilibrium of PSO-contracts is compromised by new open access services, a lack of non-discriminatory access, and a lack of detailed technical standards. In addition, incumbent RUs mentioned a lack of independence of the regulatory body from infrastructure operators. The only new entrant commenting on this question stated that the integrated structure of many incumbents unavoidably leads to incentives to discriminate against competitors. One stakeholder provided an example from Finland where the incumbent is the only provider of the mandatory training for drivers, conductors and other safety-critical personnel.

D3.12 An association of RUs pointed out that a full separation of infrastructure and transport operations may not always be the optimal solution. They referred to the McNulty report on the railways in Great Britain, which identified some deficiencies in a fully separated model in terms of delivering efficient rail services, and recommended a re-alignment between the IM and the RU on some franchises to test whether this could improve the operational service.

Inadequate regulatory oversight

D3.13 Several incumbent RUs said that the absence of oversight by a European regulatory body impedes a common interpretation of EU law, which is of particular importance for international transport. Incumbents and associations of RUs said that a lack of staff in the regulatory authorities in many Member States leads to inadequate implementation of the regulatory framework.

D3.14 One Ministry said that the commercial affairs of the IMs and RUs should be left to the market. A regulatory body favoured an extension of responsibilities of the regulatory bodies to PSCs.

Lack of competitive incentives on railway undertakings to improve quality/reduce fares

D3.15 Incumbent RUs pointed out that rail services are under constant scrutiny by the authorities, the media and public opinion and that they are in constant and severe competition with other transport modes, all of which creates an incentive to improve quality.

D3.16 One new entrant mentioned the situation in Germany, where open access rights have been introduced, but the framework contract system implemented for slots only allows market entry during a narrow window every 5 years. Several respondents said that the competitive award of public service contracts is the only reliable way to incentivise an increase in quality and a reduction in costs. One association of RUs said that excessive use of PSCs may hinder open access services.

Q2.3 Are there any other problems within the rail sector that are hindering the creation of a high quality passenger service that can compete with other modes of transport?

D3.17 Stakeholders referred a number of problems hindering the creation of a high quality passenger service. A common view among all stakeholder groups was that framework conditions for rail are disadvantageous compared to other transport

modes. Many stakeholders stated that financing of both infrastructure and PSO is one of the most important aspect influencing quality and competitiveness of rail. Furthermore, incumbent RUs expressed the opinion that one of the main drivers of high quality passenger service is the availability of infrastructure capacity and its quality.

D3.18 Associations or RUs also said that over-protection of trade unions with regard to the rights of their members hampers the competitiveness of the rail sector. They also expressed the view that the conditions for financing rolling stock may deter new entrants from participating in tenders and favour the incumbent operators. A Ministry stated that. given the need for long term investment in the railway business, competition will either result in less efficiency or in a semi-monopoly industry organisation.

Q2.4 What effect do the following external factors have on the competitiveness of the rail sector?

D3.19 RUs commented that there is no level playing field between road and rail transport, and that sustainable transport modes will not benefit while the external costs of road haulage are not internalised. Another important element for the competitiveness of the rail sector is the predictability of the market rules, since investments made in rolling stock will last for about 30 years. For instance an increase in weight and dimension limits of trucks would increase road competitiveness and prevent multimodal transport, as rolling motorways would not be able to transport larger or heavier trucks.

D3.20 Passenger representatives underlined the efficiency and sustainability of rail, particularly in urban areas. According to a representative of the sector one person commuting to work by car needs ninety times the space of a rail-based commuter.

D3.21 Respondents also commented that the success of public transport depends on an integrated policy, combining urban planning, curbing traffic and parking and fast, regular and integrated public transport services.

D4 THE OBJECTIVES OF THIS POLICY INITIATIVE

Q3.1 Do you believe that the following objectives address the issues previously discussed in Section C of this survey?

(Issues discussed in Section C were access barriers for railway undertakings, discriminatory framework conditions (e.g. access to rail related services and rolling stock, etc.), inadequate regulatory oversight, and lack of competitive incentives on railway undertakings to improve quality and/or reduce fares)

D4.1 Several stakeholders said that independent decision making of different infrastructure functions may lead to a misalignment between infrastructure and market demand. RUs and associations of RUs said that Member States should be free to decide whether to award PSCs directly or by competitive tendering and that different circumstances in different countries must be taken into account.

D4.2 One incumbent RU stated that open access will not necessarily improve the attractiveness and competitiveness of the market if the infrastructure and the available rolling stock are in poor condition. Another RU complained that the

differences between track access charging regimes hamper the development of international services and distorts competition between RUs in different Member States. One association or RUs stated that the most important objective should be to ensure non-discriminatory access to stations.

D4.3 Two passenger associations underlined the importance of limiting any negative effect of increased market opening. Inter-available ticketing and retail information arrangements should be guaranteed. They also mentioned the importance of enhancing a high quality urban transport to ensure a fast end-to-end journey, rather than focusing exclusively on high-speed connections. Public authorities said there was a need to guarantee a coherent and fair transport policy encompassing all modes.

D5 MARKET OPENING BY OPEN ACCESS AND COMPETITIVE TENDERING

Q4.1a Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through new open access rights?

Advice

D5.1 Stakeholders said that further market opening should be accompanied by adequate framework conditions to avoid affecting long-term investments or social dumping.

D5.2 One incumbent explained that further market opening would only make sense if reciprocal conditions are ensured at a European level. IMs would have stronger incentives to apply fair conditions to the users of their services if access conditions are similar in other countries.

Advantages

D5.3 Public transport authorities said that extending open access to all Member States might be an important element of increasing competition in the rail sector.

Disadvantages

D5.4 Incumbent RUs said that open access rights on congested railway lines would lead to an increase in operational complexity, make it more vulnerable to disruption, and probably lead to lower punctuality, rather than bring further benefits for passengers.

D5.5 One new entrant mentioned that passengers would value integrated services more than open access and that competition in passenger rail should therefore be by PSC tendering, not by open access.

D5.6 Many stakeholders of different types mentioned that a further opening of domestic passenger services could lead to cherry-picking and hence hamper self-financing of the rail system.

D5.7 Public transport authorities commented that open access operators have already delivered a variety of useful new services, but they tend to focus on profitable long-distance routes. They mentioned that open access operators may abstract passengers from PSC services and hence increase the subsidy needed for them.

Q4.1b What effect would further market opening (through new open access rights in the domestic market) have on the following areas?

Advice

D5.8 The only association of RUs commenting on this question said that open access services will generally develop and offer the type of ticketing the customer wants and needs. They commented that intramodal integration will be introduced by the market if this is a customer demand, but that in most cases customers are not interested in this.

D5.9 Public transport authorities said that cooperation between open access operators must be enforced through an adequate legal framework to maintain intramodal and intermodal integration. They also said that open access would have little impact on the areas named in the questionnaire.

Negative effects

D5.10 Incumbent RUs generally expected that further market opening would have negative impact on the areas named in the questionnaire. They said that open access services would mainly seek to use already congested lines, where it would worsen punctuality, and have little effect (either positive or negative) on uncongested lines. They also said that open access operators are currently facing price battles with incumbents, but it is not clear whether these low prices can offset operational costs in the long term.

D5.11 Workers' representatives mentioned the risks of inconsistent price policies due to more and less profitable lines, a decrease of punctuality and the appearance of old rolling stock on the market.

Positive effects

D5.12 One respondent said that open access would increase the use of new rolling stock.

D5.13 A respondent from a Ministry believed that further market opening would improve quality and ticket prices.

Q4.2a Do you agree that further market integration of the rail sector should be progressed by opening of domestic passenger services through compulsory competitive tendering for public service contracts?

Advice

D5.14 Several incumbent RUs commented that the effectiveness of compulsory competitive tendering for public service contracts depends principally on the available state funding. If PSO compensation is not adequate new entrants will not have any incentives to enter the market. One incumbent underlined the importance of a harmonisation of compensations at European level.

D5.15 The only new entrant leaving a comment demanded that all PSCs with a duration of more than 3 years should be competitively tendered.

D5.16 However, one association or RUs also stated that competitive tendering would only make sense if this would actually provide higher quality and reduce the overall costs of those services for the community (taxpayers and customers). This

stakeholder also mentioned that evidence from Germany showed that competitive tendering has not always been the best option to award PSO contracts.

D5.17 Public service authorities, which are mainly responsible for awarding PSCs, reported that they had made good experiences with competitive tendering, but also pointed out that this procedure would increase their administrative burden.

Advantages

D5.18 Several associations had the opinion that compulsory competitive tendering would bring benefits such as increased efficiency and quality since new involved parties would develop different new solutions and new ideas.

Disadvantages

D5.19 A stakeholder said that competitive tendering should only be applied where it can be demonstrated to deliver value for money, and that evidence from the UK, where PSCs have been awarded by competitive tendering, showed that this does not always lead to reduced costs for the public sector.

Q4.2b What effect would further market opening (through compulsory competitive tendering for public service contracts) have on the following areas?

Advice

D5.20 One stakeholder commented that the effect of further market opening on intramodal and intermodal integration will only be neutral if a legal framework or a service contract forces RUs to cooperate with each other in terms of through ticketing and integrated ticketing.

D5.21 One association of RUs mentioned that there is no clear link between intramodal integration and competitive tendering. In Germany services of different operators of local and regional public transport including rail are integrated in the Verkehrsverbünde which have existed for up to 50 years. Within these Verkehrsverbünde, passengers can use several operators with one single ticket. The introduction of competitive tendering did not have any adverse effect on their integrity.

Positive effects

D5.22 One PTA said that competitive tendering generally results in a more efficient organisation of rail services.

D5.23 One association of RUs provided statistics from various Member States underlining the advantages of competitive tendering. In Germany, for instance, passenger numbers in regional rail increased by 45% within the last 15 years whereas subsidies decreased by 26% in the same period. In Great Britain, passenger-kilometres increased from 29 billion before the railway reform in 1994 to 51 billion in 2010.

Negative effects

D5.24 Incumbent RUs were pessimistic about compulsory competitive tendering of PSCs. Most expected little change as a result of competitive tendering. Many said that most of the quality criteria are defined by the competent authorities, but one RU

said that in order to win a contract, costs and therefore quality standards must be minimised. One incumbent stated that “the coherence of the transport system and its backbone would be damaged”. They also said security is a very important issue, in particular in metropolitan areas ,and it could fall if the tendering process set lower standards.

D5.25 Public transport authorities provided different opinions on competitive tendering. Some said that service to passengers is likely to worsen and that the administrative effort of public transport authorities would increase significantly. Another public transport authority referred to the McNulty report in Great Britain and said that competitive tendering will neither provide improvements nor reduce costs.

Q4.3a If some or all of your network were to be opened to open access operations, please outline your views on the following ways in which such a policy might be implemented:

Please provide details of any "Other" option that you have inserted and consider may be relevant.

Advice

D5.26 Incumbent RUs and an association or RUs said that many factors other than open access influence their market position. These include financing, charging, market size, population density, intermodal competition and historic PSO contracts. One incumbent highlighted the importance of reciprocity in domestic market opening to avoid unfair competition.

Negative views

D5.27 Many incumbent RUs said that unrestricted open access competition on all routes will be the most costly solution for taxpayers, and may therefore not be welcome in times of austerity.

D5.28 Ministries were pessimistic regarding the impact of open access. Experience showed that few operators entered the market even where the right to do so existed.

D5.29 Passenger representatives said that introduction of open access rights on all routes would make unprofitable services extremely expensive if there was no way to plan them as priced options with the core service.

Q4.3b Please rank the following options for which you believe there will be a positive or very positive effect from the one which you think is most appropriate to meet the objectives presented in Section D to the one which is the least appropriate.

D5.30 Many RUs and associations of RUs said that the success of market opening primarily depends on accompanying framework conditions (financing, charging, market size, population density, intermodal competition and historic PSO contracts), and that therefore it is difficult to predict clearly the outcome of individual options. However, several incumbents said that unrestricted open access on all routes would be the most expensive solution for taxpayers. Stakeholders said that

extended open access rights would have a limited effect on rail services due to different conditions for transport modes in the current overall transport market.

Q4.4a If some or all of your network were subject to competitive tendering, please outline your views on the following ways in which such a policy might be implemented:

D5.31 A stakeholder from the public sector reported that rail services in Sweden are already competitively tendered and the experience since its introduction is very positive. Today, infrastructure capacity constraints are the most obvious barriers to developing a more effective and competitive rail service. A PTA said that urban rail systems should not be subjected to competitive tendering as these would lose their integrity and probably also their service quality.

D5.32 Several stakeholders said that there is no "one size fits all" solution for all Member States and particular framework conditions have to be taken into account. One respondent said that tendering makes sense only if the gains from tendering exceed the costs. One RU pointed to Finland where volumes are so small in many remote areas that arranging competitive tendering procedures will cost more than the gains that tendering could bring, and said that there would probably not be a high interest among operators. An association of RUs said that, while evidence from the German market suggests that competitive tendering can be a good option, in some cases direct awards are more appropriate.

D5.33 A Ministry said that quality issues have to be taken into account in the awarding process and that surveillance and effects on bad quality have to be part of the contract.

Q4.4b Please rank the following options for which you believe there will be a positive or very positive effect in relation to the degree to which they meet the objectives presented in Section D.

D5.34 One incumbent RU said that long-term contracts were important as a commitment from both contractual parties and for the provision of rolling stock by the competent authority. Another incumbent said that rail liberalisation must include PSCs as most of the rail services in Europe are covered by these.

D5.35 Many associations of RUs said that direct awards should be avoided, but they also recognised the need for flexible solutions on special occasions. This was also the view of a PTA.

D5.36 A passenger association mentioned examples from the Netherlands and Germany where competitive tendering has led to significant improvements of rail services.

Q4.5a What is the view of your organisation on each of the following framework conditions?

D5.37 Different stakeholders had varied views on the proposed options on improved access to rail related services, in particular ticketing.

Ticketing

D5.38 Many incumbent RUs said that the distribution of tickets is one of the core businesses of rail and a means of competitive differentiation. They said that

compulsory joint schemes would not be consistent with the liberalisation objective of competition between RUs.

D5.39 One new entrant emphasised the model implemented in Switzerland which combines competition with compulsory through ticketing and several solutions for customers to use country wide discount-cards or network tickets. The respondent said that such customer-friendly solutions are the most effective way to increase the modal share of rail. Also passenger associations underlined the importance of usability for customers and proposed a separation of ticket distribution and transport operations, citing the failure of RUs (in the case of Railteam) to set up workable interoperable system.

D5.40 Public authorities said that passengers want to go ”from A to B” rather than deal with issues regarding different sales channels or several tickets for one trip. However they also said that regulation should safeguard the interests of passengers until the market is able to provide sufficient level of co-operation by itself.

Tendering procedures

D5.41 Most respondents were against extending the competence of the regulatory bodies into the tendering process. Public authorities expressed the opinion that this would have no effect and RUs stated that they would refer to the regulatory authorities if they felt that the process was discriminatory. Incumbent RUs emphasised the importance of a clear and standardised tendering process, preferably established by law.

D5.42 Several incumbent RUs said that employee protection and harmonisation of working conditions is important and must be addressed to guarantee fair competition. To protect employees, public authorities proposed a legal framework on national levels. Associations of RUs, on the other hand, underlined the importance of differentiation in a competitive market and named working conditions as one of the key elements.

D6 INDEPENDENCE OF INFRASTRUCTURE MANAGEMENT (UNBUNDLING)

Q5.2 Please explain what the advantages and disadvantages are of the model(s) you have selected in question 5.1

Advice

D6.1 A new entrant said that it was operating successfully in countries with different separation models, and that an open and competitive framework is guaranteed through non-discriminatory access to infrastructure and strong and independent regulatory oversight rather than through institutional separation in itself. Associations of RUs said that in order to ensure non-discriminatory access to infrastructure, path allocation, traffic management and station management should be independent from any operator, but that cooperation to optimise network management and operations should also be allowed. They stated that a performance regime should be implemented to incentivise IMs to deliver high quality.

Institutional separation

D6.2 Almost all respondents said that institutional separation ensures financial transparency, non-discriminatory practice and a clear role division, which creates focused/pure incentives for the IM and the incumbent operator. Freight operators stated that there were advantages in this separation model.

D6.3 Incumbent operators, associations of RUs and the public sector, in particular, said that there were disadvantages. They said that there is no empirical evidence of its benefits and that rail systems in which institutional separation was applied are more costly for the government, mainly due to higher transaction costs and loss of efficiency and coordination. A Ministry commented that apart from freight there are almost no real open access opportunities.

Partial separation

D6.4 An incumbent operator said that the disadvantages of partial separation are largely the same as those of institutional separation. A capacity allocation body said that this arrangement would give an IM no incentive to provide service of a reasonable quality.

Partial integration

D6.5 Associations of RUs said that there is no clear relationship between organisational models and the level of success of rail. Whatever the organisational form or structure, it should guarantee fair, transparent and non-discriminatory access to rail infrastructures, stations, essential facilities and associated services and should be under the scrutiny of the Regulatory Body.

D6.6 Incumbent operators commenting on this question were strongly in favour of this model. They said that the partial integrated structure limits transaction costs, ensures financial transparency, enables more simple operational co-ordination and conflict settlement, and provides cost savings and synergies in shared facilities and services.

D6.7 Workers' representatives said that non-discriminatory access to rail infrastructure is ensured by a Regulatory Body, so an integrated holding company can ensure new rolling stock investments and that services are provided on unprofitable lines.

D6.8 New entrants said that this model structure provides only disadvantages, mainly due to the lack of scrutiny of financial flows within a holding structure and various ways in which the incumbent can discriminate against new entrants.

Full integration with independent allocation and charging bodies

D6.9 One stakeholder said that, due to a high efficiency of its freight transport activity, the incumbent RU of one Member State is able to offer attractive freight services, cross-subsidise loss-making passenger services without state subsidies, and pay dividends to the Government (in 2012 7.5% of all the income of the railway company). The stakeholder say that this integration of the whole system keeps the railway efficient, resulting in higher satisfaction of the final customers and better financial results. A Ministry said that there are no disadvantages of this model.

D6.10 One stakeholder mentioned the system implemented in Switzerland, one of the most intensively-used networks. Further capacity can often only be found in an iterative optimisation process which involves both technical timetable studies and

adjustments to RUs.' service plans. This is ensured through an integrated model with an independent allocation body.

Q5.3 To what extent does this model address the following aspects?

Advice

D6.11 Associations of RUs mentioned the risk of an abuse of the monopoly power of an independent IM and the need for appropriate regulation. They also said that coordination and alignment is not market-derived and therefore needs to be addressed.

D6.12 An IM said that cross-border cooperation depends on the willingness of the Member States to cooperate rather than on the model implemented. In particular, a lack of technical harmonisation and framework agreements hinders such kind of cooperation.

Positive

D6.13 One public transport authority said that it is important, where both passenger and freight trains use the network, to have an independent IM to ensure that capacity will be allocated fairly in a manner that maximises the utility of the network. However, independence is not relevant where only one type of train uses the network, such as on urban rail networks. Multiple operators in this context tend to mean suboptimal utilisation of available capacity.

D6.14 An IM pointed at the success of the British liberalised rail system as identified by the McNulty report. There has been a significant increase in passenger and freight transport volumes, railway safety is at an all-time high, train reliability has improved significantly, and customer satisfaction has improved.

Negative

D6.15 Incumbent RUs mainly said that a separated system would bring fragmentation, misalignment and increased transaction costs. They based their expectation on the results of the McNulty report from Great Britain. One incumbent said there was a risk of significant disadvantages, particularly on networks where a large share of rail services are cross-border connections, such as in Lithuania.

D6.16 An independent capacity allocation body said that there was a risk that the independent IM will favour the needs of certain RUs over others. A separated model might therefore lower the total system efficiency and quality compared to other models guaranteeing non-discrimination.

Q5.4 To what extent does this model address the following aspects?

Please provide evidence and any data that you may have to support your view.

D6.17 Several incumbent RUs said that a system without full separation has the advantage that the IM is forced to listen to the concerns of the operators, but it must be ensured that also non-incumbent operators' opinion is considered. They said that cutting all links between infrastructure and operations is a recipe for mutual distrust, and low quality of service. One stakeholder said that the system in Italy is working perfectly with many operators, in contrast to countries with a

separated system. Incumbents also said that a non-institutionally separated model can be successful with the right incentives and regulation.

D6.18 Associations of RUs said that the integrated model has some problems, particularly in terms of access to infrastructure and its fees. However non-discrimination can be ensured in this model with sufficient regulatory control.

D6.19 A stakeholder mentioned the importance of an independent path allocation body in an integrated model, particularly on highly utilised networks. Such a body can act as an mediator between the IM and the operators.

Q5.5 For which of the following functions do you consider that independence of decision making must be reinforced to ensure non-discrimination?

(The functions listed were capacity allocation (including traffic management), infrastructure maintenance activities, infrastructure charging and infrastructure planning and financing)

Advice

D6.20 Many incumbent RUs referred to a need to distinguish between non-discrimination of new market entrants and independence of IMs. They said that independence of IMs is one way to achieve non-discrimination, but not the only way, and not necessarily the most efficient one. They said that decisions on infrastructure maintenance, planning and financing are best made in a way that is not too remote from the market.

D6.21 One incumbent operator said that the IM must take into account the objectives of the market and the final customer to achieve maximum efficiency of the system. In particular, ensuring non-discrimination between different types of rail traffic (freight, regional and long distance passengers) is potentially more important than non-discrimination between different rail operators. Furthermore, this stakeholder said that infrastructure charging, infrastructure planning and financing and new investments in infrastructure form part of public policy and thus decisions should be taken by the public sphere. Given that infrastructure charging policy decides on the allocation of costs to the infrastructure users and the taxpayer, the IM can make recommendations, but the final decision should be taken by a public authority. In contrast, maintenance activities, capacity allocation and in particular traffic management should remain operational decisions of the IM. The independence of decision making concerning these functions under current EU obligations is entirely sufficient.

No reinforcement

D6.22 A regulatory body said that traffic management might not need to be independent. IMs have the information needed to make decisions fast and with lower transaction costs.

D6.23 A stakeholder provided evidence from Lithuania where the Ministry of Transport makes decisions on capacity allocation and charging according to the EU requirements in an integrated model. This model is seen as clear and transparent. This stakeholder said that all other proposed models lead to an inefficient IM.

Reinforcement

D6.24 One public transport authority provided evidence of discriminatory behaviour in Germany, such as pricing schemes for electricity. DB Energie GmbH, the branch of DB responsible for providing electricity for the railway network, has a volume discount within its charging scheme that can only be used to its full extent by the train operating branches of DB. Competing RUs must pay around 15-20% more for electricity. Another example for a discriminatory pricing scheme can be seen in the field of station prices. In Germany RUs have to pay a fee for each stop at a railway station. The price depends on the station category and the length of the train. The fee for trains longer than 180 metres used to be three times higher than fees for shorter trains. When HKX GmbH, a new operator competing with DB on long distance connections between the Ruhr-area and Hamburg designed their trains with a length of only 174 metres, the pricing scheme was modified to have trains with a length above 170 metres pay the maximum price.

Q5.6 Please rank the following options from the one which you think is most appropriate to meet the objectives presented in Section D to the one which is the least appropriate.

No further action

D6.25 Most vertically integrated RUs said that no further separation is required and that this would lead to a decrease in efficiency. They agreed that the model implemented must provide for an efficient and non-discriminatory network access for all operators, but also must remain affordable.

D6.26 Within this context, a number of incumbent RUs referred to a study recently published by Merkert et al. which analysed transaction costs in railway systems with different grades of separation. The results of this study suggest that transaction costs in the fully separated model implemented in Britain are three times higher than those of the partially integrated model implemented in Germany. Incumbent respondents also said that, particularly in small and technically separated national railway markets, the benefits of full separation are not expected to offset its corresponding costs. They proposed that Member States should be allowed to choose the most appropriate system.

D6.27 An association of RUs said that the objectives could be achieved with all the options listed, since these depend more on an efficient regulation than the grade of separation.

Fully institutional separation

D6.28 A new entrant and a number of customer associations said that the objectives put forward could only be met by an institutional separation applied to all functions of the IM.

Q5.7 In addition to the options in question 5.6, would you support the creation of a specific body including, in a non-discriminatory manner, representatives from all infrastructure users to ensure that their interests are duly taken into consideration?

Advice

D6.29 Many incumbent RUs said that non-discrimination should not be confused with independence of industry bodies.

D6.30 Most IMs supported the creation of a customer platform, but not a formal body and mandatory decisions.

D6.31 One competent authority said that such a body should also include competent authorities. Another competent authority pointed to the industry structure in Great Britain which ensures non-discrimination so there is no need for such a body.

Positive

D6.32 Many incumbent RUs said that operators should be involved in decisions concerning network developments. A frequent response was that such a body should have consultative powers and should be fully representative in order to keep the timing and costs of consultation processes at acceptable levels.

D6.33 Associations of RUs found such a body very important, but also pointed towards the importance of avoiding the creation of a bureaucratic institution which would obstruct rather than promote an efficient railway sector. They mentioned good experience with existing similar bodies in Germany and Switzerland.

D6.34 One regulatory body said that this could reduce transaction costs as a forum for sharing information.

D6.35 One association representing different industry actors said that it is very important to have an independent, competent and well-resourced regulatory body in each Member State, avoiding to create additional bodies and superpose competences. Another stakeholder pointed at the Swiss example where all operators have been integrated into the ownership of an independent path allocation body by a minority shareholding.

Negative

D6.36 National authorities said there was a risk that such bodies would be dominated by the larger operators and that it would create a bureaucratic burden but not improve efficiency.

APPENDIX

E

LITERATURE REVIEW

E1 INTRODUCTION

E1.1 This appendix contains the literature review conducted as part of this study. The literature review focuses on finding evidence to test the understanding of the problems defined in the problem tree and is organised accordingly.

E1.2 The items reviewed have been grouped into the following categories:

- Unbundling
- Lack of financial transparency
- Deficient funding and investment framework
- Lack of structures and mechanisms for co-ordination
- Absence of open access rights
- Privatisation and competition for PSOs
- Discriminatory framework conditions – access to rolling stock
- Discriminatory framework conditions – rail related services

E2 UNBUNDLING

Efficiency gains

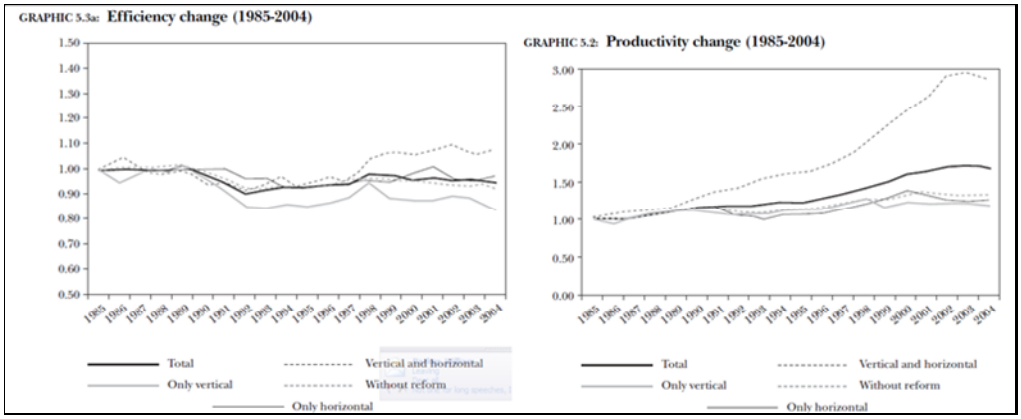
E2.1 Evidence of efficiency gains as a result of unbundling has been found in Australia (OECD (2005), where an inter-state IM was created, whose aim was to provide the infrastructure on a non-discriminatory basis to several, - largely freight, - RUs. The IM was able to decrease infrastructure charges by 25% compared to the situation under mutual agreements between vertically integrated companies in place hitherto.

E2.2 Thompson (1997), whose paper investigates the unbundling process in Sweden, also reports significant (but unquantified) efficiency gains made by SJ (the incumbent RU) in the wake of unbundling, albeit the IM (Banverket) appears not to have gained as much from the process.

E2.3 The McNulty Value for Money report (2011) also mentions significant efficiency gains achieved through the franchising of passenger rail services (which has vertical separation as a prerequisite) in the Netherlands, Sweden, and Germany.

E2.4 In a study of 16 European railway networks, Sanchez and Monsalvez (2008) found that reforms and the deregulation of the railway industry have a positive effect on productivity and efficiency measured by the passenger-kilometre and tonne-kilometre per kilometre of rail network and per unit of rolling stock. However, efficiencies were achieved only with a time lag, during which the industry structure “matured”. The authors also found that where vertical separation was introduced without some degree of horizontal separation (i.e. opening up of the RU market segment), the efficiency gains were lower compared to those countries where industries remained vertically integrated.

APPENDIX FIGURE E.1 PRODUCTIVITY AND EFFICIENCY CHANGES ON EUROPEAN RAILWAYS (SANCHEZ AND MONSALVEZ, 2008)



E2.5 These findings are confirmed by Wetzel (2008a) who, in a stochastic frontier study of European railways, concluded that the three Western European railways with the worst technical efficiency decreases over time were CFL (Luxembourg), CIE (Republic of Ireland) and SBB (Switzerland). All three implemented only two EU reforms - on accounting separation and international access.

E2.6 In a comparative study of railway networks in Eastern Europe, the USA and Latin America, Willoughby (2005) claims that Latin American and US rail networks achieved labour efficiency gains of between 75% and 100% over the decade following privatisation and liberalisation of labour laws. However, these have been achieved through the privatisation (or franchising) of vertically integrated companies. This could be explained by the relatively low productivity achieved by these companies prior to these legal changes. These findings are supported to a degree by Sanchez and Monsalvez (2008), who suggest that railway systems that were efficient prior to the unbundling process would have probably remained efficient without vertical separation. Both authors suggest, therefore, that unbundling is not a necessary pre-requisite to achieving cost-efficiencies.

E2.7 A similar conclusion is reached by Cantos, Pastor and Serrano (2010b), who compare the efficiency of 23 European railways between 2001 and 2008, using data envelopment analysis. They conclude, that vertical separation can improve the efficiency of railways, but that the introduction of competition has a far more significant effect.

E2.8 Wetzel (2008b) performs a stochastic frontier analysis on data from 31 rail companies operating in 22 European countries between 1990 and 2005, i.e. during the period of implementation of many of the rail industry reforms mandated by the EU. The study shows, that the technological efficiency rates of the analysed companies converged over time, which suggests that the reforms, aimed primarily at increasing competition, managed to entice the worst-performing companies to operate more efficiently.

E2.9 Friebel, Ivaldi and Vibes (2003) conducted a regression study of various European railways, looking at the productivity of RUs in light of liberalisation. The study comes to the conclusion that “deregulation” (i.e. vertical separation and the opening up of the railway market) - as a “dummy” variable in a regression - has a

positive relation to productivity[1] . However, the results of this study are qualified by data limitations - there appear to be anomalous drops in the numbers of employees around the time of the implementation of different stages of the unbundling process in various countries - which suggests some flaws in the way the dataset was analysed. Nonetheless, the study by Wetzel (2008a) mentioned above comes to similar conclusions.

E2.10 Driessen, Lijesen and Mulder (2006) conducted a two-stage analysis of a panel dataset for 14 European countries (and Japan), using data envelopment analysis, and Tobit regression. They controlled for the type of competition present in these countries (open-access or tendering), and whether management of the RUs was independent of the government. The data covered the period 1990-2001, during which most European countries implemented some of the reforms mandated by the EU Railway Packages. The study concluded, that all European countries showed increases in productive efficiency over that period. However, while it showed that tendering had an overall positive effect on efficiency, open-access competition did not. The authors suggest this may be due to the fact, that open-access operations make it more difficult to co-ordinate timetabling and reduce efficiency of the utilisation of railway infrastructure. They also note, that traffic density has a significant positive impact on the levels of efficiency, whereas the independence of the management of rail undertakings has a negative impact - possibly due to the information asymmetry problems arising from such a solution. Oum and Yu (1994) come to the opposite conclusion regarding managerial autonomy. Their data envelopment analysis study of data for the years 1978-1989 of 17 countries (Europe, Turkey, and Japan) also shows, that high passenger loads and the extent of electrification of the network have a positive effect on efficiency. They also conclude that a high level of subsidy has a negative effect on efficiency.

E2.11 Gaston and Perelman (1992) also support the view that managerial autonomy improves the efficiency of railways. Their stochastic frontier analysis study of European railways also concludes that there are diseconomies of density on railways, as high load factors on trains (both passenger and freight) beyond a certain threshold lead to lower efficiency levels.

E2.12 A similar conclusion regarding managerial autonomy was reached by Gathon and Pestieau (1995), who performed a stochastic frontier analysis of panel data from 19 European railways from the period 1961-1998. They also differentiated between technical efficiency (achieved through quality of management) and technical progress (achieved through introduction of new technologies). They concluded that managerial autonomy is an important determinant of the performance of government-owned railways.

E2.13 Riviera-Trujillo (2004) performed a stochastic frontier analysis study of North and South American railways, focussing on freight transport between 1980-1999. The results of the analysis show, that the improvements in productivity on those railway systems are mainly due to technical change, rather than increases in technical efficiency.

[1] (0.008 for "partial deregulation"' – i.e. partial separation; and 0.011 for "sequential deregulation" – i.e. the sequential implementation of different reforms aimed at achieving vertical separation)

E2.14 A stakeholder panel study for the Finnish Railway Authority (2009) quotes German freight industry customers as claiming that prices charged to consumers of rail services appear to have decreased by 20-30% since the liberalisation of the freight railway market.

E2.15 KCW (2011) identify a host of benefits from tendering passenger rail services in Germany. As a result of regionalisation reforms, each Federal State is responsible for the provision of local and regional passenger rail services - they can then choose whether they wish to directly award these to an operator (usually the DB Regio division of Deutsche Bahn), or to implement some form of competition for the market. By analysing DB's accounts, the authors conclude that Deutsche Bahn makes a profit of around €2 per train-kilometre from services awarded to them directly by Competent Authorities - in comparison, services awarded through competitive tendering achieve around one quarter of that figure. The authors also claim that the DB Regio division of the company achieves an EBIT of 9.6%, compared to 1.7% for the two commercially-operated divisions responsible for long-distance and freight.

E2.16 Cantos and Maudos (2001) performed a stochastic frontier analysis of data from western European railways from the period 1970-1990, to investigate their efficiency when regulated and fully integrated. The study found that over this period of time the railways studied did not make any major improvements in terms of cost efficiency (i.e. lowered costs while achieving a similar level of output). However, their revenue efficiency (i.e. level of revenue achieved at a given level of inputs) decreased over this period by an average of 10%. The authors do mention, however, that some of the revenue efficiency problems can be explained by the fact, that in most countries passenger fares are controlled or regulated by political entities, and cannot be changed at will by rail undertakings. They therefore suggest a shift of focus from cost efficiency to revenue efficiency.

E2.17 Cantos, Pastor and Serrano (2010a) reach a very similar conclusion, but by estimating cost and revenue efficiency using data envelopment analysis, rather than stochastic frontier analysis. They note, that while most European countries in the 1980s formalised their relationship with the railways in the form of contracts for specific services, these did not significantly increase their cost efficiency. A slight increase in revenue efficiency is noted in the period 1985-1990, but this effect appears to dissipate between 1990 and 1995.

E2.18 Lan and Lin (2004) studied data from 44 railways from the period 1995-2001, using a complex 4-stage data envelopment analysis approach. While reaching a similar conclusion on cost and revenue efficiency as Cantos et al (see above), the authors suggest that the key cause of the decline in railway outputs and mode share is the competitive pressure from other modes.

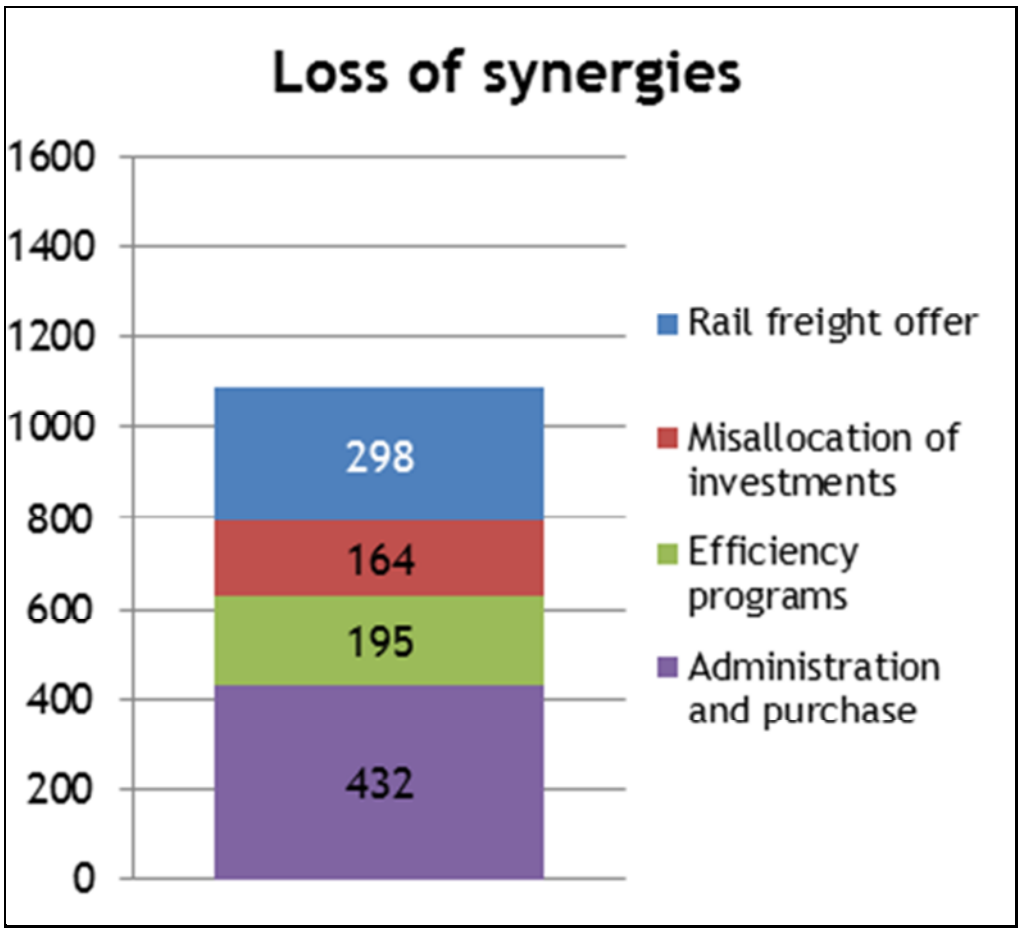
E2.19 Finally, Cantos, Pastor and Serrano (2010c) compare estimates of the effects of reforms on efficiency levels on railway networks throughout Europe, using data envelopment analysis (DEA),and stochastic frontier analysis (SFA). The results show that while there is a significant difference in the level of efficiency depending on the method of estimation applied, both of these rank the countries in terms of efficiency in the same order. The results also show that railways in countries, where only vertical separation has been implemented, do not appear to be

significantly more efficient than countries which have not implemented any reforms.

Loss of economies of scale

E2.20 In 2006, the PRIMON report was prepared with the aim of evaluating different options with respect to the privatisation of Deutsche Bahn. The report concluded that the synergies from an integrated structure were estimated to be up to €1.1 billion for the first four years after separation, this is the period between 2006 and 2009. These benefits would be eliminated in the case of a complete vertical separation. Appendix Figure E.2 shows the single elements of loss of synergies.

APPENDIX FIGURE E.2 LOSS OF SYNERGIES IN THE CASE OF FULL SEPARATION OF DB NETZ FROM DB TRANSPORT OPERATIONS (€ MILLION)



E2.21 Negative effects related to misallocation of investments would arise, given that a state-controlled IM would not be as efficient as a private company in terms of closure of lines and investments based on maximisation of return. Further negative effects concern investments that are only cost-effective from an integrated point of view.

E2.22 The authors also suggested that after full separation, already planned efficiency programmes could not be realised to their full extent. However, the report also mentions that after unbundling there is no reason why more effective efficiency-

enhancement programmes could not be launched. Therefore, this element of loss could not be determined with much certainty.

E2.23 The largest effect could be found in the field of administration and purchase where a loss of economies of scale, higher transaction costs at new interfaces and necessary duplication of functions could be expected. These findings suggest that many functions in the holding structure of the DB group are still not fully separated.

E2.24 A number of authors claim that unbundling is actually detrimental to efficiency. Ivaldi (2004), in a panel study of US railways, shows a 20-40% efficiency loss due to separation of freight and infrastructure operations. However, this is done by assuming the costs are subadditive[2], and that therefore railways are a natural monopoly. The study also does not separately account for start-up costs for the new industry structure following the unbundling process, which may account for some of the alleged loss. Furthermore, the US railway network is predominantly a high-volume freight railway, whose characteristics differ greatly from Europe. He claims that, despite there being less technical efficiency as a result of unbundling, there are no horizontal economies of scope between passenger and freight operations due to their qualitative differences. While this is true for some countries, it must be argued, that other horizontally-integrated companies do benefit from their mix of operations (e.g. PKP or DB), and use locomotives interchangeably for freight and passenger services. This conclusion is, however, countered by Sanchez and Monsalvez (2008), who claim that European countries, which have undertaken reforms of the railway sector to induce both vertical and horizontal separation, have noted the highest technical efficiency gains (see Appendix Figure E.1 and Appendix Figure E.2).

E2.25 McNulty (2011) points out that the unit costs per passenger-kilometre of running trains in Great Britain have remained the same as at privatisation, despite the fact that passenger-kilometres have increased by 57% since. He does, however, point out, that this could be a problem that is unique to Great Britain, as the Swedish, German and Dutch franchising schemes have generated cost reductions. Steer Davies Gleave (2011) reach a similar conclusion.

E2.26 Growitsch and Wetzel (2009) also conclude that vertical separation of rail companies is detrimental to their efficiency. They compare data from 54 rail companies (vertically integrated, IMs, passenger and freight rail undertakings) from 27 European countries, for the period 2000-2004. They perform a data envelopment analysis, comparing vertically integrated companies with "virtually integrated companies" - appropriate groupings of companies from countries, where vertical separation has taken place. The authors find that when the physical inputs to production (staff, network length, rolling stock) are measured, vertically integrated companies are 9% more efficient than groupings of vertically separated ones. The difference is more marked when operating expenditure is considered instead of the physical inputs. The authors note, however, that vertically integrated companies which are exposed to competition from others, are generally more efficient than those which are not.

[2] Subadditivity occurs when evaluating the function for the sum of two elements of the domain always returns a result which is lower or equal to the sum of the function's values at each element.

Consolidation

E2.27 However, in a theoretical paper dealing with rail market liberalisation, Juranek (2011) shows that if liberalisation of rail networks in neighbouring countries is not conducted in a consistent way, then the vertically integrated company of the country that chooses to delay reforms could have both the means to stifle competition in their own territory and to buy up and integrate its competitors in other countries. By raising track access charges the integrated company can deter their competitor from operating on their own infrastructure. As this gradually worsens the other operator's competitive position, it makes it easier for the vertically integrated company to perform a takeover. While this study is based on a theoretical scenario, the expansion of DB Schenker into freight markets outside Germany (the Netherlands, Denmark, Great Britain, Poland) can serve as evidence of this situation actually occurring.

E2.28 One of the most visible examples of consolidation throughout the liberalised freight industry is the case of DB Schenker, a subsidiary of Deutsche Bahn. Since the implementation of the First and Second Railway Packages, DB has made substantial acquisitions of former national monopolists in the freight market in the Netherlands and Denmark, as well as British companies Arriva, Laing Rail (passenger rail) and English, Welsh & Scottish Railway (freight). According to its own account, DB Schenker now has the largest freight railway fleet in Europe , and has very high market shares in the German and Dutch rail freight markets (87% and 78% respectively, in 2005).

E2.29 DB Schenker's acquisitions of the Dutch and Danish rail freight operators are of particular interest in this context. The Netherlands and Denmark both share a land border and rail network connections with Germany; and both are important transit countries for rail freight. The Netherlands has important North Sea ports on its territory, whereas Denmark is a key transit country for rail freight heading from mainland Europe towards the Scandinavian Peninsula. Furthermore, both countries chose to implement vertical, but not horizontal separation. As the size of their railway networks is smaller than that of Germany's, they were unable to compete with the economies of scale generated by DB, and later agreed to the consolidation of their incumbent freight RUs.

E2.30 The Finnish Railway Agency (2009) paper also mentions instances of consolidation in Hungary, where smaller firms have sought "alliances" with the two large vertically-integrated IM/RU companies, that eventually led to mergers.

E2.31 Williams, Greig and Wallis (2005) also describe a gradual process of mergers throughout the Australian and New Zealand railway networks, which have largely been privatised as vertically integrated companies. They cite economies of scale and scope as reasons for the consolidation, but note that, owing to existing access laws, companies must enable sufficient capacity for other companies to run on their infrastructure as well. However, both of these networks are predominantly freight networks, and the nature of their operations is therefore somewhat different to that in most EU Member States.

Incomplete unbundling

E2.32 OECD (2005b) argues that the IM has clear incentives to deny the access to infrastructure or reduce the provided quality to other RUs seeking access to the network in order to restrict competition, if the integrated IM/RU is allowed to compete with these. OECD (1998) and Juranek (2011) identified particularly the tendency to discriminate on price in terms of access charges. The IM may charge an access price that is sufficiently large to deter new entrants. The integrated RU is generally not affected by that measure given that the higher costs of the operator can be compensated by the resulting higher income of the IM. OECD (1998) adds that even if the access charging system is non-discriminatory, the incumbent will generally use all means at their disposal to prevent potential competitors from market entry, including delays in negotiation and litigation.

E2.33 A further issue arises from future investments in infrastructure. Krol (2009) suggests that vertically integrated RUs do not take into account the needs of competitors or other industry players when planning future network enhancements and maintenance. OECD (2005) additionally identifies the threat that integrated RUs could force public authorities to award them with transport contracts in return for investments in infrastructure.

E2.34 Experience from the industry, and particularly from the rail sector, shows that powers of regulatory bodies and/or competition authorities are generally not sufficient to effectively control and detect discriminatory behaviour of the integrated RU (OECD 2005b and Monopolkommission 2011).

E2.35 Furthermore, vertically integrated, or partially integrated undertakings can deter competitors from entering the market in various ways. OECD (2005b) describes a case in Germany in which the Bundeskartellamt found that IM DB Netz favoured the integrated RU DB Regio over rivals by means of volume discounts in an early version of its track access charging system. In Switzerland, the incumbent SBB was accused of refusing access to certain lines to a new entrant and preventing them from shunting in SBB's stations. The case of Arenaways, a new entrant in the Italian passenger rail market, showed that the partially integrated IM and RU have the powers to act in each other's favour. The Italian Antitrust Authority started investigations against IM RFI, which was accused of delaying and obstructing the entry of Arenaways to the benefit of incumbent RU Trenitalia. Both RFI and Trenitalia are integrated in the FS Group (AGCM 2010).

E3 LACK OF FINANCIAL TRANSPARENCY

E3.1 A study for the European Commission by RGL Frontier and AECOM (2009) shows that the Package has not been entirely successful in improving financial transparency throughout the railway sector. The separate accounts, as specified by the Package, do not show the costs and profitability of various functions, thereby making it impossible to fully confirm whether these are subject to cross-subsidisation.

E3.2 Steer Davies Gleave (2011) reported, based on views from French stakeholders, that the newly created IM, RFF, was created first and foremost in order to take over the debts accrued by SNCF. This allowed SNCF more freedom to operate and invest. Indeed, the fact, that RFF still contracts back a significant amount of

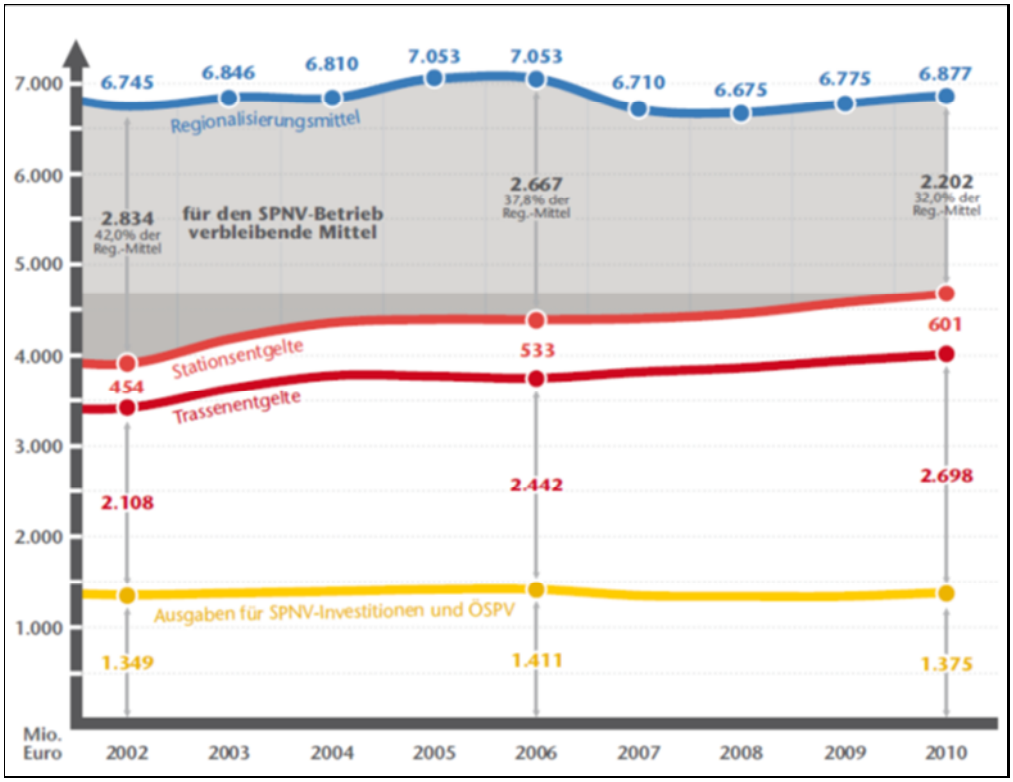
maintenance to SNCF appears to confirm this. Furthermore, Batisse (2003) claimed, that at the outset, SNCF staff were delegated to assist in capacity allocation tasks, albeit this appears now to have been handed over to RFF.

E3.3 After the completion of the unbundling process, the IM will still be the monopoly provider in the upstream market and hence vertical separation cannot be expected to prevent opportunistic behaviour, particularly in terms of access pricing (Krol 2009). Examples from the two railways with the most advanced unbundling and liberalisation process (IBM 2011), Britain and Sweden, show that information asymmetry remains in this field and that unbundling and privatisation can itself bring transparency problems. The McNulty Report (2011) into the functioning of the privatised British railway system advocates the provision of published financial information for each franchise in order to provide better transparency. Everis Consulting (2010) suggest that a more transparent access to auxiliary services is one of the most important improvements that need to be made to the Swedish railway system.

E3.4 The findings in CER (2005) indicate that, even without intra-modal competition, the costs of infrastructure maintenance may prove too much for a vertically-integrated railway to bear when faced with lower proceeds as a result of the increase in the number of passengers and tonnes of freight carried by road. The paper, which focusses on Sweden, explains that even as a vertically integrated, non-competitive railway, SJ gradually became unable to finance its infrastructure renewal bills just through the proceeds of their operations. This situation tends to encourage cross-subsidisation as well as requiring public subsidy.

E3.5 Cross-subsidisation in an already partially unbundled environment has one significant disadvantage, as discussed by KCW (2011). In their paper, KCW outline how the partially integrated DB holding appears to use subsidies paid by regional governments towards station maintenance towards covering losses from their commercial operations.

APPENDIX FIGURE E.3 DEVELOPMENT OF FUNDING FOR REGIONAL RAIL SERVICES, AND DB TRACK AND STATION ACCESS CHARGES (KCW, 2011)



E3.6 This graph shows the development of funding for regional railways (blue line), the expenditure for rail investment and road-based public transport (yellow line), and DB Netz's infrastructure charges (track access in dark red; station access in bright red).It indicates that there has been a steady growth in the level of track and station access charges which, given the steady level of funding, has squeezed the amount of money available for operating regional rail services (grey area) from 42% of the funding in 2002 to 32% in 2010. The graph supports the claim that DB is cross-subsidising other parts of their business with the IM part, which in turn is largely funded by the taxpayer (given the number of regional trains and number of station calls they make).

E3.7 There is also evidence that DB could be potentially successfully undercutting new entrants by offering local authorities "integrated franchises" during bids. This involves merging the infrastructure management and train service provision on branch lines into one company and offering lower rates per train-kilometre. Such integrated franchises are in place on a number of branch lines , which shows they have been successful at winning tenders, where one of the key selection criteria is price per train-kilometre. While this may indicate that DB enjoys some economies of scope from integrated operations and infrastructure management, it also indicates that a semi-integrated or semi-separated entity can, under existing rules, deter new market entrants.

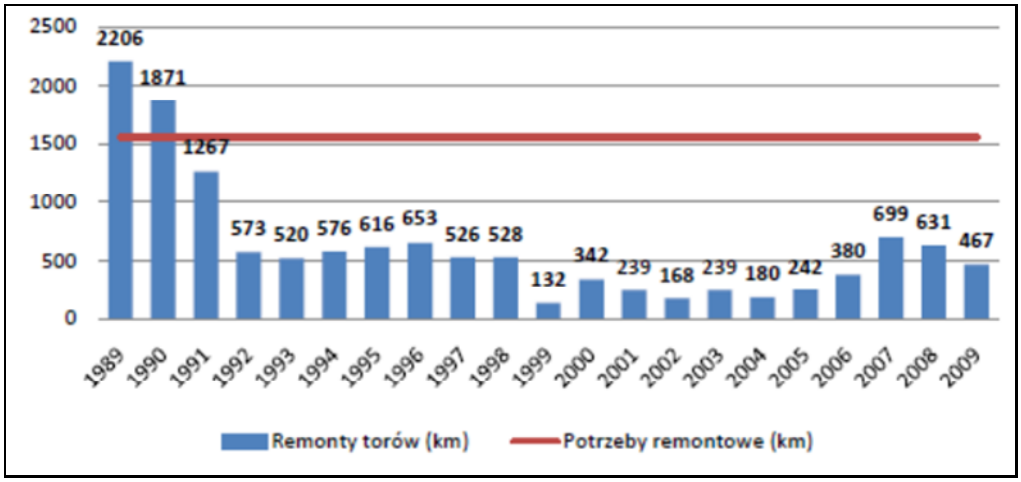
E4 DEFICIENT FUNDING AND INVESTMENT FRAMEWORK

Funding for maintenance and renewals

E4.1 One of the key sources of funds for an IM are track access charges. As these are regulated by the regulatory body, IMs are not fully in control of their funding streams. As a result, they may end up underinvesting in the infrastructure (Krol, 2009).

E4.2 The EC staff working document SEC(2009) 1687 suggests that investment in the rail network is a much better predictor of rail network performance than the degree of competition in the industry. Also, Thompson (2004) suggests that in many countries (not necessarily in Europe) the size of the market as well as the competition from road hauliers makes freight markets unable to sustain within-mode competition. In the Central- and Eastern European EU Member States, the demand for rail services - both freight and passenger - has been declining despite competition being introduced into the freight, and sometimes the passenger market as well (e.g. Romania, parts of Poland). At the same time, the state of the infrastructure in at least some countries across the region has been declining (World Bank, 2011). This points towards the fact that the introduction of competition is not necessarily enough to allow the railway to compete successfully with other modes.

APPENDIX FIGURE E.4 MAINTAINING THE POLISH RAILWAY NETWORK: ACTUAL (BLUE) AND REQUIRED (RED) KILOMETRES OF ROUTE (WORLD BANK, 2011)

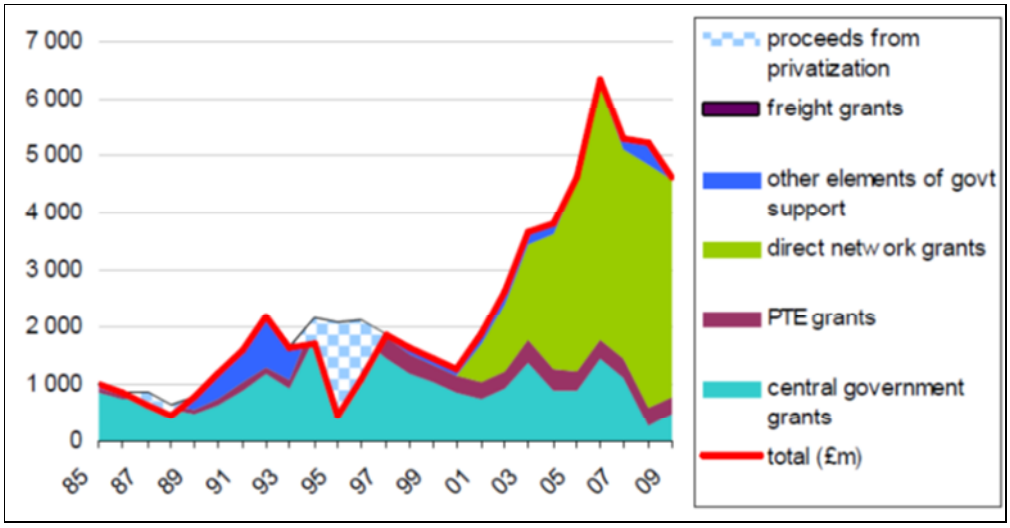


E4.3 The functioning of Railtrack, the private British IM, has been documented in many studies, notably McNulty (2011), Preston (2002), Dehornoy (2011), Merkert and Nash (2008). The privatisation of the IM was originally intended to ensure its efficiency, with the Regulatory Body (Office of Rail Regulation, ORR) and the Health & Safety Executive safeguarding, respectively, adequate levels of investment in the infrastructure, and adherence to safety standards. However, a major accident at Hatfield occurred in 2001, and the subsequent investigation named underinvestment and poor maintenance as the causes. As a result, blanket speed restrictions were put in place throughout the railway network, triggering significant performance penalties and other costs leading to Railtrack entering administration. The government of the day chose to create Network Rail, a not-

for-dividend company limited by guarantee, which remains responsible for IM activities in Great Britain.

E4.4 Industry commentators have therefore concluded that Railtrack's lower expenditure levels were a sign of underinvestment rather than greater efficiency. Following the Hatfield accident, expenditure - and in particular infrastructure expenditure -increased substantially and has remained at levels that are generally regarded as unsustainable, notwithstanding a reduction in the volume of renewals in recent years as the legacy of underinvestment was addressed. This prompted the government to set up the McNulty value for money study in 2010 to investigate ways of reducing the costs of the railway.

APPENDIX FIGURE E.5 EVOLUTION OF PUBLIC CONTRIBUTIONS TO THE RAIL NETWORK OF GREAT BRITAIN (DEHORNOY 2011, IN NOMINAL £ MILLION)



E4.5 Other aspects of the track access charging regime can also be viewed as potentially detrimental to the IM. In most countries, the IM is bound by a penalty charge regime to provide a certain level of service, measured by the punctuality of the trains running on its infrastructure. OECD (2005) argues that, in certain instances, this can be detrimental as it drives funding away from track renewals and investments. Indeed, the volume of penalties levied following the Hatfield accident was one of the key reasons for the bankruptcy of Railtrack, the privately-owned British rail IM.

E4.6 The McNulty report (2011) highlights additional problems with the British privatised railway. The report claims that due to the short duration of the franchises, the commercially-minded companies that run them have little incentive to aid Network Rail in minimising long-term costs - particularly since access charges are set by the regulator and franchise agreements are subject to no net loss / no net gain ("NNL/NNG") adjustments following regulatory reviews.

Safety and performance

E4.7 An example of safety problems in the wake of privatisation caused by strong incentives to reduce maintenance costs is that of S-Bahn Berlin, the operator of the urban rail PSC in Berlin, a subsidiary of the Deutsche Bahn group. In the light

of the planned flotation of the DB group, S-Bahn Berlin closed several maintenance facilities since 2004, scrapped functioning rolling stock and substantially reduced staff numbers. In the subsequent years, punctuality levels and service quality decreased substantially (IHK Berlin 2011). After an accident in 2009, caused by a broken wheel, S-Bahn Berlin agreed to shorten the intervals between wheel set maintenance checks to ensure this does not happen again. However, the German NSA was alerted to the fact that S-Bahn Berlin did not comply with this, and all rolling stock of the affected type was temporarily pulled out of service. As a result, DB CEO Rüdiger Grube announced that S-Bahn Berlin will not make a profit until the end of the PSC in 2017. Although the negative, long-term consequences of the aforementioned savings plan could have been foreseen, DB's management appeared to be motivated by pressure to optimise DB's financial performance in the short-term rather than by a sustainable long term perspective. German Minister for Transport Peter Ramsauer argued in 2010 that the planned privatisation and the resulting pressure on costs were largely responsible for these problems.

E4.8 Mulder (2005), in his paper on the Dutch experience with unbundling, makes a link between the drop in the performance of the railway post-separation, and the decline in funds available for infrastructure investment, as well as the onset of outsourcing of maintenance in order to improve the value for money of maintenance work. Thompson (1997) also cites evidence from Sweden, where there are often mismatches between the amount of funds the IM believes it needs to conduct adequate maintenance and the amount it receives from the state. On the other hand, the OECD (2005b) does not see a clear link between unbundling and the decline of funds available for infrastructure investment.

E4.9 Williams, Greig and Wallis (2005) also mention, that the New Zealand privatisation of the entire railway company, including the infrastructure, led to the new owners competing with other modes on costs, but neglecting the infrastructure maintenance at the same time. After a period of time the owners were forced to hand the railways back to the state, as they could not afford the backlog of renewals, whereas their revenues were deteriorating due to the state of the infrastructure.

E4.10 OECD (2010) suggests that structural changes in the railway system, particularly a separation of infrastructure and operations, may lead to a drop in safety due to changes in the responsibilities and relationships between different institutions. Safety activities have to be re-defined and co-ordinated at the new interfaces. As a result, safety-critical information might be misinterpreted or miscommunicated at these interfaces.

E4.11 According to Mizutani (2011), disbenefits emerge when unbundling a busy railway, as not all safety-related issues can be covered by contracts. In addition, OECD (2010) suggests that new entrants generally have less experience in safety-related issues and might spend less on safety in order to increase profits. Thompson (2004) found that benefits such as congestion reduction or improved safety are not market derived and hence need public supervision and regulation. He could not, however, identify any conflict between safety and profits since safe systems tend to be more profitable in the long term.

E4.12 Several authors describe a drop in safety and quality after unbundling. Mulder (2005) observed that after unbundling of the Dutch railways, the number of irregularities increased by almost 50% compared to the level in the early 1990s. He explained this evolution by an insufficient maintenance of the network after outsourcing of these services. Steenhuisen (2009) reported also a significant decrease in punctuality (from 86% in 1999 to 80% in 2001) and increase in SPAD (Signal Passed At Danger) occurrences (70% increase between 1996 and 2007), which he blamed on the interruption of information flows between IM and RU, as well as the need for signalling staff to cope with conflicting requirements of different parties. Steer Davies Gleave (2011) states that the safety and quality levels have increased since then and suggested that the problems were of a transitional nature.

E4.13 The British IM, Railtrack, had serious problems with punctuality after unbundling (Preston 2002). A study by OECD (2010), however, found that there has been no decrease in safety (measured in terms of fatalities) as a result of unbundling in the UK and in Japan. Steer Davies Gleave (2011) and Thompson (2004) agree that safety in the UK did not suffer from the unbundling and privatisation process. Some commentators have suggested that accidents such as Ladbroke Grove and Hatfield in the UK would not have happened under an integrated industry structure, but such arguments are speculative rather than evidence-based.

E4.14 A further negative effect of vertical separation is the distribution of responsibilities to different players. The Viareggio accident in 2009, with 32 fatalities, has been attributed by Eurotribune (2011) to excessive subcontracting of safety-related services and hence a distribution of responsibility for the condition of the rolling stock to too many companies.

E4.15 After the Hatfield accident, many direct and indirect safety measures have been introduced in the British rail system. Smith (2006) states that the regulatory, legal and political environment has led to an excessive focus on safety, without considering costs and its impact on punctuality.

E5 LACK OF STRUCTURES AND MECHANISMS FOR CO-ORDINATION

E5.1 Merkert et al. (2008) compared the British and Swedish dispute resolution systems with the one implemented in Germany and found that they generate fewer disputes, and most of the disputes can be resolved within the relationship between the IMs and RUs. This is a result of the approach of the British IM Network Rail. Many RUs for instance have based teams in the offices of Network Rail. In contrast, most disputes between the German IM and non-DB RUs are resolved in court, unlike disputes between different divisions of DB, which are resolved within the group structure.

E5.2 The McNulty Report (2011) states that the franchising system in Great Britain may be prone to oversupplying train services. The bulk of Network Rail's income comes from the Government direct grant, as well as fixed track access charges which are meant to recover Network Rail's residual revenue requirement and fixed costs (ORR, 2008). Thus, the variable track access charges, paid by operators for each train run do not constitute a large proportion of income for Network Rail, nor do they constitute a large proportion of infrastructure costs from the point of view of

the RU. Combined with tight specifications for timetables laid down by the UK Department for Transport, as well as a strong focus on revenue generation, the RUs are inclined to operate shorter trains than might be optimal in "whole system" terms. This arrangement also leads Network Rail to promote large capital-intensive construction solutions to capacity problems, when other solutions may be more efficient. Neither the IM nor the RUs have the understanding or incentive to approach system capacity issues, and nobody within the rail industry appears to be focused on the productivity of the overall system. As a result, the British railway system is experiencing capacity problems even though the train loadings on the network are below European average.

E5.3 A study by Mulder (2005) looks at the institutional change process of the Dutch railways, and its effect on passenger welfare. While there were many transitional problems evident (discussed in other sections), the report concludes that, following initial problems with performance and punctuality, there has been an improvement in the quality of passenger transport (measured by passenger satisfaction), arising through the institutional separation of different railway entities and the formalisation of the relationships between them.

E5.4 However, unbundling by definition leads to an increase in interfaces between different entities. The mostly informal decisions at interfaces within an integrated RU are converted into complex contractual interfaces between different companies. In Britain, for example, British Rail was split up in more than 100 single entities (Thompson 2004). Kunneke and Finger (2007) point out that such a split up of industries can lead to a lack of technical and institutional co-ordination and a lack of interoperability, which itself hampers efficiency.

E5.5 Thompson (2004) suggests that unbundling in Britain caused problems of complexity at new interfaces and increased transaction costs. According to Mulder (2005), the Dutch railway reform, which included a full separation, is likely to have raised the costs of coordination and possibly reduced efficiency of investments. Mizutani (2011) and Drew (2006) point out the particularly complex task to co-ordinate and optimise the timetable and the use of infrastructure capacity on a busy railway network with more than one operator. Mizutani (2011) suggests, that beyond a certain "density" of train operations (measured by the number of train-kilometre divided by the length of the network), vertical separation may actually generate disbenefits arising from the difficulty of constructing a timetable. Decisions such as assigning priorities, start of engineering works or change of train routes, which were formerly made informally between colleagues in the same office, became a serious bureaucratic, contractualised and inflexible procedure following unbundling in Holland and elsewhere (Steenhuisen 2009 and Eurotribune 2011). Since all contracts are seen as incomplete, the necessary additional processes of negotiation, information, control or adjustment can be defined as sources of transaction cost (Merkert 2008).

E5.6 McNulty (2011) points out that the UK still suffers from a lack of coordination between IM Network Rail and RUs, who each have different goals and objectives. Merkert et al. (2008) compared the railway systems in the UK, Sweden and Germany in terms of complexity of its transaction processes at interfaces and the related costs. The authors found that the partially integrated holding model

adapted in Germany clearly reduces uncertainty for the integrated DB group and thus for a large part of all transactions in the German market. It does, however, increase uncertainty for non-DB operators significantly. This is because most disputes between non-DB operators and the IM require intervention from the Regulatory Body and many of them end up in court, thereby lengthening the time required to resolve them. In the light of an expected increase in the number of new entrants, the dispute resolution system currently in operation in Germany may lead to substantial cost increases. In contrast, most of the disputes in Britain and Sweden, which are anyway fewer in number, can be resolved through the relationship between the RUs and the IMs. Merkert et al. conclude that the British and Swedish systems "provide competition at not unusually high transaction costs" and work at least as well as the German system.

E5.7 Mulder (2005) suggests that the increased transactions costs related to unbundling could be addressed by improving the institutional design, for example by introducing appropriate incentive schemes.

Ticketing

E5.8 Another problem arising with on-rail competition in the passenger sector is the issue of ticketing. Within a monopoly scenario, tickets bought for a specific journey are typically valid in any train on that particular route, as long as it is of the same class. However, as highlighted in Wetzel (2008a) and OECD (1998), on-rail competition may make it impossible for tickets to be accepted by all RUs operating on a particular route, which inconveniences passengers who wish to have some form of flexibility when deciding what time they want to travel. This can be avoided, however, by implementing a clearing system for train tickets so that they are mutually accepted by all operators. Moreover, competition for the market, rather than in the market, would make it possible to implement competition without inconveniencing passengers, by putting specific requirements regarding ticketing into the tender specification. However, a universal clearing system may not always be very effective. Despite the fact, that the British railway network operates such a system, operators offer a very wide range of tickets, some of which are interchangeable, and some not. As a result, passengers have often felt confused and often purchase the wrong ticket (McNulty, 2011).

E6 ABSENCE OF OPEN ACCESS RIGHTS

E6.1 In a study of projects conducted by the World Bank, Thompson (2004) shows that on-road competition is so strong relative to the market size, that the rail freight market is unable to sustain more than one major operator. Although the author proposes maintaining the protection of the railways from intra-mode competition, he does concede, that intermodal competition is often enough to prevent high profits, and thus the possibility of cross-subsidisation, from occurring. His findings also suggest that open access, even if permitted under legislation, may not arise due to the limited number of commercial opportunities in the rail industry.

E6.2 In addition, the potential for open access operators to undermine the economic equilibrium of services provided under PSCs is well documented. New market entrants may engage in “cream-skimming” - i.e. competing in the most lucrative sectors of the market (Krol, 2009). This is the case with many existing or planned

open-access passenger operations, with two entrants competing with the incumbent on the Prague-Ostrava line in the Czech Republic, or the Rome-Milan service of NTV, who wish to compete with the incumbent Italian RU. Incumbent RUs argue, that due to reduced profits on these flagship routes they have less money available to cross-subsidise other, less or not profitable operations, leading to their withdrawal.

E6.3 At the same time, there is clear evidence that open access can benefit users of rail services. For example, a stakeholder panel study for the Finnish Railway Authority (2009) quotes freight industry customers as claiming that prices charged to consumers appear to have decreased by 20-30% since the liberalisation of the freight railway market.

Privatisation and competition for PSCs

E6.4 While it is difficult to quantify the benefits of the privatisation process itself (as distinct from the benefits of greater competition), a number of sources claim that privatisation has helped the competitiveness of the rail industry. Williams, Greig and Wallis (2005), who studied the privatisation and unbundling processes taking place throughout Australia and New Zealand show that privatising a vertically-integrated railway company tends to encourage growth of passenger and/or freight volumes. They conclude that, especially in the case of freight, a railway company can become an important tool for multi-mode logistics companies when competing with other transport providers. Furthermore, when comparing privatised railways to the sole remaining state-owned company (Queensland Rail), they claim that private companies have managed to reform and improve their performance at a faster rate. The authors have also found no evidence of the abuse of the integrated companies' monopolistic position, as their profits were kept in check by road competition.

E6.5 However, it is important to note that these positive trends have partially occurred as a result of private companies divesting themselves of uneconomical flows, which, had they remained state-owned, they would most likely have continued to serve. Service reductions of this kind are generally more difficult in the case of passenger rail services, which have a different economic structure, and whose wider economic benefits usually merit their retention and subsidisation. Also, due to their different nature, they are usually privatised through competition for the market, rather than on-rail competition within the market.

E6.6 This situation makes privatisation more difficult, as services must be privatised as a concession or franchise, which essentially grants a single company a time-limited monopoly, for a price. While evidence shows that generally the threat of competition makes companies lower their prices, (Yvrande, 2005), Williams, Greig and Wallis (2005) provide evidence that in the case of passenger rail services privatisation achieves mixed results. Similar evidence is provided by CER (2005) and Nilsson (2003) for Sweden, where non-profitable services have been tendered out since 1988, making this country the EU Member State with the longest experience with franchising. Both the Australian and Swedish experience shows that a number of privatisation attempts ran into problems as a result of bidders being overoptimistic when forecasting their expenditure and/or revenue streams.

However, in Sweden at least, tendering appears to have resulted in a reduction in the costs borne by the Competent Authority.

E6.7 Nevertheless, privatisation of passengers services has brought about a number of benefits in different countries. Williams, Greig and Wallis (2005) claim that while the concessioning of the Melbourne suburban rail system has had a number of problems, it is currently on track to deliver cost benefits which would have otherwise been difficult to achieve if the system was still under state ownership and stewardship.

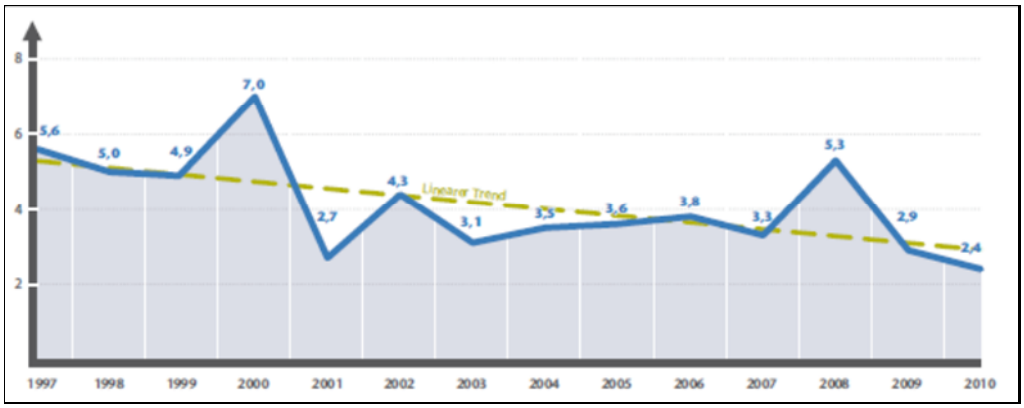
E6.8 While there have been a number of issues with tendering of passenger services, it could be argued that this method brings about a degree of stability throughout the duration of the franchise. This does depend, however, on how the contracts are constructed, and whether the bidder did not bid too aggressively - Williams, Greig and Wallis (2005) explain in detail how much of a problem an overly aggressive bid could be once the concession fails.

E6.9 As per Regulation (EC) 1370/2007 on Public Service Contracts, Competent Authorities have the right to award contracts directly to companies which are considered Internal Operators. As per Article 2(j) of the Regulation, the Competent Authority must be able to exercise control over the Internal Operator as if it were one of its own departments. This, by definition, means the Internal Operator must be state owned or state controlled and receives monopoly power over the market.

E6.10 Yet more evidence is provided by Yvrande (2005), who discusses tendering processes for public transport services in France. Her study concludes that the threat of competition alone can contribute to a reduction in the amount of money requested by incumbent operators for running public transport services[3].

E6.11 KCW (2011) point out that there are significant difficulties in Germany with attracting new bidders to the market. Their analysis shows that the number of bidders has been gradually declining since the opening up of the market and - conversely - the percentage of tenders won by the incumbent has been increasing.

APPENDIX FIGURE E.6 AVERAGE NUMBER OF COMPETITORS PER TENDER IN THE GERMAN REGIONAL RAIL MARKET (KCW, 2010)



[3] The study quotes an example from Lyon, where the incumbent, Keolis, won a tender with 16% lower amount of subsidy (ca. €300 million) than it had requested prior to the tender being announced.

E6.12 A number of factors may explain this:

- The market itself has matured, with the number of bidders declining and – conversely – DB improving its performance as a result of competitive pressure
- An increase in the number of Competent Authorities choosing to procure rail services through competitive tendering – leading to bidders considering their choices more carefully
- The incumbent choosing to take advantage of its integrated structure and offering integrated franchises
- The barriers to entry being too high, including technical barriers and access to capital

E6.13 While there is no evidence in the literature for institutional bias against new entrants in Germany similar in scope and nature to what has been observed in Italy, it is possible that the lessening of interest of private companies in the passenger rail market could be due to the chances of winning franchises from DB becoming too low. Whereas DB won only 30% of tendered train-kilometres between 1995-2000, the figure was nearly 63% in 2010. As mentioned above, this could be due to DB becoming more efficient under competitive pressure, however, there is also evidence that DB could be abusing its position as a vertically-integrated state-owned operator.

E7 DISCRIMINATORY FRAMEWORK CONDITIONS: ROLLING STOCK

E7.1 Privatisation has also highlighted issues relating to access to rolling stock. The German solution, whereby tenderers bidding for public service contracts are required to provide their own rolling stock, is problematic, since only the incumbent has access to a large pool of used rolling stock - in some instances the incumbent can also use older locomotives to pull newly purchased passenger carriages, thereby reducing rolling stock procurement costs. Furthermore, if the length of the franchise is much shorter than the useful life of the vehicles purchased, the incumbent runs the risk of being left with rail vehicles at the end of the franchise, with no gainful employment for them. This is a significant risk for the competitive bidder, which does not have the same portfolio of operations as the incumbent, and is therefore less likely to find a use for rolling stock at the end of the concession or franchise.

E7.2 The British solution was to create Rolling Stock Companies (or ROSCOs), which own the rolling stock and lease it out to franchisees. In its investigation into the rolling stock market, the UK Competition Commission (2009) was unable to ascertain whether ROSCOs enjoy above-normal profits stemming from their quasi-monopolistic position, as alleged by the Department for Transport who issued the initial complaint. However, they did note that train operators have a shortage of options available when procuring rolling stock for their services. Furthermore, ROSCOs charge lease charges for rolling stock even if it has little residual value due to its age - this is something which does not occur in RUs that own their vehicles.

E7.3 The McNulty report (2011) claims that TOC and ROSCO profits are generally relatively low, and do not contribute a high proportion of the overall costs of the railway industry (3% in the 2009/10 financial year).

E8 DISCRIMINATORY FRAMEWORK CONDITIONS: RELATED SERVICES

E8.1 In Italy, where the links between the IM and RU are still relatively strong, two entrants into the passenger rail market have been hampered by bureaucracy. Arenaways, who wished to operate trains between Turin and Milan, was declared bankrupt as a result of a regulatory decision not to permit them to stop at stations en-route. A different development hampered another new entrant, NTV, who wish to operate high-speed trains between Naples, Rome and Milan. As reported by Eurotribune (2011), the company first found it difficult to obtain paths for homologation and acceptance testing of their new fleet, and was later affected by a requirement of RFI (the Italian IM) to have a fully commissioned fleet at the time of bidding for paths. This requirement was subsequently lifted.

E8.2 Private operators have also allegedly been subject to discrimination in Poland, where, during the disaggregation of the incumbent undertaking, it was decided that the freight RU should take over transhipment terminals in ports and at the gauge change-over points on the eastern borders of the country. As a result, private operators have openly complained about being discriminated against with regard to access to the terminals (ZNPK, 2011).

E9 BIBLIOGRAPHY

European Commission and Parliament

- DG TREN 2010 - Situation and perspectives of the rail market
- EC Staff Working Document (2009) 1687/2
- European Commission (2000) EU Transport in Figures – Statistical Pocketbook
- European Commission (2011) EU Transport in Figures – Statistical Pocketbook
- European Commission (2006) Annexes to the Communication of the Implementation of the Railway Package Infrastructure Directives ("First Railway Package"). SEC (2006) 530, Brussels
- European Commission (2010). Study on the implementation of Regulation (EC) N° 1370/2007 on public passenger transport services by rail and by road (DLA-Piper).
- European Parliament Note: The Impact of Separation between Infrastructure Management and Transport Operations on the EU Railway Sector (Steer Davies Gleave 2011)
- European Parliament Note: Typology and Structure of Regulatory Bodies in the EU Railway Sector (Steer Davies Gleave 2011)
- Impact Assessment accompanying document to the Proposal for the Rail Recast Directive
- Report from the Commission to the Council and the European Parliament - Second report on monitoring development of the rail market (2009)
- Steer Davies Gleave (2006), Railimplement: The implementation of the EU Directives 2001/12/EC, 2001/13/EC and 2001/14/EC in Member States, London
- Steer Davies Gleave (2006), SERVRAIL: Assessment of present and likely future conditions of providing rail related services, London
- Study on Separation of accounts of railway undertakings and rail infrastructure managers (RGL Forensics, Frontier economics, AECOM 2009)

Publications and reports

- Cantos P., Pastor J. M., Serrano L, Quantifying the benefits from structural reforms in railway transport markets in APEC economies
- Celli E., Pettinari L., Piazza R. (2006), La liberalizzazione del trasporto ferroviario, Giappichelli, Turin
- Civity (2011) - International whole industry including train operating cost benchmarking
- Community of European Railway and Infrastructure Companies (CER) (2005), Reforming Europe's Railways - An assessment of progress, Brussels

- Conway, P. and G. Nicoletti (2006), "Product market regulation in non-manufacturing sectors in OECD countries: measurement and highlights", OECD Economics Department Working Paper No.530.
- Court des Comptes (2003), La réforme ferroviaire de 1997: un bilan financier, extracted from Le Rapport Public in Les Editions des Journaux officiels, January 2004, Paris
- Court des Comptes (2008), Le réseau ferroviaire. Une réforme inachevée, une stratégie incertaine, Paris.
- Dehornoy 2011 - The evolution of public funding to the rail sector in 5 European countries - a comparison
- Drew, J. (2006) The Benefits and Costs of Vertical Separation and Open Access, Drew Consulting.
- ECMT (2002); European Integration of Rail Freight Transport. ECMT Round Table 125, Paris.
- European Metropolitan Transport Authorities (2003) Position of the association of EMTA on the project of new European Regulation on public service requirements and the award of public service contracts in passenger transport by rail, road and inland waterway. EMTA, Paris
- Friebel G, Ivaldi M, Pouyet J (2011) Competition and industry structure for international rail transportation. Presentation prepared for OECD
- KCW GmbH (2011) Wettbewerber-Report Eisenbahn 2010/2011, Berlin
- L'ouverture à la concurrence du transport ferroviaire de voyageurs, Centre d'analyse stratégique 2011, France
- OECD (1996) The Essential Facility Concept. OECD Policy Roundtables
- OECD (1998), Railways: structure, regulation and competition policy, Competition Policy Roundtables, Paris
- OECD (2003) Universal Service Obligations. Policy Roundtable on Competition, Paris. Document DAF/COMP(2010)13
- OECD (2005) Report on experiences with structural separation
- OECD (2005) Structural Reform in the Rail Industry. OECD Policy Roundtable on Competition, Paris. Document DAF/COMP(2005)46
- OECD (2010), Safety and regulatory reform in the railways, Paris
- OECD International Transport Forum (2011) Better Economic Regulation:The Role of the Regulator. OECD International Transport Forum Round Table, December 2010.
- Rail Liberalisation Index 2011 (IBM 2011)
- Realising the Potential of GB Rail - Report of the Rail Value for Money Study (McNulty Review 2011)
- Sippel L, Mayer T (2011) Regional Passenger Rail Transport in Europe. An Overview and Comparison of Organisation and Responsibilities. BAG-SPNV, Berlin
- Steer Davies Gleave (2004) EU Passenger Rail Liberalisation: Extended Impact Assessment. Report to the European Commission, London
- Study on regulatory options on further market opening in rail passenger transport (Everis Consulting 2010)

- The Attribution Process of Delegation Contracts in the French Urban Transport Sector: Why is Competitive Tendering a Myth? Anne YVRANDE-BILLON (2005)
- Thompson L, (1997) The Benefits of Separating Rail Infrastructure from Operations, in: The World Bank Group (Publ.): Public Policy for the Private Sector, Note No. 135, December 1997.
- World Bank (2004) Transport Sector Restructuring in the Baltic States Toward EU Accession. Proceedings of the 2nd Seminar, 2003, Parnu, Estonia

Academic articles

- Amos P (2005) Reform, Commercialization and Private Sector Participation in Railways in Eastern Europe and Central Asia
- Brunekreeft G. (2008) Ownership unbundling in electricity markets – a social cost benefit analysis of the German TSOs, EPRG Working Paper 0816, August 2008.
- Cantos P., Maudos J. (2001), *Regulation and efficiency: the case of European railways.*In: Transportation Research Part A 35 (2001), pp. 459-472.
- Cantos, Pastor, Serrano (1999) Productivity, Efficiency and Technical Change in the European Railways: a non-parametric approach. Transportation 26 (1999), pp. 337-357
- Cantos P., Pastor J. M., Serrano L. (2010a), Cost and revenue inefficiencies in the European railways. Instituto Valenciano de Investigaciones Economicas S.A.
- Cantos P., Pastor J. M., Serrano L. (2010b), Evaluating European railway deregulation using different approaches. Instituto Valenciano de Investigaciones Economicas S.A.
- Cantos P., Pastor J. M., Serrano L. (2010c), Vertical and Horizontal Separation in the European Railway Sector and its Effects on Productivity, Journal of Transport Economics and Policy
- Coelli and Perelman (2000) : Technical efficiency of European Railways: a distance function approach. Applied Economics 32 (2000), pp. 1967-1976.
- Drew, J. and Nash, C.A. (2011). Vertical separation of railway infrastructure - does it always make sense?
- Driessen G., Lijesen M., Mulder M. (2006), The impact of competition on productive efficiency in European railways. CPB Discussion Paper No 71, September 2006.
- Finger, Kunneke (2007) The co-evolution between institutions and technology in liberalized infrastructures: the case of network unbundling in electricity and railways
- Friebel, G., Ivaldi, M., and Vibes, C. (2003). Railway (De)Regulation: A European Efficiency Comparison, IDEI Report #3 on Passenger Rail Transport, Institut d'Economie Industrielle, University of Toulouse
- Gaston and Perelman (1992): Measuring technical efficiency in European Railways: A panel data approach.
- Gathon H.-J. and Pestieau P. (1995): Decomposing efficiency into its managerial and its regulatory components: the case of European Railways. European Journal of Operational Research 80 (1995), pp. 500-507.

- Gong, B-H., Sickles, R. (1991) Finite sample evidence on the performance of stochastic frontiers and data envelopment analysis using panel data. C.V. Starr Center for Applied Economics, New York University.
- Growitsch C., Wetzel H. (2009) Testing for Economies of Scope in European Railways. In: Journal for Transport Economics and Policy 41 (2009), pp. 1-24
- Ivaldi, M. and McCullough, G. J. (2004), Subadditivity tests for network separation with an application to U.S. railroads, CEPR Discussion Paper No. 4392, Centre for Economic Policy Research
- Jensen A. (1998) Competition in Railway Monopolies. In: Transportation Research-E Vol. 43 no. 5 pp. 516-534.
- Juranek (2011) Vertical Integration in Rail Transportation: Private and Public Incentives, Goethe University Frankfurt
- Krol M. (2009) Benefits and Costs of Vertical Separation in Network Industries. The Case of Railway Transport in the European Environment. MPRA Paper no 23815, July 2010
- Laperrouza (2008) Does liberalization increase systemic risk in the railway sector.
- Lan and Lin (2004) Measuring the railway efficiency, effectiveness, productivity and sales force with adjustment of environmental effects, data noise, and slacks. Institute of Traffic and Transportation, National Chiao Tung University, Taiwan. Paper presented at the Asia Pacific Productivity Conference 2004, Brisbane
- Merkert R., Nash C., Smith A. (2008) Looking beyond separation - A comparative analysis of British, German and Swedish railways from a new institutional perspective, Leeds.
- Merkert R., Smith A., Nash C. (2012) The Measurement of Transaction Costs – Evidence from European Railways, Journal of Transport Economics and Policy, September 2010
- Merkert R. (2012) An Empirical Study on the Transaction Sector within Rail Firms, Transportmetrica
- Mizutani F., Uranishi S. (2011) Does Vertical Separation Reduce Cost? An Empirical Analysis of the Rail Industry in OECD Countries
- Monsalve, C (2011) Railway Reform in South East Europe and Turkey On the Right Track? World Bank Report no. 60223-ECA, Washington DC
- Otáhal, T. and Ševela, M. (2010) Should Railways Be Unbundled? The Entrepreneurial Competition Process in the Central and East European Railway Industry, in Competition - Theoretical and Practical Aspects, Jihlava: College of Polytechnics Jihlava.
- Oum T. H. and Yu C. (1994) Economic efficiency of railways and implications for public policy. A comparative study of the OECD countries' railways. Journal of Transport Economics and Policy, May 1994.
- Preston J, (2002) The transaction cost economics of railways, in Trasporti Europei n. 20-21 2002.
- Pollitt M. G. and Smith A. S. J. (2001), The Restructuring and Privatisation of British Rail: Was it really that bad? DAE Working Paper 0118, November 2001.

- Rivera-Trujillo, C., 2004, Measuring Technical Efficiency in North and South American Railways using a Stochastic Frontier Model: An International Comparison. Institute for Transport Studies, University of Leeds.
- Sanchez P., Monsalvez J., Martinez L. (2008), Vertical and Horizontal Separation in The European Railway Sector, Bilbao.
- Sherman, R. (1990) The Regulation of Monopoly. Cambridge University Press, Cambridge, UK
- Simola M., Szekely B. (2009) The liberalization process in Europe, Finnish Rail Administration
- Williams R, Greig D, Wallis I (2005) Results of Railway Privatization in Australia and New Zealand. World Bank Transport Paper No. 33909, Washington DC
- Willoughby C, Anderson P (2005) ECA Railways: Trends, Prospects and Challenges. World Bank Report no. 33880, Washington DC
- Wetzel, H (2008a) : European railway deregulation: the influence of regulatory and environmental conditions on efficiency, University of Lüneburg Working Paper Series in Economics, No. 86
- Wetzel, H. (2008b): Productivity Growth in European Railways: Technological Progress, Efficiency Change and Scale Effects. University of Lüneburg Working Paper Series in Economics, No. 101

Country specific news and articles

- Butkevicius J. (2008), The Strategy of Passenger Transportation by National Railway Transport: The Implementation of Public Service Obligations. In: *Transport* (2009) 24(2): pp. 180-186.
- Batisse F. (2003), Restructuring of Railways in France: A Pending Process, in Japan Railway and Transport Review, n 34/March 2003.
- Beckers T., von Hirschhausen C., Haunerland F., Walter M. (2009) - Market Access Models and Implications for Germany. Berlin and Dresden, 2009
- Booz Allen Hamilton (2006), Privatisierungsvarianten der Deutschen Bahn AG "mit und ohne Netz" (PRIMON), Federal Ministry of Transport, Building and Urban Development and Federal Ministry of Finance, Berlin
- Competition Commission (2009), Rolling Stock Leasing Market Investigation, London
- European Tribune - The Dawn of Open Access
- Haenel H. (2008), Des régions à l'Europe : les nouveaux défis du chemin de fer français : Rapport au Premier minister
- Italian Competition Authority Press Release A436, 21/12/10
- IHK Berlin (2011), Die Zukunft der Berliner S-Bahn
- Mühlstein P. (2001), Evaluation de la reforme du secteur du transport ferroviaire, Paris.
- Mulder M., Lijesen M., Driessen G., van de Velde D. (2005), Vertical separation and competition in the Dutch rail industry - A cost-benefit analysis, paper submitted to the Third Conference on Railroad Industry Structure, Competition, and Investments, Stockholm, 21 and 22 October 2005.
- Nilsson J.E. (2002), Restructuring Sweden's railways: The unintentional deregulation, in Swedish Economic Policy review 9.

- Office of Rail Regulation (2010), National rail trends 2009-10 yearbook, London
- Rynek Kolejowy (25/02/11) Umowa ramowa resortu z PKP Intercity podpisana, Warsaw
- Smith A. (2006), Are Britain's Railways Costing Too Much?, in Journal of Transport Economics and Policy, Volume 40, Part 1, January 2006, pp. 1-44, Leeds.
- Steenhuisen B., de Bruijne M. (2009), The Brittleness of Unbundled Train Systems: Crumbling Operational Coping Strategies, paper submitted to the Second International Symposium on Engineering Systems MIT, Cambridge, Massachusetts, 15th-17th June 2009.
- Thompson L (2004) Privatizing British Railways: Are there lessons for the World Bank and its Borrowers? World Bank Working Paper 33905, New York
- van de Velde D., Jacobs J., Stefanski M. (2009), Development of railway contracting for the National passenger rail services in the Netherlands, paper submitted to the 11th Conference on competition and ownership in land passenger, Delft University of Technology (The Netherlands) 20th -25th September 2009.
- World Bank (2011) Polska. Dokument dotyczący polityki transportowej. W kierunku zrównoważonego rozwoju transportu lądowego. World Bank Report No. 59715-PL, Washington, D.C.
- Związek Niezależnych Przewoźników Kolejowych (2011) List otwarty do premiera Donalda Tuska. Nr. Ref. ZNPK/1/3/2011. http://znpk.org/media/article/download/ZNPK_List%20Otwarty%20do%20Premiera%20RP_20110315_final.pdf Retrieved 05/04/2012

Online sources

- DB Schenker - http://dbschenker.com/site/logistics/dbschenker/com/en/products__services/rail__freight/__db__schenker__advantage/db__schenker__advantage.html . Retrieved 30/03/2012
- DB Schenker. Facts and figures recent developments Railion Nederland – Introduction on the works council of Railion Nederland N.V. http://www.deutschebahn.com/site/ewc/zubehoer__assets/en/dateianhaenge/vortrag__niederlande__en.pdf – Retrieved 30/03/2012
- http://wirtschaft.t-online.de/deutsche-bahn-peter-ramsauer-stellt-bahn-boersengang-in-frage/id_21706914/index Retrieved 30/03/2012

APPENDIX

F

PROBLEM EVIDENCE

F1 INTRODUCTION

F1.1 In this Appendix we summarise the evidence for the various problem drivers in the problem tree described in Chapter 4 (Figure 4.7), drawing on opinions expressed in the form or responses to the stakeholder survey (Appendix A: Stakeholder Consultation and Appendix D: Stakeholder Comments) and research carried out for the preparation of the country fiches (Appendix K).

F1.2 Note that the definition of the problem has evolved in the course of the study, and that the questions included in the stakeholder survey conducted at a relatively early stage do not always relate precisely to our current understanding of the problem drivers set out in Figure 4.7. However, the survey responses nevertheless provide support for many of the concerns identified in Chapter 4.

F1.3 In the remainder of the Appendix, we consider the evidence of:

- Network barriers and bottlenecks affecting passenger and freight rail services
- Legal barriers constraining the development of competitive passenger markets

F2 NETWORK BARRIERS AND BOTTLENECKS

Evidence from stakeholder survey responses

F2.1 The responses to the stakeholder survey provided strong confirmation of widespread concern about access barriers faced by RUs. 70% of respondents agreed that access barriers affected the quality of rail services in the EU. Infrastructure capacity constraints were a key concern, with 85% of respondents stating that these contributed to the problems of the rail sector to some extent or to a great extent. However, a majority of respondents also agreed that discriminatory framework conditions, in particular a lack of financial transparency, contributed to poor quality.

F2.2 There were, however, significant differences between different types of stakeholders concerning the key factors affecting quality. In many cases, these were reinforced by the open comments provided as part of an individual response. More specifically:

- Many holding groups disagreed that discriminatory framework conditions were a contributory factor and identified industry financing as a major concern
- Incumbent RUs emphasised problems with the capacity and quality of infrastructure
- Transport Ministries noted the importance of long term investment in railway networks
- Passenger associations expressed concerns about the impact of historic links between national administrations and incumbent operators

F2.3 These responses on the nature of the problem were reflected in the views about the objectives of further legislation. 70% of respondents agreed that there was a need to improve access to infrastructure at cost-reflective charges that create appropriate incentives for new entrants. There was strong support for independent decision-making in relation to the IM's functions of infrastructure charging (80%) and capacity allocation (75%), although fewer respondents favoured independent

planning and financing (50%) and maintenance (40%) of infrastructure. Holding groups, Transport Ministries and passenger RUs tended not to favour extending independent decision-making beyond the essential functions defined by current legislation.

Evidence from country fiches and stakeholder survey comments

Conflicts of interest

Incomplete implementation of legislation

F2.4 Integrated structures where the IM and the incumbent RU coexist in the same holding group are present in several Member States. This can give rise to discrimination in relation to capacity allocation and infrastructure charging, as detailed in the following examples.

F2.5 In **Austria**, the infrastructure division of ÖBB is responsible for setting the relevant charges, for both infrastructure and station access. The new open-access operator, WESTbahn, has reported that, starting from 2012, station access charges for passenger trains will rise at a much higher rate than in previous years. Specifically, there will be a 61% increase in charges for the Vienna to Salzburg route, where WESTbahn started operating in December 2011. At the same time, ÖBB announced the introduction of a new surcharge for trains running faster than 160km/h, at a rate of €0.47/train-kilometre. The combined effect of these changes would increase costs for WESTbahn and ÖBB Personenverkehr by around €40m per year.

F2.6 In February 2011 ÖBB Personenverkehr and the Austrian Competent Authority SCHIG GmbH signed a framework PSC, in which SCHIG agreed to compensate fully any increases in track access charges throughout the duration of the contract. In December 2011 the charge for the Vienna to Salzburg route used by WESTbahn was increased by 9.5%. The congestion surcharge will be replaced from 2013 onwards by a new capacity utilisation surcharge, which is approximately 60% higher. This follows the conclusion of a new PSC framework contract between the Ministry of Transport and ÖBB, which provides for full compensation for any increase in access charges. WESTbahn have argued that the new charging structure is discriminatory since ÖBB does not face the same risk.

F2.7 Stakeholders responding to the survey highlighted a number of similar issues arising in other Member States.

F2.8 In **Germany**, DB Energie, the DB subsidiary responsible for providing electricity to the rail network applied volume discounts that favour DB operating subsidiaries since only they benefit from the maximum discount available. As a result, competing RUs paid electricity charges 15-20% higher than those paid by DB. In February 2012 BNetzA, the German rail regulator, required that DB Energie reduce the fee by 23%, which it has agreed to do.

F2.9 In **Germany**, station charges have also been the subject of complaint. Charges for calling at a station vary by location and train length. Formerly, trains exceeding 180 metres in length attracted the highest charges, some three times the level of those for shorter trains. However, following proposals from HKX GmbH, a new entrant seeking to provide competing services between Hamburg and Cologne, to operate 174 metre trains, the charging threshold was reduced to 170 metres.

F2.10 Some stakeholders also identified instances of discriminatory behaviour in respect of capacity allocation, although in practice such behaviour can be difficult to distinguish from decisions made for genuine operational reasons.

F2.11 In **Italy**, for example, when incumbent operator Trenitalia withdrew its Eurocity services to Austria and Germany, it claimed a number of the previously used train paths for other services. This meant that the joint venture involving DB, ÖBB and an Italian RU received less favourable paths and was not able to offer equivalent journey times to the former Eurocity services. It is not clear whether the resulting allocation of capacity was more or less efficient, but decisions of this kind on the part of a vertically-integrated railway are likely to give rise to allegations of discrimination even if they are motivated by other considerations.

F2.12 In **France**, similar concerns have been expressed in relation to the day-to-day management of railway traffic, which is undertaken by DCF, an independent division of SNCF. We note that there is some debate about whether on-the-day management is part of the capacity allocation process or a separate function. However, in practice operational decisions taken in real time, or close to real time, for example as a result of disruption on the network, can have a significant impact on the capacity available to operators and consequently on the frequency and reliability of their services. As a result, such decisions may again be considered discriminatory by affected parties even where they are a rational response to emerging operational constraints.

F2.13 In **France**, one stakeholder also noted that the relationship between the IM, RFF, and the traffic management division of SNCF raises questions about the confidentiality of information on proposed services provided by new entrants seeking train paths. While there is no evidence that confidentiality has been compromised, any perceptions about the potential for confidential information to be shared with SNCF will tend to undermine confidence in the integrity of the process and discourage competition.

Integrated structures

F2.14 In Member States with integrated structures, there also appears to be a higher number of cases of discrimination in relation to IM functions other than essential functions, as the following examples show.

F2.15 In **Germany**, a recent report by the Monopolkommission (MK) has accused the incumbent operator DB of discrimination against competitors when giving access to the network, in particular by providing:

- Insufficient information about the infrastructure capacity available (regarding both train paths and facilities).
- No information regarding the physical characteristics of routes (such as curve radii or gradients).
- Making non-flexible framework contracts and providing insufficient time between contract signature and the start of operations.
- Lacking an framework of incentives for the IM which would motivate the IM to improve the quality of its infrastructure.

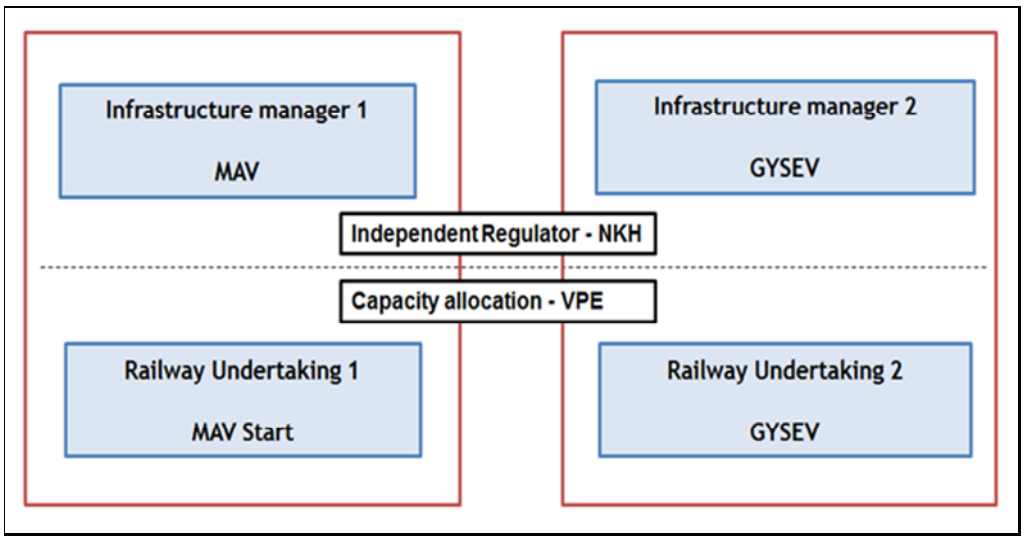
- Not granting access to service facilities for competitors (although the MK believes this problem is the result of insufficient clarity of current legislation). A report by BNetzA (rail regulator) has confirmed that competitors suffer discrimination when trying to access DB Netz facilities (such as sidings).

F2.16 DB's competitors are also obliged to provide the station manager DB Station & Service with information on passenger demand once a year. DB Station & Service justifies this requirement (in the General Conditions Concerning the Usage of the Station Infrastructure) by the need to adapt station facilities to passenger demand and to comply with legal requirements regarding safety and security. However, this requirement could provide an informational advantage to DB subsidiaries.

F2.17 In **Austria**, the regulatory body Schienen-Control received several complaints regarding line closures due to engineering works. In order to save on construction costs, ÖBB-Infrastruktur tends to close lines for several consecutive weeks. New entrants claimed that this behaviour leads to increased costs for them since they have to bear extra costs and higher access fees for deviations or a temporary contracting-out of road transport services.

F2.18 In **Hungary**, the rail market has been reformed with the introduction of an independent regulator (NKH) and a capacity allocation body (VPE). Nevertheless, both MÁV Start and GySEV have integrated structures on parallel networks, as shown in Appendix Figure F.1. The integration of the operations and the infrastructure divisions at both MÁV and GySEV is further strengthened by the fact that they share offices in the same building and have common board members, as reported by Everis (2010).

APPENDIX FIGURE F.1 STRUCTURE OF THE HUNGARIAN RAIL MARKET



F2.19 The infrastructure divisions of the two incumbents are still in charge of operations, maintenance and facilities management. For example, the infrastructure services offered by MÁV include station usage, vehicle storage, shunting and training. This structure is the subject of complaints by new entrants in the freight sector, who must rely on the MÁV Group for the above services. For example, new entrants such as Floyd and MMV have complained to the regulator about discriminatory pricing policies for the use of terminal services in terminals owned by MÁV.

F2.20 In **Romania**, similar complaints have been raised by train operators, where the integrated company CFR is accused of preventing new entrants from gaining access to terminals (owned by the CFR group) and failing to have a transparent process for publishing criteria for setting infrastructure charges.

F2.21 In **France**, the new entrant freight company Euro Cargo Rail (ECR) has since 2011 operated cross-border services between France and Spain in competition with the incumbent operator SNCF. Due to the different gauge sizes between the two countries, these operations require a gauge change at the marshalling yards in Cerbère (Pyrénées-Orientales). Soon after operations began, ECR filed a complaint to ARAF against RFF and SNCF. The new entrant held that its shunting and train formation activities had been purposefully impeded at Cerbère. The Authority recognised that the activities at the site may give rise to tensions, but did not attribute the specific cause of ECR's complaint to any of the parties involved.

F2.22 However, ARAF agreed with a further ECR complaint that the management of shunting should not have been under the supervision of Fret SNCF. As a result, the Authority ordered RFF to modify the organisation at Cerbère and to give DCF the responsibility to manage both RUs. As a result, DCF has been in charge of managing the yards on behalf of RFF since July 2011. In July 2012, ARAF undertook a site visit to Cerbère and has verified that DCF agents are now in charge of operations at the yards in a way that is compliant with the Authority's recommendations and that satisfies the need for non-discrimination.

F2.23 In **Belgium**, Crossrail Benelux lodged a complaint with the European Commission in February 2011 regarding the independence of SNCB Logistics. It stated that the incumbent had a competitive advantage over other RUs, as SNCB Holding provides SNCB Logistics with rolling stock and office facilities. Employees of SNCB Logistics can return to other SNCB Holding subsidiaries if it is more economically viable.

F2.24 A number of stakeholders reported similar issues in their open comments:

- In **Finland**, one stakeholder observed that VR, the incumbent RU, provides mandatory training for drivers, conductors and other operationally critical personnel, providing it with an opportunity to discriminate against new entrants.
- In **Poland**, another stakeholder noted that PKP has denied access to freight terminals on the grounds that capacity was insufficient, although this was not demonstrated.

F2.25 These examples demonstrate that there are a wide range of assets and services provided by incumbent railway operators, falling outside the scope of essential functions, to which new entrants may be denied access as a result of discrimination as well as legitimate operational reasons. In general, the validity of the reasons given may be difficult to determine the absence of full transparency of the decision-making process, and new entrants may be discouraged by the potential for discrimination regardless of whether it actually occurs.

Problems of coordination between IM and RU

F2.26 The allocation of functions between the principal RU and the IM can give rise to problems of coordination.

F2.27 In **Hungary**, the European Commission has questioned the fact that the IM has the right to stop all trains in a region in case of an accident. This right not only confers a capacity allocation function on the IM, but it also raises problems of coordination between the IM and RUs, especially those other than MÁV Start.

F2.28 In **the Netherlands** the regulatory body, the NMa, has reported some complaints over ineffective allocation of functions in 2010. Transport operators voiced concerns about ProRail's neutrality with regard to the Day Plan. This is the updated version of the Annual Timetable for a specific day in which all changes, such as ad hoc capacity requests and planned network closures, have been processed.

F2.29 The reason for these concerns is NS's presence at the OCCR (Operational Control Centre Rail), where the Day Plan is formulated, as this could be a potential threat to the creation of a level playing field. For this reason the NMa issued a Notice of Opinion concerning the development of the OCCR to the effect that certain conditions must be met in order to ensure ProRail's neutrality. In particular, ProRail must:

- Guarantee that it will allocate rail capacity in an independent and non-discriminatory manner
- Ensure that RUs cannot gain access to confidential information
- Charge RUs the costs of the OCCR, by means of an infrastructure charge
- Include all information regarding the OCCR in the Network Statement

F2.30 The NMa is closely following the development of the OCCR to ensure that it is consistent with the development of competition.

F2.31 In **Slovenia**, the relationship between the IM and incumbent RU has had an adverse impact on the renewal and maintenance of the network. Some key functions, including network maintenance, have been retained by the incumbent operator SŽ and are regulated by a contract concluded between SŽ and the IM, AZP. The current arrangements have not created the necessary incentives to improve the country's network, which is in need of modernisation.

F2.32 These concerns about ongoing involvement of RUs in IM functions are balanced, to some extent by observations made by some survey respondents to the effect that vertical separation introduces inefficiency by increasing transaction costs. In particular, they highlighted a recent study by Merkert et al, which concluded that transactions costs in Britain, under institutional separation, are three times those in Germany, under a vertically integrated holding structure. The issue of transactions costs under vertical separation is discussed in Appendix G6. Here, we note that keeping transactions costs to a minimum does not remove the need to clearly identify those functions that are the responsibility of an IM and to ensure that they are undertaken in a way that benefits network users as a whole.

Lack of financial transparency

F2.33 Irrespective of the market structure adopted, the funding to rail operations in some Member States is made less effective by a lack of financial transparency. We have identified a series of issues in different countries.

F2.34 In **Denmark**, DSBFirst, a joint venture between the incumbent DSB (70%) and FirstGroup (30%), has been operating passenger services in Denmark and Sweden. The operator was accused of receiving illegal cross-subsidies from DSB to expand overseas operations. These allegations, together with other operational problems, triggered the resignation of First Group board members. Following DSBFirst's withdrawal, the line is now operated by a different RU.

F2.35 In **Sweden**, CER (2005) has reported that as long as SJ, the national rail operator, was able to sustain high levels of profitability, it could cross-subsidise some of its regional services to compensate the loss-making activities with earnings from profitable routes. In the initial years following liberalisation, this may have represented a barrier to entry for other RUs wishing to enter the Swedish market through competitive tendering.

F2.36 In **Germany**, DB Regio has been subject to allegations that its services are cross-subsidised, in this case from infrastructure access charges. In particular, for PSCs it has offered integrated tenders covering both the infrastructure and the train operation elements of the overall package. In principle, this allows it to take additional profits from infrastructure charges that make up for any losses on regional operations, while making it difficult for other operators (who face equivalent access charges) to compete for the same tender. A respondent to the stakeholder survey noted that DB Netz and DB Stations & Services have set track access and station services in a way that maximises profits for the group as a whole, such as through the introduction of regional factors (now declared invalid) that, in practice, apply largely to competitors.

F2.37 In the **Czech Republic**, the Competition Authority (UOHS) had launched an investigation into claims brought by open access operator RegioJet that the incumbent operator ČD has abused its dominant position. ČD was accused of attempting to undercut the new competitor by lowering ticket prices on the Prague-Ostrava route, while increasing prices on other regional routes. If the company is found guilty of predatory pricing and monopoly power, it can be fined up to 10% of its revenue. ČD has argued that similar offers have been in place on other routes not subject to competition, and that they are part of a marketing strategy to increase ridership by incentivising modal shift from car to rail, but potential cross-subsidisation remains subject of investigation by UOHS.

F2.38 In the **Netherlands**, conflicts have emerged between the regional passenger operators and NS, because of the special position held by Syntus, a NS subsidiary, when competing with new entrants in regional tenders. The long-term PSC awarded to NS in long-distance services protected its revenue stream and ensured long-term financial planning. New operators claimed that Syntus benefitted from its linkages with NS, enabling it to present more competitive offers in several tenders.

F3 LEGAL BARRIERS

Evidence from stakeholder survey responses

F3.1 A number of the problems identified in the problem tree as contributing to legal barriers to entry were confirmed by survey respondents, although they were not necessarily regarded as legal issues. The key factors affecting the quality of services highlighted by the survey responses were as follows:

- 70% of respondents considered that access to rail-related services affected rail service quality to some extent or a great extent
- 60% identified rolling stock availability as a key concern
- There was strong agreement that a lack of competitive awarding of PSCs adversely affected quality, although less agreement on the effect of a lack of open access rights

F3.2 Respondents also identified inadequate regulatory oversight as an important consideration, with 80% stating that inadequate regulatory resources were a contributory factor and 70% indicating that the divergent interpretation of legislation was a concern. These issues will be addressed by the Recast of the First Package, and are therefore not included in the problem definition, although we note that a number of stakeholders commented that effective regulation would be required for any industry restructuring to be effective.

F3.3 Opinions nevertheless varied significantly across types of stakeholder, as demonstrated by the open comments, with:

- Holding groups emphasising the importance of proper financing of PSOs, rather than competition issues.
- Incumbent RUs identifying the lack of interoperability, access to depots, the absence of a rolling stock leasing market and the availability of skilled staff as key constraints, while stating that the method of award of PSCs should be for Member States to decide.
- Associations of RUs also highlighting the fact that the difficulties of financing new rolling stock acquisitions may be deterring new entrants from participating in competitive tenders.

F3.4 Stakeholders also confirmed the importance of the problem drivers contributing to legal barriers in responding to questions about the appropriate objectives for the Fourth Package. 55% agreed that it was necessary to improve access to rail-related services, such as station facilities and ticketing and information systems, which, although covered in principle by existing legislation, are arguably not defined with sufficient clarity. 65% agreed that there should be improved access to rolling stock, and that better processes for the competitive award of PSCs were required.

F3.5 There was, however, less support for ensuring a consistent approach to open access to domestic rail passenger markets, with only 40% of respondents agreeing that this was necessary. One incumbent RU also noted that open access would be unlikely to lead to improvements in rail services if rolling stock and infrastructure were in poor condition.

Evidence from country fiches and stakeholder survey comments

Absence of open access rights

F3.6 Open access has been hindered due to legal constraints including licensing issues.

F3.7 In **Sweden**, Everis (2010) reports a case concerning the new entrant UnionExpressen, which demonstrates that "new entrants can face challenges and regulatory hurdles". When the SJ-NSB joint venture between Stockholm and Oslo ended in 2005, Swedish private operator UnionExpressen applied to run the service in partnership with Norwegian haulage operator Ofotbanen. Ofotbanen rented rolling stock from SJ, but failed to obtain the necessary safety licences from the respective NSAs in time to start operations as planned, and only received them in April 2008. By that time, SJ had already reopened its service. UnionsExpressen's operations began in June 2008 but terminated in October 2008, due to inadequate demand. As a result, SJ currently enjoys a monopoly on the line.

F3.8 In **Italy**, the open access regional operator Arenaways obtained the licences necessary to operate the Milan-Turin route while stopping at intermediate, smaller stations. However the permission to operate was challenged by the incumbent operator Trenitalia on the basis that the economic equilibrium of subsidised regional services operated by Trenitalia under a PSC would be affected. The regulatory body (URSF) held that Arenaways could not call at intermediate stations as it would affect the economic equilibrium of the existing PSCs. The company has subsequently gone into bankruptcy, mainly as a result of the decision by URSF.

F3.9 Competition may also be discouraged because of time limitations on access rights, coupled with delays in obtaining necessary approvals, for example to operate new or refurbished rolling stock on a national network for the first time.

F3.10 In **Germany**, a recent new entrant noted that the five-year term of its framework access agreement has effectively been eroded by the rolling stock approvals process and that there is no guarantee that it will be able to secure similar rights at the end of the five years. Another entrant responding to the stakeholder survey observed that the system of framework agreements meant that there was only a small window of opportunity for new entry every five years.

Absence of competition for PSOs

Direct (non-competitive) award

F3.11 Appendix Table F.1 shows the extent of direct award of public service contracts.

F3.12 In **Belgium**, **Ireland**, **Spain**, **Luxembourg**, **Hungary**, **Austria**, **Slovenia** and **Finland** contracts are awarded direct to the incumbent for the totality of the rail network, effectively closing the PSC market to competition for the duration of the PSC. In most cases the expiry of the current PSC is more than five years hence, and in some cases more than 10 years hence. The opportunity for new entrants to provide these services is therefore likely to be substantially delayed in these countries.

F3.13 In **Bulgaria**, **Estonia**, **Latvia** and **Lithuania** (marked with an asterisk * in the table), competitive tendering has been introduced, but only the incumbent operator has submitted a bid and entered into direct negotiations with the awarding authority (although Estonia previously had a new entrant operator).

APPENDIX TABLE F.1 DIRECT AWARD OF PUBLIC SERVICE CONTRACTS

Country	Main PSC operator	Train-km awarded direct				Direct-award PSCs expire (if relevant)
		100%	>50%	<50%	0%	
Belgium	SNCB	✓				2012
Bulgaria*	BDZ	✓				2024
Czech Republic	ČD		✓			2019
Denmark	DSB		✓			2014
Germany	DB			✓		Compulsory tenders from 2011
Estonia*	EVR		✓			2017
Ireland	IÉ	✓				2019
Greece	TRAINOSE	✓				Under renegotiation
Spain	RENFE	✓				2016
France	SNCF	✓				2012-2018[4]
Italy	Trenitalia		✓			Up to 2021 if renewed
Latvia*	LV	✓				2024
Lithuania*	LG	✓				2013
Luxembourg	CFL	✓				2019
Hungary	MÁV Start	✓				2013
Netherlands	NS		✓			2025
Austria	ÖBB	✓				2019
Poland	PKP		✓			2020
Portugal	CP		✓			2019
Romania	CFR		✓			2012
Slovenia	SŽ	✓				2020
Slovakia	ZSSK		✓			2020
Finland	VR	✓				2019
Sweden	SJ				✓	
Great Britain	N/A				✓	

Source: SDG analysis of CER (November 2011), RMMS (2012) and independent research

[4] Includes regional (TER) and long-distance (TET and Intercité) contracts

F3.14 In **Austria**, new entrant WESTbahn complained to the Ministry of Transport in October 2011 about the practice of directly awarding PSCs to ÖBB. As an example, WESTbahn wanted to submit a competitive offer to operate the Salzburg-Graz line which is currently operated under PSC. Representatives of WESTbahn stated that for the same subsidy they would operate 7 daily trains between these cities compared to the 3 daily trains currently offered by ÖBB.

F3.15 The Ministry of Transport defended the practice to directly award the contract to the incumbent ÖBB, stating that competitive tendering cannot be introduced while ÖBB's staff costs are 20% higher than those of its competitors and while the incumbent has no opportunity to reduce staff numbers under the terms of established state railway contracts.

F3.16 Stakeholder survey respondents cited mixed evidence on the likely impact of competitive tendering and some concluded that it had not always delivered significant benefits. Some were concerned about the increased burden on PTAs, while others suggested that the recent McNulty Report in the UK indicated that, on its own, competitive tendering would neither improve quality nor reduce costs.

No criteria for deciding on the necessity of a PSC

F3.17 In **Greece**, there is not (yet) a formal PSC: this is now being resolved. Nonetheless, TrainOSE runs all public services and receives some compensation from the state. CER (2011) reports that the level of compensation has been largely insufficient and that TrainOSE has been forced to borrow to support ongoing operations.

F3.18 In **Italy**, a recent decision by the Competition Authority (AGCM) has highlighted several issues concerning the specification of PSCs and the size of packages that are tendered. The Liguria Region decided to open the local public transport market to competition in March 2012. The regional council made provisions for an integrated local public transport concession and for the adoption of the National Contract for all workers in the transport sector.

F3.19 The AGCM received a complaint from Riviera Trasporti Spa, the local operator in one of the Liguria Provinces. The operator raised a number of issues, including the distorting competition effects and the lack of efficiency benefits from the legal provisions underpinning the tendering process. The AGCM agreed, highlighting the following:

- There is no economic justification for an integrated (road and rail) transport concession, given that a "relatively low size is enough to achieve both economies of scale and economies of scope in the transport sector".
- The subdivision of routes in the tender specification should take account "not only of the opportunities to develop economies of scale, but also to guarantee the participation of the highest number of bidders to the tender".
- The compulsory adoption of the National Contract for the winner of the tender represents "an entry barrier which raises operational costs for those operators currently having different arrangements to those imposed".

Effectiveness of competition

F3.20 In several Member States, the transition to a more competitive market is hindered by the fact that new entrants often face significant disadvantages compared to incumbents in bidding for PSCs.

F3.21 In **Bulgaria**, **Estonia**, **Latvia** and **Lithuania**, recent domestic tenders have attracted only one bidder which is often, but not always, the national railway incumbent (see F3.13).

F3.22 In **Slovakia**, new entrant RegioJet negotiated a 9-year contract for the Bratislava-Komárno line starting from 2012. This was the first time a PSC was not awarded to the incumbent operator in Slovakia. However, the contract was assigned directly to the new entrant following a negotiation, rather than being tendered. According to CER (2011), the contract awarded to RegioJet was not placed for competitive bidding due to the lack of applicants. It is reported that the government will pay RegioJet €5.70 per train-kilometre, compared to €6.76 paid to ZSSK.

F3.23 In the **Netherlands**, an example makes clear the importance of revenue allocation systems to promote effective competition. The revenues from all ticket sales are currently distributed by NS to all other operators through a revenue allocation scheme (known as "WROOV system"). However the shares for this distribution are allocated on the basis of surveys which NS itself commissions on the trains covered by the agreement. The system verifies, for example, the proportion of season ticket holders and bus passes travelling. Another implication of the WROOV system is that the additional revenues earned by attracting more passengers do not automatically accrue to the operator concerned. The current design of the WROOV system therefore reduces the incentive for operators to increase revenues from ticket sales and undermines the trust and transparency of the system.

Discriminatory framework conditions

Vague rules of access to rail-related services

F3.24 New entrants often face difficulties in getting access to information, ticketing systems, stations and other rail-related services, as in the following cases.

F3.25 In **Austria**, WESTbahn entered into a contract with the IM to carry out marketing activities in passenger stations. The contract stipulated a fee of €93,000 for 35 days and prescribed certain conditions for the activities. Ticket sales by WESTbahn staff in the station areas, however, was prohibited. WESTbahn claimed that other operators, in particular ÖBB PV AG, were allowed to carry out promotion at stations with no written contract and at no cost.

F3.26 Following this, the IM provided the regulatory authority with a contract with ÖBB PV for the use of station areas for promotional activities, but this contract was signed after the start of promotional activities by ÖBB PV. Schienen-Control therefore considered the contract with WESTbahn to be discriminatory because, when it was entered into, ÖBB-PV AG did not face the same contractual requirements. Accordingly, Schienen-Control decided to declare the contracts on promotional activities invalid and the IM was obliged to allow all such activities without any preconditions unless these were published in the Network Statement.

F3.27 WESTbahn also complained to Schienen-Control that their trains were not included in printed and electronic timetables published by ÖBB Personenverkehr. The case was taken to the Austrian Competition Court. Schienen-Control argued that an inclusion of WESTbahn trains is necessary to comply with Regulation 1371/2007 on Passenger Rights. As a result, ÖBB was obliged to include WESTbahn trains in their timetables.

F3.28 In **Germany**, income from ticket sales is affected by revenue allocation channels. There are two types of revenue allocation:

- Contract-based clearing, mainly between DB and private competitors (partly based on standardised contracts developed by the tariff cooperation TBNE), for which DB Vertrieb usually demands a commission of 14%.
- Clearing bodies of Public Transport Associations (Verkehrsverbünde), with a commission/transaction fees of 8%.

F3.29 There can be a long delay in payment from the clearing body to the RU. In addition, revenue allocation can be contentious, with private operators objecting to the lack of transparency in determining revenue allocation factors. Operators must rely on DB's passenger counts, and negotiations over revisions may result in final settlement only being reached after 3 years.

F3.30 In **Italy**, the ownership of facilities such as ticket offices has proved to be contentious. Currently, ticket offices in stations belong to Trenitalia and only sell Trenitalia's tickets. This has an impact on competition, as indicated by Everis (2010), especially with respect to regional services which are not usually purchased in advance through the internet, but shortly before the journey. Private operators (such as Arenaways) have sought to bypass the limitation by selling tickets on board, through their website or by means of ticket machines. NTV faces a similar problem, although it has leased space in each station in which it operates, and sells tickets from those locations and through alternative channels such as the internet, travel agencies and ticket machines in stations.

F3.31 In **Italy**, experience of a recent tender in the Piedmont region also demonstrates how discriminatory framework conditions can affect competition for PSCs. The tender failed to attract pre-qualifying bidders (DB, Arriva, SBB, Trenitalia), who withdrew for various reasons. Of particular relevance in the current context is that SBB claimed that the tender conditions resulted in cumbersome arrangements for ticket distribution and sales, a high dependency on other operators for depots and rolling stock, and timetable restrictions. The contract was eventually awarded directly to Trenitalia.

F3.32 Several stakeholders providing open comments in response to the survey also identified instances of discriminatory behaviour of this kind. These included

- In **Austria**, ÖBB's reluctance to facilitate promotion of WESTbahn's services in Salzburg
- In **Denmark**, DSB's refusal to sell tickets for competing services across the Oresund Bridge from Copenhagen
- In **France**, SNCF's refusal to provide information on, and ticket purchasing facilities for, the Thello Paris-Milan-Venice sleeper service on its website

Limited access to rolling stock

F3.33 New entrants often fail to secure access to rolling stock or are discouraged to enter the market when the incumbent operator owns the majority of the existing fleet.

F3.34 In **Bulgaria**, **France**, **Ireland**, **Portugal**, **Romania** and **Spain** this is the case. Other specific examples are reported below.

F3.35 In **Austria**, several RUs complained to Schienen-Control about ÖBB's strategy of scrapping unnecessary rolling stock, or selling it exclusively to RUs operating outside Austria, on condition that they did not resell it to Austrian RUs. As a result, new entrants to the rail freight sector have decided to focus exclusively on block trains and are therefore criticised for "cherry picking".

F3.36 In **Germany** it is similarly difficult to obtain second hand rolling stock. DB's strategy has favoured scrapping its own rolling stock, particularly passenger trains, rather than selling it to companies operating in Germany or their respective owning groups. Rolling stock offered for sale is usually very old and hence unattractive both to the operator and to the passengers, and does not meet Persons with Reduced Mobility (PRM) requirements, a standard for most tenders.

F3.37 In **Finland**, the market power exercised by VR is a potential barrier for new entrants (Makitalo 2011). VR owns the main stations, ticket machines, and rolling stock and is in charge of the centralised management of depots and marshalling yards, and this may be deterring freight operators from entering the market. This could also discourage new entrants, if the passenger sector is opened to competition.

F3.38 In **Hungary**, the two RUs in the passenger sector own and operate most of their own rolling stock. For example, MÁV Start owns 27% of its rolling stock, and the remaining 73% is owned by MÁV Co and Deutsche Leasing. MÁV Traction owns and leases locomotives and train crew. This may act as a barrier for new companies trying to enter the Hungarian market. In addition, renewal of rolling stock is protracted: over 57% of the total fleet is over 30 years old and only 5% is less than 10 years old.

F3.39 In **Italy**, rolling stock ownership has been a prerequisite for RUs to participate in public tenders. In the tender for the PSC issued by the Liguria region in 2004, however, there was provision for the transfer of the rolling stock to the regional government at the end of the concession. Only two RUs, Trenitalia and Ferrovie Nord Milano Trasporti (FMN), submitted bids, but they were both excluded.

F3.40 While FMN's bid was deemed technically inadequate, Trenitalia stated that its offer was only valid if the requirements relating to rolling stock were relaxed, and presented an appeal to the Regional Administrative Court (TAR) requesting suspension of the tendering procedure. In September 2004, TAR rejected Trenitalia's request (HERMES, 2005).

F3.41 FMN also appealed to the TAR on the grounds of lack of information in the tender issued by the region, and maintained that the successful bidder was not allowed sufficient time to procure rolling stock. The tender was subsequently declared null because no valid bids were presented, and Trenitalia was granted a 2-year extension to the existing PSC.

F3.42 In **Poland**, Freightliner PL, a subsidiary of the British-based Freightliner Group, wanted to enter the market using spare Class 66 locomotives from their operations in Great Britain. The UTK (regulatory body) refused to accept the locomotives because of different requirements relating to the number of drivers and their seating position (on opposite sides in Poland and Great Britain). Freightliner complained to the European Commission, which issued a decision compelling the UTK to reverse its refusal to accept the locomotives. The process lasted three years, delaying Freightliner's entry into the market and raising their entry costs. The Commission also raised concerns about several UTK's employees also being staff members of the incumbent operator PKP.

F3.43 A respondent to the stakeholder survey also stressed the difficulties that new entrants faced in raising finance for the acquisition of rolling stock and noted that this placed them at a competitive disadvantage in bidding for PSCs. It observed that this effect was reinforced where incumbent RUs benefitted from state guarantees of debt, which significantly reduced financing costs.

APPENDIX

G

THE IMPACT OF UNBUNDLING ON EFFICIENCY AND PERFORMANCE

G1 SCOPE AND PURPOSE OF EU LEGISLATION

G1.1 Throughout much of their history, most railway networks across Europe have been operated as national, vertically-integrated monopolies, responsible for train operation and control as well as infrastructure maintenance, renewal and enhancement. However, successive European rail legislation has sought to unbundle or separate the functions of Infrastructure Managers (IMs) from those of Railway Undertakings (RUs), requiring legal, organisational and decision-making independence. In particular, Directive 2001/14/EC required that the essential functions of IMs, the allocation and pricing of rail network capacity, are undertaken independently of RUs, while Directive 2001/12/EC required that IMs and RUs are subject to separate accounting treatment even if they are divisions within the same entity.

G1.2 In practice, Member States have implemented this legislation in different ways involving different degrees of unbundling, although six basic models have emerged, as outlined in the 2012 Report from the European Commission to the European Parliament on Development of the Rail Market:

- The IM is legally, organisationally and institutionally separate from RUs and undertakes the capacity allocation function (as in Bulgaria, Czech Republic, Denmark, Finland, Great Britain, Greece, Netherlands, Norway, Portugal, Romania, Slovakia, Spain and Sweden).
- The IM is integrated but there are guarantees of independence in relation to the RU (as in Belgium and Latvia).
- The IM is integrated and works with an independent capacity allocation body (as in Estonia, Hungary, Lithuania, Luxembourg and Slovenia).
- The IM is independent and responsible for capacity allocation, but has delegated certain IM functions, such as traffic management and maintenance, to an RU (as in France).
- The IM is legally but not institutionally separate, being owned by a holding company which also owns an RU, although it is responsible for the capacity allocation function (as in Austria, Germany, Italy, and Poland).
- The IM and RU are vertically integrated and the IM continues to undertake capacity allocation, a model that is incompatible with EU rail legislation although some countries have benefitted from a derogation (Ireland and Northern Ireland in the UK).

G1.3 Directives 2001/12/EC, 13/EC and 14/EC, collectively forming the First Package of EU rail legislation, were intended to ensure fair and non-discriminatory access to infrastructure with a view to opening the market and encouraging competition, initially in rail freight services. In practice, the impact of industry restructuring has depended on how it has been implemented in individual Member States. Moreover, we note that the Commission has initiated infringement proceedings against 21 Member states for failing to implement the First Package in accordance with the requirements of the Directives. According to the reasoned opinions set out in the Commission Decision of 8 October 2009, there have been a number of

infringements relating to the level of unbundling and its possible consequences, notably:

- Insufficient safeguards to guarantee the independence of the IM from the railway holding organisation and its transport affiliates in the exercise of its essential functions, a concern expressed in respect of Austria, Belgium, Germany, Italy and Poland
- Some essential functions still performed by the incumbent RU, a concern in relation to Estonia, France, Hungary, Luxembourg, Latvia and Slovenia
- No publication of separate profit and loss accounts and balance sheets for transport services and infrastructure management, as in Poland and Sweden.

G1.4 In principle, these infringements undermine the independence of the IM and suggest that IM essential functions maybe undertaken in a discriminatory way in the interests of incumbent RUs. We discuss the evidence for discriminatory behaviour in relation to charging and capacity allocation further below.

G1.5 In principle, the outcome of current infringement proceedings will determine whether the Commission's criteria for ensuring the separation of IM essential functions, as set out in COM (2006) 189, are confirmed as necessary requirements for the satisfactory implementation of existing legislation. More specifically, the final ruling from the European Court of Justice, expected in spring 2013, will determine whether the criteria should be seen as mandatory or simply guidance.

G1.6 In any event, while the outcome of the proceedings may or may not establish clear criteria for separation, in our view it cannot be expected to ensure full independence of decision making in relation to the essential functions of IMs. This is because the criteria address the mechanisms by which communication between an IM and subsidiary RUs within the same holding group may be facilitated, but not the underlying incentive to discriminate. As discussed in Appendix F, discrimination, and the access barriers to which it gives rise, are a function of the commercial and financial incentives faced by the holding company as a whole and cannot be eliminated through organisational change alone.

G2 ADVANTAGES AND DISADVANTAGES OF UNBUNDLING

G2.1 While the theoretical benefits of unbundling and competition, particularly in terms of improved customer service and greater efficiency, are well established in the economic literature, in the case of the rail sector they must be considered against the potential disadvantages of unbundling. The Commission has set out the potential advantages and disadvantages of the unbundling process in COM (2006) 189. These are summarised in the following tables, which also provide commentary on their importance in relation to this study and cross-references relevant discussion in this Appendix and elsewhere in the report.

APPENDIX TABLE G.1 ADVANTAGES OF UNBUNDLING

Advantages	Comment
Transparency: separation of IM and RUs provides for greater transparency of the relationship between them, particularly in terms of capacity allocation and charging. It also ensures greater clarity with respect to the costs and revenues accruing to each entity. In each case this can be of considerable help to industry regulators charged with ensuring fair and non-discriminatory access to infrastructure.	There is evidence that transparency facilitates the setting of cost reflective access charges and more effective regulation, as discussed further in G£.
Neutrality: full separation provides greater assurance of non-discriminatory access to infrastructure since it ensures that an IM has no direct commercial or financial interest in a particular RU.	The evidence set out in Appendix F demonstrates that there is a substantial risk of discriminatory behaviour in the absence of full separation.
Competition: separation can be seen as a key precursor to greater competition between RUs, resulting in greater efficiency and market innovation.	The analysis in Chapter 4 indicates that there is a relationship between the extent of unbundling and the degree of competition in rail markets.
Cost efficiency: while improved cost efficiency within RUs may be generated through competition, separation can also encourage IMs and RUs to become more efficient through greater specialisation and focus on core activities.	The evidence on the impact of unbundling on cost efficiency is mixed and is discussed further below.
Reliability: independent management and financing of the network ensures that decisions are taken in the best interests of the network. In addition, unbundling improves the effectiveness of industry regulation, which can be expected to lead to higher levels of reliability and other aspects of service quality than would otherwise be the case.	The analysis in Chapter 4 suggests that there is no clear correlation between the level of unbundling and service quality and reliability. This issue of whether unbundling can lead to a deterioration in reliability is discussed further below.
Privatisation: unbundling makes it easier to privatise parts of the rail industry through the creation of commercial entities, focused on a particular set of activities, that are attractive to investors. Privatisation, in turn, can encourage greater efficiency and market innovation through the creation of strong commercial incentives.	The impact of privatisation on efficiency is discussed further below.

APPENDIX TABLE G.2 DISADVANTAGES OF UNBUNDLING

Disadvantages	Comment
Transitional costs: there are likely to be substantial, one-off costs resulting from the industry restructuring to which unbundling gives rise. These may include the reorganisation and relocation of personnel and other resources as well as the introduction of new processes and systems to enable coordination of the new interfaces.	In practice, such costs are driven more by the degree of competition and number of interfaces than by unbundling itself. This is issue is discussed further below.
Loss of economies of scope: there may be synergies in combining the activities of an IM and RU, giving rise to significant cost savings. These will be lost if activities are unbundled, at least under full separation of activities.	This is the counter-view to the argument that unbundling can lead to greater efficiency and is discussed further below.
Under-investment in infrastructure: a vertically-integrated railway operator arguably has a greater incentive to invest in network enhancements since it retains all of the additional profits arising from them.	In practice, appropriate investment can be encouraged by ensuring that the IM is properly remunerated through access charges and, as necessary, public funding. Securing such investment should not depend on profits earned by RUs in a vertically integrated business.
Double marginalisation: unbundling may result in the creation of a monopoly at each stage of the value chain, with a monopoly IM charging a monopoly RU for access. This may lead to a problem of double marginalisation, whereby each entity charges a monopoly price, resulting in a higher final price to consumers as well as a lower output than under vertically-integrated monopoly.	This situation is unlikely to arise in the rail sector, where both infrastructure access charges and many rail fares are subject to regulation. It is not considered further in this report.
Coordination: separation leads to relationships within an organisation being replaced with contractual and other interfaces between different entities. In the case of the rail sector, depending on the extent of unbundling, these can be many and complex. Such interfaces can reduce both efficiency and service levels, especially where decisions require close collaboration between the RU and IM.	It is frequently argued that unbundling results in substantial transaction costs in order to address coordination issues. In practice, the separation of IM and RU activities, in itself, leads to relatively few interfaces. This issue is discussed further below.
Quality and reliability of services: quality and reliability may also be adversely affected by the increase in the number of interfaces and loss of effective coordination mentioned above. In addition, unbundling may lead to opportunistic behaviour and under-investment, particularly where it is implemented in a way that introduces short term commercial incentives and a loss of focus on maintenance activity.	As already noted, the analysis in Chapter 4 demonstrates that there is no simple relationship between the level of unbundling and service quality and reliability. This issue is also discussed further below.

Disadvantages	Comment
Consolidation: unbundling can lead to the creation of entities that are commercially unsustainable, for example because they are too small to exploit economies of scale, leaving them vulnerable to takeover. In these circumstances, they may be acquired by incumbent RUs, resulting in industry consolidation and undermining competition.	There is evidence of consolidation within the EU industry, as discussed in Chapter 4. However, this may be the result of a lack of financial transparency rather than unbundling and, in principle, can be addressed through EU competition policy.

G2.2 Results from the stakeholder survey undertaken as part of this study, reported in Appendix A, indicate that there is no clear consensus among stakeholders concerning the appropriate level of unbundling. In particular, holding groups, IMs and representative bodies largely favoured current legislative requirements, while transport ministries and RUs not within the same holding group as an IM preferred options involving full institutional separation of all IM functions. Our review of the academic literature suggests that the research results are also mixed, particularly in respect of a number of specific themes highlighted in the table above:

- The impact of unbundling on efficiency and the trade-off between greater focus on core activities and the potential for economies of scope from combining IM and RU functions;
- The potential for under-investment following industry restructuring and privatisation given the incentives created;
- The level of transitional and transaction costs associated with unbundling and competition; and
- The impact of unbundling on performance and safety.

G2.3 In the remainder of this Appendix, we summarise the results of the academic literature in so far as they are relevant to each of these issues and seek to draw conclusions on the case for further unbundling.

G3 UNBUNDLING AND FINANCIAL TRANSPARENCY

G3.1 One of the primary aims of the First Package was to increase financial transparency within national railway industries, not least by requiring separate accounting for IMs and RUs and that access charges reflected the direct infrastructure costs of train operations (subject to charges also reflecting specific economic externalities such as congestion and environmental impacts). In practice, existing legislation has not delivered the desired level of transparency, an issue which the Recast is partly designed to address. A study by RGL Frontier and AECOM (2009), which highlighted that reported costs and profits within railway accounts are often not linked to specific activities, confirmed that lack of transparency is a general problem rather than being confined to a few Member States. As noted above, lack of financial transparency was also a concern for stakeholders responding to the survey.

G3.2 It is also clear that lack of vertical separation makes it more difficult to distinguish between IM and RU costs and hence to determine whether observed charges for

different services and activities are properly reflective of underlying costs. As noted above, in these circumstances "unfair" cross-subsidisation and discrimination are more difficult for regulators to identify. The evidence relating to this issue is considered further in Appendix F.

G4 THE IMPACT OF UNBUNDLING ON EFFICIENCY

G4.1 In recent years, there have been a number of studies investigating the effects of vertical separation of railway industries. Several have applied statistical techniques to railway cost data for a range of countries, both inside and outside the EU, in an attempt to determine whether the potential efficiency gains from separation outweigh the potential loss of economies of scope arising from vertical integration. Appendix Table G.3 below summarises the conclusions of a number of key studies that are particularly relevant to the assessment of the impact of unbundling.

APPENDIX TABLE G.3 STUDIES OF RAILWAY EFFICIENCY

Author(s), title and year of publication	Key conclusions relevant to the impact of unbundling
Cantos et al (2010 a) Cost and revenue inefficiencies in the European railways	The study uses data envelopment analysis to estimate cost and revenue efficiency. It concludes that the most cost efficient railways also tend to be the most revenue efficient, focusing on improving resource utilisation as well as employing the most effective revenue policies. The railways with the most successful commercial approach also tend to be more independent from government intervention.
Cantos et al (2010 b) Evaluating European railway deregulation using approaches	The study uses data envelopment analysis to compare the efficiency of 23 European railways between 2001 and 2008. Concludes that vertical separation, on its own, has relatively little effect on efficiency. The most significant impact occurs where vertical separation is accompanied by horizontal separation and the introduction of competition.
Cantos et al (2010 c) Vertical and horizontal separation in the European railway Sector and its effects on Productivity	The authors employ both data envelopment analysis and stochastic frontier analysis to compare the effects of industry reforms on the efficiency of 16 European railways between 1985 and 2005. They find that vertical integration had a positive effect on efficiency, but that the effect was much greater in freight markets that had been opened up to new entry. However, there was no evidence that the introduction of competitive tendering for passenger services had improved efficiency significantly.
Growitsch and Wetzel (2009) Testing for economies of scope in European railways; an efficiency analysis	Based on a data envelopment analysis of 54 European railways in 27 countries, the authors find evidence that vertically integrated railways are more efficient than those that are vertically separated, but that integrated railways that have not been subject to market opening exhibit relatively low efficiency. They conclude that a number of factors may contribute to the level of efficiency observed in different countries, including privatisation, the degree of competition and the proportion of passenger and freight operations in the total.
Wetzel (2008 a) European Railway Deregulation : The influence of regulatory and environmental conditions on efficiency	The study employs stochastic frontier analysis to determine the impact of regulatory reform on the efficiency of 31 railways in 22 countries, using panel data for the period 1994 to 2005. The results suggest that the impact of reform has been mixed, with the introduction of access rights for international and domestic passenger services tending to reduce efficiency and the introduction of access rights for freight services tending to increase it. At the same time, the study highlights the importance of taking account of country-specific factors in understanding efficiency trends, and supports the case for introducing a package of reforms rather than a limited number.

Author(s), title and year of publication	Key conclusions relevant to the impact of unbundling
Wetzel (2008 b) Productivity Growth in European Railways: Technical Progress, Efficiency Change and Scale effects	The authors decompose productivity changes into technological, efficiency and scale effects, using panel data for 31 railways between 1990 and 2005. They find that technological improvements were the most important driver of efficiency improvements, and that technical efficiency and scale economies were less important determinants of efficiency.
Driessen et al (2006) The impact of competition on productive efficiency in European railways	The authors conduct a two-stage data envelopment analysis of data for 14 European countries and Japan, controlling for the type of competition introduced (open access and competitive tendering) and whether management of the railway is independent of government. They concluded that the productive efficiency of European railways increased between 1990 and 2001, the impact of competition was mixed; competitive tendering tended to increase efficiency while open access did not. They also suggest that greater managerial independence, which reduces efficiency according to their findings, must be subject to competitive or regulatory discipline if it is to have a beneficial impact.
Lan and Lin (2004) Measuring the Railway efficiency, effectiveness, productivity and sales force with adjustment of environmental effects, data noise and slacks	The study employs data envelopment analysis of 44 railways for the period 1995 to 2001. The authors conclude that the decline in railway outputs during this period was due to competition from other modes rather than a decline in efficiency.
Friebel et al (2003) Railway (De)Regulation: a European efficiency comparison	Based on regression analysis of railway panel data for 11 countries over for period 1980 to 200, the studies provides evidence that deregulation in the form of vertical separation and market opening increases productivity. However, they also conclude that reforms should be introduced sequentially and that vertical separation is not a necessary condition for efficiency improvements.
Cantos and Maudos (2001) Regulation and efficiency: the case of European railways	The authors undertook stochastic frontier analysis of western European railways for the period 1970 to 1990. They find that cost efficiency did not improve and that revenue per unit of input decreased by an average of 10%. They suggest that this was due to excessive regulation of prices, whereby railway organisations were prevented from operating commercially and recovering the cost of investment underpinning productivity improvements.

Author(s), title and year of publication	Key conclusions relevant to the impact of unbundling
Cantos and Maudos (2000) Efficiency, technical change and productivity in the European Rail Sector: a SF approach	The study employs stochastic frontier analysis of 15 railways using panel data for the period 1970 to 1990. The authors conclude that the main source of productivity gains over the period was technical progress, followed by efficiency "catch up". They also suggest that the most efficient railway organisations are those with the greatest degree of financial and management independence.
Cantos et al (1999) Productivity, efficiency and technical change in the European railways: a non-parametric approach	The study employs data envelopment analysis and supports the view that productivity gains in the rail sector have been primarily driven by technological change, at least over the period examined (1985 to 1995).
Gathon and Pestieau (1995) Decomposing efficiency into its managerial and its regulatory components: the case of European Railways	The authors undertake stochastic frontier analysis of 19 European railways using panel data for the period 1961 to 1998. After differentiating between technical efficiency in terms of management quality and technical progress through R&D, they conclude that managerial autonomy is an important determinant of the efficiency of railways.
Oum and Yu (1994) A comparative study of the OECD countries' railways	The study is based on data envelopment analysis of railways in 19 OECD countries. It lends support to the view that railways enjoying a higher degree of managerial autonomy tend to be the most efficient. It also suggests that railways that are more dependent on public subsidies are less efficient.
Gaston and Perelman (1992) Measuring technical efficiency in European Railways: A panel data approach	The authors find a high degree of correlation between technical efficiency and managerial independence.

G4.2 Studies of the kind summarised in the table are subject to limitations and the results obtained should be treated with caution. In particular, few of the studies differentiate between different models of unbundling and their conclusions on the impact of vertical separation, broadly defined, are therefore of limited value in informing discussion about further unbundling of IM functions and the merits of institutional versus organisational separation. Nevertheless, they do provide a useful empirical framework for such discussion. We suggest that, taken together, they indicate the following:

- A wide range of factors determine the efficiency of national railways, including the degree of technical progress and management autonomy as well as the extent of rail sector reform.
- There is little evidence that unbundling has any material effect on efficiency. However, where unbundling is introduced together with competition, efficiency appears to improve significantly.
- The introduction of competition in rail freight, in particular, has had a beneficial impact on productivity.

G4.3 Overall, we conclude that the evidence from the academic literature indicates that unbundling is unlikely to reduce efficiency and may serve to facilitate greater competition.

G5 THE RISK OF UNDER-INVESTMENT

G5.1 The funding of railway operations, maintenance and investment across Europe continues to depend on the public sector, a reflection of the underlying economics of railways, strong competition from other modes (particularly road transport) and the tendency to design rail policy in order to meet wider economic, social and environmental objectives (such as encouraging a switch from road to rail in order to reduce carbon emissions). In the context of this discussion, it is important to consider how public policy objectives for the rail sector can be secured following unbundling. This is because vertical and horizontal separation, particularly when accompanied by commercialisation or privatisation, can introduce new incentives such that the industry becomes remote from government objectives.

G5.2 More generally, the rail sector's reliance on public funds, together with the long-lived nature of railway assets and the thirty or forty-year time horizons of typical investment projects, creates the need for a robust and well understood funding and investment framework. If further unbundling of the European rail industry is to deliver benefits, it is important that this framework recognises the potential for objectives and incentives to diverge once the industry has been split into a number of separate entities.

G5.3 Railtrack was originally funded entirely from infrastructure access charges, with the majority of revenue coming from the charges paid by franchised passenger rail operators. It was privatised with a view to encouraging efficiency, with an independent rail regulator ensuring that Railtrack carried out its asset stewardship and other responsibilities in accordance with its licence conditions and the separate Health and Safety Executive regulating safety. In the event, a major accident at Hatfield in 2001 revealed that the company had failed adequately to maintain and renew the network and led to the introduction of speed restrictions across a substantial part of the national network. The associated performance penalties paid to train operators, coupled with the costs of meeting a considerably enhanced renewals programme, put considerable financial strain on the company and it was eventually forced into railway administration by the government. Its assets were ultimately acquired by Network Rail, a not-for-dividend company limited by guarantee, which remains responsible for all IM activity in Great Britain.

G5.4 There are a number of other examples of under-investment in the rail sector arising from the introduction, or anticipated introduction, of commercial incentives, both in Europe and elsewhere. S-Bahn Berlin, a subsidiary of DB, closed maintenance facilities and scrapped some of its rolling stock fleet in anticipation of the planned flotation of its parent, with the result that punctuality subsequently deteriorated. Moreover, following an accident in 2009 and concerns about the level of rolling stock maintenance being undertaken, all trains of a particular type were taken out of service. In 2010, the German Minister for Transport indicated that this outcome was the direct result of pressure to reduce costs in advance of the planned privatisation.

G5.5 There is also evidence that experience of this kind can result in a disproportionate reaction in the form of excessive safety-related expenditure, a reflection of the high political profile of rail safety and the political impact of major rail accidents. Smith (2006) argues that in Great Britain this led to a diversion of expenditure and a detrimental impact on other industry outputs, notably punctuality.

G5.6 More generally, a number of studies have highlighted the risk that regulation of access charges can lead to underfunding of investment. For example, Krol (2009) highlights the difficulties that IMs face in ensuring adequate investment when they are not fully in control of funding streams, while Mulder (2005) suggests a link between underfunding in the Netherlands post restructuring and an observed deterioration in service performance. Further, the issue of underfunding is particularly acute among the EU 12 countries. For example, as indicated in our profile of Hungary, we could not identify any clear link between the level of regulated access charges and the long term investment needs of the rail network, which anyway suffers from a lack of public funding relative to the road sector.

G5.7 However, in our view any concerns about funding and investment suggested by the evidence set out above derive from the incentives created through privatisation and/or the associated regulatory framework rather than unbundling itself. We note, for example, that under-investment by Railtrack has been addressed through changes to the licence held by its successor, Network Rail, and more effective enforcement of asset stewardship obligations in the form of monitoring of comprehensive asset condition measures by the Office of Rail Regulation. We conclude that the risk of under-investment should be mitigated through the design of and effective funding and regulatory framework that rewards the IM for efficient maintenance, renewal and enhancement of the infrastructure.

G6 TRANSITION AND TRANSACTION COSTS

G6.1 Much of the academic and industry discussion of transitional and transactions costs focuses on experience in Great Britain, where the process of unbundling and the introduction of competition both for and in the market has arguably been extended further than in any Member State. We discuss further below how, in our view, much of this discussion fails to recognise the distinctions between different transitional and transactions costs and to identify the extent to which they are driven by unbundling rather than competition. Nevertheless, it is useful to summarise a number of key studies in order to highlight the applicability or otherwise of their findings to the debate surrounding further unbundling of the EU rail sector.

G6.2 Perhaps the most extensive recent study was the Rail Value for Money Study, led by McNulty (2011), undertaken over an 18-month period and initiated by the UK government in response to perceptions of excessive and escalating costs within the rail sector of Great Britain. The specific policy recommendations are necessarily limited to Great Britain, where the level of unbundling implemented during rail privatisation in the mid-1990s involved the separation of the former British Rail into more than 100 separate entities, and the characteristics of the rail network are different to those observed in many other Member States (only a single, high speed connection to the rest of the European network, relatively short distances between the most densely populated cities and a strong focus on supporting commuter flows into London). The study's conclusions nevertheless help to illustrate a number of more general issues arising from vertical and horizontal separation.

G6.3 The study found that the average unit costs of the rail industry of Great Britain as a whole have not fallen since privatisation, despite a strong increase in passenger demand over the same period, and concluded that costs are now 20-30% above their efficient level. The degree of inefficiency was considered particularly marked within Network Rail, the national IM, although train operations were also regarded as relatively inefficient compared to those in other European countries once the low level of train utilisation in Great Britain was taken into account. However, McNulty argued that this inefficiency is the result of deficiencies in the way industry parties, including government, communicate with one another rather than vertical and horizontal separation. More specifically, he concluded that, inter alia:

- Government needed to focus more effort on defining and communicating the overall direction of rail policy to the industry at large.
- There should be closer alignment between train operators and route-based infrastructure organisations with devolved responsibility within Network Rail's organisation.
- There should be stronger incentives for these organisation to collaborate more closely in stimulating passenger demand and delivering improved efficiency, for example through the introduction of joint revenue generation and cost reduction targets.
- The scope for separate ownership of a limited number of route-based IM concessions to provide for improved efficiency benchmarking (and involving more, rather than less, separation) should be explored.
- There is a role for an industry-wide Rail Delivery Group to support better coordination of pan-industry initiatives and reduce the need for government to be directly involved in industry-level decisions.

G6.4 Hence, McNulty's recommendations relating specifically to the relationship between industry parties can be seen as intended to improve the functioning of the current industry structure rather than as a challenge to unbundling. Moreover, McNulty's report explicitly notes the need to ensure that any changes to the relationship between the IM and train operators are fully compliant with EU rail legislation. In response to McNulty's findings, the industry is planning and implementing a series of alliances between Network Rail and individual train

operators which, in their most developed form, involve IM and RU staff working under a unified management structure. Network Rail and South West Trains entered an arrangement based on this form of "deep alliancing" in April 2012.

G6.5 Other studies have focused on more specific elements of the transaction cost issue and suggest that the impact of unbundling, while potentially adverse, can be addressed through the introduction of appropriate structures and incentives. Hence, while Thompson (2004) notes that separation as in Great Britain introduces a large number of contractual interfaces, which complicates decision-making and reduces response times, Mulder (2005) argues that these issues can be overcome through appropriate institutional design and well-defined incentive mechanisms.

G6.6 In a study quoted by a number of respondents to the stakeholder survey (See Appendix A, A7.10), Merkert (2012) seeks to estimate the level of transaction costs incurred by the rail sector in Great Britain, Sweden and Germany by reference to the number of full time equivalent staff in non-operational roles (principally management and administration staff). The study concludes that the number of staff per train-kilometre engaged in transaction-related activities in Great Britain is some three times that in Germany, although the authors note that the analysis relates to a single year and is not sufficiently precise in identifying the support provided by parent organisations.

G6.7 However, these findings tend to contradict those of an study by Merkert et al (2008), which focuses on the resolution of disputes between the IM and RUs, again comparing experience in Great Britain, Germany and Sweden. The authors conclude that disputes can be managed effectively within an unbundled industry structure, providing appropriate mechanisms are in place. More specifically, they find that while disputes between DB Netz and DB-owned RUs are addressed quickly through the organisation's internal management structures, those between the IM and independent RUs tend to be resolved through protracted court action. By contrast, well-defined and established disputes procedures in Great Britain and Sweden ensure that the concerns of RUs can be quickly resolved. Moreover, there are fewer disputes in these countries than in Germany, suggesting that full separation, by reducing the incentive for the IM to discriminate, reduces the number of legitimate RU complaints about access and related issues. Overall, this evidence indicates that limited unbundling combined with market opening may increase at least some elements of transaction costs as compared with both full unbundling and vertical integration.

G6.8 A number of other studies have highlighted the need for well-understood procedures and mechanisms for securing the cooperation and coordination needed following vertical and horizontal restructuring of a national railway industry. For example, Drew (2006) has described the difficulties of optimising the timetable and making the most efficient use of capacity on a congested network with more than one operator. Mizutani (2011) presents statistical results that suggest that vertical separation can increase costs when the density of the train service increases above a certain level, and one interpretation of this conclusion is that timetable coordination between an IM and one or more RUs is particularly onerous when a network is intensively used. Kunneke and Finger (2007) suggest that extensive unbundling, involving the creation of a large number of separate

entities, can undermine technical coordination and interoperability, although we note that these issues are being addressed at a European level through specific legislation and the creation of ERA.

G6.9 A lack of coordination can also inconvenience passengers, for example where they are required to purchase tickets that are dedicated to a particular service rather than inter-available. Wetzel (2008) has suggested that on-rail competition may be incompatible with ticket inter-availability, although in Great Britain train operators offer both dedicated and inter-available tickets with different prices and conditions attached. Inter-availability must be supported by arrangements for agreeing which tickets are accepted by different operators and how revenues are apportioned and transferred (WROOV in the Netherlands or the Ticketing and Settlement and Agreement, supported by the ORCATS model, in Great Britain).

G6.10 In our view, while the studies outlined highlight the need to consider transactions costs when assessing the impact of unbundling, they fail to provide robust evidence of the likely scale of such costs for a number of reasons:

- They do not distinguish between the different models of unbundling or an indication of the impact of moving from, say, organisational and decision-making independence to full institutional unbundling.
- They do not define the different types of transaction costs with sufficient precision to allow them to be estimated with confidence.
- They do not distinguish between the different impacts of unbundling on the one hand and horizontal separation or the introduction of competition on the other.

G6.11 In particular, we note that many of the concerns expressed about the number of interfaces created by unbundling tend to be based on experience in Great Britain, where privatisation was accompanied by extensive horizontal fragmentation of British Rail as distinct as well as vertical separation of IM and RU functions.

G6.12 Accordingly, Appendix Table G.4 below defines the various types of transaction costs potentially arising in a fragmented rail sector and provides commentary on how far these might result from further unbundling of IM and RU functions (recognising that some unbundling has already been implemented under existing legislation) and the introduction of competition.

APPENDIX TABLE G.4 TRANSACTION COSTS

Cost driver	Impact of further unbundling of IM and RU functions	Impact of open access	Impact of tendering for public service contracts
Contract specification	Limited in principle - service level agreement may anyway operate within integrated organisation	Increases with number of RUs (but reduced by model clauses)	Increases with number of PSCs and complexity of specification (but reduced by standard terms)

Cost driver	Impact of further unbundling of IM and RU functions	Impact of open access	Impact of tendering for public service contracts
Negotiation	Limited in principle - service level agreement may anyway operate within integrated organisation	Increases with number of RUs (but reduced by model clauses)	Increases with number of PSCs and complexity of specification (but reduced by standard terms)
Timetabling and capacity allocation	Similar process as under vertical integration	Increases with number of RUs	Increases with number of PSCs and complexity of specification
Possessions planning	Similar process as under vertical integration	Increases with number of RUs	Increases with number of PSCs and complexity of specification
Ticketing and revenue allocation	Limited in principle	To achieve full benefits of inter-available tickets, allocation model and system required ideally to sit with independent party	To achieve full benefits of inter-available tickets, allocation model and system required ideally to sit with independent party
Performance monitoring	Should be undertaken anyway	Should be undertaken anyway	Should be undertaken anyway
Delay attribution	Analysis of causes of performance failures should be undertaken anyway, although fault attribution between parties may add costs	Fault attribution increases with number of RUs	Fault attribution increases with number of PSCs
Capacity planning	In principle no additional cost	Consultation/co-ordination costs increase with number of RUs	Consultation/co-ordination costs increase with number of PSCs
Real time train control - agreement on plans and processes	In principle no additional cost	Need to agree on procedures more difficult as the number of RUs increases	Need to agree on procedures more difficult as the number of PSCs increases
PSC bid process	n/a	n/a	Depends on specification - GB costs likely to be the upper end of a scale
Re-negotiation of PSCs	n/a	n/a	Very dependent on length of contract term and local context

Cost driver	Impact of further unbundling of IM and RU functions	Impact of open access	Impact of tendering for public service contracts
Dispute resolution	Depends on institutional arrangements - established procedures or courts?	Depends on institutional arrangements - established procedures or courts?	Depends on institutional arrangements - established procedures or courts?
Periodic realignment of incentives	In principle needed anyway	A more complex exercise as the number of RUs increases	A more complex exercise as the number of PSCs increases
PSC monitoring	n/a	n/a	Should be in place whether tendering is competitive or not. There is likely to be some increase as number of PSCs increases but main driver is volume of services and complexity of specification
Regulatory monitoring	Some regulatory monitoring of IM likely to take place to ensure efficient operation	In principle regulatory monitoring of RUs limited, but increases with the number of entities	In principle regulatory monitoring of PSCs limited, but increases with the number of entities
Regulatory enforcement	No significant additional cost	Enforcement action may increase with number of RUs	Enforcement action may increase with number of PSCs

Note: Impact of further unbundling of IM and RU functions is relative to the position under current legislation

G6.13 Given the above, we suggest that relatively high transaction costs, as in Great Britain, are a function of horizontal separation and the particular systems and procedures put in place to facilitate management of the resulting interfaces, rather than vertical separation. Unbundling in the form of further vertical separation of IM and RU functions need not increase transactions costs significantly.

G7 THE IMPACT OF UNBUNDLING ON PERFORMANCE AND SAFETY

G7.1 There has also been extensive consideration of the mechanisms needed to ensure appropriate levels of safety and reliability following vertical and horizontal separation. Mulder (2005) identified an increase in incidents affecting the train service of 50% following the unbundling of the Dutch rail industry. Steenhuisen and de Bruijne (2009) also reported a significant decrease in punctuality and increase in Signals Passed at Danger (SPADs) in the years since restructuring in the Netherlands, attributing both to an interruption in the flow of information between the IM and RU. The OECD (2010) has noted that new entrants have less

safety-related experience than incumbents and might be more prepared to compromise safety in the interest of earning higher profits. These suggestions are in accord with the views of some commentators on major rail accidents in Great Britain, for example Ladbroke Grove and Hatfield, to the effect that they would not have occurred under a vertically-integrated structure.

G7.2 However, the same OECD study found no evidence of a decrease in safety following unbundling in Great Britain and Japan, and Steer Davies Gleave (2011) noted that there was similarly no evidence of a negative relationship between unbundling and safety and performance in any of the relevant case study countries that they examined. More specifically:

- According to UK's ORR, the number of injuries per billion passenger-kilometre in Great Britain more than halved over an 11-year period, from around 19 in 1997 to 8 in 2008. Fatalities fell from 37 in 1990, to 20 in 2000, and to none in 2008. Similarly, service punctuality and reliability, while it deteriorated substantially following the Hatfield accident, has since recovered, with over 90% of trains now reaching their destination within an acceptable deviation from their scheduled time (10 minutes for InterCity services and 5 minutes for others).
- Separation has had no detectable impact on safety in Sweden. Sweden's railways already experienced a high level of safety before separation and restructuring has not had any observable effect on the level of fatalities. Moreover, train performance has actually improved since separation, due primarily to management change at both SJ and at Banverket, which focused on ensuring that the relationship with customers was the most important aspect of the business.
- In the study mentioned above, Steenhuisen and de Bruijne note that SPADs fell and performance recovered in the Netherlands after 2007, and conclude that fragmentation need not lead to a reduction in performance overall. The overall safety of the Dutch network has anyway been high for many years, the only accidents involving fatalities in the past 20 years occurring in 1990 (two passengers killed) and 2009 (one driver killed).

G7.3 Given this experience, we suggest that the key to delivering a safe railway is to establish robust safety procedures and approvals mechanisms that prevent the distribution and blurring of safety responsibility that has led to a number of high profile accidents. A similar principle applies in respect of service reliability.

G8 CONCLUSIONS

G8.1 On the basis of the evidence discussed above, we conclude that unbundling in the form of vertical separation, and in particular further unbundling beyond that required by the First Package, is entirely consistent with the development of efficient, properly funded, safe and high performing rail services. More specifically, the evidence indicates that:

- There are advantages and disadvantages to unbundling, and these should be considered in the light of the specific characteristics of the rail sector. Some issues, notably double marginalisation, are of little relevance given the way

that the sector is regulated, while others, such as the impact on efficiency, require empirical investigation.

- Unbundling in the form of vertical separation of IM and RU functions, in itself, does not have a material effect on efficiency, which is anyway determined by a wide range of factors including technical progress and the degree of managerial autonomy. However, in so far as it is introduced alongside, and facilitates, competition, unbundling can lead to significant improvements in efficiency.
- Under-investment, of the kind experienced in Great Britain in the years immediately following industry restructuring and privatisation, has been the result of a poorly designed regulatory, incentive and funding framework rather than unbundling. It is essential that IMs are properly remunerated for investment in infrastructure and that they are regulated with a view to ensuring effective long term stewardship of the rail network. However, implementation of the required regulatory and incentive mechanisms is fully consistent with vertical separation of IM and RU functions.
- Vertical separation can lead to some, primarily one-off, transactions costs, but further unbundling of IM and RU functions is unlikely to lead to substantial costs beyond those already incurred. Transactions costs may, however, increase with the degree of horizontal separation and competition. A highly fragmented structure, as adopted in Great Britain, may lead to a significant increase in such costs, depending on the processes and systems put in place to manage the interfaces between parties.
- Vertical separation does not, in itself, lead to a deterioration in the safety and performance of a rail network. Delivery of safe, reliable rail services depends on the implementation of robust, well-understood procedures regardless of the industry structure in place. Only where fragmentation of the industry leads to a blurring of responsibilities is there a risk to safety and performance.

G8.2 Given these conclusions, we consider that the further unbundling of IM and RU functions could be implemented in order to address the problem described in Chapter 4 without reducing the efficiency, safety of performance of rail services in the EU. Options for further unbundling are defined, and their impacts assessed in Chapters 6 and 7 respectively.

APPENDIX

H

POLICY OPTIONS

H1 INTRODUCTION

H1.1 This Appendix summarises our detailed review of the evidence relating to a range of different options for taking forward unbundling and market opening:

- As envisaged by the Commission in the Task Specifications for this Study
- As proposed in our Inception Report
- As proposed by the Commission on 12 June 2012 in "intervention logic"

H1.2 Our analysis leads to a preliminary identification, in Appendix Table H.18, of the option package most likely to result in workable open access and successful compulsory competitive tendering. As we explain in this Appendix, however, a range of legal, practical and operational issues are likely to make it difficult to achieve effective competitive tendering of all PSC services through legislation at EU level.

Options in the Task Specifications

H1.3 The Task Specifications set out a number of indicative options which we summarise in Appendix Table H.1.

APPENDIX TABLE H.1 OPTIONS IN THE TASK SPECIFICATIONS

Option		Characteristics
1	Baseline scenario	Progressive implementation of Directive 2007/58/EC but no new legislation. PSCs may still be awarded directly. Impacts expected to be limited to where international services provide cabotage. First Railway Package Recast improves access to infrastructure and rail-related services and strengthens regulatory oversight.
2	Open access for domestic lines	Modification of Directive 2007/58/EC to include domestic services, with complete open access on all lines not covered by a PSC. Impact expected to be limited because of high proportion of PSC services.
3	Open access and compulsory competitive tendering for PSCs	As 2, plus limited modification of EC Regulation 1370/2007, in particular Article 5.6 allowing direct award of heavy rail PSCs.
4	Open access and compulsory competitive tendering for PSCs with modified "framework conditions"	As 3, plus adaptation of "framework conditions" on: • Independence of infrastructure managers (unbundling) • Infrastructure charging based on direct costs principles • Improved access to facilities and stations • Requirements on inter-availability of standard tickets • Facilitation of access to rolling stock for new entrants • Revised competence of regulatory bodies • More precise rules on the transfer of staff • Clarification of the need for PSCs to avoid market failure

Options in the Inception Report

H1.4 In our Inception Report, we developed these options further to create an illustrative matrix of policy options and framework conditions, as set out in Appendix Table H.2.

APPENDIX TABLE H.2 OPTIONS IN THE INCEPTION REPORT

Objective	Option	Characteristics
Allow for open access to the domestic passenger market	A0	Retention of the existing arrangements
	A1	Open access on routes not covered by PSCs
	A2	Open access on routes not covered by PSCs, but also permitted on routes covered by PSCs, though Member States could limit access if the economic viability of a PSC is affected
	A3	Open access unrestricted on certain routes
	A4	Open access on all routes with the government funding non-profitable or unremunerative routes through individual tender
Ensure more efficient public services	B0	Retention of the existing legal framework in which competent authorities can determine whether to award PSCs directly or through a competitive tendering process
	B1	Competitive tendering introduced for PSCs where a financial or operational threshold is exceeded
	B2	Competitive tendering process in which negotiation can take place after tender submission or pre-selection in order to meet specific or complex requirements within the contract (Article 5, paragraph 3 of Regulation 1370/2007)
	B3	Competitive tendering for all routes covered by PSCs
Facilitate the above	C1	Uniform access to facilities and services in stations, integration of ticketing to allow for through-ticketing and inter-availability
	C2	Improved access to rolling stock for new entrants such that there is the ability to introduce new rolling stock or access that owned/leased by the incumbent
	C3	Enhancements to the process for awarding public sector contracts through: • Revision of the regulatory bodies' competence relating to PSCs • Mandatory application of compensation rules as set out in the Annex to Regulation 1370/2007 in case of a single bidder • Arrangements for the transfer of staff within the industry on award of a PSC

Options in the intervention logic

H1.5 The Commission subsequently provided further input with a document on "intervention logic", including a longer list of options, on which most of the analysis in this Appendix is based.

H1.6 We summarise this extended list of options in Appendix Table H.3 to Appendix Table H.5, in which:

- Appendix Table H.3 lists options for market opening
- Appendix Table H.4 lists options for framework conditions
- Appendix Table H.5 lists options for unbundling

H1.7 The tables also show our conclusions on which of these options appears most likely to be effective and therefore warrant taking forward for further analysis. We discuss this in greater detail later in this Appendix.

APPENDIX TABLE H.3 INTERVENTION LOGIC: MARKET OPENING

Option		Description	Decision and rationale	
A	A1	Open access on routes not covered by PSCs	×	Will be ineffective if MSs create PSCs everywhere, as has been the case in Great Britain
	A2	Open access subject to test of economic viability of PSCs	✓	Maximum opportunity for open access with minimum damage to PSC services
	A3	Unrestricted open access on certain routes	×	Subsidiarity: it is difficult to establish ex ante and at EU level which routes should be subject to open access and which should be subject to PSO
	A4	Unrestricted access on all routes	×	No safeguards against abstraction or "cherry-picking" and, even if affordable, may make net cost PSCs impossible
B	B1	Competitive tendering above a threshold	✓	Follows the rationale of Public Procurement Directives: only some contracts intrinsically raise a cross-border interest
	B2	Competitive tendering with negotiation	×	Not defined sufficiently to distinguish from B3 at this stage in the analysis
	B3	Competitive tendering for all routes covered by PSCs	✓	Better than B1 and B2, and no other workable alternatives have been identified

H1.8 In addition to the market opening options set out in the intervention logic, we also considered:

- Exemptions for some Member States either on objective grounds, such as the small size of their networks, possession of a unique track or loading gauge or other technical system, or on the basis of evidence that it had not proved possible to attract interest in new entry into the national market.
- Compulsory competitive tendering only on contracts over a certain duration.

- Compulsory competitive tendering only on contracts serving stations more than a certain distance apart.

H1.9 We discuss our analysis and conclusions on these options later in this Appendix.

APPENDIX TABLE H.4 INTERVENTION LOGIC: FRAMEWORK CONDITIONS

Option	Description	Decision and rationale	
CX1	Revision of existing infrastructure charging rules	×	Only affects marginal services
C2	Improved access for rolling stock to new entrants	✓	Essential for PSCs over 5 million train-kilometres per year
C2.1	Commission recommendations	×	Option open to misinterpretation
C2.2	MS to take appropriate measures	×	Option open to misinterpretation
C2.3	Enhance standardisation of rolling stock	×	Limited likely effect, even in the long term, given rolling stock heterogeneity
C1	Uniform access to facilities and services	×	Best dealt with through unbundling of Infrastructure Manager (option D)
C3.1	Criteria to be applied when defining PSO	×	Subsidiarity, and almost any PSO specification clause could be abused
C3.1.1	Type of service to be included	×	Issue is not "type of service" but socially necessary "station-to-station" travel
C3.1.2	Maximum or limited size of network	✓	Important to ensure that there is potential competition in tenders, in particular where a player has a dominant position and there is insufficient rolling stock, noting that finding a common threshold is not easy
C3.1.3	General legal and economic principles	×	See points against C3.1, cannot subject every station call to an economic test
C3.2	Mandatory application of compensation rules if single bidder	✓	Yes, but noting that the aim is to avoid a single bidder and the need is to avoid having no bidder
C3.3	Arrangements for the transfer of staff and social standards	✓	Essential for PSCs larger than a certain size to be possible
C3.3.1	Mandatory transfer of staff	×	Employers can be required to negotiate, but staff cannot be forced to transfer

APPENDIX TABLE H.5 INTERVENTION LOGIC: UNBUNDLING

Option	Description	Decision and rationale	
D1	Better implementation of existing law	×	Not best practice to prevent abuse
D2	Full separation for essential functions	×	Not best practice to prevent abuse
D3	Enlarged scope of essential functions	×	Not best practice to prevent abuse
D4	Full institutional unbundling	✓	Necessary but may not be sufficient
D5	European regulatory body	×	Requires continual regulatory intervention
A1	IM responsible for investment decisions	×	Not best practice to prevent abuse
A2	IM responsible for all functions	×	Not best practice to prevent abuse
A3	IM responsible for all functions and terminals and stations	✓	Necessary but may not be sufficient
B1	Decision-making independence for all functions	×	Not best practice to prevent abuse
B2	Full unbundling	✓	Necessary but may not be sufficient
B3	Coordination body between IM and RU	✓	Useful, but not alone sufficient to prevent abuse
B4	Single European Rail Infrastructure Manager (SERIM)	×	Subsidiarity, no precedent, not credibly achievable in the relevant timescale
B5	Better coordination	×	Insufficiently precise, needs specified bodies to have specified powers

H1.10 The intervention logic document also recommended that option definition and selection should proceed by:

- Examining market opening options A and B (Appendix Table H.3) to identify the most effective option package for market opening
- Examining C and D options (Appendix Table H.4 and Appendix Table H.5) to identify what combination of framework conditions would provide the most effective option package of framework conditions

H1.11 In the next part of this Appendix we discuss in turn these issues of market opening options and the framework conditions necessary to support them.

H2 OPTIONS FOR MARKET OPENING

H2.1 Our extensive review of the options for market opening has identified a number of key issues which the Commission will need to address. In some cases these issues point clearly to the most effective option package, but in others the Commission may need either to:

- Make explicit choices between different models of market opening
- Leave it to Member States and competent authorities to adapt to local circumstances and markets

H2.2 We list in Appendix Table H.6 a number of these key issues and choices, which we discuss in further detail below.

APPENDIX TABLE H.6 KEY ISSUES AND CHOICES: MARKET OPENING

Issues
What markets can support competition: • Where do demand or capacity permit two operators between pairs of stations? • Can smaller national markets support compulsory tendering and attract bids?
Can competition be effective with a dominant operator?
Should market opening be driven by: • Competent authorities' mobility policy requirements? • Railway Undertakings' commercial self-interest?
Should competition be: • For the market, through Public Service Contracts? • In the market, through parallel operations between pairs of stations?
Should competition between pairs of stations be: • Based on service quality including journey time and frequency? • Based also on price?
With open access where there are no PSC services: • Is competitive provision stable? • Will service continuity be maintained in the event of operator failure or withdrawal?
With open access where there are PSC services: • Can "cherry-picking" be managed or prevented? • Will new entry force "commercial" operators to abandon non-commercial station calls? • Will new entry materially affect the viability of PSC operators? • Where capacity is constrained, which (if any) services should be prioritised?
Over what timescales can market opening be achieved?

What markets can support competition?

H2.3 An implicit assumption in the Commission's railway legislation, and in the Fourth Package in particular, is that common legislation can be drafted which will be workable and effective in all Member States. There is, however, a risk that a common legislation designed to encourage or impose competition proves unworkable in some markets. Many stakeholders commented that issues are different in every Member State and that any market opening would need to reflect the principal of subsidiarity.

H2.4 The Task Specifications required us to consider urban and suburban services, regional services, conventional inter-city services, high speed services and special services such as charter and night trains. There are also premium services, with supplementary fares, and special services such as airport express trains. In practice, definition and separation of such services is unclear.

H2.5 Transport markets are not defined by what rolling stock is used to serve them but by the opportunity for passengers to travel between two stations at particular times. One pair of stations may be linked by many train services, of different types, and one train service may link many pairs of stations. The same rolling stock may serve markets of different types during the course of a day or even in the course of a single journey.

H2.6 For competition to exist in the market, there must be two or more operators between some station pairs, in particular, as experience shows, between two large urban agglomerations. For some Member States with very small networks, there may be no station pairs between which there is sufficient demand. Also, in some Member States, there might be insufficient infrastructure capacity to support a second operator, in particular at peak times.

H2.7 For competition to exist for the market, there must be two or more RUs willing to bid to provide a service. Even if the Commission and the Member State put in place optimal framework conditions, there may remain Member States, or markets within then, which one or no RUs are willing to bid to serve. This may occur where specific national or local requirements, or the size, duration or risk of the proposed contract, are insufficient to be attractive to bidders, or where there might be risks of "integrated franchises" in which the incumbent owns the infrastructure and has knowledge of traffic data, so that it can better evaluate its bid. Evidence from Germany and Sweden is that the average number of bidders for each tender is falling, and in Germany there have been a number of highly-publicised failures to award a PSC. In the stakeholder consultation, one association of RUs stated that the evidence from Germany is that competitive tendering was not always the best means of awarding PSCs.

H2.8 A particular risk to the concept of market opening is that the Commission and Member States put in place mechanisms for competitive tendering but find that the number of bids received is small or limited. This might result in expensive but inconclusive tender competitions, which would damage the credibility of the policy initiative. The Commission might wish to consider improving framework conditions for competitive tendering first, before making any arrangements for market opening mandatory.

Can competition be effective with a dominant operator?

H2.9 Legislation is normally neutral between different bodies serving the same role and does not distinguish between them. Regulation of competitive markets, however, must pay particular attention to the problems of dominance and the opportunities it brings for abuse including monopolistic and oligopolistic behaviour.

H2.10 Many of the Member States still have a dominant RU and this suggests that, whatever framework conditions are put in place, introduction of competition may result in a market which remains dominated by a single operator, is open to a range of potential abuses, and requires continued and extensive intervention from the regulatory and competition authorities.

H2.11 When Sweden implemented the separation of infrastructure and operations in 1988, studies identified that there were a number of ways in which the incumbent operator SJ could abuse its dominant position. Sweden has since developed effective regulatory mechanisms, and state-owned SJ has been given a commercial remit which is similar to that of a commercial organisation. Nonetheless, SJ remains the dominant operator of long-distance services, and arrangements within the industry are not wholly symmetrical between it and other RUs.

H2.12 When Great Britain implemented Directive 91/440/EEC it drew on these experiences in Sweden and privatisation in other sectors, and in particular in electricity generation, to make removal of monopoly and dominance a key feature of the chosen industry structure. Great Britain has no dominant operator and, as the Great Britain country fiche shows, in the subsequent 20 years there have been few complaints either of market dominance or of discriminatory behaviour.

H2.13 In other markets such as Italy, the arrival of credible competitors to the incumbent has required significant capital funds, showing that there are also important barriers.

Should mobility policy or commercial interest drive market opening?

H2.14 The Commission has set out two principal options for market opening: open access, and compulsory competitive tendering for PSO services. Both may, in principle, result in services better focused on the needs of travellers, but the mechanisms by which this happens are different.

H2.15 Open access is driven by the commercial interest of the operator, predominantly by serving station pairs, at times of day, where it will attract passenger who are collectively willing to pay more than the service costs to provide. In the stakeholder consultation, an association of RUs suggested that open access services would emerge where there was customer demand and would be customer-focused. PTAs agreed that open access has delivered a variety of useful new services, but argued that these focus on profitable long-distance travel. They suggested that a legal framework would be needed to enforce cooperation between open access operators to maintain intramodal and intermodal integration. However, while open access operators may be subject to framework conditions and regulation, they are usually under no obligation to provide a particular station call or service or to continue to do so.

H2.16 Competitive tendering is driven by a specification, prepared by a competent authority, taking into account the actual and potential mobility needs of travellers and, if necessary, external effects such as intramodal and intermodal integration, road congestion, safety and the environment, which stakeholders suggested would not be driven by competitive pressure in the market. Competitive tendering can, in principle at least, ensure that the specific mobility needs identified by competent authorities are provided for over the longer term.

H2.17 In some Member States, incumbent operators provide services not subject to a PSC and, in aggregate, broadly self-financing. This does not, however, mean that these services have been optimised either to meet passenger requirements or to maximise commercial return. Incumbent operators owned by national governments may, whether as a result of poor understanding of costs and revenues, inertia, or political pressure, provide a number of station calls, or even whole services, which attract less net revenue than they cost. It is not realistic to assume that every train service, or station call, currently provided by national incumbents would be provided by a wholly commercial operator. These train services or station calls might be withdrawn if exposed to profit-maximising competition or even to better financial analysis.

Should competition be in the market or for the market?

H2.18 Competition may, in principle, be in the market, with two or more operators serving the same pair of stations, or for the market, with two or more bidders competing to provide a defined set of PSO services.

H2.19 The Commission's "A" options relate to competition in the market and the "B" options relate to competition for the market, and combinations of both are, in principle, possible. There are interactions between them, as competition in the market can sometimes compromise the economic equilibrium of PSCs. This has for instance already been recognised in The Recast of the First Railway Package for cabotage of international services.

H2.20 Stakeholders were generally slightly more positive about compulsory competitive tendering than open access, and in particular made no very negative comments about compulsory competitive tendering.

Should competition in the market be based on quality or price?

H2.21 Member States introducing competition to carry passengers between stations have to date adopted different arrangements in different circumstances:

- Competition based on quality, including timetable and journey time, while inter-available ticketing ensures that passengers may use any suitable train
- Competition also on price, where tickets are non-interavailable, and tickets are valid only on the services of a single operator or even a single train

H2.22 Stakeholders listed both service frequency and ticket prices as the most important factors to the competitiveness of rail, but their relative importance may vary from market to market. This suggests that the Commission may need to be careful in either:

- Requiring price competition, if it prevents passengers from using any train and denies them the benefits of service frequency
- Requiring inter-availability, if it denies them the benefits of price competition

H2.23 Where competition in the market has been introduced, RUs have opted either to compete on price or to differentiate in terms of price and quality (slower trains versus faster trains, newer versus second-hand rolling stock).

H2.24 Public procurement directives provide for competition on price or on the most advantageous economic offer.

H2.25 Other stakeholders pointed out that more complex models are available, including the model used in Great Britain with both relatively expensive inter-available tickets and discounted tickets issued by some or all operators. However, passenger groups have criticised such models as complex and confusing. One new entrant RU focused on the Swiss model, which combines competition with compulsory through-ticketing, national discount cards and network tickets. Another new entrant RU noted that passengers value integrated services more than open access, and argued that competition should be by competitive tendering on this basis.

H2.26 The Commission may need to decide, and specify in legislation:

- Whether market opening measures should forbid, permit or mandate any particular existing or potential model of competition between operators.
- Whether and how market opening measures should distinguish between PSC services, commercial services of different types, and international cabotage.

Can open access without PSCs provide service stability and continuity?

H2.27 A common hidden assumption in arguments for competition in the passenger rail market is that such competition will provide stable and continuous services in which two or more operators continually refine price and service levels in the pursuit of profit through meeting passenger needs. While such a situation emerges, and is sustained, in many consumer markets, there is little evidence as yet that this can occur in the rail industry, so it is difficult to conclude anything at this stage.

H2.28 Many Transport Ministries expressed the view in the stakeholder consultation that competition may result in either less efficiency or semi-monopoly. Incumbent RUs argued that open access to congested infrastructure would increase complexity and the risk of disruption and hence worsen punctuality.

H2.29 Some incumbent RUs argued that price competition for market share between incumbents and open access operators might not be sustainable.

H2.30 Great Britain has had some marginal open access services at the fringe, representing less than 1% of all passenger-kilometre, making it difficult to extrapolate its situation to the whole EU (even more so as Great Britain has no incumbent railway undertaking).

H2.31 It is difficult to take stock of all the effects of open access, as open access commercial services are very new in the other Member States where they exist (Austria, Czech Republic, Italy and Sweden).

H2.32 The main experience that can be drawn from Austria, Czech Republic, Italy and Sweden is that open access takes place in the long-distance market segment between the major urban centres of a country (Vienna-Salzburg, Rome-Milan, Prague-Ostrava, Stockholm-Göteborg), in particular where infrastructure is not constrained, such as on dedicated lines as in Italy. Also, open access does not appear to be appropriate for commuter services, because of the intensity of operations.

H2.33 If open access does survive long enough to build significant market share, there is still no guarantee that it will remain viable in the longer term on routes with medium or low demand, such as regional services. If, in future, two operators provide broadly equal services, withdrawal of one would typically mean a halving of service frequency and capacity, potentially overnight. This could result in disruption for users of the abandoned service, although similar situations happen in air transport.

H2.34 Experience in the deregulated bus industry of Great Britain, and in all but the "thickest" air and ferry markets, suggests that head-to-head competition may not be sustainable over long periods on routes with thin demand, with a common outcome being that one operator becomes dominant and others withdraw, as on the Göteborg-Malmö route. Member States and competent authorities may also need to guard against other behaviour seen in the deregulated bus industry. One is for an commercial incumbent bus operator to withdraw a single bus service and then win a contract, for which no other operator would bid, to provide it under a PSC. We have been told of examples of a bus operator receiving PSC support, under four separate PSOs, to provide the first four bus services of the day, all of which it formerly operated without subsidy. We have as yet identified no reasons why such behaviour, and the consequent effect on the competent authority's funds, could not be repeated by locally dominant operators in the rail industry.

H2.35 In Sweden, for example, SJ has a commercial remit and is permitted to withdraw from services which are not profitable, but its state owner may require it to give reasonable notice of its intentions to do so. SJ has already withdrawn from one route at only six weeks' notice, although other services remained in place on the route.

H2.36 It is not clear how rapidly services could be replaced if the only operator were to withdraw for any reason, but this would often take longer than six weeks. Provisions exist for the emergency replacement of bus services, which can often be done at short notice. In contrast, the time required to let some PSC contracts suggest that it might take up to two years to procure an operator to replace an abandoned rail service.

H2.37 Member States must devise and put in place arrangements to ensure stability and continuity of service. As yet, however, it is unclear what such arrangements might be, other than safeguarding all services of potential social value in a PSC with measures to ensure continuity, as has been the policy in Great Britain and Sweden.

H2.38 A possible outcome of increased open access is that, rather than rely on open access operators to continue to provide services, competent authorities instead extend the definition of PSCs to cover more, most or even, in some instances, all services.

Can open access with PSCs be managed?

H2.39 We set out above how open access is likely to be driven by the financial interest of the operator and how, as in any market, an open access operator is likely to try to focus on attracting passengers from competing services in their core, and most profitable, markets. Many stakeholders reported concerns that open access would lead to "cherry-picking", and worsen the competent authorities finances. At least two methods have been proposed for limiting such "cherry-picking" tests of:

- The expected effect on other operators, such as the "economic equilibrium" test provided for in Directive 2007/58/EC, with criteria such as the "impact of the profitability of any services which are included in a PSC, including consequential impacts on the net costs to the competent public authorities"
- The expected mix of abstracted and generated revenue, as used by the ORR in Great Britain

H2.40 While the economic equilibrium test focuses on the actual effect on specific PSC operators, ORR's test does not assess this directly and may not predict the risk of PSC failure in response to open access.

H2.41 However, experience of using either test, and the wider impacts of open access, remains limited. Most of the open access services that currently operate are on lines that receive no financial support from the state, such as Rome-Milan, Vienna-Salzburg, Prague-Ostrava for intercity services and Stockholm-Malmö/Göteborg). There are also now several routes between major cities for which there is no state support but where there are exclusive rights, such as for most or all of the long-distance services in Spain, France, Germany, Italy and Portugal.

H2.42 Two cases illustrate the issues arising with parallel services: the current problems on the Prague-Ostrava line and on the Mila-Turin line with Arenaways.

H2.43 Competition between RegioJet and the Czech incumbent Česke Drahy (ČD) provides an example of the problems of economic equilibrium of PSCs. Both compete on the Prague-Ostrava line with ČD apparently calling at some stations under the terms of its directly-awarded PSC (non-stop services in the Czech Republic are not covered by PSCs). According to ČD, the price war against RegioJet would have resulted in an increase of losses from €15 million to €40 million. In parallel, at the time of writing, RegioJet has complained to the Czech competition authority that ČD has abused its dominant position to undercut its competitor by lowering prices on the Prague-Ostrava route while increasing prices on others.

H2.44 The actual impact on railway finances will depend on whether Member States create PSO packages comprising profitable and unprofitable services (cross-subsidisation) or choose to serve long-distance markets through open access and regional services through PSOs.

Over what timescales can market opening be achieved?

H2.45 Market opening by open access and compulsory competitive tendering might proceed at different rates, as we discuss below.

H2.46 For open access, potential new entrants in at least some Member States would anticipate the creation of a right of access and could begin to prepare for market

opening before implementation was complete. We envisage that some open access operators could emerge within one year, and certainly within two years, of market opening legislation being implemented. However, evidence suggests that this speed of entry would probably be the exception rather than the rule.

H2.47 For compulsory competitive tendering, in contrast, new entry would depend on the rate at which competent authorities let PSCs through competitive tenders. Article 4(3) of Regulation 1370/2007 specifies that the duration of PSCs shall be limited to 15 years for passenger transport services by rail. The actual length of PSC contracts varies widely, but some competent authorities have let contracts for this maximum period of 15 years. In addition, Article 4(4) allows that the duration of the duration of PSCs may be extended by a maximum of 50% if the public service operator provides assets.

H2.48 In Appendix Table F.1 we set out the dates at which directly-awarded PSCs in each Member State are expected to expire, which can be as late as 2025. If implementation of any legislation emerging from the Fourth Package policy initiative allows these contracts to run their course, this suggests that market opening would take until at least 2025, as existing contracts expire and are renewed on the basis of compulsory competitive tenders.

H2.49 In Spain, where existing PSCs expire by 2016, proposals have been put forward for the sale of incumbent RENFE's passenger business. To be successful and to maximise sale value, this would probably need to be supported by a new long term PSC contract, effectively closing some or all of the market for a considerable period. There is also the possibility that some Member States would renew some or all PSCs immediately before the introduction of legislation, and take advantage of the opportunity to extend them set out in Article 4(4) of Regulation 1370/2007. In Member States where this happened, market opening by compulsory competitive tendering would have little or no effect for up to 22½ years after implementation.

H2.50 In summary:

- Market opening by creation of open access rights might result in new entry within 1-2 years of implementation, even in Member States which allowed no open access until implementation.
- Market opening by compulsory competitive tendering might be gradual, over a period of up to 15, and in some cases 22½ years. If Member States or competent authorities chose to delay new entry be reletting PSCs just before implementation, this might postpone any new entry for a similar period.

H2.51 Given the above analysis of the country fiches and stakeholder consultation, we dismissed a number of the proposed market entry options set out in Appendix Table H.3 as follows.

A1: open access on routes not covered by PSCs

H2.52 From the evidence available, it appears possible that if open access were permitted only between stations not served by PSCs, there would be an immediate move in some Member States to extend PSCs to all passenger lines, either:

- To preserve station calls which would be withdrawn to maintain commercial viability in the face of competition from open access services.

- To preserve commercial services which would be withdrawn once subject to competition from open access services.
- To prevent open access, as a deliberate objective.

H2.53 This might result in most, if not all, services currently operated on a commercial basis being converted into a direct award PSC contract. This is consistent with the current situation in Sweden and Great Britain. Open access on this basis might therefore result in few or no new services, but move a larger volume of the incumbent's services from commercial operation to a direct award PSC.

H2.54 We concluded that there would be little value to the Commission in recommending taking forward an option which could easily be circumvented or made irrelevant.

A3: unrestricted access on certain routes

H2.55 We assume that option A3 of unrestricted access on "certain" routes might be defined as the right to serve flows between stations which are connected by infrastructure with certain characteristics. In principle, this option could enable the Commission to mandate open access rights to serve flows between stations connected by high speed lines.

H2.56 We have concerns, however, about how this option could be defined in practice, as it may depend on a technical definition of the capability of the route. For example, high speed lines normally merge with conventional lines before reaching the stations at which services terminate. If short sections of high speed line were to be "downgraded", such as through a speed restriction, this could be used to declare them closed to open access.

H2.57 We concluded that further work would be needed to identify whether definitions could be made sufficiently robust to ensure that the potential effects of this option were not negated by reclassification of sections of the infrastructure.

A4: unrestricted access on all routes

H2.58 Option A4 would not permit competent authorities to prevent cherry-picking of passengers from PSC services. While it might, in principle, attract the greatest volume of open access services to the market, it is likely that this would be restricted to a few major station-to-station flows, with extensive abstraction from PSC services. It might also mean a need to let a higher proportion of PSCs on a gross cost basis, if tenderers were unwilling to take revenue risk, and hence forfeit the effects of net cost tendering as a means on incentivising PSC operators. As noted above, stakeholders mentioned to us in interviews that unrestricted open access might make it impossible to let any PSCs on a net cost basis.

H2.59 We are aware that some Member States, such as Germany and Sweden, and to some extent Italy, already have a mixture of:

- PSC services, typically over short distances and specified by local or regional authorities, provided on a competitive basis
- Other services, typically over long distances, provided by an incumbent which is no longer restricted by service obligations or fares regulation and is, in theory at least, subject to open access competition

H2.60 However, the fact that this situation has proven workable by gradual change in these Member States does not mean that it could be imposed immediately in Member States in which most, if not all, services are currently provided under a single national PSC. We briefly discuss two approaches which may have been envisaged by some stakeholders, but which past analysis and experience has suggested would be unworkable in practice:

- Withdrawal of all incumbent services on "commercial" routes, with the aim that open access services would emerge to replace them
- Prioritisation of open access applications over other services

H2.61 Variations on both these arrangements were considered in Great Britain during the preparation for rail liberalisation under the Railways Act 1993, but they were rejected because of the evidence of possible disruption and failure to meet the needs of existing passengers, as we set out below.

Withdrawal of all "commercial" incumbent services

H2.62 Where financial analysis shows that PSC services on a particular route or in a package could operate without subsidy it would, at first sight, be possible to:

- Announce the future withdrawal of incumbent services
- Identify what proposals for open access services emerged
- Specify and award a PSC contract to provide any socially necessary station calls which were not included in open access proposals

H2.63 In practice, there are a number of potential problems with attempting to restrict the specification of PSCs to when open access services did not meet market needs.

H2.64 First, the timescale required to put this change in action. Sufficient notice would need to be given for open access operators to prepare their plans, which might take 1-2 years, then for the competent authorities to identify any gaps, and then to specify and tender for PSC contracts which could be brought into operation on the same date. This suggests that any such withdrawal or existing services might need to be planned 3 years or more in advance.

H2.65 Second, the risk that open access operators would plan to enter the market on different dates. This might mean that a PSC contract was needed only for periods of months, weeks of even days before an open access service was planned to begin. It might prove impossible in practice to obtain competitive bids for contracts of such short periods.

H2.66 Third, the risk that open access proposals leave insufficient capacity for services which the competent authorities considered necessary on social grounds. Evidence in some Member States, and in the stakeholder survey, is that infrastructure capacity may be constrained, especially on routes where demand is high and commercial operation is most likely to be viable. Where this is an issue it might be necessary to ensure that capacity allocation prioritised PSCs over open access.

H2.67 Fourth, the uncertainty over whether open access operations would actually begin as and when planned. Without committed financing, guaranteed delivery of rolling stock, and all relevant licences and certifications, there would be an inevitable risk that one or more proposed open access operations would not begin as planned,

leaving a gap in services. Evidence from several Member States suggests that open access operations, unlike services tendered under a PSO, are often subject to delays in service introduction. In Appendix F (F3.7) we note how long it took a new entrant in Sweden to start a service. Sometimes these delays become apparent only immediately before the intended start date, and it might prove impossible to procure replacement services by PSC at such short notice. This could result in a major interruption to services.

H2.68 Fifth, the uncertainty over whether open access operations would continue, particularly if they proved not to be commercially viable. Open access operators have withdrawn in a number of Member States. It might be desirable for the Commission or individual Member States to define a notice period before services could be withdrawn. However, this might not be enforceable in practice for a number of reasons, such as the failure of the contractor, or the lapse of their licence or safety certification.

H2.69 Sixth, the potential creation of an open access monopoly on at least some flows, and the potential need for regulation of the fares charged by open access operators. As we noted above, there is no experience to date of fares being restrained purely by competing open access operators serving the same flow, or whether such competition would emerge, or be stable, or have the effect of regulating fares to levels acceptable to passengers and competent authorities.

H2.70 The closest precedent for withdrawal of existing services was the deregulation of the bus industry in Great Britain (excluding London) in 1986 following deregulation legislation in 1985. The immediate effect was widespread disruption to services, including loss of services necessary for many commuters. However, it was and remains possible for the competent authorities to procure new bus services under PSC contracts in periods as short as a few working days. Evidence suggests that procuring a PSC to replace an open access rail service might take a year or more.

H2.71 Withdrawal of an incumbent's services was not the approach adopted in Sweden. Incumbent SJ retained a monopoly on inter-county services until 2011, over 20 years after the initial restructuring of the railways. While SJ was relieved of the obligation to provide services which were not commercially viable, it was state-owned and could be directed by its shareholders not to withdraw until a replacement PSC service could be specified by the competent authorities. When it eventually became subject to competition, almost all lines had some services covered by PSC contracts set by the competent authorities. Open access has in any case been limited in scale, as described in the Sweden country fiche, but initial evidence is that competition may not be sustained.

Prioritisation of open access applications

H2.72 A second approach to open access, which again might at first sight seem attractive, would be to prioritise applications for open access services over other services, with the aim that new entrants would gradually provide an increasing proportion of services on a commercial basis. As with withdrawal of the incumbent's commercial services, however, this would raise a number of issues:

- The risk that insufficient capacity remained for PSO services making socially necessary station calls

- Uncertainty over the continued provision of open access services
- Potential creation of a monopoly on some flows, and a need for fares regulation

H2.73 The evidence suggests that either of these approaches might prove impracticable, at least without extremely careful design of the arrangements to address all these issues. Further consideration would be needed of whether, and how, legislation might set out in further detail any restrictions on when competent authorities would have the right to set PSOs.

A slow transition

H2.74 An approach to option A4 which might be workable in any Member State with an incumbent would be:

- First, to allow the incumbent to choose which, if any, services it would operate commercially, subject to a notice period before it could withdraw them
- Secondly, to arrange for the gradual competitive tendering of any of its remaining services required by the competent authorities
- Third, to allow open access

H2.75 This approach effectively replicates the process which has occurred in Germany and Sweden, and could in principle be specified in legislation with the aim of a transition period of 5-10 years. However it might require legislation to accord a special status to incumbent or state-owned RUs, at least for the duration of the transition period.

H2.76 In summary, we reject the option of open access on all routes for a number of reasons:

- The likely cost to competent authorities from cherry-picking
- The lack of precedents in the rail industry, and the poor precedent set in Great Britain's local bus industry
- The risk of service instability and lack of proven mechanisms to replace abandoned services

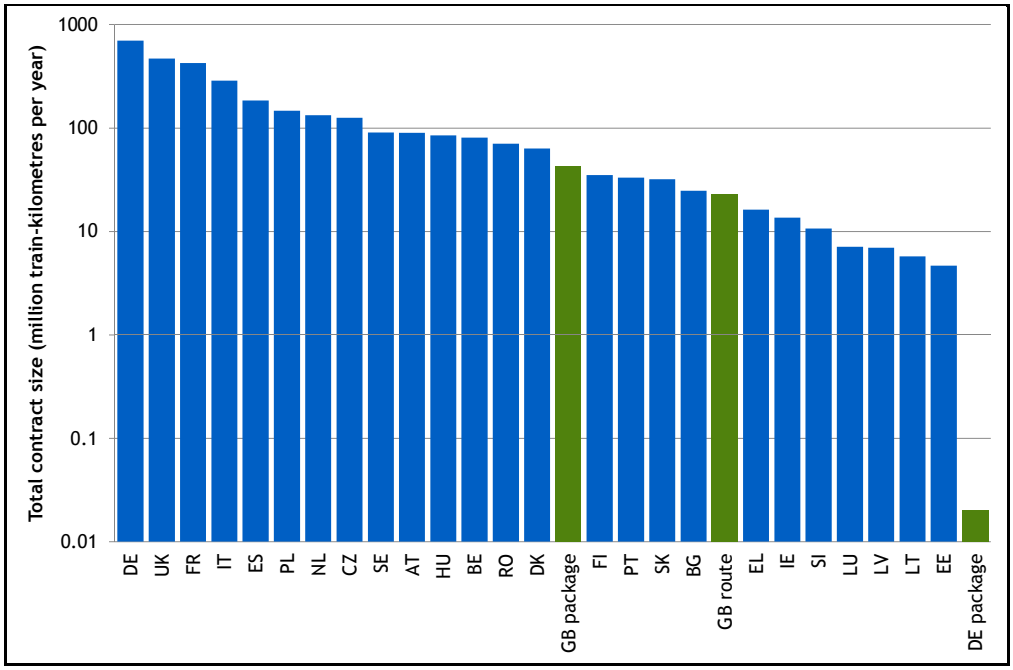
B1: competitive tendering above a threshold

H2.77 The country fiches suggests that there may be little value in taking Option B1 further. Those for Germany and Sweden show that it can be cost-effective to carry out tenders for very small service packages, at least on a gross cost basis. In Germany, the smallest package of services successfully tendered is for only 20,000 train-kilometres a year, which can be operated by a single train. In Great Britain, from 1996 to 2007 the Island Line, currently operated with only ten vehicles, was subject to a PSC on a net cost basis.

H2.78 The stakeholder consultation also found little support for competitive tendering above a threshold. This was extensively rated very negative in Question 4.4a and received the lowest overall average rank in Question 4.4b. We have not yet identified any previous use of "de minimis" arrangements to procure small additions to commercial rail services. However we note that setting a "de minimis" threshold below which PSCs could be awarded directly might provide competent authorities with useful flexibility, for example to contract with an

existing commercial operator to provide a socially necessary stop. We discuss the potential value of this further in Appendix Table H.13 and paragraph H7.26.

APPENDIX FIGURE H.1 SIZES OF NATIONAL NETWORKS AND PSC CONTRACTS



H2.79 We also considered whether it would, in contrast, be desirable or practicable to use a threshold to specify a maximum size of PSC contract, for example to ensure that small national networks were not awarded as a single PSC. Appendix Figure H.1 compares RMMS data on the relative sizes of the national networks with:

- The largest package currently operating in Great Britain
- The largest single route, Thameslink, currently operating in Great Britain
- The smallest package we have identified in Germany

H2.80 In Germany, tendering has begun for the Berlin S-Bahn network which, even after subdivision into three contracts, includes a package for 9.4 million train-kilometres per year, larger than the entire operations in some Member States.

H2.81 In Great Britain, the entire network has already been subdivided into packages. The largest is currently Northern, with around 43 million train-kilometres per year, although it might be possible in principle to subdivide this further. However, the Thameslink package of around 23 million train-kilometres per year, and scheduled to become larger, consists of one regional and urban route across London which will be operated as a unit with a single type of rolling stock provided under an integrated train supply agreement.

H2.82 If the Commission set a threshold that allowed routes of this size to be operated as a single PSC, as seems likely to be necessary to enable them to be tendered, then by implication the entire networks of some Member States could be covered by a single PSC.

H2.83 If the Commission set a threshold that did not allow routes of this size to be operated as a single PSC, it seems unlikely to be possible to operate them as a

series of independent operations. If forced by European law to do so, one approach would be for competent authorities to restructure such routes as:

- A single timetable set by the competent authority
- A single train fleet
- A single train provider/maintainer (this is the approach planned for Thameslink, which will have 100 trains and 1,200 vehicles)
- Multiple RUs, each contracted by competitive tender, to operate a small number of stations (if needed) and either:
  - To drive a small number trains throughout the day
  - To drive all trains over a short section of route before handing them to a driver employed by another RU

H2.84 The Commission might adopt a maximum PSC size of, for example, 2 million train-kilometres a year, with the aim of ensuring that even the smallest national networks were subdivided. Even if this were operationally feasible for small national networks, it would still be necessary to deal with large urban routes such as in Berlin and London. The proposed Berlin package would need to be subdivided into at least 5 RUs, the current Thameslink package would need to be subdivided into at least 12 RUs, and other even larger packages in Great Britain might need to be divided into at least 20 such RUs, meaning 20 competitive tenders, and potentially 20 separate operators. Similar issues might also arise in other Member States. In practice, such a complex process to let what is self-evidently a single service might damage the credibility of the policy initiative.

H2.85 As an alternative means of ensuring that multiple PSCs existed even in Member States with smaller networks, a threshold could be based on a measure of relative, rather than an absolute, size. For example, the Commission might require that no more than 40% of the PSC train-kilometres in a Member State could be let as a single PSC, with the aim of requiring that all Member States let at least three contracts. We discuss this issue further below in the context of framework conditions for PSO definition.

B2: competitive tendering with negotiation

H2.86 Stakeholders had high expectations of the effects of this option, presented as "A specification of negotiation elements allowed under a competitive tendering procedure along the lines of the relevant provisions in public procurement law".

H2.87 However, some stakeholders stated that they did not understand what it meant, and the wording did not specify whether it would apply to all PSC contracts.

H2.88 In practice, it appears that option B2 would differ from option B3 (competitive tendering for all routes covered by PSCs) only in the exact competitive tendering processes which would be applied, rather than the range of PSC services to which they would apply.

H2.89 We concluded that we could not readily distinguish options B2 and B3, and therefore treat them as a single option, but might consider the distinction between them further when details of potential PSC procurement framework conditions are refined.

Other competitive tendering options considered

H2.90 We noted that option B2/B3 would require compulsory competitive tendering of all PSC services in each Member State. We attempted to identify an alternative in which, as a compromise policy, compulsory competitive tendering could be limited to certain services. We considered therefore a number of other options:

- Exemptions for some Member States either on objective grounds, such as the small size of their networks, possession of a unique track or loading gauge or other technical system, or on the basis of evidence that it had not proved possible to attract interest in new entry into the national market.
- Compulsory competitive tendering only on contracts over a certain duration.
- Compulsory competitive tendering only on contracts serving stations more than a certain distance apart.

H2.91 There are precedents for Member States being exempted from market opening legislation, including Greece, the Republic of Ireland and the United Kingdom, in respect of Northern Ireland. We concluded that, while further exemptions might be appropriate for the Fourth Package, this is primarily a policy issue for discussion between the Commission and the Member States.

H2.92 A stakeholder suggested that competitive tendering should only be compulsory for PSCs longer than 3 years. This might in principle result in reduced transaction costs, particularly in respect of emergency contracts to provide continuity of service. However, we were concerned that it would provide a mechanism for Member States and competent authorities to evade the objectives of the Fourth Package by repeatedly letting PSC contracts for less than three years. We concluded that it would not be appropriate to consider this option further.

H2.93 We also noted that the greatest potential difficulty in letting PSC contracts might arise in dense urban networks requiring large and homogeneous rolling stock fleets. Contracts of this type have proved problematic in Germany, but not in Sweden and Great Britain, where the Thameslink PSC (see H2.79) requires 1,200 vehicles worth €2 billion. One approach might be to exempt such urban contracts, at least initially, but require compulsory competitive tendering for services extending more than, for example, 30 kilometres. We concluded, however, that Member States and/or competent authorities might collude to evade the objectives of the Fourth Package by subdividing large PSOs into a sequence of short services, such as by using the mechanisms outlined in paragraph H2.83.

H2.94 In summary, we found no proven and workable alternative to compulsory competitive tendering of all PSC services, except potentially for exemptions for some Member States.

Market opening: most effective option package

H2.95 The most effective option package for market opening seems likely to be:

- A2: open access everywhere subject to a test of the economic viability of PSCs
- B2/B3: compulsory competitive tendering of all PSC contracts, subject to safeguards to protect the viability of PSCs, possibly with negotiation

H2.96 We note, however, that this option might limit open access to around 1-2% of total services, because of the likely need:

- First, to extend PSCs to ensure that socially necessary station calls and services were preserved.
- Second, to maintain the economic viability of these PSC services, particularly where they had been let on a net cost basis on which operator profits were only a small percentage of total revenues.

H2.97 We examine next whether any combination of the framework conditions listed in Appendix Table H.4 would be sufficient, or could be extended or adapted, to ensure that the most effective option package would function. Passenger railway services cannot be provided without suitable:

- Skilled and qualified technical staff
- Rolling stock

H2.98 Our analysis suggested that, whatever the other details of the market opening model adopted, these are the two most critical framework conditions, and we discuss them in turn below.

H3 FRAMEWORK CONDITIONS FOR STAFF TRANSFER

H3.1 We begin by discussing some of the key issues and choices associated with staff transfer, which we set out in Appendix Table H.7.

APPENDIX TABLE H.7 KEY ISSUES AND CHOICES: STAFF TRANSFER

Issues
Existing legislation on workers' rights
Can large service packages be tendered without effective staff transfer?
Can staff be forced to transfer from one company to another?
What is the correct balance between: • Preserving railway staff status, numbers, and terms and conditions of employment? • Ensuring that all staff have stability and continuity of employment? • Allowing competitive supply to innovate and reduce costs?
Should existing terms and conditions be imposed on new entrants and new recruits?
What happens if incumbent RUs are restructured to subcontract almost all staff?

Existing legislation on workers' rights

H3.2 Directive 2001/23/EC sets minimum standards for workers' rights in the event of transfer of undertakings. However, Article 8 states that "This Directive shall not affect the right of Member States to apply or introduce laws, regulations or administrative provisions which are more favourable to employees or to promote or permit collective agreements or agreements between social partners more favourable to employees."

H3.3 The administrative provisions, regulations, laws or (potentially) constitutionally defined rights in the Member States may not be consistent with the transfer of employees between RUs. If they are not, implementation of competitive tendering involving transfer of staff may require changes to the national employment law of some Member States. These changes would either reduce such rights in general or restrict or remove them in relation to certain specified transfers within the railway industry for the purposes of facilitating unbundling, open access, competitive tendering or the introduction of new framework conditions.

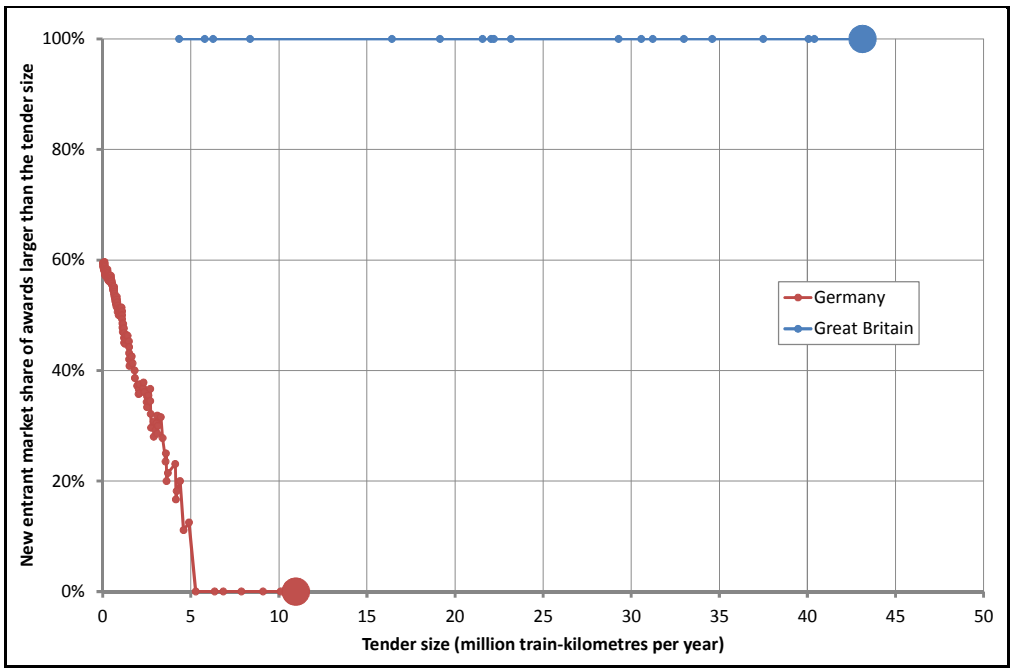
H3.4 We have not attempted to carry out a detailed review of employment rights and legislation in the Member States. Instead, we provisionally assume that there are no insuperable legislative or political barriers to enabling the transfer of employees if required to facilitate the objectives of the Fourth Package. The Commission will need to consider further whether constraints on the transfer of workers form a fundamental barrier to, or limitation of, the overall objectives of greater competition in the railways.

Tendering large service packages

H3.5 Effective staff transfer is potentially particularly important where competent authorities wish to tender large PSO packages.

H3.6 We have compared data on PSC contracts recently offered for tender in Great Britain and Germany, which we illustrate in Appendix Figure H.2.

APPENDIX FIGURE H.2 SIZE OF PSCS OFFERED FOR TENDER



Note: large bullet shows size of largest current contract awarded in each Member State

H3.7 In Great Britain, several PSC operators employ over 4,000 staff, and in designing the competitive tendering system it was not considered reasonable either for new entrants to recruit so many staff or for railway employees' jobs to be at risk each time a PSC was re-let. The chosen solution was to restructure the incumbent operator into a number of companies, each employing the staff necessary to provide the package of services for which they were responsible. Rather than taking over staff, PSC contractors take over the company, including not only its staff and employment conditions but also its "contractual matrix" of suppliers and subcontractors, including infrastructure manager, rolling stock leasing companies, and competitors who provide it with services such as stations and ticketing. There is therefore no transfer of staff when PSCs are handed over to a new operator.

H3.8 In Germany, in contrast, the approach to competitive tendering has been to require the successful bidder to recruit their own staff, and implicitly "build" their own contractual matrix, before beginning services. PSCs are typically awarded two years in advance, to give time to procure rolling stock, and this also allows for an extended process of staff selection, recruitment and training. However, there are generally no guarantees to the incumbent's staff that they will be taken on by a new entrant. As yet there is little experience of whether and how staff employed by a new entrant find new work when its contract is not renewed, or evidence of what models of staff transfer are or would be preferred by railway workers.

H3.9 In Italy, an intermediate approach is used in which the tender requires the winner to hire all existing staff (except senior management) at the same contractual conditions. This approach provides job security, but we note below that the Italian Antitrust authority considers it to be anti-competitive.

H3.10 In Germany new entrants win 65% of small contracts, and around 60% of all contracts, but new entrant share falls rapidly with the size of the contract. The largest tender not won by Deutsche Bahn was for 5.28 million train-kilometres. All larger contracts were awarded direct to Deutsche Bahn or its subsidiaries. This suggests that it is effectively impossible, under the German model, to obtain effective competition for tenders for more than around 5 million train-kilometres per year. Everis noted that typically only one or two bids are received for PSC contracts in Germany. In Great Britain, in contrast, it has been possible to award contracts for over 40 million train-kilometres a year, for each of which interest remains strong. Everis noted that typically four bids for each franchise are received in Great Britain. All PSC contracts in Great Britain have been awarded to new entrants.

H3.11 Since preparing Appendix Figure H.2 we understand that a contract has been let in Germany for 8.5 million train-kilometres a year without making any special provision for staff transfer. Even if there is a successful transfer, award of such contracts still typically requires a lead time of two years. This means that, if all PSC services were re-let every 10 years, 20% of the railway network and the railway staff would be in transition at any one time. In Great Britain, in contrast, staff can be transferred with their company at relatively short notice, and any "re-mapping" of activities and transfer of staff to reflect changes to the franchise package are normally carried out as a separate exercise within the life of the PSC contract.

Mandating staff transfer

H3.12 Staff cannot be forced to transfer from one operator to another, as they always retain the right to resign and seek employment elsewhere. The Commission cannot impose an obligation for workers to change employee. It is, however possible, either:

- For incumbent railways to be restructured into PSO-facing companies in advance of competitive tendering, as in Great Britain, so that competitive tendering does not result in any subsequent change of employment.
- For existing employers to be required to negotiate with staff to put in place terms and conditions for their future transfer in the event that this is necessary as the result of a competitive tender.

H3.13 Both models are potentially workable, although it is not yet clear which would be preferred by railway staff, or whether or how the Commission could or should mandate either of them. One approach which might be investigated, however, would be require any RU awarded a PSC to complete negotiations with its staff, during the life of the PSC, to enable their transfer to another RU at the end of the PSC, on a basis consistent with EU and national employment law. However, it is difficult to see what sanctions could be implemented against a large incumbent railway which failed to do so, particularly if its employers enjoyed special status or protection.

Balancing rights, stability and innovation

H3.14 Stakeholders held a range of views on the objectives of market opening and hence on the relevance of staff transfers and workers' rights:

- Some considered that the terms and conditions of workers in the incumbent operator should be extended to any new entrants, include open access operators, with the aim of sheltering existing workers from competition from cheaper or more flexible ones. We describe in Appendix F (F3.15) how the Ministry of Transport in Austria stated that competitive tendering cannot be introduced while ÖBB's staff costs are 20% higher than those of its competitors.
- Others argued that existing workers' rights should be protected in the event of a transfer but that, provided that this was the case, competitive tendering was acceptable and open access operators should be free to negotiate the terms and conditions of new recruits.
- Others saw the introduction of more flexible working conditions as the key to improving industry efficiency and part of the raison d'être of market opening, and any obligation to take on any or all existing staff as an impediment to efficiency. The Italian Competition Authority (AGCM), for example, has ruled that compulsory adoption of the National Contract for the winner of a tender represents "an entry barrier which raises operational costs for those operators currently having different arrangements to those imposed".

H3.15 In other words, the view of the Competition Authorities in at least one Member State is that new entrants should be able to employ staff on new terms and conditions.

Imposing existing standards on new entrants

H3.16 This last stakeholder view raises another fundamental issue for the Commission. It may be necessary for framework conditions to make an explicit choice between:

- The rights of existing railway employees to continue their terms and conditions, and to be sheltered from competition from cheaper or more flexible workers.
- The rights of new entrants, particularly open access operators, and their employees, to design a business and its staffing arrangements in any way they consider efficient, and of passengers and CAs to benefit.

Subcontracting by a "shell" Railway Undertaking

H3.17 A further issue to be addressed in the context of staff transfers is the wide range of activities which are subcontracted by RUs.

H3.18 The Task Specifications refer to "compulsory competitive tendering for PSC", and we retain this wording in option B2/B3, but neither it nor existing legislation defines what minimum activities would be directly provided by the tenderer, rather than subcontracted from other parties.

H3.19 We described above (H2.83) how a competent authority could divide a large package into a series of small tenders by extensive subcontracting by the competitively tendered RUs. Subcontracting by RUs is widespread, and Appendix Table H.8 below lists some existing examples of elements of the train service not always provided by the tenderer in PSCs.

APPENDIX TABLE H.8 SERVICE ELEMENTS NOT ALWAYS INCLUDED IN PSCS

Service element	Examples
Fares setting and revenue risk	"Gross cost" contracts in which the PSC operator is contracted to provide a specific service to a specific quality. Common in Germany and Sweden and also used in Great Britain in PSC contracts serving urban areas where a large proportion of revenue is from multimodal tickets.
Ticket sales	PSC operator CrossCountry in Great Britain provides on-train sales, but has no ticket offices and calls only at stations operated by other PSC operators or by the infrastructure manager.
Station staffing	
Train ownership	In many Member States, PSC operators lease trains from rolling stock leasing companies or from the competent authorities. In some Member States, PSC operators have contracted for manufacturers to provide and maintain trains.
Train maintenance	
Train provision	

H3.20 Appendix Table H.8 provides evidence that the range of services provided in different Member States varies widely. We assume that the relevant competent authorities have bona fide reasons for not requiring the PSC operator to set fares or take revenue risk, or to operate stations, or to make use of rolling stock provided by the competent authority, a leasing company or a manufacturer. This demonstrates the range of models which Member States and competent authorities have found to be effective. However, these requirements mean that many of the activities normally associated with providing a train service may be subcontracted to parties either specified by the competent authority or chosen by the PSC operator.

H3.21 The Commission may need to decide whether it would be appropriate for incumbent railways, alone or in collusion with competent authorities, to be permitted to restructure themselves as a series of "shell" RUs. This might, for example, be essential if competent authorities in Great Britain were required to subdivide a large package such as Thameslink into multiple independent PSCs.

H3.22 For example, an RU might subcontract almost all its activities back to other subsidiaries of the incumbent on long term contracts on generous terms, such as:

- Train provider
- Train crew provider
- Station provider
- Retail provider

H3.23 If this were done, the activities subject to competitive tendering might be limited to oversight of these subcontracts, with little or no scope to manage, innovate or earn a profit from doing so. It is not clear whether such an outcome is consistent with the Commission's intended meaning of "compulsory competitive tender", although this seems unlikely.

H3.24 However, it is also not clear what steps the Commission could take to prevent such restructuring by incumbents. Subcontracting, particularly of rolling stock provision

and maintenance, is also a bona fide means of facilitating competition and seeking efficiencies.

H3.25 There is a risk for the Commission that legislation to require compulsory competitive tendering will precipitate pre-emptive restructuring of some RUs to "lock value" into subcontractors outside the process of competition between RUs. In particular it may not be possible for the Commission both:

- To restrict the range of activities that PSC tenderers are allowed to subcontract
- To set a maximum size for any PSC package

Framework conditions for staff transfers: most effective option package

H3.26 Given the complexities of railway legislation and employment law which are beyond the scope of this study, we have not been able to identify what package of measures, if any, the Commission might be able to introduce as part of the Fourth Package without requiring wide legislative change.

H3.27 For the purposes of testing option packages in the Impact Assessment, it is possible to assume that better means could be introduced to transfer staff from one RU to another under one or both of the models summarised in H3.12. However, we have not attempted to identify whether and how this could be achieved in practice.

H3.28 We note, however, that it remains the prerogative of individual employers to enter agreements for even higher standards with their staff. Franchisees in Great Britain are prevented by their PSC from "poison pill" arrangements such as massively increasing staff salaries or redundancy pay just before the end of a contract. Member States introducing competitive tendering and reliant on staff transfer might need to take similar steps to prevent abuse by outgoing national operators and future PSC contractors.

H4 FRAMEWORK CONDITIONS FOR ROLLING STOCK

H4.1 Access to rolling stock is widely seen as a constraint to market opening and in particular to the greater use of competitive tendering for PSC services. In the stakeholder survey, 60% of respondents with an opinion considered that "constraints on rolling stock availability" affected the quality of rail services.

H4.2 The Everis study noted that "In three out of the four states that have opened their domestic rail passenger markets (Germany, Italy, and Sweden) the incumbent RU has ended up owning all or almost all suitable passenger rolling stock". The exception is Great Britain, where "Government has reclaimed the rolling stock of the former national railway and used it to establish a leasing market".

H4.3 Appendix Table H.9 sets out a number of issues related to the framework conditions for rolling stock, which we discuss further below.

APPENDIX TABLE H.9 KEY ISSUES AND CHOICES: ROLLING STOCK

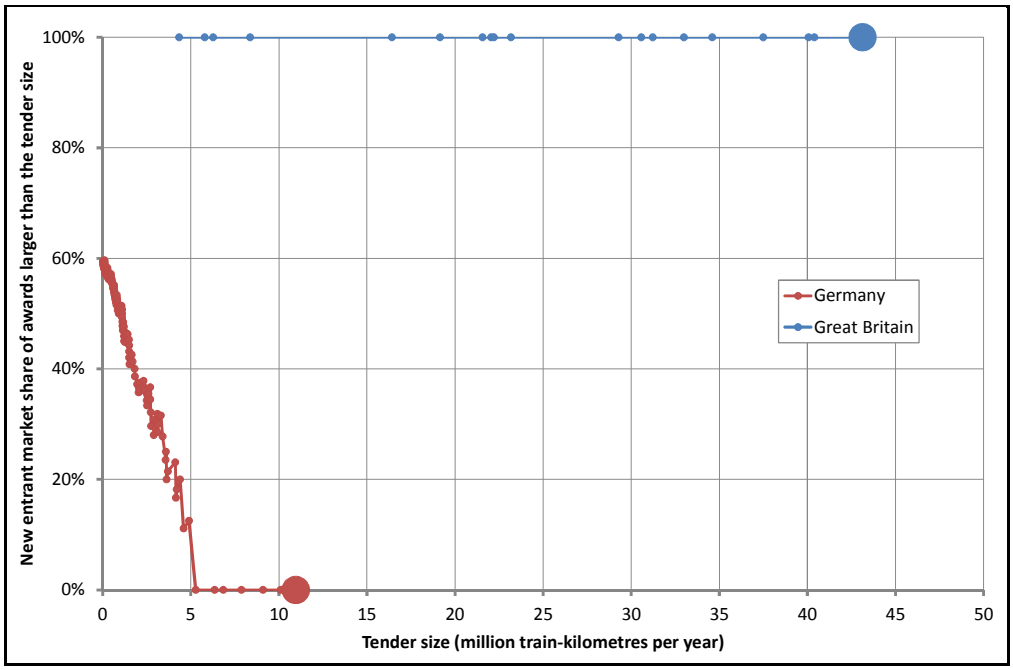
Issues
Can large service packages be tendered without effective rolling stock transfer?
Can rolling stock be separated into: • Rolling stock used for PSO services? • Rolling stock not used for PSO services?
If rolling stock leasing companies are to be created: • Who should be required to create them? • Who should be required to fund them? • Should their ownership be restricted and controlled, or should they be regulated? • Should RUs be forbidden to offer their own rolling stock?
What arrangements should be made for existing rolling stock: • How should property rights be respected? • How should existing long term leasing and supply contracts be respected? • Should RUs be forbidden to own rolling stock?
Can consistent laws deal with existing market dominance?

Can large packages be tendered without effective rolling stock transfer?

H4.4 We set out above how difficulties in transferring staff from one RU to another may be a constraint on the size of PSC packages which can be let, at least unless new entrants are allowed periods of up to two years to recruit and train staff.

H4.5 However, as important a constraint may be the ability of bidders to secure sufficient rolling stock to operate large packages. Appendix Figure H.3 repeats Appendix Figure H.2 showing the size, in train-kilometres per year, of PSCs offered for tender in Germany from 2006 to date and compares them to PSC contracts operating in 2011 in Great Britain.

APPENDIX FIGURE H.3 SIZE OF PSCS OFFERED FOR TENDER



Note: large bullet shows size of largest current contract awarded in each Member State

H4.6 Limited access to rolling stock may make it difficult or impossible to award large PSC packages competitively, for the following principal reasons:

- The diversity of rolling stock types
- The time required to procure new stock
- The operational practicalities of fleet replacement
- The financial requirements for new entrants
- The residual value of existing stock

H4.7 We discuss each of these issues in turn briefly below.

The diversity of rolling stock types

H4.8 Everis considered that market opening might be facilitated by measures to transfer not less than one third of all rolling stock, comprising "a reasonable cross-section" of the fleet, to leasing companies. Our analysis, and experience in Great Britain, suggest that Everis may have significantly underestimated the practical issues of competitive tendering without most rolling stock being leased.

H4.9 Everis referred to inherent incompatibilities between some national fleets, including differences in track gauge and loading gauge, which also dictates platform heights and the provision of steps to them. Other material differences include the different systems of traction and electrification, signalling (at least pending universal adoption of ETCS), maximum speed and acceleration, provision of tilt, location and width of doors and standards for the layout of interior accommodation and the provision of toilets, tables, signage and announcements in the national language(s). In addition, the infrastructure on certain lines imposes additional constraints on the type of stock which can be used, such as the maximum vehicle or train length.

H4.10 The result of this complexity is that operation of a PSC service in some Member States may require rolling stock with particular characteristics of some or all of track gauge, loading gauge, electrification type, signalling system, traction package, vehicle length, door spacing, interior accommodation and language of signs and automated announcements. In some cases, and particularly in small national markets with unusual features, the only existing stock capable of operating the service may be that used by the incumbent. In these circumstances it is unrealistic to assume that a new entrant will be able to locate suitable rolling stock anywhere. We note that the parallel study on the Future Role of the European Railway Agency is examining issues related to rolling stock authorisation and safety certification.

The time required to procure new stock

H4.11 As an alternative to expecting a new entrant to provide new stock, it might be considered possible for the competent authority to allow time after contract award for the construction of new stock suitable for the service. As noted above, delays may be useful to enable the recruitment and training of staff, if this is made necessary by the local framework conditions, but the procurement of rolling stock is typically the binding constraint.

H4.12 However, manufacture of even a relatively small fleet of rolling stock, other than as an immediate continuation of an existing production line, can take 20 months or more from contract signature to entry into service. Larger or bespoke fleets may require much longer. In Italy, NTV's fleet of 25 trains was ordered in January 2008 and entered service in 2012, just over four years later. In Great Britain, the €2 billion 1,200-vehicle order for the Thameslink route (see H2.79) was announced in June 2011 and the fleet is not expected to be in service until 2018, more than six years later. It might not be realistic to expect competent authorities to hold competitive tenders several years in advance of contracted services, so as to allow time for rolling stock to be manufactured.

The operational practicalities of fleet replacement

H4.13 If new entrants were able to procure wholly new fleets, and competent authorities were prepared to delay start of service until they had done so, there could still be major practical difficulties in replacing one operator's fleet with another's on a large franchise.

H4.14 For example, the Thameslink route referred to above (H2.79) requires 1,200 dual-voltage vehicles to run an intensive service on a single pair of lines through central London. At peak times, 24 12-car trains per hour will operate in each direction: up to 576 vehicles, costing around €1 billion, will pass through the central section every hour. The complex Thameslink service pattern can only be operated by a single, homogeneous, rolling stock fleet.

H4.15 If a tenderer for the Thameslink contract were required to provide its own vehicles to replace those of the outgoing operator, 24 kilometres of siding space would be required merely to store the new vehicles and remove the old ones. It would also be necessary to train sufficient drivers and crew to operate the new fleet and, potentially, depot staff to maintain it. Finally, it would be necessary on contract handover to switch the entire operation from one fleet to another.

H4.16 Thameslink is an exceptional operation, larger than the entire networks of some Member States (see Appendix Figure H.1) and providing urban, suburban and regional services in Europe's largest city. However, other existing and emerging PSC contracts within Great Britain, Germany and, potentially, in other Member States, will also require large fleets.

H4.17 Other than in Great Britain, none of the national railway networks have yet been completely subdivided into independently operated packages, and there is little evidence of what pattern of packages would result. However, even if Member States were required to break all their services into small packages, perhaps by highly artificial arrangements (see H2.83), this does not mean that it would be practicable or efficient also to operate a large number of small fleets.

H4.18 In summary, our analysis suggests that it would be impractical, or at least extremely costly and potentially disruptive, to replace one fleet with another each time a new PSC contract was awarded. For large packages, the only feasible means of transfer of operations from one or RU to another may be for the same stock to be used immediately before and after transfer.

The financial requirements for new entrants

H4.19 A further implication of the lack of rolling stock available for lease is the capital requirement for new entrants. Member States with leasing arrangements have been able to award PSC contracts to management and employee groups without them requiring extensive finance. In contrast, the replacement cost of the rolling stock fleets on large franchises in Great Britain is well over €2 billion, beyond the reach of SMEs and all but major and well-capitalised groups.

The residual value of existing stock

H4.20 Even if new rolling stock were provided for each PSC, the existing rolling stock would remain available but unused, unless stock with its particular characteristics were required elsewhere. If no alternative use were available, it would have no commercial value and the outgoing operator would need to write it down for scrap. In Germany, where DB has lost out to a competitor following retendering of some regional contracts, it has been able to redeploy its rolling stock elsewhere on its extensive network. Small operators would not have such scale advantages.

H4.21 This difficulty could in principle be avoided if PSC contracts were only let to replace life-expired or full written-down stock, which could therefore be written off and/or scrapped with no adverse effect on the finances of the outgoing operator. This is similar to the arrangements often adopted for concessions to provide light rail lines. However, given the useful life of rolling stock of 30-40 years, this would implicitly mean that PSCs would need to be of a similar length, and for the competent authorities either to anticipate all the future requirements over such a period or to renegotiate new requirements with an incumbent PSC contractor from time to time. In practice, the maximum length of PSC currently permitted is 15 years, extendable to 22½ years.

H4.22 Alternatively the Member State or competent authority might offer a "buy-back" guarantee on rolling stock used by a PSC operator, enabling the operator to arrange finance to cover the difference between purchase price and guaranteed residual value, plus a suitable level of interest. We discuss this further below.

Competent authorities taking residual value risk on rolling stock

H4.23 Competent authorities could take residual value risk on rolling stock, so that bidders who procured new stock would be certain of being able to recover a certain proportion of the sale price at the end of their contract. In practice, we identify a number of difficulties with this concept, as we discuss below.

H4.24 First, to be of value to bidders and their lenders, any such guarantee might need to be offered not only if the contract ended normally but also if it was extended or, more typically if it was terminated early, by either party and for any reason.

H4.25 Second, and as a result, competent authorities would need to have the guarantee in place as soon as the contract begins, so as to provide for early failure or withdrawal. In the early stages of a PSC, the rolling stock might retain close to its full purchase value. This would mean not only that the bidder would have to raise funds to buy the stock, but also that the competent authorities would need to raise, set aside, or arrange to borrow, the same funds in case the guarantee was called. This would effectively require that both parties raised sufficient funds to buy the stock, although we assume that the guarantee value, and hence the amount to be set aside by competent authorities, would decline over time.

H4.26 Third, the rationale for such a guarantee is that, as we set out in H4.10, rolling stock is diverse, and markets in it are illiquid. A guarantee could not be based on "market value", even if there was one, at the time it was called and would by definition need to be specified to bidders in the tender documents. These would need to set out the proposed terms and value of the guarantee at any date during the PSC, and possibly also during any extension period, which might be up to 22½ years ahead.

H4.27 Fourth, if the bidder found that the rolling stock could be used or sold elsewhere for more than the guarantee price, it would do so. Despite having provided a guarantee, the competent authority would have nothing, and would need to support the procurement of replacement stock.

H4.28 Fifth, and conversely, the rolling stock might prove to be worth less than the guarantee price, for reasons such as lack of a market requiring it, technical obsolescence, poor performance or poor maintenance. In these circumstances a competent authority might need to explain to local stakeholders why it was obliged to pay over the odds for rolling stock which had little or no value, was unpopular with passengers, or even which no bidder for a replacement PSC was willing to use.

H4.29 Sixth, to minimise the risk to themselves, competent authorities would need to take on, or procure, many of the skills of a leasing company, including:

- Raising funds
- Monitoring of fleet planning, specification and procurement
- Monitoring of maintenance
- Planning and monitoring of refurbishment and overall
- Trading, disposal and scrapping, if the stock was no longer needed
- Exposure to the risks of market value and obsolescence

H4.30 Seventh, such an arrangement might distort incentives to competent authorities. There could be incentives to specify old rolling stock, which would be life-expired at the end of the contract, so as to minimise or avoid the need for a guarantee. There could be disincentives to terminate the contract of a poorly-performing operator, because the competent authority would effectively be required to buy out its assets. This is not a normal feature of public service procurement.

H4.31 Eighth, existing arrangements in the Member States might need to be modified to grant competent authorities to powers to offer financial guarantees to their contractors. We noted above (H4.12) that the capital cost of rolling stock for the Thameslink contract is expected to be around €2 billion for an operation of around 23 million train-kilometres per year, predominantly with 12-car trains. This suggests that a competent authority procuring services operated even with only 4-car trains might need to provide an initial guarantee of up to €30 million for every million train-kilometres per year in a PSC package. Packages as large as those being tendered in Berlin (H2.79) could require guarantees of several hundred million euros on each contract.

Separation of rolling stock into PSC and non-PSC fleets

H4.32 Stakeholders were consulted on "automatic transfer of rolling stock from one operator to another at the start of a new public service contract". Around 20% of them actively supported this option, but it raises the issue of exactly what stock should be transferred.

H4.33 A number of stakeholders suggested that rolling stock used for PSC services should be identified and subject to different conditions from other rolling stock. However, this conceptual subdivision of the market faces conceptual and practical difficulties.

H4.34 First, where competent authorities do not specify the exact stock, or type of stock to be used, an RU may operate PSC and non-PSC services from a common fleet or pool of stock. Some stock may be used for PSC and non-PSC services at different times in the year, week or day.

H4.35 Second, existing lessors and owners of rolling stock might be reluctant to have it classified as "PSC stock" if its use would then be restricted. One risk is that, in advance of any such announcement, it might prove difficult to persuade RUs to buy any rolling stock if it would subsequently be classified as "PSC" stock and then subject to special treatment. RUs might also rearrange fleets to ensure that only the minimum of old, low quality and low capacity stock was used for PSC services, possibly without spares, with the remainder retained for other purposes.

Creation of leasing companies

H4.36 Stakeholders were also consulted on the option of "introduce measures so that rolling stock is owned by third parties" (rolling stock leasing companies) and operators bid to use it, and there was 60% net support for this option (see A7.23). This is the option which emerged in the design of competitive tendering for PSCs in Great Britain in the early 1990s, but this model depended on a number of features:

- The government was able and willing to require that all existing rolling stock was transferred from the incumbent railway to three competing private sector leasing companies
- Rather than operators "bidding" to use this stock, the leasing companies were required to make it available to subsequent users on quasi-regulated and non-discriminatory terms
- Leasing companies were not obliged to procure new stock, which was typically done by the RUs either on their own initiative or at the specification of the competent authorities

H4.37 In different Member States, rolling stock is made available for lease by private sector leasing companies, by Local Transport Authorities acting individually or collectively and in some occasions by RUs, including short term sub-letting of rolling stock to deal with emergencies and short or long term disruption.

H4.38 This raises a number of issues of how either the Commission could draft legislation to make rolling stock owned by third parties:

- How would these third parties be brought into existence?
- Who would be required to provide them with funding?
- Who would be required to plan or procure new rolling stock?
- Who would be entitled to lease the stock?

H4.39 It would be of little sustainable value to transfer existing rolling stock to leasing companies without also making effective provision for planning, procuring and funding their replacement as they became life-expired or obsolete. Individual competent authorities might not have the power or the funds to underwrite new rolling stock, but at some point it would be necessary for the rolling stock leasing company to make new purchases. Member States would need to define processes for determining when new stock was needed, how much funding should be provided and through what channels, and who should manage the procurement process.

H4.40 Some existing rolling stock may not be transferred outside a designated region without repayment of grants used to buy it. In these circumstances it would probably be necessary to respect the contractual arrangements between the original funders, lessors and other parties. The Commission might, however, wish to consider a requirement that any rolling stock offered for lease must be available on non-discriminatory terms for use anywhere on the national network, or even anywhere in Europe.

Ownership of rolling stock by competent authorities

H4.41 Stakeholders were also consulted on the option of "introduce measures so that rolling stock is owned by Competent Authorities and operators bid to use it as part of the public service contract tendering process", but there was only 30% net support for this option (see A7.23).

H4.42 This option raises most of the practical issues of creating rolling stock leasing companies, with the additional complication that competent authorities, who might be small and have no relevant technical expertise, would need to perform some or all of a leasing company's roles. These might include:

- Raising funds
- Fleet planning, specification and procurement
- Monitoring of maintenance
- Planning refurbishment and overall
- Trading, disposal and scrapping
- Exposure to the risks of market value and obsolescence

H4.43 In Sweden, for example, the PTAs (now Regional Transport Authorities, RTAs) have collaborated to establish Transitio AB, effectively setting up a joint rolling stock leasing company. To permit this type of arrangement, EU legislation might make competent authorities responsible for the provision of rolling stock but not require that each take direct ownership. If this were done, however, the only difference between this option and "creation of leasing companies" would be whether the responsibility was imposed on the Member States or the competent authorities.

H4.44 In addition to the difficulties with these specific proposals for dealing with new rolling stock, there is likely to be a need to deal with existing rolling stock, some of which may continue to be in use for 30-40 years or more. One approach might be to require its transfer into the new arrangements, but this raises a number of issues.

Existing rolling stock owners' property rights

H4.45 Compulsory transfer of rolling stock (whether to an RU, a leasing company, a competent authority or some other body) raises a number of practical and legal difficulties and received only 5% net support among stakeholders (see A7.23). The Commission might need to make clear whether Member States were to require the surrender of all rolling stock owned or held within their territories, or whether independent organisations such as non-incumbent RUs, existing leasing companies and other investors would be exempted and allowed to retain stock. However, creation of any class of owner exempt from a requirements might allow even national incumbents to transfer their stock to a special-purpose company designed to comply with the exemption criteria.

H4.46 A further difficult with any mandatory transfer of rolling stock relates to existing owners' rights. Legislation requiring that rolling stock be surrendered, even with compensation, would amount to confiscation. In anticipation of such a requirement, owners of existing rolling stock might transfer it to owners registered outside the EU.

H4.47 Consideration would also need to be given to future restrictions on ownership owners' rights, and the need for these to be consistent. For example, it might not be workable for existing new entrants to be allowed to continue to own and buy stock but former incumbents to be forbidden to do so. This might unfairly disadvantage the current incumbents in any future PSC competition.

Consistent laws and market dominance

H4.48 This last point raises two issues:

- As discussed in H2.9, whether consistent laws on rolling stock ownership can coexist with a dominant or monopoly owner with extensive market power.

- More widely, whether control by one or more companies of the rolling stock critical to the RUs allows them artificially to restrict supply or otherwise impede the effective functioning of the industry.

H4.49 One approach might be to ensure that any leasing company with more than a certain percentage of the national market be required to divide its business in smaller and independently-owned companies. However, remedies of this type may require continued monitoring and intervention by the competition authorities, and might ultimately require that the market be regulated. In particular, if leasing companies proved to have excessive market power over RUs (as has been alleged in Great Britain) it might prove desirable or necessary to bring them into formal regulation.

Framework conditions for rolling stock: most effective option package

H4.50 In summary, while stakeholders have expressed a need for easier access to rolling stock, it may be difficult for the Commission to require Member States to achieve this without some combination of:

- Legislation to authorise and fund competent authorities to buy out their contractors' assets
- Legislation which amounts to State confiscation of assets
- Exemptions which are exploited to circumvent the objectives
- Continued monitoring by the competition authorities
- Formal economic and competition regulation of the leasing companies

H4.51 While the most effective option package is likely to be that an efficient market in the provision of rolling stock is created, the Commission would need to consider carefully whether and how legislation to do so can be imposed at EU level.

H5 FRAMEWORK CONDITIONS FOR TICKETING

H5.1 The Task Specifications refer to requirements on inter-availability of "standard" tickets. Our analysis suggests that a possible objective of inter-availability ticketing would be to provide benefits for some or all of:

- Passengers, who would benefit from being able to buy a single ticket that they could use on any train
- Competent authorities, who wished to provide such benefits
- Open access operators, who wished to enhance their product by offering flexibility

H5.2 Appendix Table H.10 sets out a number of issues related to the framework conditions for ticketing, which we discuss further below.

APPENDIX TABLE H.10 KEY ISSUES AND CHOICES: TICKETING

Issues
The rights of Railway Undertakings to set fares to attract passengers
In what station-to-station markets is it appropriate to have: • Inter-available ticketing, to allow passengers to use any train? • Price competition?
If inter-available ticketing is to be mandated required: • Should it cover all stations in the national network? • Should it include only PSC services? • How should premium services be included or excluded? • Should it apply to through fares between operators? • Should it be forbidden, optional or compulsory for open access services? • How should fares between stations not connected by a PSC service be set?
Practical issues including restrictions on: • The routes over which inter-available tickets are valid • Pick up and set down • Time of travel • Under-riding
What additional systems are needed to support inter-available fares
What additional measures or regulation are needed to prevent anti-competitive behaviour?

The rights of Railway Undertakings to set fares to attract passengers

H5.3 In competitive markets for goods or services, businesses are typically free to set and refine the prices of their products with the aim of attracting customers in a way which maximises their profits. Inter-availability, in which operators are obliged to carry passengers at fares set by others, and perhaps by their competitors, is not consistent with normal pricing freedom.

H5.4 The Commission, Member States and competent authorities will need to decide whether RUs entering the passenger rail market should have the right to set their own fares and, if so, any constraints or obligations that should be imposed on them, such as:

- Maximum levels of fare
- Minimum levels of fare (if necessary to prevent anti-competitive behaviour)
- Mandatory discounts to regular travellers, such as season tickets for commuters
- Mandatory discounts to particular social groups
- Permitted variations of fare by time of year or day, such as peak and off-peak, or train
- Minimum conditions of refund

H5.5 Some of these conditions may need to be harmonised to prevent them putting new entrants at a disadvantage and forming barriers to entry. Details may be complex, and competent authorities in the Member States may need to balance the competing objectives of encouraging new entry, creating opportunities to innovate, and keeping fares transparent and affordable to passengers.

The choice between inter-available ticketing and price competition

H5.6 We discussed in H2.22 the choice between price competition and inter-availability: if the Commission adopts a policy favouring one it will necessarily need to limit the other.

The scope of inter-available ticketing

H5.7 A further issue is over what station-to-station journeys inter-available ticketing is to be mandated, permitted or forbidden.

H5.8 Great Britain's policy remains that passengers should be able to buy any ticket, between any two stations, at any railway ticket office. With over 2,500 stations this results in over 6 million possible station-to-station journeys and over 20 million inter-available single, return and weekly season ticket fares. All these fares have to be set and made available, although only a few thousand of them are ever bought by passengers. Germany has more than twice as many stations as Great Britain, and a requirement to provide inter-available fares on this basis would entail setting and making available around 100 million inter-available fares.

H5.9 In summary, mandatory provision of inter-available fares between all stations may result in additional complexity which may be of little or no value to passengers. This is particularly the case if the inter-available fares are, or become over time, significantly more expensive than the cheapest fare. In addition, if station-to-station inter-availability were compulsory, systems would be needed to set all these fares and to make them, and any associated reservations, available at all ticket offices and, potentially, on trains.

H5.10 In practice, there are many ways in which this requirement could be reduced, such as:

- Limiting the requirement for the provision of season tickets to journeys below a certain distance of travel time.

- Including only station-to-station fares which one or more operators choose to provide: if an operator offers a station-to-station fare, it must be accepted by other operators serving part or all of the same station-to-station journey.
- Including only station-to-station journeys for which there had been material demand for travel, such as more than 10 trips per year.
- Including only station-to-station journeys which can be carried out by direct trains.

H5.11 At first sight this last arrangement might seem attractive, but it would make no provision for passengers, including commuters, who make short connecting journeys, such as where different services meet in a city centre. It would also imply that the provision and availability of tickets might become dependent on the timetable, and that a single train linking two routes might trigger a requirement that a large number of inter-available tickets be available.

H5.12 Member States might wish to develop their own arrangements for inter-available ticketing. These might be based on factors such as historical ticketing practice, patterns of travel demand, and different arrangements within urban networks, where there might be multimodal ticketing but few ticket offices, or regional networks, whether there might be very few connecting journeys.

H5.13 The Commission might need to decide whether inter-available ticketing should be limited to services subject to a PSO or should apply to a wider range of services including, for example:

- Open access services not subject to a PSO
- International cabotage services and international services
- Premium travel classes and special services such as airport and overnight trains

H5.14 An issue might arise where two or more PSC services meet at a common point, which might be a major city or might be a rural boundary between the areas of two competent authorities. Provision of inter-available tickets for connecting journeys between the lines might be essential in the former case but not in the latter. The Commission would need to devise legislation setting out exactly what arrangements Member States were required to secure.

H5.15 The treatment of open access services not subject to a PSC also raises issues. Some open access operators choose to accept inter-available tickets, which is mandatory in Great Britain where such fares exist, and others compete actively on price, as has been common in other Member States. The only way in which both open access models could be supported would be for open access operators to be given a right, but not a duty, to enter inter-available ticketing arrangements with any parallel PSC service. It is not clear, however, what approach the Commission should adopt where two stations were linked by two open access operators, of which one wanted inter-available ticketing and the other did not.

H5.16 A further complication is with through fares, such as where a large operator provides PSC services between A and B, open access services between B and C, and PSC services between C and D, and is therefore able to sell its own tickets between any points on these routes. A new entrant operating between B and C might wish to accept the large operator's tickets between A and C, or B and D, to

provide passengers a choice of operator in the central section of the route. Rules would be required on whether the large operator was forbidden, permitted or required to allow its tickets to be used on the new entrant's service.

H5.17 A definition of inter-availability would also need to be accompanied by a definition of the classes in which is valid. Many European railways have historically named capacity as either First Class or Second Class, but these classes are not fixed and others are possible. In a recent example from Italy:

- Trenitalia originally offered First Class and Second Class
- NTV, a competing open access operator, offered Smart, Club and Prima classes
- Trenitalia responded by offering Standard, Premium, Business and Executive

H5.18 If tickets were required to be inter-available, it is not clear either what classes would be considered to be equivalent, or what would be the validity, if any, of a ticket in a class not considered to have an equivalent. Rules would be needed to define equivalences between classes and to update these each time classes were added, removed or renamed.

H5.19 More widely, the Commission would need to decide if and how exemptions to inter-availability should be permitted on premium trains. Requirements for inter-availability could easily be evaded by an RU redefining all its seating as being of a non-"standard" class.

Restrictions on inter-available ticketing

H5.20 We discuss briefly below the likely need for the Commission to decide under what circumstances, and to what extent, Member States would be permitted to introduced restrictions on inter-available ticketing to deal with issues such as:

- The routes over which inter-available tickets are valid
- Pick up and set down
- Time of travel
- Under-riding

H5.21 Routing issues can be complex in large networks or for connecting journeys. While there is an obvious and "sensible" route between adjacent stations, cases exist where a number of "reasonable" routes exist through the network (particularly on long-distance journeys) and, for example:

- Operators use the same stations at each end of the route
- Operators used different stations at each end of the route

H5.22 In Italy, Trenitalia and NTV use different stations in some cities. In Germany, long-distance journeys may be possible by several routes. In Great Britain, direct services have operated between three stations in London and two stations in Birmingham along four different routes via Oxford, Bicester, and via and avoiding Northampton. This raises the further issue of over which, if any, of these routes should be defined as distinct and hence not inter-available.

H5.23 The Commission would need to decide whether and how to mandate inter-availability in such conditions, and by implication rules for what stations should be treated as a single point for inter-availability purposes. Alternatively, it would

need to define in law what flexibility should be left to Member States and competent authorities to maintain existing rules or to devise new ones.

H5.24 There may also be good reasons to allow Member States, competent authorities or operators to impose pick-up/set-down restrictions on some trains, such as to prevent the use of long-distance trains by short-distance passengers, particularly if the time required for such passengers to board and alight materially affects the timetable. However, if such restrictions continue to be permitted, operators might use them as a means of avoiding accepting inter-available tickets from other operators. The Commission would need to decide whether and how to mandate that inter-available tickets should be valid on any train calling at:

- The originating station or city
- The destination station or city
- Intermediate stations on any reasonable routes between them

H5.25 A specific issue might be whether inter-availability should apply to domestic travel or cabotage on international services. On Eurostar services, for example, France allows domestic travel between Lille and Paris but Great Britain does not allow domestic travel between Ashford and London. To do so would require extensive and potentially costly rebuilding of Ashford station to segregate Eurostar passengers by direction. The Commission would need to decide what legislation and/or exemptions would be appropriate.

H5.26 Time of travel conditions would also need to be adapted for inter-available tickets. In some Member States tickets, or discounts on them, are available only at certain times such as off-peak, mid-week or at weekends, or for return travel within a specific period, or even for use on a single train. The Commission would need to decide whether and how such restrictions would be combined with a general requirement for inter-availability.

H5.27 In some Member States, operators are permitted to offer discounted tickets for travel between two points, such as A via B to C. This can result in the fare ABC being less than the fare AB and/or the fare BC. In some Member States, operators are permitted to restrict the use of such tickets to journeys AC to avoid undercutting the revenues from journeys AB and BC. The Commission would need to decide whether such restrictions were to be permitted. If not, operators might no longer be able to offer passengers discounted fares on long-distance journeys, because they would result in loss of revenue on short-distance ones.

Systems to support inter-available fares

H5.28 Introduction of any inter-available fares raises a number of issues for the selling and settlement of revenue, which we discuss below.

Ticket offices and sales channels

H5.29 With either inter-availability or through-ticketing between operators, each operator is effectively required to sell tickets for the travel on the other's services, and there may be no need for one of the operators to provide ticket offices. In the stakeholder consultation, however, incumbent RUs typically stated that ticket sales are a core business, source of competitiveness, and means of product differentiation. This cannot be the case for inter-available tickets.

H5.30 In Great Britain, open access operators have no need to open ticket offices, as inter-available tickets must be sold by their competitors (PSC operator CrossCountry operates no stations and all its tickets sold at stations are sold by competitors). This raises the risk of "free-riding", where one operator obtains ticketing facilities for a competitor at no cost. This can be funded by a commission on ticket sales, as also happens in Germany (F3.28), although the structure and level of such commission might need to be regulated to avoid operators with large sales networks overcharging smaller competitors who are reliant on them.

H5.31 Major nodes on the rail networks of several Member States are already served by several operators. Even with limited open access and large packages:

- London's Kings Cross St Pancras complex has seven international, high speed, long distance, regional and local operators, with three types of ticket machine (for international, long distance and local services) in six ticket offices
- Manchester Piccadilly station has six long-distance, regional and local operators

H5.32 These numbers would rise considerably if the average service packages were as small as those successfully tendered in other Member States such as Germany (see Appendix Figure H.3), or if the Commission legislated to set a maximum size for any PSC contract. We estimate that limiting any individual PSC to a maximum size of 2 million train-kilometres per year would mean that some stations would need to deal with over 20 RUs operating PSCs. A proliferation of ticket offices and ticket machines is confusing to passengers.

H5.33 A further complication also arises where passengers are entitled to buy tickets while on the train, often but not necessarily from an employee of the train operator. In some Member States they are entitled to buy not only single tickets for travel on that train, but also return or through tickets which are valid on services provided by other operators. Provision of this service requires that on-train sales, on behalf of a number of operators, are on a non-discriminatory basis.

Maintaining non-discrimination in ticket sales

H5.34 One approach to this issue is to require all RUs to sell tickets of all other RUs on an impartial basis. In Great Britain, this means that each station ticket office is, in principle, obliged to be able to identify, on demand, the cheapest combination of route and tickets for any of 6 million possible journeys, within any constraints of Class, time of travel, routing, interchange and entitlement to discounts set by the passenger. In practice, compliance with this condition requires extensive monitoring, and there are regularly complaints that passengers have not been sold the cheapest ticket consistent with their requirements. Other Member States may face similar issues if new entrants, and particularly open access operators, are allowed to introduce new fares.

H5.35 This problem may decline over time if ticketing is increasingly by smart cards, internet or mobile phone, and passengers are willing to change from conventional ticket offices and on-train sales to other channels. A prospective open access operator in Germany told us that they intended to circumvent DB's resistance to selling tickets for their services in DB's offices by offering internet-based and on-board ticket sales. To ensure a level playing field between operators, however,

equal access to sales channels including ticket offices and on-train sales may need to be mandated, at least in the short to medium term.

H5.36 With a gradual transition from station ticket offices and on-train ticket sellers to other sales channels such as travel agents, the internet and smartphone Apps, legislation may also be required to ensure that access to all information and sales channels is on a non-discriminatory basis. For example, we set out in Appendix F (F3.27) how Schienen-Control required incumbent RU ÖBB to include the trains of competitor WESTbahn in its timetables. It might also be necessary to require that one operator's smartphone app listed trains provided by all operators serving the same route or the same station-to-station journey. In Great Britain, there is competition not only between RUs but also between third party websites and Apps profitably selling tickets at the industry standard rate of commission.

Revenue apportionment

H5.37 With either inter-availability or through-ticketing between operators, some means is needed for apportioning revenue between the operators on whose services they are valid. For through-ticketing, where there is no ambiguity in which operator's services have been used for each part of the journey, this may be on a basis such as the relative distances or fares on each operator's services. For inter-available ticketing, where there is a choice of operator over some or all of the journey, it might be some combination of ticket collection, ticket inspection, surveys or computer models. Whatever approach is adopted would need to be accepted as accurate and non-discriminatory by all operators. For example, the survey-based WROOV system used in the Netherlands (see F3.23) does not fully ensure that operators receive any additional revenue due to improved ticket sales.

Revenue settlement

H5.38 With either inter-availability or through-ticketing between operators, some means is needed for transferring revenue from the organisation selling the ticket to the operator or operators entitled to the revenue. This requires secure and auditable arrangements for funds to be transferred.

H5.39 Great Britain has had such "clearing house" processes since 1842, which were given legal status in the Railway Clearing Act 1850, but other Member States with a history of a single national operator might need to develop and legislate for them.

Regulation to prevent anti-competitive behaviour

H5.40 The Commission could mandate inter-available ticketing but we note that this might be considered anti-competitive by the competition authorities in one or more Member States. We have not examined whether and where this might be the case, of whether it might be necessary for the Commission to procure an exception from European competition law for inter-available ticketing schemes meeting specified criteria.

H5.41 In addition, the Commission might need to specify in legislation which parties would be permitted to set inter-available fares. This could be some or all of:

- The Commission mandating a maximum level of fare for any given distance, although this might need to be high to permit premium services to airports

- Member States setting fares
- Competent authorities setting fares
- PSO operators setting fares on behalf of the competent authorities
- Non-PSO and open access operators setting their own fares
- International and cabotage operators setting their own fares

H5.42 A particular issue would be the circumstances under which an operator would have the right to set an inter-available fare which other operators would be required to accept in place of their own higher fares. This might be seen as either:

- Providing the benefits of competition, by forcing fares down to the cost of the operator with lower costs.
- Anti-competitive behaviour, either if a large operator reduced fares with the aim of driving a competitor or new entrant out of business, or if a competent authority set fares below average cost, as may be the case on many services, with the effect that new entry was artificially unprofitable. More widely, any PSC or inter-available fares set with regard to social or environmental policy, rather than costs, may effectively be a barrier to new entry.

H5.43 A general legislative requirement that fares would be inter-available would need to specify not only what organisations would be permitted to set such fares but also potentially a range of safeguards to prevent anti-competitive behaviour.

H5.44 In addition, it would not be sufficient to require operators to accept tickets in a particular class: it might also be necessary to require that they provide a minimum number of seats in that class. Great Britain's systems for apportioning interavailable tickets do not include any checks that the operators provide sufficient seats to carry the proportion of passengers modelled as using them.

H5.45 If, for example, it was agreed that a ticket was inter-available between the Second Class of operator A and operator B, either operator might do any or all of:

- Reduce its Second Class capacity to zero, or to a single seat.
- Reduce its Second Class fare, which the other operator would be required to accept, to a low level, such as one euro cent per journey.
- Introduce a new and non-interavailable class.

H5.46 Rules would be required to determine what was legitimate competitive behaviour.

H5.47 A possible means of avoiding this issue would be for the Commission, the Member States or the competent authorities to require that "standard" or Second Class tickets were accepted in (for example) at least half the seats on each train. However, more complex rules might be needed to deal with issues such as:

- Three- and four-class services, and interavailability between them
- Premium services, such as to airports and brands such as AGV, Eurocity, Eurostar, Intercity and TGV

H5.48 Finally, one issue with inter-available tickets is that there can be pressure to price them at the highest possible level, to ensure that no operators are undercut. This was the historic convention in the airline business, where fares agreed bilaterally between Member States were set at a level which was profitable to the less

efficient of the two incumbent national operators. One result was that inter-available fares rapidly became irrelevant when each operator was free to introduce their own, cheaper, non-inter-available fares. The existence of inter-available fares does not guarantee their relevance to passengers.

Framework conditions for ticketing: most effective option package

H5.49 The discussion above illustrates some of the practical issues on which the Commission may need to consult Member States before putting forward any proposals for inter-available ticketing.

H5.50 The stakeholder consultation was unable to explore any of these issues in detail, although the principal findings are that:

- When asked about factors affecting rail's competitiveness, stakeholders ranked ticket prices higher than intramodal integration, suggesting that price competition might be seen as more important than inter-available tickets
- On inter-available ticketing, 45% more stakeholders were positive than negative
- On compulsory through-ticketing, 20% more stakeholders were positive than negative, with net support from National Authorities, Transport Ministries and IMs, and some net negative views from passenger RUs
- Incumbent RUs typically stated that ticket sales are a core business, source of competitiveness, and means of product differentiation, and would presumably wish to exploit – rather than share – their existing ticketing and sales networks
- One new entrant drew attention to the Swiss model combining compulsory through-ticketing, national discount cards and network tickets
- Public authorities suggested that passengers did not want to have to deal with multiple ticket and sales channels
- Some passenger associations suggested a separation of ticket distribution and transport operations

H5.51 Of those with a view, however, most considered that ticketing arrangements should be through voluntary agreements rather than compulsory regulation at the Member State or EU level.

H5.52 Ticketing is a complex subject, and we have not identified, or consulted on, all the issues which may emerge in different Member States following market opening. Nonetheless, we have devised an illustrative set of assumptions about how inter-available ticketing might be introduced, which we summarise in Appendix Table H.11 below.

H5.53 Considerable additional work is likely to be needed to determine both the extent to which the Commission should specify ticketing arrangements, and how suitable legislation can be drafted in practice.

APPENDIX TABLE H.11 FRAMEWORK CONDITIONS FOR TICKETING: ILLUSTRATION

Proposal	Rationale
MSs to determine whether fares must be provided between two stations	Makes clear whether or not a fare must exist for any two stations
If fares exist, MSs must ensure there are inter-available single, return and weekly season fares	Ensures that inter-available fares exist for most journeys
Optionally, MSs may require other inter-available fares	Gives MSs the right to provide further inter-availability
MSs may permit restrictions of various types	Gives MSs the right to restrict inter-available fares where they would be undesirable
MSs to ensure that list of stations, fares and valid routes are published	Transparency and information for passengers
PSC services operating over all or part of a route on which a ticket is valid must accept that ticket	Gives passengers the right to use any PSC service along any route for their journey
MSs shall create one or more independent retail organisations with a duty to provide information on travel on an impartial basis and sell at any station, as a minimum, all inter-available fares valid there	Ensures impartial advice on, and retailing of, inter-available fares
Unless all RUs consent, independent retail organisations must be independent of all RUs	Independence and avoiding dominance
Open access operators shall have the right but not obligation: to accept inter-available tickets, to have their routes added to the list of valid routes, to have their tickets sold by the independent retail organisations	Open access operators may choose whether inter-availability or price competition is their chosen business model
Information on passenger demand and revenue shall be kept confidential and provided to all RUs on the same terms	Avoiding one RU having competitive advantage when bidding for a PSC
MSs may apply for exemptions from these arrangements with the consent all RUs	Mechanisms may be simplified if market opening does not result in more RUs

H6 FRAMEWORK CONDITIONS FOR UNBUNDLING OF RUS

H6.1 In the stakeholder consultation, 65% of stakeholders favoured the creation of a specific body including, in a non-discriminatory manner, representatives from all infrastructure users to ensure that their interests are duly taken into consideration. We note that the question was not intended to elicit any information on:

- The powers or governance of such a body
- Whether a dominant incumbent would "outvote" all other representatives

H6.2 One approach would be to give one or more non-discriminatory bodies sole responsibility for carrying out any activity required by more than one user of the infrastructure but potentially in monopoly supply, whether with the IM or with a dominant incumbent RU. We noted above, for example, that:

- One approach to improving access to rolling stock might be to require the unbundling of rolling stock ownership from RUs.
- In the stakeholder survey, some passenger associations suggested a separation of ticket distribution and transport operations.

H6.3 These points raise the issue of whether in, legislation from Directive 91/440/EEC onwards, the focus on unbundling IM and RU has been adequate. Effective market opening may require either more extensive unbundling of activities currently carried out by some RUs or, as a minimum, more extensive regulation of how RUs provide any service or activity which might be of use to another RU. For example, some RUs do not own or control rolling stock, provide retailing services, operate any industry-wide systems, or perform any industry "headquarters" functions such as research or standards.

H6.4 Appendix Table H.12 raises a number of issues which we discuss briefly below.

APPENDIX TABLE H.12 KEY ISSUES AND CHOICES: UNBUNDLING OF RUS

Issues
Should rolling stock which might be used by all RUs be unbundled from any RU?
Should services used by all RUs be unbundled from any RU: • Station activities? • Travel information and ticket sales? • National discount schemes? • Ticket inspection and automatic barriers? • Timetable and reservation systems? • Revenue allocation systems? • Revenue settlement systems?
Can competitive tendering be non-discriminatory if an incumbent has access to either: • Critical services? • Commercially important demand and revenue information?

H6.5 Some RUs do not operate any stations, and some large stations used by more than one RU are operated by the IM. The Commission could require that stations are operated by the IM, except where there is no foreseeable scope for more than one RU to use them. Airlines do not normally own, manage or operate airports.

Railway undertakings and rolling stock

H6.6 We discussed the issues of rolling stock in greater detail earlier in this Appendix, and our conclusions on the most effective option package are set out in paragraphs H4.50 and H4.51. For current purposes we note that there may be arguments for unbundling ownership of rolling stock ownership from RUs, at least until an efficient leasing market is in place. However, there are likely to be extensive legal and practical barriers to achieving this in practice.

Railway undertakings and retail systems

H6.7 The discussion above of framework conditions on ticketing led to a most effective option package in which a number of services would need to be provided to all operators on a non-discriminatory basis. These include, potentially:

- The management and operation of any station served by more than one RU
- Provision of travel information and ticket sales (whether in ticket offices, on trains, or elsewhere, and including the design of maps, timetables and ticket machines)
- Management and provision of national schemes for discounted tickets to particular social groups
- Ticket inspection, including the provision of automatic barriers or, increasing, inspection and/or revenue collection through smartcards which may be not only multi-operator but also multimodal
- Revenue allocation systems responsible for apportioning inter-available and through-ticketing
- Revenue settlement systems to transfer revenue from seller to operator

Access to critical services and information

H6.8 Unbundling, and non-discriminatory access, might also be desirable or essential for a number of other services critical to the functioning of a multi-operator railway. One example is demand and revenue data and forecasting systems which might currently be owned or managed by, or accessible to, some or all of Transport Ministries, competent authorities, IM and RUs. These might be critical to the creation of a level playing field among bidders for a PSC.

Framework conditions for unbundling of RUs: possible requirement

H6.9 The stakeholder consultation did not specifically address the issue of unbundling of RUs in the way described above, although the country fiches for Member States which have liberalised the provision of passenger services provide some examples of how this has been done.

H6.10 For the purposes of the most effective option package we note that, for market opening to be effective, the Commission may at some future stage need to require extensive regulation or unbundling of all facilities shared by RUs.

H7 FRAMEWORK CONDITIONS FOR PSO DEFINITION

H7.1 The Task Specifications required us to examine framework conditions on clarification of the need for PSCs to avoid market failure, and we subsequently considered whether these could be based on legal and economic principles:

- Legal principles such as necessity, proportionality and transparency of PSO definition
- Economic, such as cost-benefit analysis and financial sustainability of PSO

H7.2 In the stakeholder consultation:

- There was only 20% net support, for "Extending the competence of the regulatory bodies in the tendering process to cover areas such as defining the criteria that authorities are to use in defining tenders". Public Authorities foresaw no benefits from extending the competence of the Regulatory Bodies.
- There was only 10% net support for "Should Public Transport Authorities be subject to defined compliance criteria developed be EU legislation when defining the public service obligations?".
- There was only a minority in favour of EU rules on any of "necessity and proportionality to meet public mobility policy objectives", "the impact on public sector funding", "the scope of the contract" or "improving the quality of the train service". All Passenger Transport Authorities responding to these questions were against new EU roles on the definition of PSOs.

H7.3 We discuss below a number of issues, summarised in Appendix Table H.13, which may be relevant in the defining such principles for setting the definition and criteria for PSOs.

APPENDIX TABLE H.13 KEY ISSUES AND CHOICES: PSO DEFINITION AND CRITERIA

Issues
Can PSO packages be aligned both with CA responsibilities and efficient railway operations?
Can PSC clauses be limited to prevent discrimination?
Can PSCs lead to effective competition if RUs subcontract most or all their activities?
What safeguarding measures are needed to prevent market failure: • An "operator of last resort"? • Transfer of RU companies and their contracts, rather than staff and rolling stock? • "De minimis" contracts with commercial operators?
Should compulsory competitive tendering be based on: • A fixed payment and a loose service remit? • Lowest price for a given service specification? • Highest service specification for a given budget?
Should PSC be subject to cost-benefit analysis?
The relative roles of PSCs, network statements and licence conditions

Aligning PSO service packages with CAs and railway operations

H7.4 Railway market opening, as envisaged by the Commission, is intended to involve both:

- Competitive tendering for passenger rail services by competent authorities
- Efficient operation of passenger rail services by RUs

H7.5 An implicit assumption, however, is that specification of services by competent authorities will, or can be made to, result in distinct service packages which can be operated efficiently by RUs. This may not, however, be the case.

H7.6 Appendix Figure H.3 shows PSCs offered for tender in Germany and Great Britain ranging in size from 20,000 to over 40,000,000 train-kilometres a year, a variation in scale of over 2,000 to 1. The smallest of these packages, in Germany, typically lie wholly within the area of responsibility of a single competent authority, such as Land or Verkehrsverbund. In contrast the largest of these packages, in Great Britain, extend across a number of competent authorities.

H7.7 We set out in the Great Britain country fiche a number of the practical issues which are likely to emerge if a small number of long-distance passenger services are to be specified and funded by a large number of small competent authorities. However, the size of PSO packages in both Germany and Great Britain, and workable arrangements for their procurement, are already established.

H7.8 Many other Member States, in contrast, have made little or no progress either in:

- Subdividing rail services into packages, typically based around a fleet and its depots, which could be operated on an efficient basis.

- Mapping these packages to competent authorities who would be responsible for specifying, procuring and funding them.

H7.9 At present, there is little evidence of how many Member States will define service packages, how they will be aligned to their competent authorities, what size they will be, and hence what transaction costs will be incurred in specifying, procuring and monitoring them.

H7.10 The Commission has suggested that it may be appropriate to set a maximum size of package, with the aim that there is more than one package even in Member States with small networks. However, and as we discuss above (see Appendix Figure H.1), some operationally indivisible routes in London, Berlin and probably other cities, are larger than many of the national networks.

H7.11 At first sight a more realistic approach might be to require that no package includes more than, for example, 40% of the total PSC train-kilometres in the Member State, requiring the letting of at least three separate PSCs. However, provision of independent depot, stabling and office facilities for multiple operators on small national networks may require considerable preparatory capital expenditure. Without detailed operational studies, we cannot identify whether, how, and with what loss of efficiency these operations could be subdivided, and hence whether it would be practicable or cost-effective to require that this be done.

Limiting PSC clauses to those which cannot be discriminatory

H7.12 At first sight it might appear attractive for the Commission to set out a list of permitted and/or forbidden criteria to be used in competitive tendering of PSCs.

H7.13 However, the evidence suggests that there would be considerable difficulty in devising an effective list of criteria while respecting subsidiarity.

H7.14 In Germany, for example, PSC contracts are typically drafted by local legal advisors to address requirements specific to a particular Land, Verkehrsverbund and service package. Permitted and/or forbidden clauses would need to be disseminated to all parties engaged in drafting contracts, and processes might be needed to check contracts centrally against the criteria to prevent subsequent legal challenge.

H7.15 In Great Britain, Invitation to Tender for the West Coast Main Line PSC awarded in July 2012 comprises a large suite of documents as summarised in Appendix Table H.14.

APPENDIX TABLE H.14 ILLUSTRATIVE STRUCTURE OF PSC TENDER DOCUMENTS

Document	Pages
Invitation to Tender main document	93
Train service requirement	3
Guidance on station stewardship	16
Stakeholder briefing document	29
A guide to the railway franchise procurement process	9
Modelling change and delivery plan matrices	5
Franchise evaluation process charts	10
Total	**165**

H7.16 Examples of "requirements" in the first ten pages of the main document include that bidders refrain from comment to the media and other bodies, use double-sided printing and ring binders and use Microsoft Word/Excel 2003 format. It would be time-consuming for the Commission to rule, in advance, on the acceptability or otherwise of each of these requirements, which are more related to local tender procedures than to the core terms and conditions of the services to be provided.

H7.17 Other Member States might develop more concise tender documents, but it would be difficult for the Commission to reach even an indicative view on which of the conditions in over 165 pages should be either compulsory, permitted, or forbidden. A further complication is that the materiality and fairness of a condition in the tender documents might depend on other market, legal and administrative circumstances in the Member State or in the area of the competent authority.

H7.18 More widely, our analysis suggests that almost any permitted clause in a contract might, under certain circumstances, be considered discriminatory, including the timetable. The West Coast Main Line contract, for example, specifies a timetable which can only be met with electrified stock provided with tilt, and only one such fleet exists. In the absence of universal provision of rolling stock through leasing companies on a non-discriminatory basis, even specification of a timetable might be used as a means of favouring the only operator with stock capable of delivering it. Other areas which could be discriminatory might include, for example, that bidders are required to use software systems, or data standards, with which only the incumbent may be familiar.

H7.19 We therefore doubt that the concept of specifying permitted and/or forbidden contract terms at the EU level would be either workable or effective.

Limiting subcontracting so that services are competitively supplied

H7.20 We set out above, from paragraph H3.17, the possibility that an incumbent RU restructure itself into a "shell" RU subcontracting inputs from sister companies, with the effect, or intention, that most activity and profit was retained by the incumbent and the RU had little or no scope either to manage or to profit.

H7.21 In principle it might be possible to use clauses in the PSC specification to exclude this behaviour, by requiring that the RU itself provide specific inputs such as rolling stock, train crew, station staffing and retail services. This approach, however, suffers from a number of potential difficulties:

- It is the policy of the Commission that access to rolling stock should be made easier. By implication the Commission will not require, at the EU level, that RUs own, overhaul, maintain, clean and prepare their own rolling stock.
- It would prohibit existing and proven arrangements in some Member States in which subcontracting has been cost-effective, and could increase costs. As a minimum, a transition period might be needed to allow existing contracts to expire.
- It might make it more difficult for Small and Medium Enterprises (SMEs) to establish themselves as RUs, and in some cases result in the incumbent being the only domestic company capable of bidding for a PSC.

Preventing market failure

H7.22 In addition to any measures to standardise PSC contracts, clauses may also be needed to deal with potential market failures, such as when:

- There are no bids, or no valid bids, for a PSC contract
- A PSC operator loses its license or safety case
- A PSC operator fails and ceases to provide services

H7.23 In many Member States, a large incumbent operator might be able to replace the service, and EU legislation provides for an emergency and direct awards to enable this to be done. However, if new entrants secure around 65% of PSC contracts, as has been the case with small contracts in Germany, the scale of the original incumbent, the resources it has available, and its presence in any geographical area, may over time decline to the point where it is unable to provide such services at short notice. We noted above (H2.35) how former Swedish incumbent SJ has withdrawn services between Malmö and Göteborg following entry by Veolia. If Veolia's services were reduced or withdrawn, SJ currently has no obligations to return to the route and may not have the means or resources to do so at short notice.

H7.24 The structure adopted in Great Britain was for each PSC contract to be provided by a "ring-fenced" company with a "contractual matrix" including staff employment contracts, rolling stock leases, track access rights and other subcontracts. PSC bidders are awarded control of the company for the duration of the PSC contract, but, in the event of their failure, control is handed to a public sector "operator of last resort". This "operator of last resort" mechanism has been used a number of times to ensure service continuity, and is currently in place on the East Coast franchise, operated by state-owned Directly Operated Railways.

H7.25 The Commission may take the view that it is for Member States to work within EU legislation to ensure continuity of service, but it will need to ensure that legislation does not prevent Member States from making such provision effectively.

H7.26 Passenger representatives said (see D5.29) that introduction of open access rights on all routes would make unprofitable services extremely expensive if there was

no way to plan them as priced options with the core service. One mechanism to prevent market failure, widely used in the deregulated bus industry in Great Britain outside London, is where a competent authority negotiates a "de minimis" contract with a commercial operator to provide a small additional service required on social grounds. In the railways, by analogy, a "de minimis" contract might be used to add a station call to an open access service to provide for commuter or school travel. The Commission may wish to consider whether "de minimis" contracts should be permitted, particularly by permitting direct award of PSCs below a certain size. We stress, however, that we have not identified case of "de minimis" provisions being used to procure small variations or additions to commercial rail services.

Should competitive tendering be based on price or specification

H7.27 Legislation since Directive 91/440/EEC is based on the principles that Member States should ensure that railway transport undertakings are given a sound financial structure, and that PSO compensation should be on the basis of adequate funding for clearly-defined services. However, a number of stakeholders mentioned that finance was an issue, and in particular that competent authorities do not always provide proper compensation for existing PSCs. Several incumbent RUs predicted that there would be no new entry if funding was inadequate.

H7.28 For the competent authorities concerned, compulsory competitive tendering raises the risk that bids, whether from the incumbent or from new entrants, will be more expensive, forcing recognition that the market will not provide current service levels with current funds.

H7.29 The approach to competitive tendering envisaged in current legislation is that the competent authorities specify the services required and bidders then compete on price to provide them. This leaves the competent authorities open to the risk that the funds available are insufficient to continue existing levels of service.

H7.30 An alternative approach, not envisaged in legislation, would be for the competent authorities to specify the amount of funding available and to invite bidders to set out what services could be provided. This would provide financial certainty but not guarantee any particular level of service: in particular, bidders might propose shorter or older trains, lower service frequencies or reduced operating hours. However, this approach might be attractive to competent authorities in at least some Member States.

H7.31 A further issue related to the PSC specification is the level of detail in how the timetable is specified, which varies widely between PSCs.

- At one extreme, on an airport shuttle service or a rural branch line, it might be sufficient to specify the times of the first and last trains, and perhaps a minimum number of train-kilometres which must be operated, and leave it to the operator to manage and optimise the timetable within these parameters.
- At the other extreme, such as large franchise in Great Britain sharing infrastructure with other services, it might be necessary to specify an entire timetable including details of every station call which must be made.

H7.32 This level of detail may be necessary for a number of reasons:

- To ensure that the timetable is consistent with other operators' access rights
- To provide connections with services provided under other PSC contracts
- To provide station calls necessary to meet public mobility policy objectives

H7.33 In some Member States, for example, PSC contracts specify particular station calls at particular times to enable travel to education or employment, while allowing the operator discretion over timings and stopping patterns at other times of day.

H7.34 The Commission proposes that definitions reflect the necessity, proportionality and transparency of PSO definitions. The evidence suggests that it may be:

- Necessary to define an individual station call
- Proportional to do so if it is the only means by which journeys can be made
- Transparent provided the requirements are set out

H7.35 This does not necessarily mean that every station call will result in passengers boarding or alighting. In many Member States PSC services call at stations to provide a socially necessary opportunity to travel, and there is no expectation by, or obligation on, the competent authority, that passengers will always be there.

H7.36 We provisionally conclude that the requirements of necessary, proportional and transparent in specifying a service, and within it any station call, are met if a competent authority has reasonably concluded that one or more travellers might benefit from it being specified.

Subjecting PSCs to cost-benefit analysis

H7.37 One approach to confirming the cost-effectiveness and financial sustainability of PSCs would be to subject them to cost-benefit analysis.

H7.38 However, following the logic above, we conclude that it is for competent authorities to resolve any conflicts between their financial resources and their public mobility policy.

H7.39 We do not consider that it would be proportionate for EU legislation to require that PSCs be subjected to a formal test, such as a cost-benefit analysis. Even if such a test were proposed, it would be impractical to apply it to every detail of a complex timetable specification involving thousands of station calls per day, or to the provision of other services which might reasonably be included within a PSC specification such as provision of toilets, heating, air-conditioning, passenger announcements, ticket offices and station staff. We have found no evidence that such an approach has been attempted or found workable in any Member State.

The relative roles of PSCs, licence conditions and network statements

H7.40 A final issue is what elements of the rail industry "contractual matrix" should be included in different documents. As an example, a Member State may wish to require that a train operator provide information on the formation of each of its train, such as the number of vehicles, so that they can be loaded into passenger information systems on station platforms. In principle, however, this could be done in at least three ways:

- Through the Network Statement, making clear that provision of such information was a condition of access

- Through any national elements of the RU licence, making clear that provision of such information was a licence condition for all passenger RUs
- Through a PSC, making clear that provision of such information was a contractual requirement for PSC operators only

H7.41 In practice, different Member States may place clauses of this type in different documents, depending on their coverage. We noted (D5.20) how one stakeholder commented that through-ticketing and integrated ticketing could be forced either through a (specific) PSC contract or through the (general) legal framework. We describe in Appendix F (F3.26) how Schienen-Control in Austria ruled that provisions for promotional activities at stations should be dealt with through the Network Statement rather than through contracts with individual RUs. If a requirement applied not just to PSC operators but also to all RUs, it might be more appropriate to include it in a document other than the PSC.

Framework conditions for PSO definition: most effective option package

H7.42 Following the analysis above, the most effective option package may not include any EU legislation on the clauses permitted in a PSO. Such legislation would not respect the principles of subsidiarity, might make no useful contribution to preventing discrimination or improving transparency, and might prevent competent authorities from including in PSCs clauses which were necessary to achieve their public mobility policy objectives.

H8 OTHER FRAMEWORK CONDITIONS

H8.1 Appendix Table H.15 restates the list of framework conditions in the Task Specifications shown in Appendix Table H.1.

APPENDIX TABLE H.15 FRAMEWORK CONDITIONS IN THE TASK SPECIFICATIONS

Framework Condition	Discussed above
Independence of infrastructure managers (unbundling)	×
Infrastructure charges based on direct cost principles	×
Improved access to facilities and stations	×
Requirements on inter-availability of standard tickets	H5
Facilitation of access to rolling stock for new entrants	H4
Revised competence of regulatory bodies	×
More precise rules on the transfer of staff	H3
Clarification of the need for PSCs to avoid market failure	H7

H8.2 We discuss briefly below the framework conditions in Appendix Table H.15 not discussed above in this Appendix.

Unbundling

H8.3 From the extensive analysis of unbundling set out in Appendix G, we conclude that unbundling should, using the terminology of the intervention logic set out in Appendix Table H.5, be based on:

- D4: full institutional unbundling
- A3: the IM responsible for all functions, terminals and stations
- B2: full unbundling

H8.4 We caution, however, that full unbundling may be necessary but not sufficient for effective market opening and in particular for effective competitive tendering, for reasons set out elsewhere in this Appendix.

Framework conditions: infrastructure charging rules

H8.5 We have not examined the scope for, and potential effects of, major changes to infrastructure charging rules. This would involve not only exhaustive studies of existing charging structure but also examination of alternative charging structures, all before predicting their effect on operator behaviour and open access entry.

H8.6 In practice, we assume that the price of infrastructure access for PSC services will either be paid by the competent authorities or priced into the contractors' bids. In Great Britain, for example, PSC operators are indemnified by the competent authorities against changes in the infrastructure charges at times of regulatory review, although changes to this system are currently under consideration following the McNulty Rail Value for Money Study.

H8.7 We therefore propose no detailed examination of infrastructure charging rules. We note however that, all other things being equal, charges set no higher than some measure of short or long run marginal cost are prima facie likely to maximise the scope for open access entry.

Framework conditions: facilities and services in passenger stations

H8.8 We discussed above the wide range of issues which may need to be dealt with to provide access to ticketing systems, whether to provide the benefits of through and inter-available tickets to passengers, to reduce barriers to entry to provide open access services, or to enable tenderers to assess revenue, and bear revenue risk, when bidding for PSC contracts.

H8.9 However, evidence from a number of country fiches and stakeholders, summarised in Appendix F, highlights a range of potentially discriminatory practices in relation to facilities and services in passenger stations, particularly where the station is managed either by the incumbent operator or by an IM in the same holding company or group.

H8.10 We assume that these issues can be addressed by unbundling, but have argued above that this may need to include not only the functions of the IM but also any functions which might need to be provided, on a non-discriminatory basis, to more than one RU. Additional rights and obligations, and potentially regulatory oversight, may be necessary to ensure that access to station facilities by all operators is available on a transparent and non-discriminatory basis.

Framework conditions: revised competence of regulatory bodies

H8.11 This last point raises the issue of whether the competence of the regulatory bodies will need to be revised to improve market opening beyond the proposals already in the Rail Recast. However, as we have set out in this report:

- The best means of establishing an effective market are likely to include comprehensive unbundling, non-discrimination in the provision of all services, and where possible the removal of dominance in all elements of the supply chain other than infrastructure, which is a natural monopoly.
- The Commission will need to take a number of detailed decisions not only on the extent and means by which these steps – unbundling, non-discrimination, and avoidance of dominance – are to be limited.
- The Commission will also need to take a number of detailed decisions on what other framework conditions are required in other areas, such as inter-available ticketing or the clauses permitted in PSCs.

H8.12 The range of possible regulatory powers which might be essential, desirable or useful cannot be clarified until the need for, and scope of, further legislation on ticketing has been finalised. We conclude that little can be said at this stage about the competences of the regulatory bodies, the resources required to exercise them, or their likely effectiveness.

H9 SUMMARY AND MOST EFFECTIVE OPTION PACKAGE

H9.1 We set out in Appendix Table H.3 to Appendix Table H.5 the options set out in the Commission's "intervention logic" document. We summarise in Appendix Table H.16 below the components of what we consider likely to be the most effective option package.

APPENDIX TABLE H.16 SUMMARY AND MOST EFFECTIVE OPTION PACKAGE

Factor	Intervention logic option	Description	Issues
Unbundling	D4A3B2	Full unbundling appears the only reliable approach	Unbundling IM from RU may not suffice where one RU controls facilities/services
Facilities/services			
Open access	A2	Open access subject to economic viability of PSCs	Requires that PSCs are put in place before open access, rather than vice versa
Competitive tendering	B2/B3	Compulsory competitive tendering for all routes covered by PSCs (B3)	In practice, negotiation may be essential (which may mean elements of B2)
Inter-available ticketing	CX2.4	Ticket integration schemes run by national authorities	Arrangements may need to be left to MSs and CAs in the context of local markets
Rolling stock	None		No means found of achieving this objective
Staff transfer	None		No means found of requiring staff to transfer
PSO criteria	None		No rationale for limiting CAs right to specify requirements
Infrastructure charging rules	None		Needs major revision for a minor effect on open access
Competences of regulatory bodies	None		Too much uncertainty in decisions on all the above

Note: for explanation of options see Appendix Table H.3 to Appendix Table H.5

Market opening

H9.2 Evidence and experience do not support a concept of waiting to see what open access services emerge and then "topping up" with PSCs to close any gaps in provision. The evidence suggests that the most effective market opening option package is:

- Competitive tendering for PSCs to meet public mobility policy objectives
- Open access operators allowed to provide additional services if they do not affect the economic viability of these PSCs

H9.3 However, achieving effective compulsory competitive tendering and open access will require a package of framework measures which may prove difficult to impose through legislation.

Framework conditions

H9.4 In some areas, such as unbundling and access to facilities and services, there is clear evidence that conflicts of interest are a barrier to market opening, and that further unbundling is feasible and desirable. However, unbundling, or alternatives enforced by contract, regulation or competition authorities, may need to include all facilities and services which might need to be provided to, or shared by, RUs.

H9.5 In some areas, such as PSO criteria and infrastructure charging rules, we have found no clear evidence that EU legislation would provide scope for improvement.

H9.6 There is clear evidence that some factors, such as access to rolling stock and staff transfer, act as major barriers to market opening. However, a range of constitutional, legal, commercial, technical and practical issues mean that we have not identified a means of improving the situation through EU legislation.

H9.7 Finally, in areas including the exact means of specifying PSCs and the detailed arrangements for ticketing, it might be possible for EU legislation to mandate a particular approach. However, the evidence and analysis suggests that the optimum approach will depend on local circumstances.

The extent of compulsion

H9.8 Many stakeholders mentioned a need for consideration of local requirements. This raises the issue of the balance of mandatory measures set in EU legislation and less formal measures, as summarised in Appendix Table H.17 below.

APPENDIX TABLE H.17 MANDATORY, FLEXIBLE AND GUIDELINE APPROACHES

Attitude of bodies in MSs	Legislative approach	Description
Comply with the letter of EU law	Mandatory	Legislation specifies one approach which will generally be beneficial but will rarely be optimal
Comply with the spirit of EU law	Flexible	Legislation specifies the minimum necessary, leaving MSs and CAs flexibility to optimise to achieve output-based measures
	Guidelines	Legislation limited to the minimum necessary, MSs and CAs have broad discretion on local approach

H9.9 Taken together, both stakeholder consultation and our analysis of the evidence suggest that the most appropriate approach to legislation may be to mix mandatory measures in some areas with flexibility or guidelines in others.

H9.10 Appendix Table H.18 below updates Appendix Table H.16 to illustrate how this might apply. Where, on the evidence and analysis available, more than one approach might be workable, we have used a question mark (?).

APPENDIX TABLE H.18 MOST EFFECTIVE OPTION PACKAGE

Factor	Intervention logic option	Description	Mandatory	Flexible	Guidelines	No action
Unbundling	D4A3B2	Full unbundling appears the only reliable approach	✓			
Facilities/services						
Open access	A2	Open access subject to economic viability of PSCs	✓			
Competitive tendering	B2/B3	Compulsory competitive tendering for all routes covered by PSCs (B3)	?	?		
Inter-available ticketing	CX2.4	Ticket integration schemes run by national authorities	?	?	?	
Rolling stock	None			?	?	
Staff transfer	None				?	
PSO criteria	None				✓	
Infrastructure charging rules	None					✓
Competences of regulatory bodies	None					✓

Note: for explanation of options see Appendix Table H.3 to Appendix Table H.5
✓ = evidence and analysis points to a specific and workable approach
? = evidence and analysis suggest that more than one approach might be workable

H9.11 We discuss the likely effectiveness of other option packages in Chapters 6 and 7 of the main report.

APPENDIX

I

IMPACT ASSESSMENT

I1 INTRODUCTION

I1.1 The results of the Impact Assessment are reported in Chapter 7 of our Final Report.

I1.2 This Appendix summarises the calculator that we developed for the purpose of carrying out the quantitative Impact Assessment. We provide the following information:

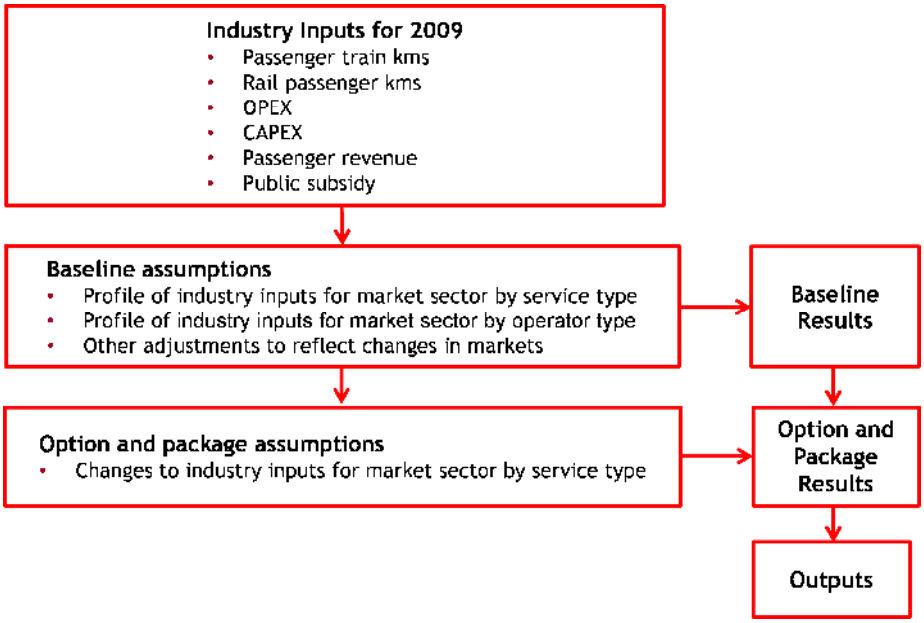
- Overview of the methodology employed
- Summary of the input data and assumptions used to generate the baseline data
- The range of assumptions employed in evaluating the options and packages that have been considered
- The range of possible outputs that can be calculated
- A summary of the key outputs presented in the main report
- A summary of the additional tests that have been carried out, and include:
  - Sensitivity tests where a single assumption has been varied; and,
  - Scenario tests in which combinations of assumptions have been changed.

I2 METHODOLOGY

Overview

I2.1 The Impact Assessment Calculator has been developed in a Microsoft Excel framework. This framework has been designed to allow for transparency in calculation regardless of the level of complexity required, and to enable a wide range of factors to be considered in the assessment of multiple options. The structure of the calculator and the broad process that we have followed in populating it is illustrated in Appendix Figure I.1.

APPENDIX FIGURE I.1 IMPACT ASSESSMENT CALCULATOR OVERVIEW



Note: definitions of service type and operator type are provided in sections I2.16 and I2.17.

Industry inputs for 2009

I2.2 The calculator uses industry data as its primary input data and the sources from which it was obtained are listed in Appendix Table I.1 below.

I2.3 The first stage in the process has been to consolidate this data to create a *baseline* against which all options and packages will be compared.

I2.4 The calculator has been developed from a *base year* of 2009. The base year of 2009 has been selected as it is consistent with the Transport White Paper 2011 and the most comprehensive year in terms of alternative data sources such as UIC statistics and most operator reports. Further detail is provided in section I3.

APPENDIX TABLE I.1 INDUSTRY DATA ITEMS AND SOURCES

ID	Industry data item	Source
1	Passenger train kilometres	UIC 2009
2	Rail passenger kilometres	RMMS 2009/2012 , Transport White Paper 2011
3	Share of passenger kilometres under PSC	RMMS 2009/2012, Operators' reports 2009/2010, UIC 2009, SDG calculations
4	Passenger services operating costs (OPEX)*	UIC 2009, RMMS 2009, Operators' reports 2009/2010, Infrastructure Managers reports 2009/2010
5	Capital expenditure on passenger rolling stock (CAPEX)	UIC 2009, Operators' reports 2009/2010, SDG calculations
6	Passenger Revenue (real)	UIC 2009, Operators' reports, CER Annual Report 2009-2010, SDG calculations
7	Public Subsidy for passenger services	UIC 2009, CER Annual Report 2009-2010, Operators' reports 2009/2010, SDG calculations

* Cost data has also been validated against information contained in the Transport White Paper 2011 as a further cross-check.

I2.5 All revenue and cost information has been collected in real 2009 prices and the calculator uses this as its cost base.

Rationale for use of data

I2.6 Industry data used in this stage has been selected on the basis of those sources which are most comprehensive as well as being available during the first half of 2012 when data was collated. Subsequent sources such as UIC 2010, RMMS 2012 have been used to verify earlier data sets.

I2.7 In particular some of the company reports which we reference in Appendix Table I.1 were provided to us as part of the stakeholder consultation, details of which have been provided in Appendix A. These have been used to develop assumptions around the split of costs and to fill in gaps that existing in the UIC data.

Baseline assumptions

I2.8 The baseline position has been developed from this base year data set, allowing for changes that have occurred in the market between 2009 and now, as well as a number of other assumptions such as how the industry data is spread across the different market sectors, service and operator types. Further detail is again provided in section I3.

Option and package assumptions

I2.9 Assumptions and other inputs are adjusted to reflect the likely change that the different policies might have under each option or package.

I2.10 These option and package input assumptions consist of anticipated percentage changes to the main industry inputs. We have considered the range of opportunities and/or behaviours that might result from each of the policy changes contained in the options and packages. This has been carried out drawing on a combination of evidence and insight of what has happened in particular Member States where available, as well as industry expertise. A series of sense checks have been carried out against available corroborative information.

Output results: baseline, options and packages

The calculator has been designed to generate a range of outputs over a 16 year period between (December) 2019 and 2035. This evaluation time period has been selected in discussion with the European Commission, and is intended to align with the first year of policy change. Outputs include financial outputs such as Net Present Value (NPV) which are discounted to 2019 as well as changes to key metrics such as turnover, capital investment, costs to the industry, average fare, passenger kilometres, mode shifts and CO_2 emissions.

I2.11 We note that the evaluation period and the methodology for the development of NPVs is different from the approach taken in our recent completed study for the Commission evaluating the institutional framework of the EU railway system[5], which uses a evaluation timeframe which commences in 2012, and NPVs discounted to this same date.

I2.12 All results can be presented at Member State level, cluster of Member States, and by market sector or any combination of the above. Further information is provided in section I5.

Calculator segmentations

I2.13 The IA Calculator utilises a number of segmentations to reflect differences in the market. Information in its original form is taken at the level of individual Member State, as mentioned above. The segmentations are summarised in Appendix Table I.2 below.

[5] Impact assessment support study on the revision of the institutional framework of the EU railway system, with a special consideration to the role of the European Railway Agency, June 2012.

APPENDIX TABLE I.2 IA CALCULATOR SEGMENTATIONS

Segment name	Segments	Details
Market sectors	5	High speed, Long distance, Medium/regional, Urban/suburban, International
Operator type	2	Incumbent, New Entrant
Service type	2	Public Service Contract, Commercial

Market sectors

I2.14 Five passenger market sectors are utilised in the calculator. Three are taken from the standard definitions available in International Union of Railways (UIC) and the remaining two we have defined for the purpose of this study or taken from other sources, as noted below:

- **International** (IN) services crossing borders between Member States
- **High speed** (HS) services operating at more than 250 km/h at some point in the journey
- **Long distance** (LD), at conventional speed, operating at less than 250 km/h and linking major urban areas
- **Medium distance and regional** (MR), serving smaller communities but not providing the main or fastest link between any two cities[6]
- **Urban and suburban** (US) serving a city or conurbation and the surrounding suburbs or commuter catchment area

I2.15 In addition to the passenger market segments noted we also include freight services as a separate category.

Operator type

I2.16 Two operator types are used in the calculator to distinguish between the relative differences in cost bases, operations and general strategy (such as fares) employed:

- **Incumbent:** all largely national operators who have historically run services and continue to do so. Examples include MÁV in Hungary and Deutsche Bahn in Germany.
- **New entrant:** all non-incumbent operators in a given market. Examples include NTV in Italy, RegioJet in the Czech Republic, Veolia in Germany and Arriva in The Netherlands.

Service type

I2.17 The final segmentation is the service type, whether it is run as a Public Service Contract (PSC) or as a commercial operation:

[6] UIC defines high-speed, long-distance and urban/suburban services. We added the category of "medium/regional" to include services, typically specified by regional authorities, serving smaller communities but not providing the main or fastest link between any two cities. In practice, individual trains may serve a mix of long-distance, medium/regional and urban/suburban travel, and any disaggregation into markets must be considered illustrative.

- **Public Service Contracts:** Services specified and contracted by Competent Authorities, e.g. central government or regional bodies.
- **Commercial:** all non-PSC services, which can include incumbent operators operating on a "commercial" basis, such as high speed services in France and Spain, or new entrants operating open access services.

Clusters

I2.18 In addition to the core segmentations that are used to disaggregate the data and calculations, we have adopted a classification for clustering Member States together for the purpose of reporting. These classifications are defined in Appendix Table I.3.

APPENDIX TABLE I.3 SUMMARY OF CLUSTER CLASSIFICATIONS

		Separation	
		Vertical integration	**Vertical separation**
Liberalisation	**Partly liberalised**	Cluster A	Cluster D
	Non-liberalised	Cluster B	Cluster E
	Liberalised		Cluster C

I2.19 Clusters are used to disaggregate the impacts of the preferred option and package on different groups of Member States where the impacts themselves will differ. Appendix Table I.4 shows the mapping of Member States to clusters.

APPENDIX TABLE I.4 IMPACT ASSESSMENT: DEFINITION OF CLUSTERS

Separation	**Vertically integrated**		**Vertically separated**		
Liberalisation	**Partially liberalised**	**Not liberalised**	**Liberalised**	**Partially liberalised**	**Not liberalised**
Group	A	B	C	D	E
Member States	Austria Germany Italy	Belgium Estonia France Hungary Ireland Latvia Lithuania Luxembourg Poland Slovenia	Great Britain Sweden	Czech Republic Denmark Netherlands	Bulgaria Finland Greece Portugal Romania Slovakia Spain
Baseline share of 2009 EU-27 train-kilometres	34%	25%	18%	10%	13%

I3 INPUT DATA AND BASELINE ASSUMPTIONS

I3.1 The IA calculator uses a range of input information. Appendix Table I.5 provides a summary of the industry input data that is used in the calculator by Member State.

APPENDIX TABLE I.5 BASE YEAR (2009) INDUSTRY DATA

Member State	Code	Passenger train km (kms, millions)	Rail passenger km (kms thousand millions)	Passenger services operating costs (€ billions, 2009)	Capital expenditure on passenger rolling stock (€ billions, 2009)	Passenger Revenue (€ billions, 2009)	Public Subsidy for passenger services (€ billions, 2009)
Belgium	BE	81.08	10.43	2.27	0.33	1.87	0.93
Bulgaria	BG	24.81	2.14	0.13	0.00	0.13	0.10
Czech Republic	CZ	125.91	6.50	0.77	0.16	0.72	0.47
Denmark	DK	63.19	6.17	1.17	0.01	0.57	0.60
Germany	DE	688.42	82.43	9.24	0.33	11.15	4.47
Estonia	EE	4.65	0.25	0.10	0.00	0.10	0.00
Ireland	IE	13.67	1.68	0.27	0.12	0.18	0.18
Greece	EL	16.31	1.41	0.19	0.03	0.10	0.05
Spain	ES	184.43	23.14	2.01	1.02	1.66	0.38
France	FR	424.09	86.00	13.09	0.89	12.41	4.14
Italy	IT	287.25	48.21	4.66	0.57	4.70	2.29
Latvia	LV	6.95	0.76	0.02	0.00	0.01	0.00
Lithuania	LT	5.75	0.36	0.07	0.02	0.02	0.00
Luxembourg	LU	7.11	0.33	0.54	0.02	0.48	0.14
Hungary	HU	84.69	8.03	0.82	0.08	0.23	0.65
Netherlands	NL	133.00	16.42	2.64	0.30	2.51	0.00
Austria	AT	84.30	10.65	1.33	0.20	1.28	0.53
Poland	PL	124.79	18.64	1.37	0.05	0.64	0.29
Portugal	PT	33.20	4.15	0.30	0.00	0.21	0.03
Romania	RO	70.86	6.13	0.60	0.07	0.47	0.26
Slovenia	SI	10.68	0.84	0.08	0.01	0.08	0.05

Member State	Code	Passenger train km (kms, millions)	Rail passenger km (kms thousand millions)	Passenger services operating costs (€ billions, 2009)	Capital expenditure on passenger rolling stock (€ billions, 2009)	Passenger Revenue (€ billions, 2009)	Public Subsidy for passenger services (€ billions, 2009)
Slovakia	SK	32.00	2.26	0.31	0.09	0.10	0.20
Finland	FI	35.12	3.88	0.37	0.09	0.41	0.04
Sweden	SE	90.57	11.30	0.61	0.05	0.62	0.00
United Kingdom	UK	470.72	52.77	4.00	0.60	6.39	2.00

I3.2 This base year information is distributed across:

- first the different market sectors and
- second the different service and operator types.

I3.3 We have used a variety of sources to develop these distribution profiles, the most important of which are RMMS, Infrastructure Managers' and Operators' Reports.

I3.4 The end result of this stage in the calculation produces a multi-dimensional array with **500 segments** for each year of interest and each data type:

25 Member States x 5 market sectors x 2 operator types x 2 service types

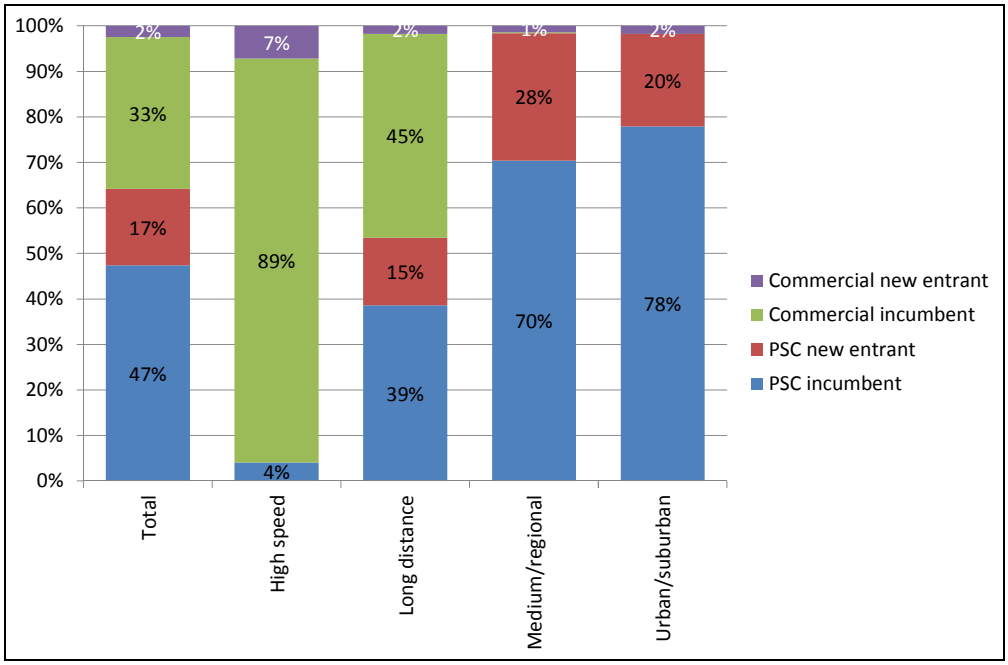
Market sizes and incumbent shares

I3.5 Incumbent share in most Member States is 90-100%. We assumed, in the baseline:

- In the long distance and high speed markets, new open access operators will continue in Austria, the Czech Republic, Italy and Sweden, even in the absence of further liberalisation measures; and,
- In other markets, current market shares will continue.

I3.6 Appendix Figure I.2 illustrates the distribution profile aggregated across all Member States for all market sectors by operator and service type. The level of new entry is highest in the regional sector, given the presence of competitive tenders in some Member States, and in the high-speed sector, given the entry of new open access operators.

APPENDIX FIGURE I.2 MARKET SECTOR PROFILES BY OPERATOR AND SERVICE



Growth in passenger demand

I3.7 We have assumed annual growth in demand in passenger markets based on those in the Transport White Paper (for 2009) which covers the period up until 2025, but extrapolated to 2035 as shown in Appendix Table I.6 below. This covers not only rail but also other modes as these are utilised in the calculation of future mode shares and impact on CO2. The table shows the compound annual growth rates (CAGR's) in each period.

APPENDIX TABLE I.6 ANNUAL GROWTH RATES IN BASELINE DEMAND, CAGRS

Mode	Segment	2009-2010	2011-2015	2016-2020	2021-2025	2025-2035
Rail	Urban and suburban	0.9%	2.1%	1.9%	1.8%	
	Medium and regional	0.8%	1.9%	2.0%	2.1%	
	Long distance					
	High speed	2.1%	2.1%	2.9%	3.1%	
	International					
Road	All	0.7%	1.6%	1.1%	0.8%	
Air	All	1.3%	4%	3.5%	2.8%	
Inland waterways	All	0%	0%	0%	0%	

Other assumptions

I3.8 We utilise a number of other assumptions to adjust the baseline to reflect changes in the market since 2009 which are not reflected in the Transport White Paper.

Adjustments to reflect other external factors

I3.9 A number of adjustments have been made to the baseline to reflect new entrants who have entered the market since 2009 and development of the Transport White Paper. These include: Regiojet, WESTbahn and NTV.

Current position in each Member State

I3.10 A further set of segmentations are used to classify the current position in terms of operations and services in each Member State. These are grouped into three categories, according to whether:

- Open access operations currently exist
- PSC tendering exists
- Full institutional separation of Infrastructure Manager from Railway Undertakings exists in the baseline

I3.11 These assumptions are important in the calculator as they control for which Member States particular policy options will have an impact, and where they will not. For example we have assumed that policy options related to unbundling cannot impact in Member States and market sectors where there is already full institutional separation.

I3.12 Appendix Table I.7 summarises these assumptions for each of the market sectors. The assumptions have been based on our review of Member States, as reported in the country fiches in Appendix K.

I3.13 In the case of the high speed market sector we only include those Member States where high speed operations occur, i.e the ten Member States of Belgium, France, Slovenia, Germany, Italy, Spain, Finland, Poland, The Netherlands and Sweden.

I3.14 A “1” in the table implies that a particular Member States meets the criteria of the classification and a “0” otherwise.

APPENDIX TABLE I.7 CLASSIFICATION OF MARKETS

Market Sector	Member State	De facto open access in baseline	PSC tenders in baseline ("Mix" treated as no)	Institutional separation in baseline
High Speed	BE, FR, PL, SL	0	0	0
	DE, IT	1	0	0
	ES, FI, NL	0	0	1
	SE	1	0	1
Long Distance	BE, EE, FR, HU, IE, LT, LV, LU, PL, SL	0	0	0
	AT, DE, IT	1	0	0
	BG, DK, EL, ES, FI, NL, PT, RO, SK	0	0	1
	CZ, SE	1	0	1
	UK	1	1	1
Medium / Regional	BE, EE, FR, HU, IE, LT, LU, LV, PL, RO, SL	0	0	0
	AT, IT	1	0	0
	BG, EL, ES, FI, PT, SK	0	0	1
	DE	1	1	0
	CZ	1	0	1
	DK, NL	0	1	1
	SE, UK	1	1	1
Urban / Suburban	BE, EE, FR, HU, IE, LT, LU, LV, PL, SL	0	0	0
	AT, IT	1	0	0
	BG, DK, EL, ES, FI, PT, RO, SK	0	0	1
	DE	1	1	0
	CZ	1	0	1
	NL	0	1	1
	SE, UK	1	1	1
International	BE, EE, FR, HU, IE, LT, LU, LV, PL, SL	0	0	0
	AT, DE, IT	1	0	0
	BG, DK, EL, ES, FI, NL, PT, RO, SK	0	0	1
	CZ, SE, UK	1	0	1

I4 ASSUMPTIONS USED IN OPTIONS AND PACKAGES

I4.1 We have developed input assumptions for use in the calculator for each of the options and packages, each of which is defined as a change relative to the baseline. These are as follows:

- Unbundling option U2
- Market opening package 4 (A1+B1)
- Market opening package with unbundling (A1+B1+U2)

I4.2 The rationale for selecting these particular options and packages is discussed in Chapter 7 of the main report.

Assumptions for unbundling option U2

I4.3 Below we present the input assumptions for the unbundling option. There are two sets of inputs:

- The first of which apply to markets that are not yet unbundled and where open access operations are in existence.
- The second set applies to markets that are not yet unbundled and where there is tendering in the baseline.

I4.4 We note that we have not identified any urban/suburban services which are operated commercially or where there have been applications to operate open access services. We therefore assume that the effects of Option U2 on open access would be confined to:

- Domestic high speed, long distance and medium/regional sectors
- International passengers, although we note that the effect on each service will depend on the extent of unbundling and other conditions in all the Member States through which it operates
- Freight

I4.5 Appendix Table I.15 summaries the inputs for the two sets of assumptions that relate to U2 in turn. In the sections that follow we discuss the rationale for each of the assumptions.

APPENDIX TABLE I.8 OPTION U2 INPUT ASSUMPTIONS

Affected markets	ID	Assumption	Value	Evidence from country fiches (Appendix K)
Domestic markets with OA in the baseline but no separation	1	Percentage of commercial that becomes PSC	10%	
	2	New entry volume as % of incumbent	1%	
	3	New entry costs as % of incumbent	80%	AT, FR, IT
	4	New entry passengers taken from incumbent	70%	
	5	New entry fares as % of incumbent	95%	AT, CZ, GB, IT, SE
	6	Incumbent stimulated opex efficiencies	2%	
Markets with tendering in the baseline but no separation	7	Incumbent share of train-km falls by	2%	CZ, SE
	8	Operating costs per train-kilometre fall by	1%	Upper (~20%) in DE, SE; Lower in Member States with under-compensation especially the EU12
	9	Percentage of saving reinvested as quality and/or capacity	0%	
	10	Increase in train-kilometres and capital expenditure	0.1%	
	11	Increase in passenger-kilometres and revenue	0.1%	

Assumptions for domestic markets with OA in the baseline but no separation

Assumption 1: commercial services to PSC

I4.6 There is potential for services which are currently operated as commercial to become PSC in the future because they are either:

- Protected as in the case in Austria where ÖBB's loss-making services are already covered by a PSC.
- Come under pressure from passenger representative groups and bodies that results in it becoming easier to add a PSC than to remove one, such as has occurred in Sweden and in the UK where a gradual trend to PSCs extending to all stations can be observed.

I4.7 This assumption reflects the potential for this to occur and in this option we have assumed that the impact will be 10%. We discuss in the main report a sensitivity test to an assumption that 70% of "commercial" services will become PSCs.

Assumption 2 and 3: new entrant volumes and costs

I4.8 **New entry volume:** In Member States where open access is currently permitted but there is no institutional separation (effectively limited to cluster A), Option U2 might result in an increase in open access equivalent to 1% of the incumbent's "commercial" train-kilometres, or around half the volume currently observed and illustrated in Table 4.1 of the main report.

I4.9 We assume that **new entrant costs** will be 20% below those of the incumbents.

Assumption 4: new entrant passengers

I4.10 A key assumption is the origin of the open access operators' passengers. With an economic equilibrium test, open access will only be permitted if a high proportion of these passengers either change mode from car or air or are new travellers. The scope for mode shift, or generating new travel, will vary widely from station pair to station pair.

I4.11 We have assumed that 70% of the new entrants passengers will be abstracted from the incumbent. We discuss in the main report a sensitivity test in which a lower proportion of "commercial" services will become PSCs.

Assumption 5: new entrant fares

I4.12 We have assumed that through open access, new entrants' fares are 5% below those of the incumbent. We discuss in the main report a sensitivity test in which new entrant fares are 20% below those the incumbent.

Assumption 6: operational expenditure efficiencies

I4.13 Open access operators will add the costs of their own services but may, through competition, stimulate cost reductions in the incumbent, at least in the station-to-station markets in which they operate. The overall effect on the incumbent is uncertain, particularly as incumbents operating "commercial" services without PSC support already face incentives to cut costs to maintain or grow profits.

I4.14 We assume that new entry equivalent to 1% of the incumbent's train-kilometres will stimulate efficiency gains of 20% in 10% of the incumbent's train-kilometres, equivalent to an overall efficiency gain of 2%

Assumptions for markets with tendering in the baseline but no separation

Assumption 7: incumbent PSC train-kilometres

I4.15 We have made an assumption on how incumbents train kilometres may reduce as a result of this compulsory competitive tendering option.

I4.16 We assume that the incumbents' share of train kilometres will fall by 10%.

Assumption 8: operational expenditure

I4.17 The effect of competition on the costs of PSCs will depend on the existing situation. There are two extremes that can be characterised:

- There may be considerable scope to cut costs in incumbents which have been generously supported and faced little pressure to strive for efficiency.

- There may be little or no scope to cut costs in incumbents which have been starved of cash or underfunded. In these circumstances, the efficient levels of costs may be above the subsidy currently made available to the incumbent.

I4.18 We assume under option U2 that a reduction in operating expenditure per train-kilometre will be stimulated. We assume that 10% of PSCs, determined by the proportion which are effectively contestable, will achieve cost reductions of 10%, giving an overall cost reduction of 1%.

Assumption 9: reinvestment

I4.19 Member States and Competent Authorities may focus on cost reduction and use compulsory PSC tendering as an opportunity to minimise the costs of provision of the current services. This will maximise the financial benefit to them but will not improve capacity or quality or result in any mode shift of external benefits.

I4.20 We have tested the assumptions here that there will be no reinvestment which demonstrates the case when the maximum revenue is realised by the industry.

Assumption 10 and 11: quality-related rises in activity

I4.21 We have a set of assumptions on how compulsory competitive tendering changes train and passenger kilometres, CAPEX and revenue. We assume that:

- Train-kilometres and capital expenditure: 0.1% increase if 50% of savings are reinvested
- Passenger-kilometres and revenue: 0.1% increase if 50% of savings are reinvested

Other assumptions: administration and enforcement cost

I4.22 We have based our assumptions about the additional costs of unbundling under U2 on a recent study by Merkert et al (2012). This is discussed in more detail in chapter 6 of the main report. Here we provide estimates of a range of transactions costs, including: the procuring of access rights, franchise bidding and the allocation of train costs, in Germany, Great Britain and Sweden. These are shown in Appendix Table I.9 below.

APPENDIX TABLE I.9 ESTIMATES OF RAIL INDUSTRY TRANSACTION COSTS

	Transactions cost per train-km (PPP €)	Transactions cost as proportion of total operating cost (%)
Germany	0.08	0.49
Great Britain	0.34	1.42
Sweden	0.22	1.27

Source: Merkert et al (2012)

I4.23 We have taken the difference between the estimates of transactions cost as a proportion of total operating cost for Germany and Sweden, as an indication of the additional transactions costs arising from U2, modifying the estimates to approximate a narrower range of costs than is covered by the study. More specifically, recognising that the estimates cover the costs of competitively

tendering PSCs (which arise under Option B1 but not under U2 in isolation) and other costs arising from unbundling undertaken under existing legislation, we have assumed:

- 90% of the estimate for Germany represents the cost of complying with existing legislation relating to unbundling
- 60% of the estimate for Sweden represents the cost of implementing further unbundling consistent with U2.

I4.24 In applying the proportions shown in the third column of the table, we have assumed that transactions costs are broadly scalable according to overall operating costs. This gives an estimate of the incremental costs of U2 of 0.32% of total operating costs (0.76% - 0.44%).

Assumptions for Freight

I4.25 As discussed in Chapter 7 of the main report, we have estimated the benefits of unbundling arising in the freight sector, additional to the benefits arising in the domestic and international passenger sectors.

I4.26 We estimate these benefits as an increase in turnover rather than a decrease in costs. We do not assume that cost reductions would arise given that the freight sector has been liberalised since 1 January 2007 under Directive 2004/51/EC, and is subject to extensive inter-modal competition. Efficiency savings should therefore already have been stimulated.

I4.27 However we assume that further separation, where it does not already exist, could provide the following benefits:

- Reduce discriminatory practices and improve transparency
- Increase the number of new entrants thanks to easier market access
- Stimulate price reductions and competition in some cases
- Generate new freight activity

I4.28 Our estimate is that unbundling would therefore produce an increase in revenue from freight operations which would not materialise otherwise, in the order of 1% of the 2009 revenue of the European freight sector. Applying this factor produces a Net Present Value of around €1 billion in the timescales considered.

Assumptions for market opening package 4 (A1+B1)

I4.29 The input assumptions used for market opening package 4, which are the composite of the assumptions for A1 and B1, are summarised in Appendix Table I.10.

I4.30 Changes related to open access (A1 assumptions) are only applied to Member States where there are currently no open access services, as identified in Appendix Table I.7, and are restricted to the high speed, long distance and medium/regional market sectors. Whereas assumptions related to option B1 only apply to domestic markets without universal competitive tendering of PCSs.

I4.31 Again we provide further detail on the rationale for these assumptions in the sections that follow.

APPENDIX TABLE I.10 ASSUMPTIONS FOR MARKET OPENING PACKAGE 4

Affected markets	ID	Assumption	Value	Evidence from country fiches (Appendix K)
Domestic markets with OA in the baseline but no separation (A1)	1	Percentage of commercial that becomes PSC	20%	
	2	New entry volume as percentage of incumbent's	2%	AT, CZ, DE, FR, IT, GB, SE
	3	New entry costs as percentage of incumbent's	80%	AT, FR, IT
	4	New entry passengers taken from incumbent	70%	
	5	New entry fares as percentage of incumbent's	95%	AT, CZ, GB, IT, SE
	6	Incumbent stimulated opex efficiencies	3.0%	AT, CZ, IT
All domestic markets with no competitive tending in the baseline	7	Incumbent share of train-km falls by	10%	Higher (~20%) in DE, SE; Lower (~5%) in IT, NL
	8	Opex per train-km falls by	5%	Upper (~20%) in DE, SE; Lower in MSs with under-compensation esp. EU12
	9	Percentage of saving fed back to opex as quality	0%	
	10	Increase in train-kilometres and capital investment	0.5%	
	11	Increase in passenger-kilometres and revenue	0.5%	

Assumptions for domestic markets with OA in the baseline but no separation (A1 assumptions)

Assumption 1: commercial services to PSC

I4.32 There is potential for services which are currently operated as commercial to become PSC in the future because they are either:

- Protected as in the case in Austria where ÖBB's loss-making services are already covered by a PSC.
- Come under pressure from passenger representative groups and bodies that results in it becoming easier to add a PSC than to remove one, such as has occurred in Sweden and in the UK where a gradual trend to PSCs extending to all stations can be observed.

I4.33 This assumption reflects the potential for this to occur and in this option we have assumed that the impact will be 20%. We discuss in the main report a sensitivity test to an assumption that 70% of "commercial" services will become PSCs.

Assumption 2 and 3: new entrant volumes and costs

I4.34 Our assumptions on new entrant volumes apply to the following metrics:

- Passenger kilometres
- Passenger train kilometres
- Capital expenditure
- Operational expenditure

I4.35 Whereas assumptions on costs are applied to the capital and operational expenditure only.

I4.36 In Member States where there is institutional separation but open access is not currently permitted, Option A1 might result in open access equivalent to 2% of the incumbent's "commercial" train-kilometres, broadly consistent with the average seen in Table 4.1 of the main report. (Note that this is the assumed further increase over and above open access services existing in the baseline, including NTV in Italy, WESTbahn in Austria, and Hamburg-Köln Express and Veolia's InterConnex in Germany.)

I4.37 As with unbundling option U2, we assume that new entrant costs will be 20% below those of the incumbents.

Assumption 4: new entrant passengers

I4.38 A key assumption is the origin of the open access operators' passengers. With an economic equilibrium test, open access will only be permitted if a high proportion of these passengers either change mode from car or air or are new travellers. The scope for mode shift, or generating new travel, will vary widely from station pair to station pair.

I4.39 In open access option A1, as in unbundling option U2, we have assumed that 70% of the new entrants passengers will be abstracted from the incumbent. We discuss in the main report a sensitivity test in which a lower proportion of "commercial" services will become PSCs.

Assumption 5: new entrant fares

I4.40 As with unbundling option U2, we have assumed that through open access, new entrants' fares are 5% below those of the incumbent. We discuss in the main report a sensitivity test in which new entrant fares are 20% below those the incumbent.

Assumption 6: operational expenditure efficiencies

I4.41 Open access operators will add the costs of their own services but may, through competition, stimulate cost reductions in the incumbent, at least in the station-to-station markets in which they operate. The overall effect on the incumbent is uncertain, particularly as incumbents operating "commercial" services without PSC support already face incentives to cut costs to maintain or grow profits.

I4.42 We assume that new entry equivalent to 2% of the incumbent's train-kilometres will stimulate efficiency gains of 20% in 15% of the incumbent's train-kilometres, equivalent to an overall efficiency gain of 3% in both the conservative and optimistic scenarios.

Assumptions for markets with tendering in the baseline but no separation (B1 assumptions)

Assumption 7: incumbent train kilometres

I4.43 We assume that the incumbents' share of train kilometres will fall by 10%.

Assumption 8: operational expenditure

I4.44 The effect of competition on the costs of PSCs will depend on the existing situation. There are two extremes that can be characterised:

- There may be considerable scope to cut costs in incumbents which have been generously supported and faced little pressure to strive for efficiency.
- There may be little or no scope to cut costs in incumbents which have been starved of cash or underfunded. In these circumstances, the efficient levels of costs may be above the subsidy currently made available to the incumbent.

I4.45 We assume under option B1 that a reduction in operating expenditure per train-kilometre will be stimulated. We assume that 50% of PSCs, determined by the proportion which are effectively contestable, will achieve cost reductions of 10%, giving an overall cost reduction of 5% in the conservative scenario. In the optimistic scenario, we assume an overall cost reduction of 11.25%, given by a higher contestability rate of PSCs (75%) and higher potential savings (15%).

Assumption 9: reinvestment

I4.46 Member States and Competent Authorities may focus on cost reduction and use compulsory PSC tendering as an opportunity to minimise the costs of provision of the current services. This will maximise the financial benefit to them but will not improve capacity or quality or result in any mode shift of external benefits.

I4.47 We have tested two assumptions here:

- The first assumes zero reinvestment and demonstrates the case when the maximum revenue is realised by the industry.
- The second assumes that 50% of cost savings from operational expenditure will be reinvested back into service quality rather than being realised as revenue.

Assumption 10 and 11: quality-related rises in activity

I4.48 We have a set of assumptions on how compulsory competitive tendering changes train and passenger kilometres, CAPEX and revenue. We assume that

- Train-kilometres and capital expenditure: 0.5% increase if 50% of savings are reinvested
- Passenger-kilometres and revenue: 0.5% increase if 50% of savings are reinvested

Other assumptions: administration and enforcement costs

I4.49 We separate out below our assumptions for administration and enforcement costs under options A1 and B1.

Assumptions for domestic markets with OA in the baseline but no separation (A1 assumptions)

I4.50 We have assumed that train operators will need to employ additional staff under open access in order to apply for or reschedule access rights to accommodate new entry. We have provided for one additional full time equivalent (FTE) per new entrant for each Member State in which they are seeking to operate. The associated costs are based on estimates of gross salaries derived from industry interviews, recognising the cost and salary differences between EU15 and EU12 countries (while assuming that EU12 costs converge with those of EU15 Member States by 2025).

I4.51 The estimates of salary costs are shown in the table below. These values are derived from research undertaken for a previous study on the European Rail Agency and reflect the average salary levels for comparable rail sector staff.

APPENDIX TABLE I.11 ADDITIONAL OPERATOR COSTS UNDER OPEN ACCESS

	Gross salary per annum (€s)
EU15	87,237
EU12	21,885

Source: research undertaken for previous EU rail work.

I4.52 We have also considered the potential for additional work undertaken by the competition authorities, for example in investigating complaints about discriminatory access. We have assumed that this is broadly equivalent to the reduction in the work of regulatory authorities as a result of the introduction of competition, with the result that there is no net increase in overall enforcement activity under this option.

Assumptions for markets with tendering in the baseline but no separation (B1 assumptions)

I4.53 We have assumed that the introduction of compulsory competitive tendering will result in a number of addition administrative costs as follows:

- The one-off cost of setting up a PSC (determining and defining the requirements as distinct from procuring the contract)
- The cost of tendering, including the cost incurred by the relevant competent authority and the costs incurred by bidders in responding to the tender
- The on-going costs of monitoring a PSC.

I4.54 The estimated costs are shown in the table below. Again, we have allowed for differences in cost between EU15 and EU12 Member States.

APPENDIX TABLE I.12 ADMINISTRATIVE COSTS OF COMPETITIVE TENDERING

		Cost	Source	Notes
One-off PSC set-up cost	EU12	€500,000	SDG assumption based on country research.	2012 values. Takes account of higher effort required due to less familiarity.
	EU15	€750,000	SDG assumption based on country research.	2012 values
Average cost of tender	EU12	€390,000	See below	2012 values. Equivalent cost per transaction assumed to apply already in Member States with competitive tendering.
	EU15	€780,000	See below	2012 values. Equivalent cost per transaction assumed to apply already in Member States with competitive tendering.
Average yearly monitoring costs		10% of tendering cost	SDG assumption based on country research.	Applied annually for each year of the contract.

I4.55 The average transactions cost estimates in Appendix Table I.12 take account of the costs of additional disputes and/or enforcement activity under option B1. Our estimate is based on an assumed value for the probability of such activity of 10% (i.e. one in ten tenders gives rise to such costs) and an assumed value for the costs of dispute/enforcement.

I4.56 The full derivation of administrative and enforcement costs per transaction is shown in Appendix Table I.13. Underlying values were again derived from a review of material obtained from country research and previous Steer Davies Gleave experience of competitive tendering.

APPENDIX TABLE I.13 DERIVATION OF AVERAGE ADMINISTRATION COSTS OF TENDERING

Assumption	EU15	EU12	Calculation
Competent authority tender preparation	€200,000	€100,000	(1)
Train operator tender preparation	€166,667	€83,333	(2)
Average number of bidders	3	3	(3)
Total train operator cost	€500,000	€250,000	(4) = (2) * (3)
Cost of disputes/enforcement per tender	€800,000	€400,000	(5)
Probability of legal/enforcement action	10%	10%	(6)
Average cost of dispute/enforcement	€80,000	€40,000	(7) = (5) * (6)
Total cost	**€780,000**	**€390,000**	**(1) + (4) + (7)**

I4.57 The additional administrative costs under option B1 arise due to an increase in the number of tendered PSCs as compared to the base case. The incremental number of tenders in each year of the Impact Assessment period has been derived as follows:

- In the Baseline, we assume some evolution of the current situation, with a small increase in the number of tendered PSCs confined to Member states in which competitive tendering has already been introduced
- In the case of Option B1, we assume that one franchise per NUTS2 area is introduced unless a different pattern of tendering has been, or is likely to be, established in the Member State concerned
- In addition, we assumed an average 7-year duration for all new PSC contracts and that there is a ramp-up period of 5 years (with all additional PSCs relative to the current situation in place by 2020 in both the Baseline and under option B1).

Assumptions for freight

I4.58 As discussed in section I4.25, we have developed assumptions for the additional benefits to freight. In Package 4 we assume once more that the Net Present Value of these is around €1 billion in the timescales considered.

Assumptions for unbundling and market opening package (U2 +A1+B1)

I4.59 Finally input assumptions for the combined package of U2, A1 and B1 are shown below. For this combination we first evaluate the impact of unbundling via U2 and then as increments to this apply the impact of options A1 and B1.

APPENDIX TABLE I.14 COMBINED PACKAGE (U2+A1+B1) INPUT ASSUMPTIONS

Affected markets	ID	Assumption	Value	Evidence from country fiches (Appendix K)
Domestic markets with OA in the baseline but no separation	1	Percentage of commercial that becomes PSC	30%	
	2	New entry volume as % of incumbent	3%	AT, CZ, DE, FR, IT, GB, SE
	3	New entry costs as % of incumbent	80%	AT, FR, IT
	4	New entry passengers taken from incumbent	70%	
	5	New entry fares as % of incumbent	95%	AT, CZ, GB, IT, SE
	6	Incumbent stimulated opex efficiencies	4.0%	AT, CZ, IT
Markets with tendering in the baseline but no separation	7	Incumbent share of train-kilometre falls by	15%	Higher (~20%) in DE, SE; Lower (~5%) in IT, NL
	8	Opex per train-kilometre falls by	7.5%	Upper (~20%) in DE, SE; Lower in MSs with under-compensation esp. EU12
	9	Percentage of saving fed back to opex as quality*	0% / 50%	
	10	Increase in train-km and capex	0.75%	
	11	Increase in passenger-km and revenue	0.75%	

* Note we test two sets of assumptions here as discussed below.

Other assumptions: administration and enforcement costs

I4.60 Transactions costs for the package of options comprising U2, A1 and B1 were derived using the assumptions already described for each of the elements. However, we have allowed for the likelihood that the costs of legal disputes and enforcement activity associated with an increase in competitive tendering are likely to be reduced in the event that market opening is combined with unbundling. This is due to the fact that unbundling as envisaged under U2 can be expected to reduce discriminatory behaviour and improve financial transparency. In order to reflect this, we have reduced the probability of the need for legal or regulatory intervention from 10% to 5%.

I4.61 While we are not aware of any direct evidence on the incidence of such intervention in the event of further unbundling, we note that the study by Merkert

et al (2012), mentioned above and described further in [reference main report], suggests that regulatory costs per train kilometre in Sweden are only 25% of those in Germany. This is evidence of a significant reduction in legal and regulatory intervention costs, and our estimate of a 50% reduction in these costs through the introduction of unbundling in support of market opening is therefore considered conservative.

Assumptions for freight

I4.62 As discussed in section I4.25, we assume that under this combined package the Net Present Value of the benefit to freight is around €1 billion.

I5 OUTPUTS

I5.1 The calculator is designed to report a wide range of outputs which can be aggregated or disaggregated in a number of ways.

Reporting aggregations

I5.2 The calculator can report results in three ways:

- For the total rail market
- By market sector
- Aggregated into clusters of Member States for each market sector using the definition described in I2.18 and I2.19

Outputs

I5.3 The calculator generates the following outputs over the evaluation period to 2035:

- NPVs
  - Savings for public authorities
  - Net gain to private sector
- Industry metrics
  - Change in turnover
  - Change in capital investment
  - Change in fare per passenger-kilometre (relative to baseline)
  - Change in passenger-kilometres
  - New entrant PSC volume:
  - Train-kilometres before policy change
  - New entrant PSC volume: Train-kilometres after policy change
  - New entrant open access volume: Train-kilometres before policy change
  - New entrant open access volume: Train-kilometres after policy change
  - New entrant market share: Market share in baseline
  - New entrant market share: Market share after policy change
  - Total PSC train-kilometres
- Transaction costs associated with franchising
  - Franchising (pro-rated with total PSC train-kilometres)
  - Open access (pro-rated with new entrant commercial)
- Mode shift

- Percentage of new rail shifted from road
- Percentage of new rail shifted from air

- CO_2 emissions
  - Billion tonnes per billion passenger-kilometres
  - Million tonnes per billion passenger-kilometres
  - Shadow price of carbon in 2032 (€/tonne)
  - Net change in annual CO_2 emissions
  - Net value of annual CO_2 emissions saved

Calculation of NPV outputs

I5.4 NPVs are calculated over the period 2019 to 2035 using a discount rate of 4% to 2019, as requested in discussion with the European Commission.

Calculation of CO_2 emissions

I5.5 The impact on greenhouse gas emissions is measured in terms of million tonnes of CO_2 reduction (above the baseline) and the equivalent net present value of annual CO_2 emissions saved. The reduction in CO_2 emissions is derived from estimates of traffic abstraction from other more carbon-intensive transport modes (modal shift from road and air). The value of CO_2 savings is then calculated as a function of annual emission reductions and the estimated shadow price of CO_2, discounted at a 4% discount rate as the rest of the financial analysis.

I6 SUMMARY OF KEY OUTPUTS

I6.1 Below we summarise the results contained in chapter 7 of the main report. For associated commentary please refer to the main report itself. All results are for a period or a snap-shot in time, as specified. The calculator works on this basis and time series outputs are not generated by default.

I6.2 The process of producing results is as follows:

- Develop results for a single year based on assumed percentage changes in input assumptions
- Apply assumed growth rates based on Transport White Paper projections, as specified in Appendix Table I.6 for 2019 to 2035
- Compare results to baseline to establish the incremental impact
- Calculate NPVs or other financial results with associated discounting profiles

Summary of conservative results presented

I6.3 We present separate results for the conservative options and packages tested:

- **Unbundling option U2** in Appendix Table I.15 and Appendix Table I.16, as well as in Appendix Figure I.3 and Appendix Figure I.4
- Market opening **Package 4** (A1+B1) in Appendix Table I.17 and Appendix Table I.18 as well as in Appendix Figure I.5 to Appendix Figure I.8
- Market opening package with unbundling (**A1+B1+U2**) both with and without reinvestment assumptions in:
  - **No reinvestment:** Appendix Table I.19 and Appendix Table I.20, as well as in Appendix Figure I.9 and Appendix Figure I.10

- **With 50% reinvestment**: Appendix Table I.21 and Appendix Table I.22 as well as in Appendix Figure I.11 and Appendix Figure I.12

I6.4 Results are presented in terms of:

- Summary results by market sector
- Summary results by cluster of member states
- Market shares by sector and cluster
- NPV in billions by sector and cluster

Unbundling option U2 results

APPENDIX TABLE I.15 OPTION U2 RESULTS BY SECTOR

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	High speed	Long distance	Medium/regional	Urban/suburban	International
Profits to incumbents and/or savings to public authorities	€ billion	2.62	0.41	0.59	0.68	0.34	0.60
Profits to new entrants	€ billion	0.21	0.10	0.09	0.00	0.00	0.02
Transaction and administration costs of PSCs and open access	€ billion	-1.37	Estimated unbundling costs are €0.7-2.0 billion but cannot be allocated to market sectors				
Total NPV	€ billion	1.46					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.03	0.01	0.01	0.0	0.0	0.01
Increase in annual capex	€ billion	0.01	0.00	0.00	0.00	0.00	0.00
Increase in annual passenger-km	billion	0.3	0.1	0.1	0.0	0.0	0.1
From road	billion	0.1	0.0	0.0	0.0	0.0	0.0
From air	billion	0.1	0.0	0.0	0.0	0.0	0.0
New entry PSC train-km	million	19	1	3	10	6	1
New entry open access train-km	million	8	3	3	0	0	2
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Option U2	%	19.8%	7.5%	17.0%	30.1%	22.6%	9.2%
Change	%	0.5%	0.4%	0.4%	0.6%	0.6%	0.8%
Emissions reductions							
CO_2 emissions	million tonnes	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 emissions value	€ million	-1.2	-0.4	-0.4	0.0	0.0	-0.4

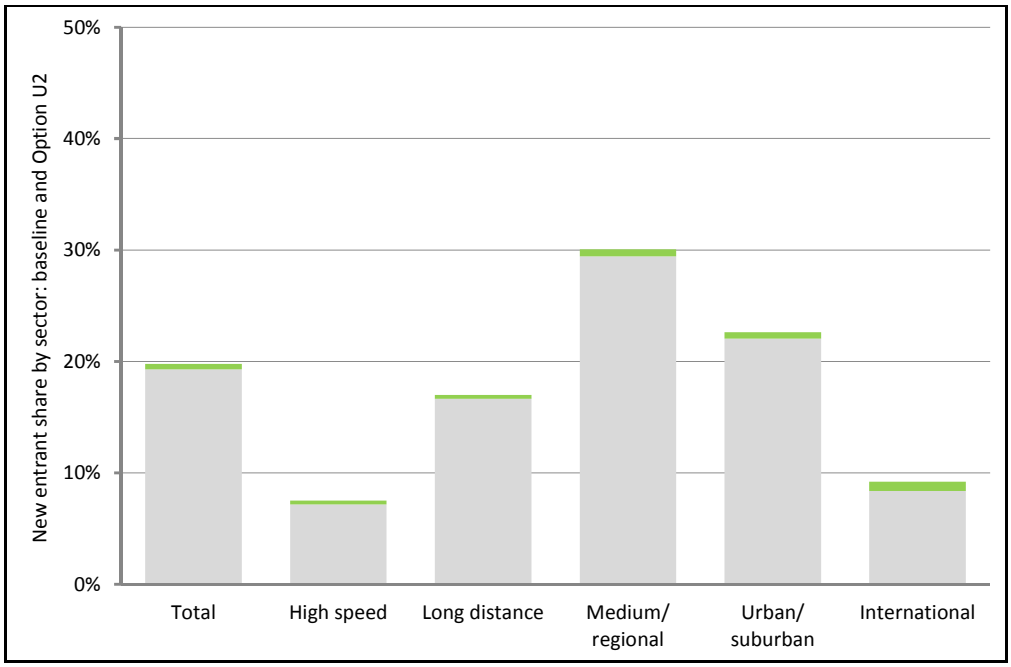
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX TABLE I.16 OPTION U2 RESULTS BY CLUSTER

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	AT DE IT	BE EE FR HU IE LT LU LV PL SI	GB SE	CZ DK NL	BU EL ES FI PO RO SK
			A	B	C	D	E
Profits to incumbents and/or savings to public authorities	€ billion	2.62	2.24	0.39	0.00	0.00	0.00
Profits to new entrants	€ billion	0.21	0.21	-0.01	0.00	0.00	0.00
Transaction and administration costs of PSCs and open access	€ billion	-1.37	Estimated unbundling costs are €0.7-2.0 billion but have not been identified by cluster				
Total NPV	€ billion	1.46					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.03	0.03	0.01	0.00	0.00	0.00
Increase in annual capex	€ billion	0.01	0.00	0.00	0.00	0.00	0.00
Increase in annual passenger-km	billion	0.3	0.3	0.0	0.0	0.0	0.0
From road	billion	0.1	Not identified by cluster				
From air	billion	0.1					
New entry PSC train-km	million	19	19	1	0	0	0
New entry open access train-km	million	8	7	1	0	0	0
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Option U2	%	19.8%	10.1%	2.2%	87.1%	0.4%	0.6%
Change	%	0.5%	1.4%	0.1%	0.0%	0.0%	0.0%
Emissions reductions							
CO_2 emissions	million tonnes	0.0	0.0	0.0	0.0	0.0	0.0
CO_2 emissions value	€ million	-1.2	-1.0	-0.2	0.0	0.0	0.0

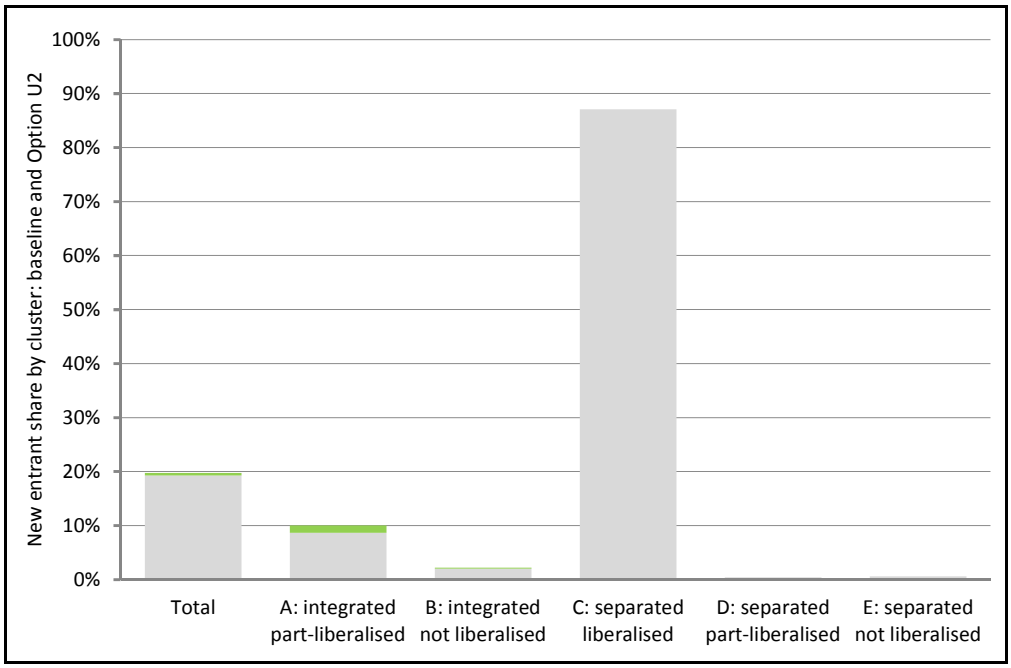
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for full of freight

APPENDIX FIGURE I.3 OPTION U2: MARKET SHARE BY SECTOR



Key: grey bar = baseline, green bar = additional market share in longer term with option U2

APPENDIX FIGURE I.4 OPTION U2: MARKET SHARE BY CLUSTER



Key: grey bar = baseline, green bar = additional market share in longer term with option U2

Package 4 (A1+B1) results

APPENDIX TABLE I.17 PACKAGE 4 RESULTS BY SECTOR

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	High speed	Long distance	Medium/regional	Urban/suburban	International
Profits to incumbents and/or savings to public authorities	€ billion	14.15	2.00	3.98	4.66	3.50	
Profits to new entrants	€ billion	0.01	0.01	0.00	0.00		
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.02	-0.10	-0.18	-0.12	
Total NPV	€ billion	13.74	1.99	3.88	4.48	3.38	
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.09	0.06	0.03	0.00	0.00	
Increase in annual capex	€ billion	0.03	0.02	0.01	0.00	0.00	
Increase in annual passenger-km	billion	0.8	0.5	0.3	0.0	0.0	
From road	billion	0.2	0.1	0.1	0.0	0.0	
From air	billion	0.2	0.2	0.0			
New entry PSC train-km	million	180	4	55	73	48	
New entry open access train-km	million	14	9	5	0		
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Package 4	%	23.1%	8.6%	20.9%	34.4%	27.1%	8.4%
Change	%	3.8%	1.4%	4.3%	4.9%	5.0%	
Emissions reductions							
CO_2 emissions	million tonnes	-0.1	0.0	0.0	0.0	0.0	
CO_2 emissions value	€ million	-3.0	-2.0	-1.0	0.0	0.0	

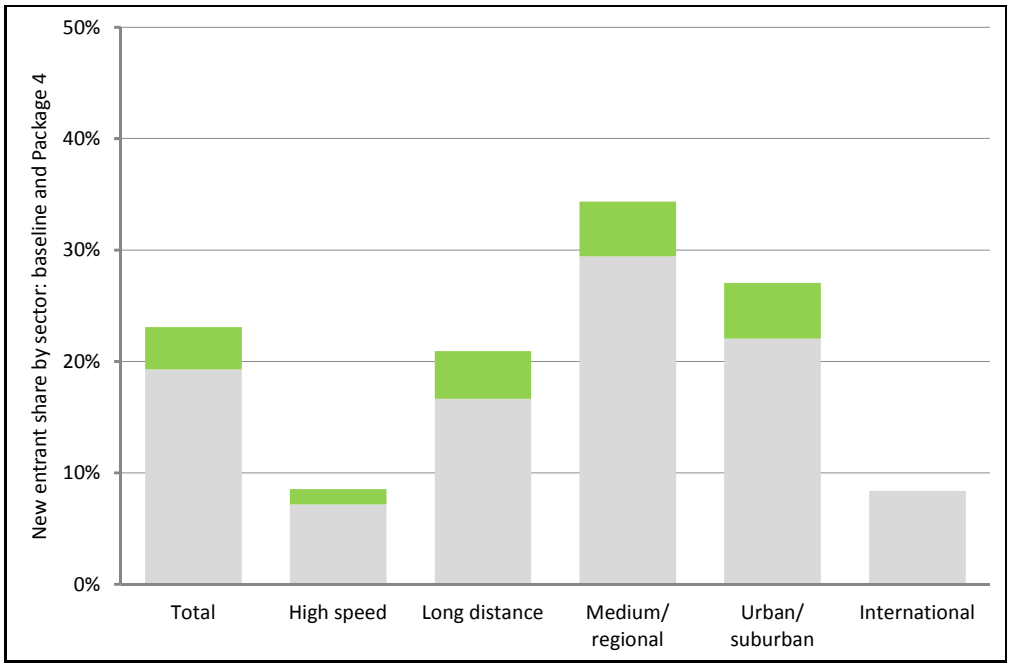
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX TABLE I.18 PACKAGE 4 RESULTS BY CLUSTER

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	AT DE IT	BE EE FR HU IE LT LU LV PL SI	GB SE	CZ DK NL	BU EL ES FI PO RO SK
			A	B	C	D	E
Profits to incumbents and/or savings to public authorities	€ billion	14.15	2.62	7.32	0.09	1.97	2.15
Profits to new entrants	€ billion	0.01	0.00	0.12	0.00	0.00	-0.11
Transaction and administration costs of PSCs and open access	€ billion	-0.42	-0.07	-0.15	-0.04	-0.02	-0.14
Total NPV	€ billion	13.74	2.55	7.29	0.05	1.95	1.90
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.09	0.00	0.07	0.00	0.01	0.01
Increase in annual capex	€ billion	0.03	0.00	0.02	0.00	0.00	0.01
Increase in annual passenger-km	billion	0.8	0.0	0.6	0.0	0.1	0.1
From road	billion	0.2	Not identified by cluster				
From air	billion	0.2					
New entry PSC train-km	million	180	37	61	3	33	46
New entry open access train-km	million	14	0	10	0	2	3
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Package 4	%	23.1%	10.8%	7.7%	87.4%	7.0%	8.2%
Change	%	3.8%	2.1%	5.6%	0.3%	6.6%	7.6%
Emissions reductions							
CO_2 emissions	million tonnes	-0.1	0.0	0.0	0.0	0.0	0.0
CO_2 emissions value	€ million	-3.0	0.0	-2.3	0.0	-0.2	-0.5

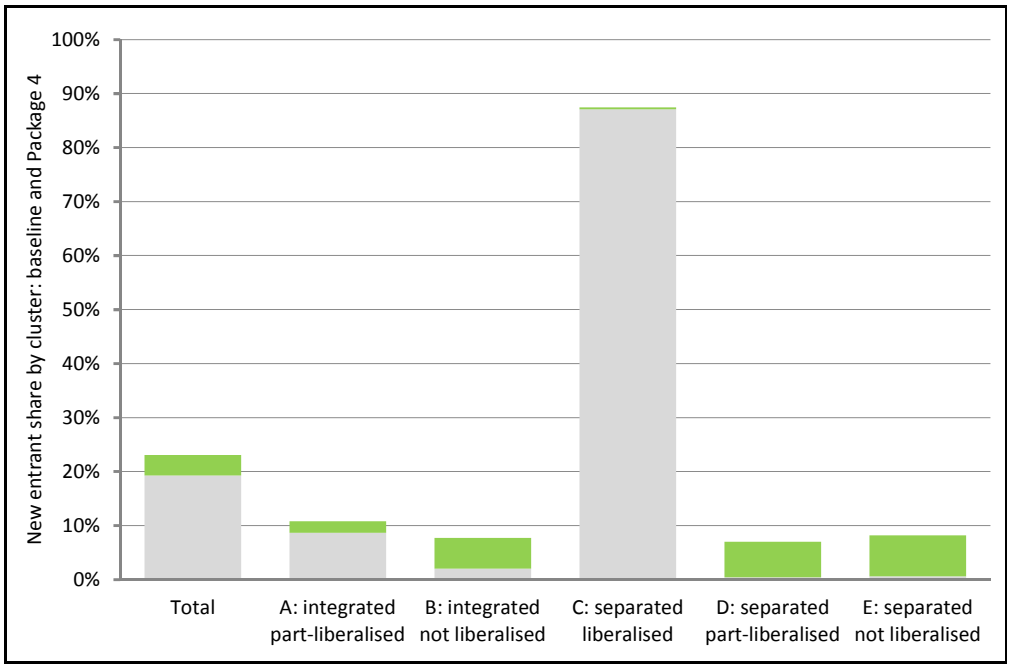
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX FIGURE I.5 PACKAGE 4: MARKET SHARE BY SECTOR



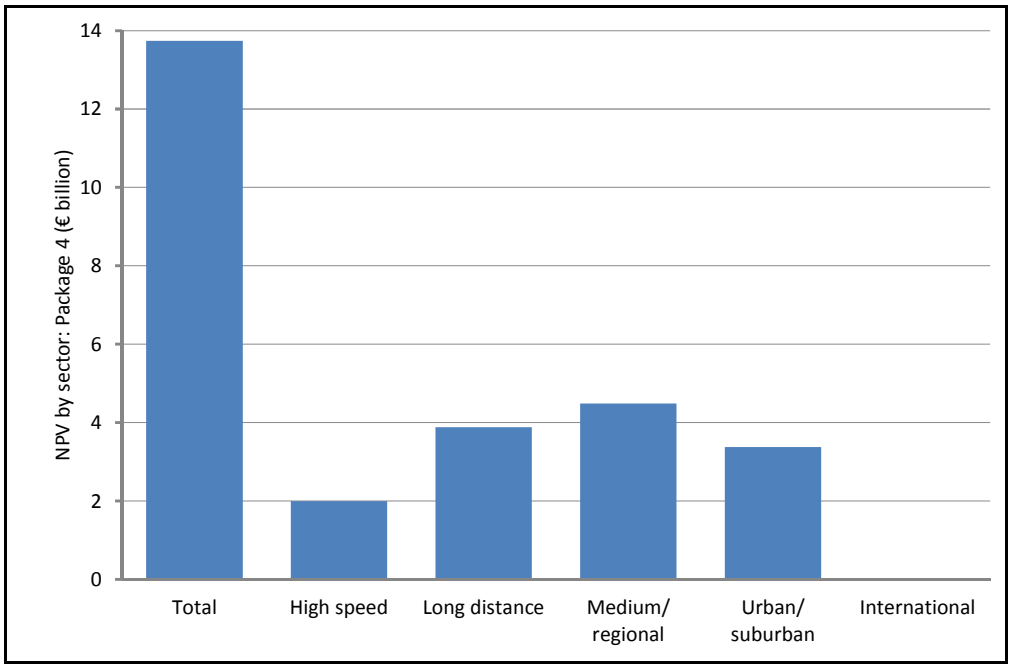
Key: grey bar = baseline, green bar = additional market share in longer term with package 4

APPENDIX FIGURE I.6 PACKAGE 4: MARKET SHARE BY CLUSTER



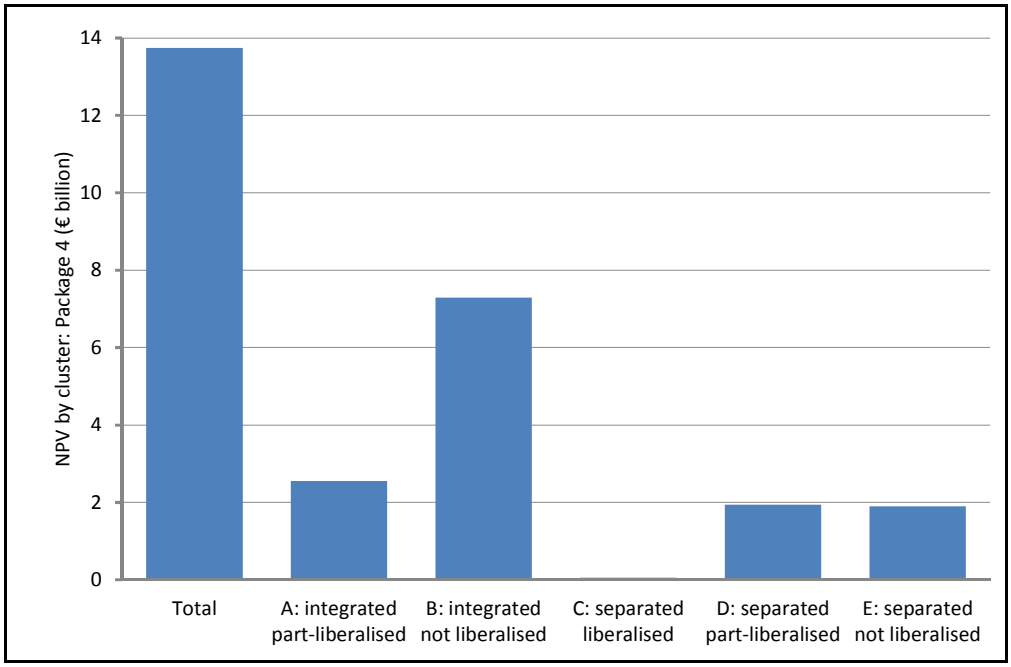
Key: grey bar = baseline, green bar = additional market share in longer term with package 4

APPENDIX FIGURE I.7 PACKAGE 4: NPV BY SECTOR



Note: NPV = change in revenue - change in operating costs - change in capital investment
NPV excludes transaction and enforcement costs as discussed in the main report

APPENDIX FIGURE I.8 PACKAGE 4: NPV BY CLUSTER



Note: NPV = change in revenue - change in operating costs - change in capital investment
NPV excludes transaction and enforcement costs as discussed in the main report

Combined package (A1+B1+U2) results: no reinvestment

APPENDIX TABLE I.19 COMBINED PACKAGE, NO REINVESTMENT, BY SECTOR

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	High speed	Long distance	Medium/regional	Urban/suburban	International
Profits to incumbents and/or savings to public authorities	€ billion	23.62	3.16	6.64	7.65	5.59	0.58
Profits to new entrants	€ billion	0.21	0.11	0.08	0.00	0.00	0.02
Transaction and administration costs of PSCs and open access	€ billion	-0.40	Costs of PSC and open access cannot be allocated to market sectors				
Transaction and administration costs of unbundling	€ billion	-1.37					
Total NPV	€ billion	22.06					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.2	0.1	0.1	0.0	0.0	0.0
Increase in annual capex	€ billion	0.1	0.0	0.0	0.0	0.0	0.0
Increase in annual passenger-km	billion	1.4	0.9	0.5	0.0	0.0	0.1
From road	billion	0.4	0.2	0.2	0.0	0.0	0.0
From air	billion	0.3	0.3	0.1	0.0	0.0	0.0
New entry PSC train-km	million	298	11	91	118	78	1
New entry open access train-km	million	29	16	10	0	0	2
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Option U2 and package 4	%	25.6%	10.1%	23.8%	37.4%	30.1%	9.2%
Change	%	6.4%	2.9%	7.1%	8.0%	8.0%	0.8%
Emissions reductions							
CO_2 emissions	million tonnes	-0.1	-0.1	0.0	0.0	0.0	0.0
CO_2 emissions value	€ million	-5.7	-3.4	-1.9	0.0	0.0	-0.4

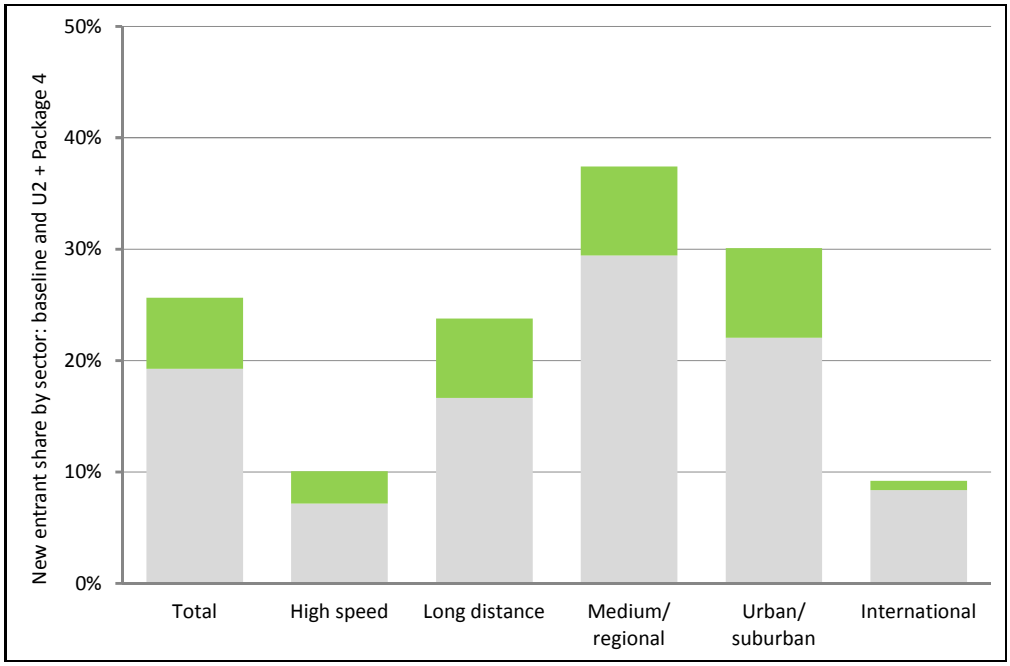
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX TABLE I.20 COMBINED PACKAGE, NO REINVESTMENT, BY CLUSTER

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	AT DE IT A	BE EE FR HU IE LT LU LV PL SI B	GB SE C	CZ DK NL D	BU EL ES FI PO RO SK E
Profits to incumbents and/or savings to public authorities	€ billion	23.62	6.59	10.74	0.14	2.98	3.17
Profits to new entrants	€ billion	0.21	0.20	0.18	0.00	0.00	-0.17
Transaction and administration costs of PSCs and open access	€ billion	-0.40	-0.02	-0.10	-0.17	-0.12	0.00
Transaction and administration costs of unbundling	€ billion	-1.37	Estimated unbundling costs are €0.7-2.0 billion but have not been identified by cluster				
Total NPV	€ billion	22.06					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.2	0.0	0.1	0.0	0.0	0.0
Increase in annual capex	€ billion	0.1	0.0	0.0	0.0	0.0	0.0
Increase in annual passenger-km	billion	1.4	0.3	0.9	0.0	0.1	0.2
From road	billion	0.4	Not identified by cluster				
From air	billion	0.3					
New entry PSC train-km	million	298	81	93	5	51	69
New entry open access train-km	million	29	7	16	0	2	5
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Option U2 and package 4	%	25.6%	13.7%	10.6%	87.6%	10.5%	12.0%
Change	%	6.4%	5.1%	8.5%	0.5%	10.1%	11.4%
Emissions reductions							
CO_2 emissions	million tonnes	-0.1	0.0	-0.1	0.0	0.0	0.0
CO_2 emissions value	€ million	-5.7	-1.0	-3.7	0.0	-0.3	-0.7

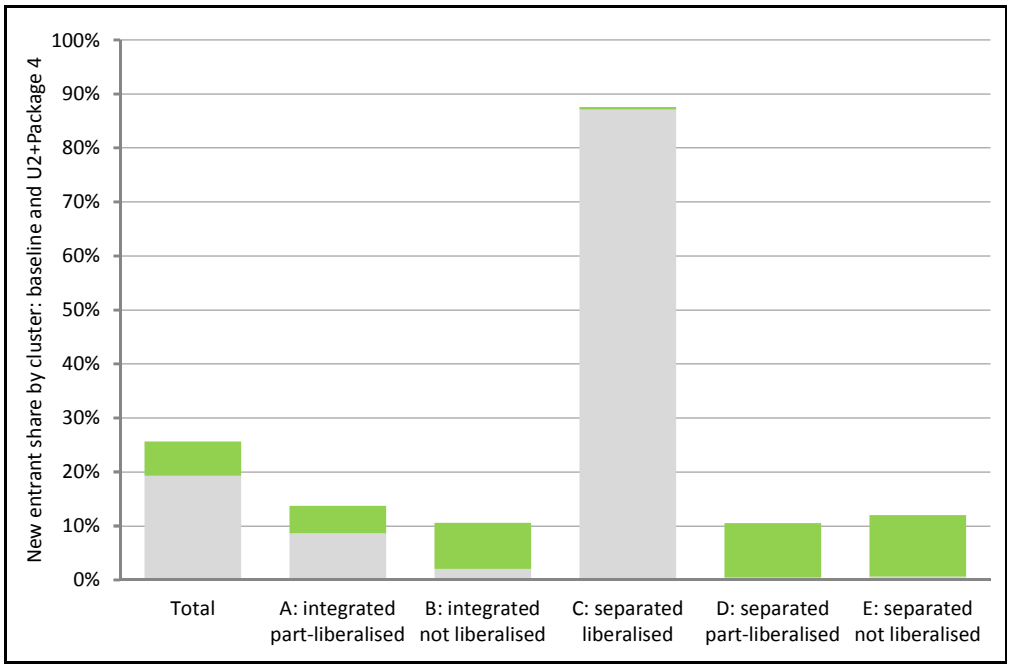
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX FIGURE I.9 COMBINED OPTION, NO REINVESTMENT): MARKET SHARE BY SECTOR



Key: grey bar = baseline, green bar = additional market share in longer term with U2+P4

APPENDIX FIGURE I.10 COMBINED OPTION, NO REINVESTMENT: MARKET SHARE BY CLUSTER



Key: grey bar = baseline, green bar = additional market share in longer term with U2+P4

Combined package (A1+B1+U2) results: 50% reinvestment

APPENDIX TABLE I.21 COMBINED PACKAGE, WITH REINVESTMENT, BY SECTOR

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	High speed	Long distance	Medium/regional	Urban/suburban	International
Profits to incumbents and/or savings to public authorities	€ billion	18.85	3.06	5.40	5.63	4.22	0.54
Profits to new entrants	€ billion	0.21	0.11	0.08	0.00	0.00	0.02
Transaction and administration costs of PSCs and open access	€ billion	-0.40	Costs of PSC and open access cannot be allocated to market sectors				
Transaction and administration costs of unbundling	€ billion	-1.37					
Total NPV	€ billion	17.29					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.8	0.1	0.2	0.2	0.2	0.0
Increase in annual capex	€ billion	0.2	0.0	0.0	0.0	0.0	0.0
Increase in annual passenger-km	billion	8.2	1.1	2.4	2.7	1.9	0.1
From road	billion	3.4	0.2	0.9	1.4	0.9	0.0
From air	billion	0.7	0.3	0.3	0.0	0.0	0.0
New entry PSC train-km	million	309	11	94	123	81	1
New entry open access train-km	million	29	17	10	0	0	2
New entrant market share							
Baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%
Option U2 and package 4	%	25.5%	10.1%	23.7%	37.1%	29.9%	9.2%
Change	%	6.3%	2.9%	7.0%	7.7%	7.8%	0.8%
Emissions reductions							
CO_2 emissions	million tonnes	-0.6	-0.1	-0.2	-0.2	-0.1	0.0
CO_2 emissions value	€ million	-32.3	-4.3	-9.4	-10.8	-7.3	-0.4

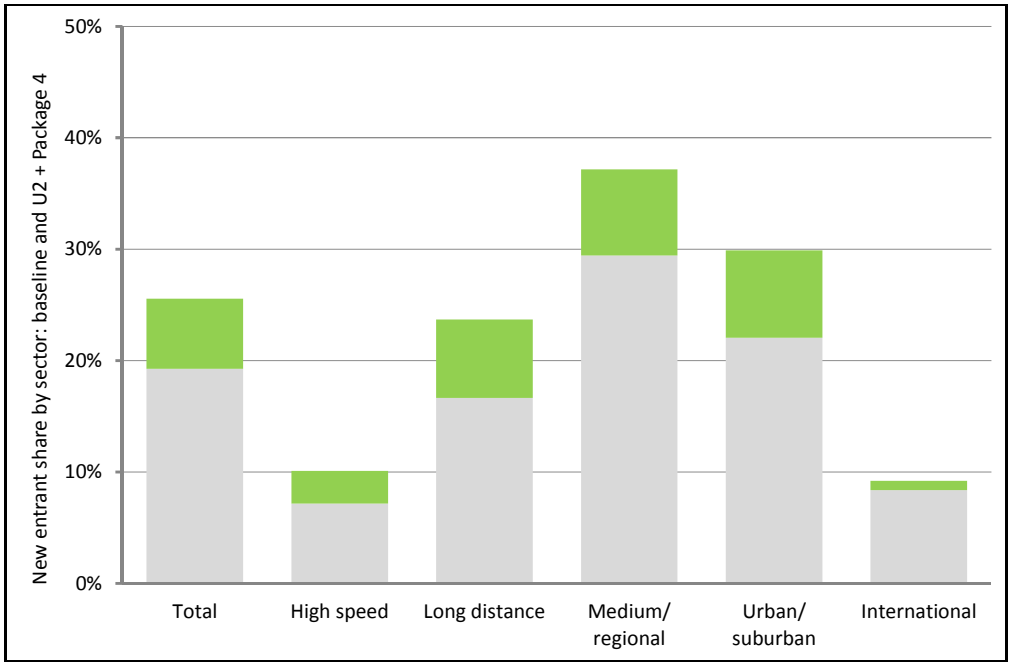
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX TABLE I.22 COMBINED PACKAGE WITH REINVESTMENT BY CLUSTER

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019	Unit	Total	AT DE IT A	BE EE FR HU IE LT LU LV PL SI B	GB SE C	CZ DK NL D	BU EL ES FI PO RO SK E
Profits to incumbents and/or savings to public authorities	€ billion	18.85	5.38	8.75	0.12	2.30	2.30
Profits to new entrants	€ billion	0.21	0.20	0.18	0.00	0.00	-0.17
Transaction and administration costs of PSCs and open access	€ billion	-0.40	-0.02	-0.10	-0.17	-0.12	0.00
Transaction and administration costs of unbundling	€ billion	-1.37	Estimated unbundling costs are €0.7-2.0 billion but have not been identified by cluster				
Total NPV	€ billion	17.29					
Key indicators in medium term, indicatively to 2034 as 15 years after implementation							
Increase in annual revenue	€ billion	0.8	0.2	0.4	0.0	0.1	0.1
Increase in annual capex	€ billion	0.2	0.0	0.1	0.0	0.0	0.1
Increase in annual passenger-km	billion	8.2	2.2	3.5	0.1	0.8	1.5
From road	billion	3.4	Not identified by cluster				
From air	billion	0.7					
New entry PSC train-km	million	309	84	96	5	53	71
New entry open access train-km	million	29	7	16	0	2	5
New entrant market share							
Baseline	%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Option U2 and package 4	%	25.5%	13.8%	10.7%	87.5%	10.6%	12.1%
Change	%	6.3%	5.1%	8.6%	0.5%	10.2%	11.5%
Emissions reductions							
CO_2 emissions	million tonnes	-0.6	-0.2	-0.2	0.0	-0.1	-0.1
CO_2 emissions value	€ million	-32.3	-8.8	-13.6	-0.4	-3.3	-6.0

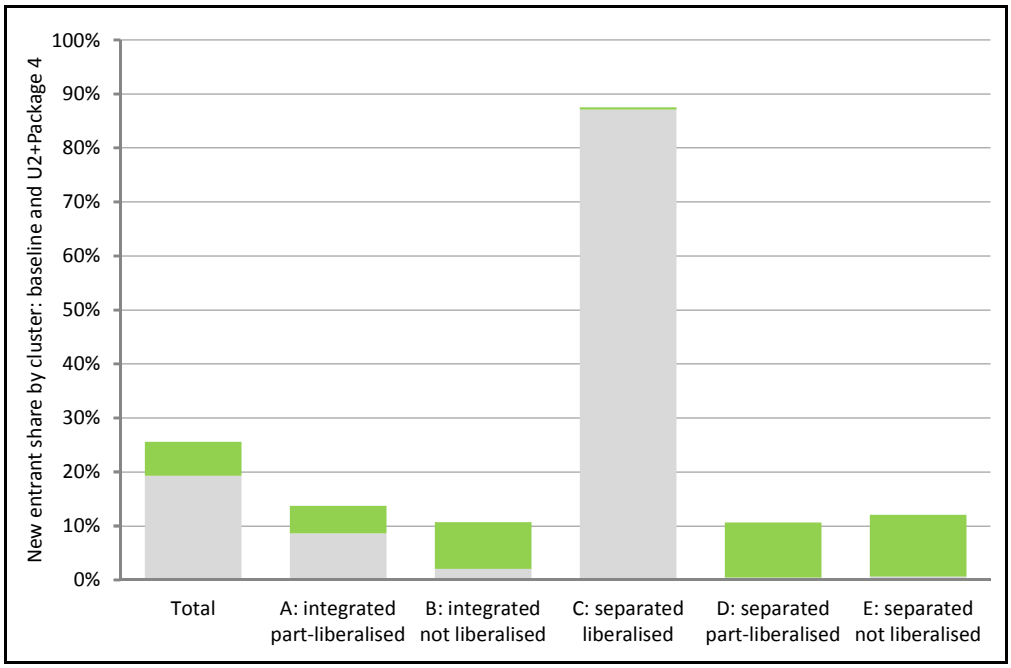
Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers
Analysis for passenger markets only, see chapter 7 of main report for discussion of freight

APPENDIX FIGURE I.11 COMBINED PACKAGE, WITH REINVESTMENT: MARKET SHARE BY SECTOR



Key: grey bar = baseline, green bar = additional market share in longer term with U2+P4

APPENDIX FIGURE I.12 COMBINED PACKAGE, WITH REINVESTMENT: MARKET SHARE BY CLUSTER



Key: grey bar = baseline, green bar = additional market share in longer term with U2+P4

Summary of results

I6.5 We present below a summary of the conservative option and package results. Here we:

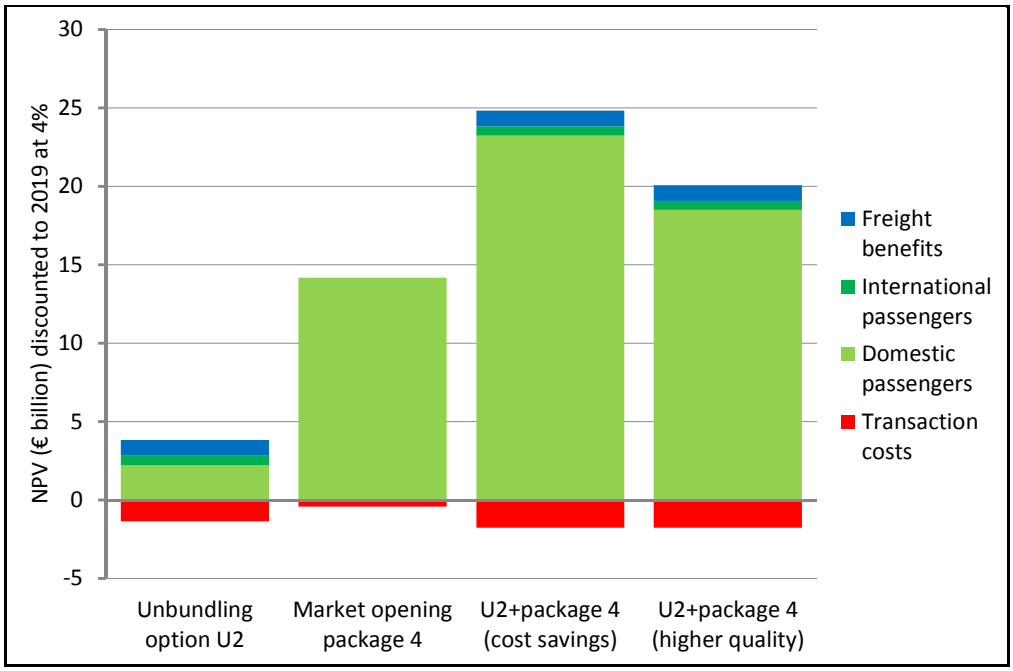
- Separate out explicitly the impact on domestic and international markets and
- Include the impact of freight which is considered outside of the IA Calculator, and was discussed in section I4.25.

APPENDIX TABLE I.23 SUMMARY OF ALL BASE OPTIONS (CONSERVATIVE SCENARIO)

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019 (€ billion)	Unbundling option U2	Market opening package 4	U2+package 4 (no reinvestment / cost savings)	U2+package 4 (with reinvestment /higher quality)
Transaction costs (mean estimate)	-1.37	-0.42	-1.77	-1.77
Domestic passenger benefits	2.21	14.16	23.23	18.50
International passenger benefits	0.62		0.60	0.56
Freight benefits	1.00		1.00	1.00
Total NPV	**2.46**	**13.74**	**23.06**	**18.29**

Note: value in all shaded cells is zero, zeros elsewhere may represent small numbers

APPENDIX FIGURE I.13 SUMMARY OF BASE OPTION AND PACKAGE RESULTS



I7 ADDITIONAL TESTS

I7.1 We have undertaken two sets of additional tests:

- **Sensitivity tests: a** series of one change tests where a single assumption has been changed in isolation to test the impact of the individual assumptions
- **Scenario tests:** we applied a number of changes to the assumptions used in the conservative scenario in agreement with the Commission to present an optimistic scenario

Sensitivity tests

I7.2 We have undertaken a number of sensitivity tests on key assumptions that underpin the options and packages presented above. These have been reported in Chapter 7 of the main report.

I7.3 Appendix Table I.24 below summarises the list of what has been tested, clustered by area of uncertainty.

APPENDIX TABLE I.24 SUMMARY OF SENSITIVITY TESTS UNDERTAKEN

Issues	Test	Assumption
Incumbent response	Fewer "commercial" services survive open access	70% of "commercial" services become unviable and subject to PSCs once open access develops.
Open access fares	Lower fares offered by open access operators	Open access operator fares 20% below incumbent and pro rata increase in extra demand. No check that open access would remain viable or have sufficient capacity.
Timescales	Slower impact of market entry	Ten year delay for competitive tendering, while existing contracts expire, and for open access entry
Efficiency gains	Higher potential efficiency gains	"Commercial" and open access operators and effectively contestable PSCs become 25% more efficient.
	Lower potential efficiency gains	"Commercial" and open access operators and effectively contestable PSCs become 5% more efficient.

Incumbent response test

I7.4 The test around the incumbent response to market opening required a change in the share of commercial services which are converted to PSCs.

- We assume that 70% of existing commercial services are brought under PSCs.

I7.5 This results in a reduction of the benefits from the commercial sector and a corresponding increase in the benefits from the PSC sector.

Open access fare test

I7.6 The test around open access fares involved a change in the fares assumptions around fares as well as the share of new entry passengers taken from the incumbent and the efficiency savings made by train operators. Hence, when open access operator fares are 20% below incumbent levels, we assume the share of new passengers taken from the incumbent will also decrease. This might be either due to a price war leading to lower incumbent fares, or to higher rail attractiveness compared to other modes. In addition, we have estimated that a reduction in fares will be matched by a marginal reduction in operating costs for most operators. Hence we assume that the commercial sector will need to be marginally more efficient than in our conservative scenario to be able to achieve a reduction in fares.

Timescales test

I7.7 The test around the timescale of market opening requires a lagged implementation period of 10 years compared to the 6 years assumed in the conservative scenario.

Efficiency test

I7.8 We have undertaken two tests here:

- **Efficiency improvement of 25%:** modification of assumptions around the operational cost savings arising from competitive pressure. A combination of more aggressive efficiency savings in the commercial and PSC sectors compared to the conservative scenario are used as inputs in the Calculator.
- **Efficiency improvement of 5%:** modification of assumptions around the operational cost savings arising from competitive pressure. A combination of less aggressive efficiency savings in the commercial and PSC sectors compared to the conservative scenario are used as inputs in the Calculator.

I7.9 Taken together, these sensitivity tests suggest that the estimated NPVs of the packages are most sensitive to the assumed efficiencies resulting from competition from open access in the "commercial" sector, and effective competitive tendering in the PSC sector.

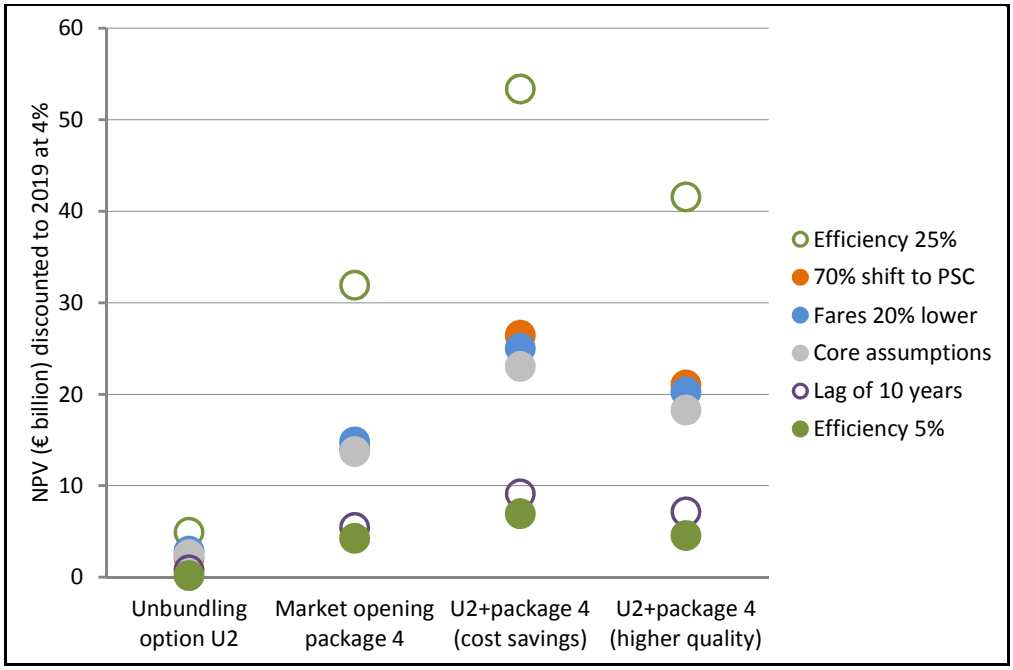
Sensitivity test results

I7.10 Appendix Table I.25 and Appendix Figure I.14 summarise the results from the sensitivity tests that have been undertaken and are reported in chapter 7 of the main report.

APPENDIX TABLE I.25 SENSITIVITY TEST RESULTS: ONE-CHANGE TESTS

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019 (€ billion)	Unbundling option U2	Market opening package 4	U2+package 4 (cost savings)	U2+package 4 (higher quality)
Higher potential efficiency gains	4.92	31.93	53.37	41.57
Fewer "commercial" services survive open access	2.15	14.01	26.46	21.03
Lower fares offered by open access operators	2.74	14.51	24.48	19.71
Conservative assumptions	**2.46**	**13.74**	**23.06**	**18.29**
Slower impact of market entry	0.82	5.45	9.12	7.15
Lower potential efficiency gains	0.19	4.27	6.96	4.57

APPENDIX FIGURE I.14 SENSITIVITY TEST RESULTS



Scenario test

I7.11 We examined an additional scenario that uses combinations of changes to the assumptions used in the four options and packages described above. These assumptions, proposed by the Commission, have been used to create an optimistic scenario.

Optimistic scenario

I7.12 Appendix Table I.26 summarises the assumption changes relative to the conservative scenario for the optimistic scenario.

APPENDIX TABLE I.26 OPTIMISTIC SCENARIO ASSUMPTION CHANGES

Effect/ Market	Assumption	Conservative scenario			Optimistic scenario		
		Option U2	Package 4 (A1+B1)	Package 4 + U2 (A1+B1+U2)	Option U2	Package 4 (A1+B1)	Package 4 + U2 (A1+B1+U2)
Open Access	Share of incumbent's commercial services in this sector converted to PSC as a result of open access competition	10%	20%	30%	10%	20%	30%
	New entrant's fares as a proportion of the incumbent's	95%			95%		
	New entry passengers taken from incumbent	70%			20%		
	New entrant's operating costs per train kilometre relative to incumbent's	80%			80%		
Compulsory competitive tendering	Potential reduction in PSC service operating costs (C)	10%			15%		
	Proportion of PSCs subject to effect competition (D)	10%	50%	75%	25%	75%	90%
	(CxD) Resulting average reduction in PSC costs	1%	5%	7.5%	3.75%	11.25 %	13.5%
	Quality-related rise: train-kilometres and capex*	0.1%	0.5%	0.75%	0.1%	0.5%	0.75%
	Quality-related rise: passenger-kilometres and revenue*	0.1%	0.5%	0.75%	0.1%	0.5%	0.75%
Timescales	Effects of the options/packages	Within 6 years			Within 6 years		

* This assumption only in use when the level of reinvestment in quality is non-zero

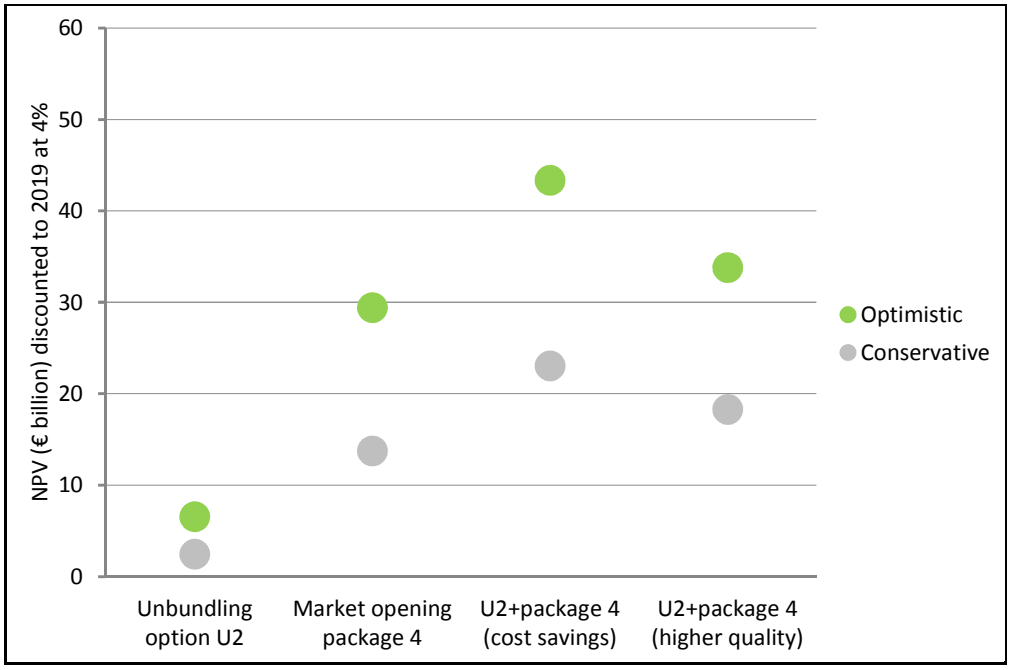
Scenario test results

I7.13 We present below the results of the optimistic scenario test.

APPENDIX TABLE I.27 OPTIMISTIC SCENARIO RESULTS

All changes are illustrative estimates NPVs to 2035, discounted at 4% to 2019 € billion	Unbundling option U2	Market opening package 4	U2+package 4 (cost savings)	U2+package 4 (higher quality)
Optimistic	6.56	9.43	43.35	33.82
Conservative assumptions	2.46	13.74	23.06	18.29

APPENDIX FIGURE I.15 SCENARIO RESULTS



APPENDIX

J

GLOSSARY

J1 GLOSSARY

J1.1 Appendix Table J.1 lists two letter codes used to refer to Member States.

APPENDIX TABLE J.1 MEMBER STATE CODES

Code	Member State or territory within a Member State
AT	Austria
BE	Belgium
BG	Bulgaria
CZ	Czech Republic
DE	Germany
DK	Denmark
EE	Estonia
EL	Greece
ES	Spain
FI	Finland
FR	France
GB	Great Britain, part of the United Kingdom with a standard gauge rail network
HU	Hungary
IE	Ireland
IT	Italy
LT	Lithuania
LV	Latvia
LU	Luxembourg
NI	Northern Ireland, part of the United Kingdom with a broad gauge rail network
NL	The Netherlands
PL	Poland
PT	Portugal
RO	Romania
SE	Sweden
SI	Slovenia
SK	Slovakia
UK	The United Kingdom - see GB and NI fiches

J1.2 Appendix Table J.2 lists a number of other terms which are used in this report.

APPENDIX TABLE J.2 GLOSSARY OF TERMS

Phrase	Definition
Access barriers	Procedures or requirements preventing new companies from entering the market due to their costs or duration, such as: • Homologation requirements for new trains • Financial requirements for new companies • Requirements regarding safety • Minimum number of staff required for carrying out certain procedures
Access to Infrastructure	Access to railway infrastructure is regulated by Infrastructure Managers, whose tasks (as per Directive 2001/14/EC) include the allocation of capacity on railway lines.
Competitive tender	A tender which has clearly stated and objective rules as to who can take part in it, which are not constructed in such a way as to prevent the participation of all-but-one organisation.
Compliance criteria	Criteria developed by the Commission to ensure that public service contracts do not favour one or more undertakings.
High speed services	Rail services, where the speed of the train exceeds 200km/h for a significant part of the journey.
Incumbent railway operators	An operator which was previously part of the state railway company of a Member State.
Industrial action	Any means of protest (strikes, etc.) of the employees of a company against the company's policies.
Infrastructure Managers	Organisations responsible for allocating capacity on the railway as per Article 2 (h) of Directive 2001/14/EC.
Integrated Ticketing System	An arrangement whereby a ticket for a given route is valid on more than one operator's trains.
Inter-availability of tickets	An arrangement whereby a ticket for a given journey is valid on more than one operator's trains.
Intermodal	Between two different modes (e.g. between train and bus or between train and plane).
Intramodal	Within one mode (e.g. between two different trains or two different kinds of trains).
Investment profile	The quantity of investment and the sources of funding of that investment.
Liberalised	A situation where more than one company is permitted to offer similar railway services.
Local services	Services operated on shorter distances, which serve all or most stations on the route.

Phrase	Definition
Non-discrimination	A situation where rules are applied uniformly to all market actors, and decisions made are not clearly in favour of (or against) one market actor.
PRM	Persons with Reduced Mobility
Proposed EU regulation	The forthcoming revision of the First Railway Package, see http://ec.europa.eu/transport/rail/market/market_en.htm for details
Public resources	Financial resources originating from any Government organisation (central, local, etc.)
Public Service Operators / Public Service Contracts	Organisations supplying or contracts for the supply of services subsidised by any Government organisation (central, local, etc.) as per Article 2 (d), (e), (i) of EC Regulation 1370/2007
Rail recast	The forthcoming revision of the First Railway Package, please see http://ec.europa.eu/transport/rail/market/market_en.htm for details
Railway Directives	All Directives which form part of the First, Second and Third EU railway package
Railway undertaking	An undertaking appropriately licenced to transport goods and/or passengers by rail, as per Article 2 (k) of Directive 2001/14/EC
Regional services	Services operated on medium distances, but within one or two regions, which serve most stations on the route.
Regulatory capture	A situation whereby the regulatory body created to oversee a particular market is seen to make biased decisions favouring one (or some) market actors only.
Scarce competition among operators	Competition either “for” the market (e.g. competitive tendering) or “in” the market (when more than one operator runs trains on a given route or between the same origin and destination).
Successful	Whether the liberalisation process has managed to improve aspects of the functioning of the rail industry.
Through ticket	An arrangement whereby a single ticket acts as payment for successive travel on two or more trains.
Train paths	A train path is a unit of capacity used on the railways, defining the infrastructure capacity needed to run a train between two places over a given time period. Refer to Article 2 (l) of Directive 2001/14/EC.
Transparency	Clear, objective decision-making criteria.
Unbundling of industry structure	The process of dividing responsibilities of and the services provided by the state-owned railway undertakings.

Phrase	Definition
Under-recovering	A situation whereby the combination of ticket sales and/or payments from the competent authority does not meet the operating costs of the public service provided.
Urban services	Services operated on heavy rail infrastructure, but largely within the boundaries of large cities and their agglomerations.
Value for money	The highest quantity and/or quality of services available for a given price.

CONTROL SHEET

Project/Proposal Name	Further Action at European Level Regarding Market Opening for Domestic Passenger Transport by Rail and Ensuring Non-Discriminatory Access to Rail Infrastructure and Services
Document Title	Final Report
Client Contract/Project No.	
SDG Project/Proposal No.	22445901

ISSUE HISTORY

Issue No.	Date	Details
1	28 September 2012	Appendices to Final Report
2	5 November 2012	Revisions to reflect Commission comments 12 October and discussions 17-24 October
3	30 November 2012	Revisions by the Commission

REVIEW

Originator	Jim Richards	
Other Contributors	Simon Ellis, Lorenzo Casullo, Francesco Dionori, Karol Tyszka, Danielle Czauderna	
Review by:	Print	Gordon Bird
	Sign	.....

DISTRIBUTION

Client:	European Commission
Steer Davies Gleave:	Confidential P22445901 files only

\\Douglas\Work\Projects\224\4\59\01\Work\Final Report updated + approved\Appendices A to J - 30 November Approved.docx