EUROPEAN
COMMISSION

Brussels, 30.1.2013
SWD(2013) 10 final

Part 4

COMMISSION STAFF WORKING DOCUMENT

IMPACT ASSESSMENT

Accompanying the documents

Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EC) No 1370/2007 concerning the opening of the market for domestic passenger transport services by rail

Proposal for a Directive of the European Parliament and of the Council amending Directive 2012/34/EU of the European Parliament and of the Council of 21 November 2012 establishing a single European railway area, as regards the opening of the market for domestic passenger transport services by rail and the governance of the railway infrastructure

{COM(2013) 28 final}
{COM(2013) 29 final}
{SWD(2013) 11 final}
{SWD(2013) 12 final}
{SWD(2013) 13 final}

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Disclaimer: This impact assessment commits only the Commission's services involved in its preparation and does not prejudge the final form of any decision to be taken by the Commission

ANNEX 4
ANALYSIS OF NATIONAL RAIL MARKETS

Introduction

This annex gives an overview of the structure of the current national rail markets in terms of competition for the market (mostly public service obligations) and competition in the market (mostly commercial services under open access).

The result of the analysis is presented in the table 1 hereunder:

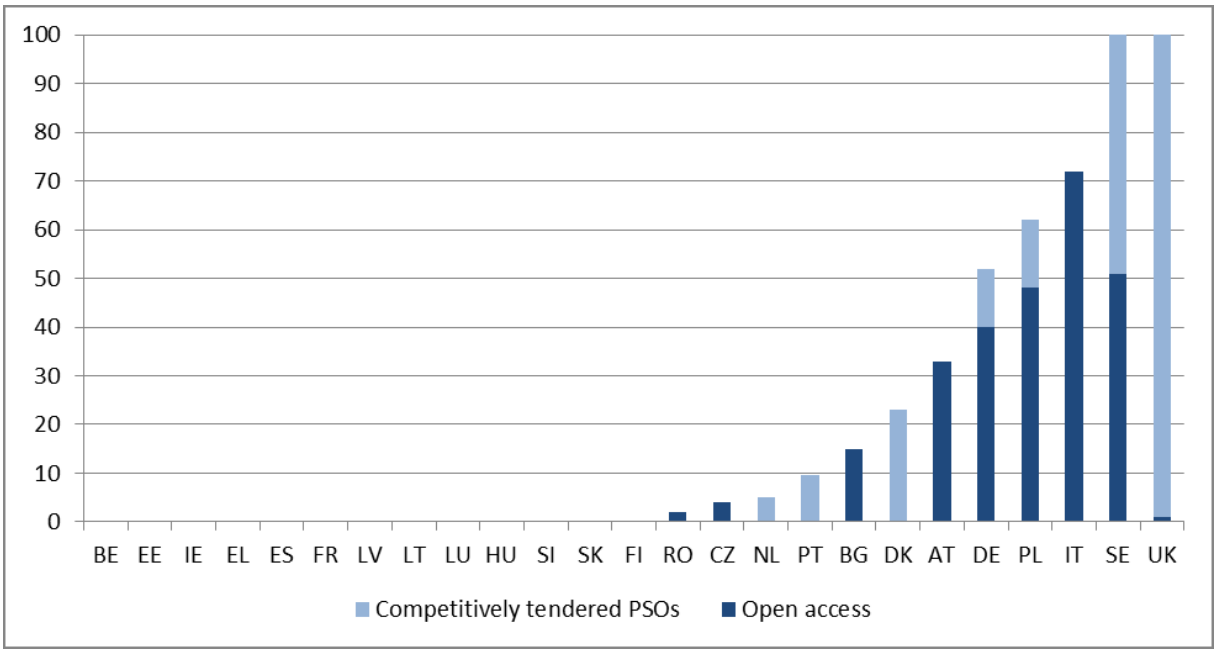
Table 1 – Structure of the EU railway market

	Million p-km	(%)	Examples
Networks that are CLOSED de facto (pkm)			
Directly awarded PSC & NO open access	76.99	19%	Belgium, 52% of Spanish pkm
Directly awarded "exclusive rights w/o PSO" & NO open access	68.25	17%	French and Spanish HSL
Total CLOSED	**152.7**	**36%**	
Networks that are OPEN de facto			
Competitively tendered PSC (NO open access in parallel)	56.75	14%	99% of pkm in UK (franchises)
Open access (no PSO in parallel)	66.83	17%	6% of Austrian pkm (Wien-Salzburg line)
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	PSO pkms in Sweden (52% pkm)
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	1% of open access pkm in UK
Total OPEN	**146.9**	**37%**	
Networks that are SEMI-OPEN			
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	PSOs in Bulgaria (15% of pkm)
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	PSO pkms in Italy (52% of pkm)
Total SEMI-OPEN	**105.6**	**28%**	
TOTAL OF EU pkm	**405.22**	**100%**	

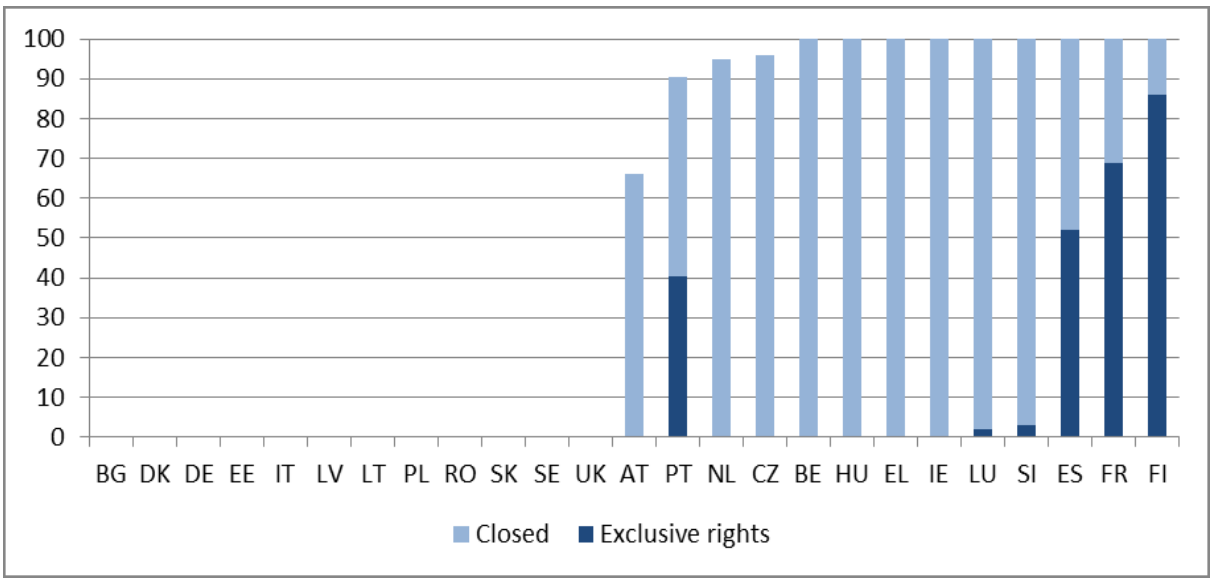
Different ways to open domestic passenger market are outlined in the graph 1, which shows the total level of opened market in each Member State as per cent of the total pkm and distinguishes between competition for the market (competitively tendered PSOs) and

competition in the market (open access). To this day, only SE and UK have 100% opened domestic passenger market. Although IT, PL, DE, AT, and BG have a substantial share of their markets opened, it is dominated by competition in the market rather than competition for the market. DE is a special case, because due to recent court decision[1] approximately 48% of domestic passenger market will be now opened for competition since, which will make DE market 100% opened.

Graph 1. Level of openness of domestic passenger market, %

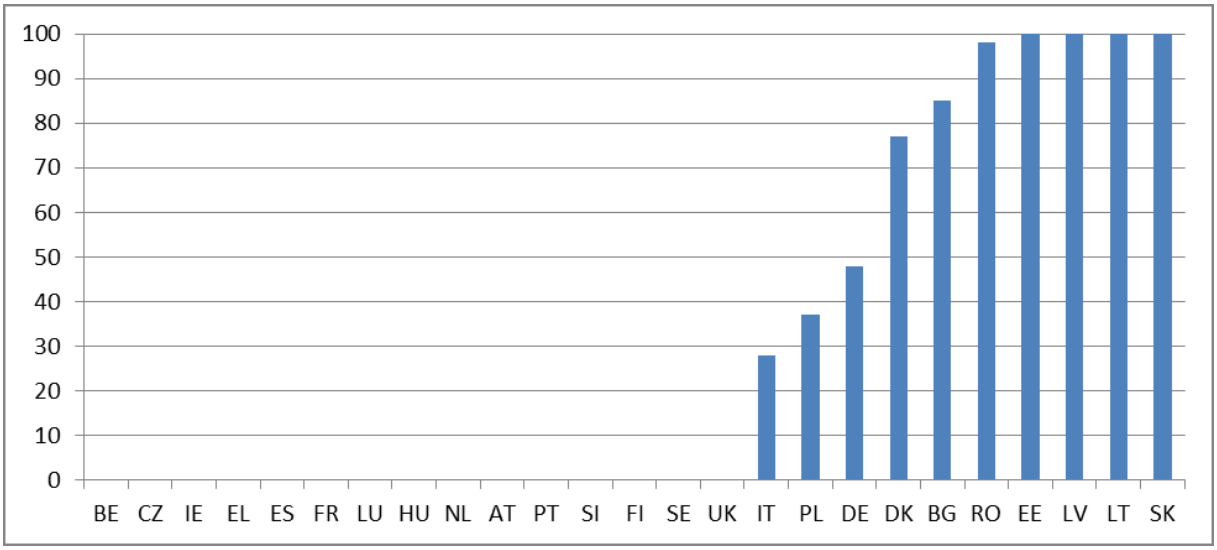


Graph 2. Closed markets and share of exclusive rights, %



In some Member States the incumbent operator enjoys exclusive rights to a part of the passenger transport market, which are outlined in the legislation. In these cases, such rights are not awarded in the form of a PSO, which means that they were not subject neither to competitive tendering nor direct award. As can be seen in the graph 2, such cases amount from 40% to 85% of domestic passenger markets of PT, EF, FR and FI.

Graph 3. Semi-opened markets, %



However, there are parts of the markets of some Member States which are difficult to classify as closed or opened. Reasons for that are different in each country, but mainly are due to differences in the approach of implementation of EU legislation and reflect a high degree of lack of clarity in the market regulation. Differences in *de jure* legislation and *de facto* implementation also contribute to this difficulty. Share of such cases, termed as "semi-opened markets", is shown in the chart 3 as part of the total domestic passenger market (in terms of per cent of pkm). In case of Germany, the above-mentioned currently directly awarded 48% (direct-award practice will have to be abolished in future), is used here.

Chart 4. Competitively tendered PSOs and total PSOs, % of total pkm

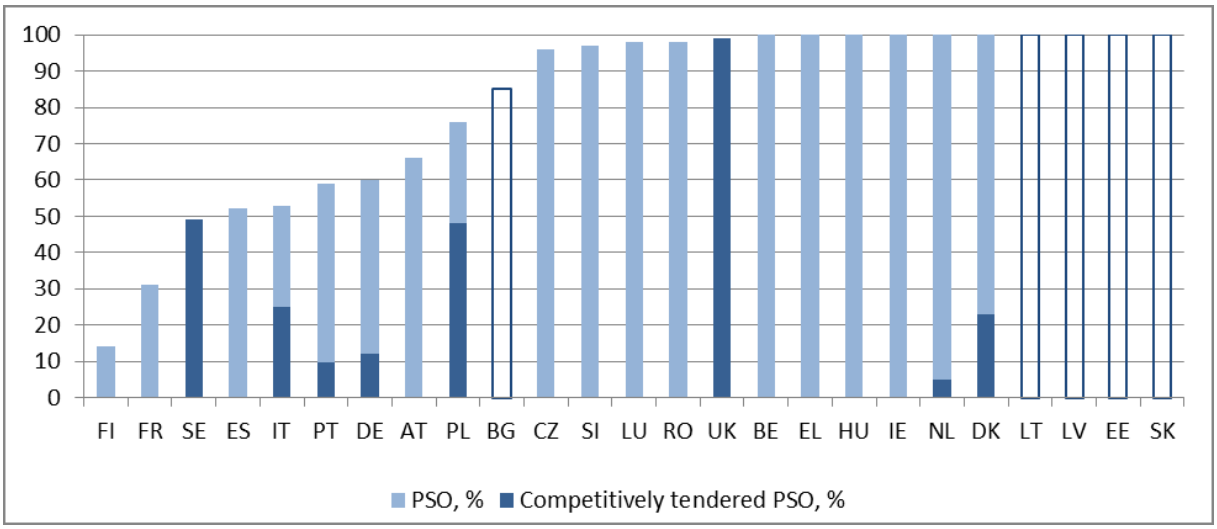
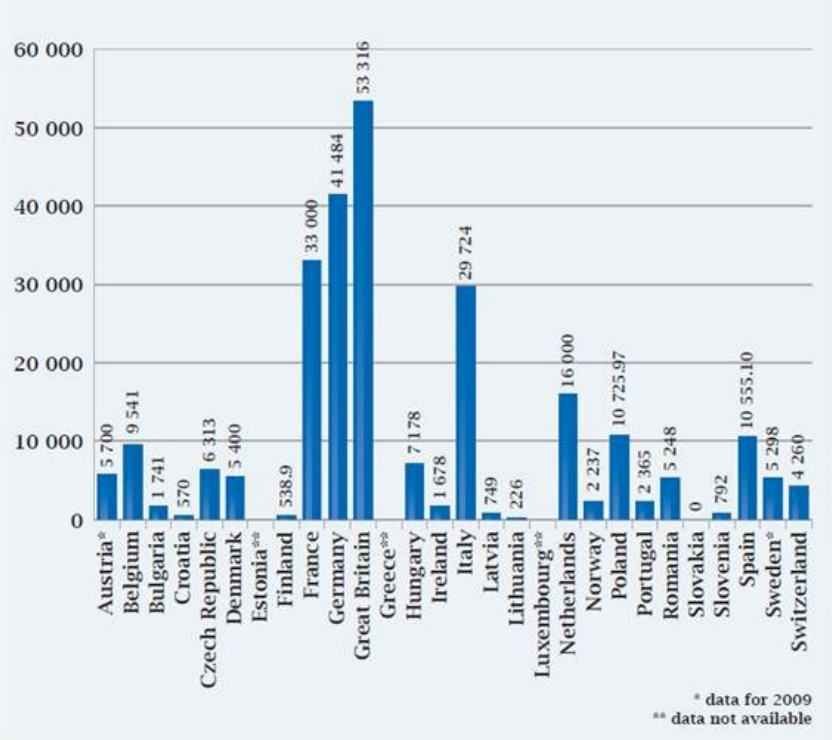


Chart 4 groups the Member States according to the total share of PSOs and shows the percentage of the competitively tendered PSOs. Although Bulgaria, Slovakia and three Baltic countries have their domestic passenger market opened for tenders, however only one bidder chose to take part in each tender in practice, which show a low degree of competitiveness. Also, although PSOs may be seen as a predominant tool to organise passenger transportation in railways, it is clear that most often it is not selected using a procedure of competitive tendering.

The rest of the annex is structured in fiches for each Member State (except Cyprus and Malta that have no railway system) presenting an analysis of the legal framework in terms of open access to domestic services and competitive tendering. This assessment is completed by data on the domestic passenger-kilometres falling under public service obligations (PSO) and the market shares of passenger railway undertakings (in terms of pkm). The latter are extracted from the Railway Market Monitoring Survey (RMMS) produced every two years by Commission services on the basis of contributions from Member States. Missing data has been completed with the help of Eurostat data series on domestic and international traffic and from the Community of European railways (CER) (cf. hereunder) report on public service obligations (CER (2011): Public service rail transport in the European Union: an overview, available at http://www.cer.be/media/2265_CER_Brochure_Public_Service_2011.pdf).

Figure 3 **The chart represents the scope of PSO national and regional in terms of million passenger-kilometers operated by the main operator[34] in each country concerned in 2010**



Analysis of national rail markets

Austria

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)*
Austria	✓	✓	×	×	×	66%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)				6895	7262	7403	8178*	8257*
	International (m pkm)				1749	1841	1877	1442*	1456*
	Of which under PSO (m pkm)					6305	6428	n.a.	5700**.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission, Eurostat (*) and CER (**)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
AT	ÖBB PV	94,2	5,4
	Other railway undertakings	5,8	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission,

4 – Public service obligations

To date, all contracts under PSO appear to have been awarded directly. In February 2001 SCHIG, on behalf of the Ministry of Transport, concluded a new contract with the incumbent ÖBB Personenverkehr AG that covers the entirety of the Austrian railway network for regional transport and a number of specific long-distance services and will expire in 2019.

According to the Community of European Railways, the main incumbent in Austria, ÖBB operated 5700 passenger-km under public service obligations in 2010 (data is the RMMS 2010 is not available).

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED	66%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	33%pkm	Wien-Salzburg line (long-distance services)
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	33%	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	66% pkm	All services outside Vienna-Salzburg line
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Belgium

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)*
Belgium	×	×	×	×	×	100%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	5592	5785	6317	7771	8547	8913	9005	9231
	International (m pkm)	948	972	1415	1379	1386	1491	1488	1379
	Of which under PSO (m pkm)					8442	8902	8992	9225

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
BE	SNCB/NMBS	99,8	0,2
	Eurostar Limited	0,2	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	100% pkm	All domestic services
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED	100% pkm	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Bulgaria

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Bulgaria	✓	×	O	w	w	85%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

According to CER (2011), the PSO contract was put for tender and does not cover long-distance domestic services. Competitive tendering was unsuccessful as only BDZ, the incumbent submitted an offer.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	7793	4693	3472	2388	2238	2264	2089	2045
	International (m pkm)				60	86	49*	55	55
	Of which under PSO (m pkm)				334	2040	1972	1807	1740

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat(*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
BG	BDZ Passenger Services	97,4	2,6
	BDZ EAD	2,6	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)	85% pkm	Local and regional services (situation *de jure*)
Open access (no PSO in parallel)	15% pkm	Long-distance services
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	100%	situation *de jure*
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	85% pkm	Local and regional services (situation *de facto*)
Open access restricted only if it compromises PSOs (directly awarded PSCs)		
Total SEMI-OPEN	85%pkm	situation *de facto*

Czech Republic

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Czech Republic	✓	✓	×	Mix	×	96%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

The Czech government has recently withdrawn support for Eurocity and Intercity services and has confirmed its intention to gradually open the long-distance market by putting around 75% of services operated now by the incumbent CD to competitive tender by 2020.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	n.a.	7602	6681	6285	6536	6324	6133	6263
	International (m pkm)	n.a.	403	619	381	364	479	371	328
	Of which under PSO (m pkm)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	6313

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER(*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
CZ	České Dráhy	99.76	0,24
	Viamont	0.16	
	Rail Transport	0.03	
	RegioJet	0.02	
	Vogtlandbahn-GmbH, organizační složka	0.01	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

It is important to underline that this data does not take into account of RegioJet and Leo Express, the 2 additional railway undertakings operating commercial services between Prague and Ostrava (and competing with the incumbent České Dráhy) that have started in 2011 and 2012 (November).

4 – Market structure – open access for commercial services and public service obligations (PSOs)

CER indicates that 96% of railway services fall under public service contracts. PSO are awarded through a mix of competitive-tendered and directly awarded contracts. Existing contracts also contain clauses whereby passenger transport authorities can be gradually provided by another operator chosen by the authority before the end of the contract (with a 75% cap).

Public service contracts for long-distance services have been awarded directly to České Dráhy. In 2008, most regional PSC appeared to have been awarded directly, but 2 contracts were successfully competitively tendered (Liberec-Pardubice, Most-Plzen, Karlovy Vary-Mariánské Lázně)[2] and awarded to Viamont.

Since the market share of pkm of Viamont appears to be only 0.16%, the share of currently competitively tendered contracts cannot exceed 0.16%.

[2] JASPER Study (2008) KCW Kompetenz Centrum Wettbewerb Consulting: Funding Regional Passenger Rolling Stock – The Example of the Czech Republic, http://www.jaspers-europa-info.org/attachments/115_Jaspers%20working%20paper%20Funding%20Regional%20Rail%20Stock%20Czech%20Republic.pdf ; 3 tenders were organised: Liberec-Pardubice (winner České Dráhy) , Most-Plzen (winner Viamont), Karlovy Vary-Mariánské Lázně (winner Viamont). The tender Liberec-Pardubice appear to have been cancelled.

In this context, the table hereunder reflects the Czech rail market structure. Yet, it is important to underline that the recent policies of the Czech government (open access and competitive tenders) are likely to profoundly affect these figures.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	96% pkm	Long-distance services (except Intercity) and most regional services
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED	96% pkm	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)	0.16% pkm	Most-Plzen, Karlovy Vary-Mariánské Lázně lines
Open access (no PSO in parallel)	4% pkm	Long-distance services (Intercity services)
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	4.16%pkm	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Denmark

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Denmark	✓	✓	Mix	Mix	×	100%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

All traffic appears to be covered by public service obligations, based on CER (2011). In Denmark, railway undertakings have withdrawn commercial services.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)				5421	5915	5983	5999	6200
	International (m pkm)				330	438	488	377*	380*
	Of which under PSO (m pkm)					6176	6275	6174	6347

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat(*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
DK	DSB: Kobenhavn (incumbent)	65	18
	DSB S-tog A/S: Kobenhavn (incumbent)	17	
	DSB First: Molmö (SE)	8	
	Arriva Tog A/S: Tarnby	4	
	Metro Service A/S: Kobenhavn	3	
	Nordtjyske Jernbaner A/S: Hjorring	<1	
	Lokalbanen A/S: Hillerod	1	
	Midtjyske Jernbaner Drift A/S: Odder	<1	
	Regionstog A/S: Holbaek	1	
	Nord-Ostsee Bahn GmbH: Kiel (DE)	<1	
	SJ (SE)	<1	
	Regionalbahn Schleswig-Holstein (DE)	<1	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER(*)

4 – Market structure – open access for commercial services and public service obligations (PSOs)

According to CER (2011), 23% of pkm of public service contracts have been tendered out, whereas the rest (77%) was negotiated.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel	23% pkm	
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	23%pkm	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	77% pkm	
Open access restricted only if it compromises PSOs (directly awarded PSCs)		
Total SEMI-OPEN	77%pkm	

Estonia

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Estonia	✓	×	Mix	×	×	100%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

Public service contracts have been awarded directly as it appears that the market is not able to allow successful competitive tendering, although the Estonian law foresees competitive tendering (CER, 2011).

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	1510	421	261	248	246	245	232	229
	International (m pkm)							17	18
	Of which under PSO (m pkm)	1510	421	261	248	246	245	232	229

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat(*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
EE	Edelaraudtee	50	50
	Elektriraudtee	42	
	GoRail	7	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

GoRail is an international service outside public service intervention (CER, 2011).

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel	X	Situation *de jure*
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	x	Situation *de facto*
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Finland

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Finland	x	×	×	×	×	14%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

The Finnish legislation appears to be undergoing a process of revision with the view to introduce some form of competitive tendering (CER, 2011).

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	3254	3133	3345	3401	3675	3940	3785	3869
	International (m pkm)	77	51	60	76	103	112	91	90
	Of which under PSO (m pkm)					1350	n.a.	n.a.	539*

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
FI	VR Ltd.	100	0

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	14% pkm	1/3 of long-distance services and regional services
Directly awarded "exclusive rights w/o PSO" & NO open access	86% pkm	2/3 of long-distance services and commuter services
Total CLOSED	100%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

France

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
France	×	×	0	×	×	31%

*cf. tables 2 and 4

0=PSO applies only partly to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

Although the SNCF has a monopoly for domestic passenger rail services, not all of its services are covered by public service obligations (e.g. TGV).

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	**National (m pkm)**	73900	64500	n/a	69066*	72800	77000	78629*	76790**
	International (m pkm)					7500	8000	9883*	9100**
	Of which under PSO (m pkm)	6100	6800	8500	10200	22500	24100	24300	24400

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission, Eurostat (*) and Bulletin Trimestriel des Transports du SOeS, données amenées au 02/03/2012 (http://www.statistiques.developpement-durable.gouv.fr/transports/i/transport-voyageurs.html)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
FR	SNCF	99	1
	Other railway undertakings	1	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	31% pkm	Regional services (e.g. TER), Trains d'equilibre du territoire (TET)
Directly awarded "exclusive rights w/o PSO" & NO open access	69% pkm	TGV services (except Trains d'equilibre du territoire)
Total CLOSED	100%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Germany

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Germany	✓	✓	O	Mix	Mix	60%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

Long-distance intercity services fall under open access in Germany. There are competitive tenders and direct awards of public service contracts, although the Bundesgerichtshof has clarified in February 2011 that direct awards were not allowed by German law.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	44600	70977	75404	74946	75516	76909	76583	78515
	International (m pkm)					3587	3856	4349	4538
	Of which under PSO (m pkm)	27400	36277	36226	33695	n.a.	n.a.	n.a.	47000*.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
DE	DB AG	92	8
	Other railway undertakings	8	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

It could be estimated that 12% of all pkm have been awarded through competitive tendering. According to Mofair (2011)[3], some 37% of train-km of PSC services in Germany has been put for tender. To a large extent, the vast majority of PSC operated by railway undertakings than DB (25% PSC train-km - 8% of national pkm) were awarded through a tendering procedure. If we maintain the same train-km to pkm ratio, it can be extrapolated that these 37% of all train-km represent some 12% of all national pkm.

Some 48% of all pkm in Germany have been directly awarded (although there is full open access to the whole domestic network). Given the verdict of the Bundesgerichtshof, these pkm will have to be tendered out in the future.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	40% pkm	Long-distance services (intercity)
Unrestricted Open access & tendered PSCs in parallel	12% pkm 48%	

[3] MoFair, Wettbewerber Report Eisenbahn, 2010/2011, http://www.mofair.de/content/20110519_wettbewerber-report-eisenbahn-2010-2011.pdf

Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	52% pkm	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	48% pkm**	**= according to decision of Bundesgerichtshof, in the future these services will have to be tendered out
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

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Greece

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Greece	×	×	×	×	×	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)		1513	1608	1804	1852	1599	1296	1337*
	International (m pkm)		55	21	50	77	59	47	46*
	Of which under PSO (m pkm)					0	0	n.a.	n.a.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
EL	Trainose SA	100%	n.a.

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	100% pkm	All domestic services
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Hungary

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Hungary	x	×	×	×	×	100%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	11403	8441	9693	9880	8379	7923	7681	7316
	International (m pkm)	486	334	387	403	372	381	391	376
	Of which under PSO (m pkm)	11403	8441	9693	9880	8379	7923	7681	7316

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
HU	MAV Start Zrt (incumbent)	98,2	1,8
	GySEV Zrt (incumbent)	1,8	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	100% pkm	All domestic services
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Ireland

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Ireland	×	×	×	×	×	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)				1564	1902	1876	1604	1582
	International (m pkm)				127	105	100	79	96
	Of which under PSO (m pkm)					2007	1976	1683	1678

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
IE	Iarnrod Eireann	100	0

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	100% pkm	All domestic services
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Italy

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Italy	✓	✓	×	Mix	Mix	53%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)			44308	43889	44707*	44707*	43389*	42486*
	International (m pkm)			2825	2255	1278*	1059*	1107*	863*
	Of which under PSO (m pkm)			408	444	n.a.	22180	22168	22711.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

CER (2011) reports that 29000 pkm would be covered by PSOs in Italy (by Trenitalia) whereas Italy declares that 22711pkm fall under PSO (data for 2010).

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
IT	Trenitalia	91.7	8.3.
	New entrants.	8.3	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

According to CER(2011), competitive tenders have been used for "*all or part*" of PSO contracts in Veneto, Lombardia, Liguria, Emilia-Romagna and Piemonte. Based on the data of the Rapporto Pendolaria 2011[4] all the train-kilometres of these PSO contracts represent 48% of all train-kilometres of Italian PSCs. It could be extrapolated that these 48% of train-kilometres represent 48% of all PSC passenger-km (or therefore ca. 25% of all Italian pkm).

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	47% pkm	Long-distance services
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)	25% pkm	PSCs in Liguria, Emilia-Romagna, Lombardy, Veneto and Piemonte
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		

[4] Legambiente: Rapporto Pendolaria 2011, available: http://www.legambiente.it/sites/default/files/docs/dossier_pendolaria2011_0_2.pdf

Open access restricted only if it compromises PSOs (directly awarded PSCs)	28% pkm	PSCs in other Italian regions than Liguria, Emilia-Romagna, Lombardy, Veneto and Piemonte

Latvia

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Latvia	✓	×	w	w	w	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	3327	779	568	800	889	865	686	670
	International (m pkm)	2039	477	147	94	102	86	70	79
	Of which under PSO (m pkm)				800	889	865	686	670

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

According to CER (2011), PSO contracts have been awarded through competitive tenders. Yet, probably because of a lack of bids, the tenders have been unsuccessful and the PSC appear still to have been awarded directly to the incumbent.

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
LV	A/s Pasazieru vilciens (AS PV)	89,43	10,54
	SAI LDZ Cargo	10,54	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel	X	Situation *de jure*
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	x	Situation *de facto*
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Lithuania

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Lithuania	✓	×	w	w	w	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	1521	746	335	259	223	235	213	226
	International (m pkm)	2119	384	276	169	186	162	144	147
	Of which under PSO (m pkm)					223	235	n.a.	226*

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER (*)

According to CER (2011), PSC contracts have been awarded through competitive tenders. Yet, probably because of a lack of bids, the tenders have been unsuccessful and the PSC appear still to have been awarded directly to the incumbent.

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
LT	SC Lithuanian Railways	100	0

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel	X	Situation *de jure*
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	x	Situation *de facto*
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Luxembourg

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Luxembourg	x	×	×	×	×	98%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)				254	233	246	239	246
	International (m pkm)				18	84	99	n.a.	103
	Of which under PSO (m pkm)				51	302	328	316	343

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

The important cross-border commuter traffic between Luxembourg and Belgium, France and Germany is also covered by public service obligations.

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
LU	N.a.	100%	n.a.

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	98%pkm	
Directly awarded "exclusive rights w/o PSO" & NO open access	2%pkm	
Total CLOSED	100%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Netherlands

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Netherlands	×	×	C	Mix	✓	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

PSC contracts in specific provinces have been put for tender. However, most of the regional traffic is still covered by the concession directly-awarded to the incumbent (NS). According to the BNB-NBB, the unprofitable routes of NS were outsourced and put for tender[5] - NS appears not to have taken part in these tenders.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	n.a.	13500	14700	14752	15634	15895	15927	16002
	International (m pkm)	n.a.	n.a.	n.a.	231	254	275	920	966
	Of which under PSO (m pkm)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	16000*

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER(*)

[5] Banque Nationale de Belgique – Nationale Bank van België, (2012), Working paper 211 (Verduyn-Deville): Implementation of EU legislation in rail liberalisation in Belgium, France, Germany and Netherlands, p.103, http://www.nbb.be/pub/01_00_00_00_00/01_06_00_00_00/01_06_01_00_00/20120314_WP221.htm

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
NL	Netherlands Railways	95,2	4,8
	Other railway undertakings	4,8	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	95%pkm	Concession contract awarded to NS
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)	5% pkm	PSCs in Friesland, Gelderland and East Netherlands.
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Poland

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Poland	✓	×	×	Mix	×	76%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

According to CER (2011), PSC contracts cover 80% of pkm the long-distance (intercity) services and 90.5% of pkm regional services.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	49683	26346	23844	17109	18772	19628	18243	17918
	International (m pkm)	690	289	248	706	529	489	449	530
	Of which under PSO (m pkm)	50373	26635	24092	14448	15895	16196	15316	13645

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

CER reports 10725 pkm of PSO operated by the incumbent.

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
PL	PKP Intercity SA	46,82	48,31
	Przewozy Regionalne SP ZO O	36,22	
	Koleje Mazowieckie – KM SP ZO O	10,15	
	PKP SKM SP ZO O	4,87	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

Table hereunder provides estimations for the different types of markets in Poland. According to CER (2011), local *voivoideships* prefer competitive tendering, whereas those interregional PSC (46.8% of Polish pkm, according to CER) have been directly awarded. Moreover, always according to CER (2011), PSC contracts cover 80% of pkm the long-distance (intercity) services and 90.5% of pkm regional services.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	24% pkm	20% of long-distance (intercity services) and 9.5% of regional services
Unrestricted Open access & tendered PSCs in parallel	38% pkm	90.5% pkm of regional services
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		

Unrestricted Open access & directly awarded PSCs in parallel	37% pkm	80% of long-distance services
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Portugal

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Portugal	-X	×	O	×	Mix	59%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

Long-distance (intercity) services are not covered by PSCs. The public service contract for all regional and local services has been awarded to the incumbent CP, except for the important suburban commuter services to the South Lisbon, which have been awarded through a tender to the railway undertaking Fertagus.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)				3753	3933	4085	4049	4008
	International (m pkm)				57	55	120	103	103
	Of which under PSO (m pkm)					2799	2833	2391	2365

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
PT	Fertagus	9,6	n.a.
	CP	91.4	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission, and Commission services

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	50%pkm	Regional services
Directly awarded "exclusive rights w/o PSO" & NO open access	40.4%pkm	Long-distance intercity
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)	9.6% pkm	South Lisbon commuter rail services – across the Tagus
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Romania

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Romania	✓	×	×	×	×	98%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	29417	19928	11384	7816	7329	6805	5995	5308
	International (m pkm)	1164	197	247	144	146	152	133	129
	Of which under PSO (m pkm)	29417	19928	11384	7816	7476	6958	n.a.	5248*

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER (*)

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
RO	CFR Calatori	95,51	3,93
	SC REGIOTRANS SRL	3,93	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission, and Commission services

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	2%pkm	
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	2%	
Semi-opened	98%	
Unrestricted Open access & directly awarded PSCs in parallel	98%pkm	
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Slovakia

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Slovakia	✓	×	w	w	w	100%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

The Slovakian government has organised competitive tenders for PSCs which appear to have been unsuccessful. It appears to have proceeded to direct awards, but not only to the incumbent ZSSK, but also to the Czech railway operator RegioJet.

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)					1953	2077	2094*	2079*
	International (m pkm)			179	143	195	202	185*	188*
	Of which under PSO (m pkm)			2741	2023	2148	2279	n.a.	n.a.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

There is no estimation of the pkm of PSC in Slovakia, as neither CER nor Slovakia has provided these figures for 2009 and 2010 (the data on PSOs before 2008 appears to include also international PSOs).

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
SK	ZSSK Slovensko	99,97	0,03

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and CER (*)

It is unclear whether this data already reflects to the PSC contract awarded to the Czech railway undertaking RegioJet.

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel	100%pkm	
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Slovenia

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Slovenia	x	x	x	x	x	97%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	1166	491	593	666	690	713	718	680
	International (m pkm)	263	104	112	111	122	121	n.a.	n.a.
	Of which under PSO (m pkm)	1166	491	593	666	689	711	822	792

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Eurostat (*)

The percentages of PSOs seem to also include international PSOs as from 2008. CER (2011) indicates that 97% of all domestic services fall under PSO – the remaining 3% of pkm being special trains that are not subsidized. We will therefore assume 97% pkm are under PSO.

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
SI	SZ Passenger transport	99,99	0,01

4 – Market structure – open access for commercial services and public service obligations (PSOs)

The Slovenian rail legislation appears to refers to SŽ as the sole operator in Slovenia.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	97%pkm	
Directly awarded "exclusive rights w/o PSO" & NO open access	3%pkm	
Total CLOSED	100%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Spain

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Spain	x	×	O	×	×	52%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

The Spanish legislation is currently being modified to introduce competition in domestic services. The situation here reflects the situation as of now (and in numeric terms, as in 2010).

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	14992	14834	18035	19155	19348	21461	21184	20421
	International (m pkm)	484	479	536	653	618	611	516	557
	Of which under PSO (m pkm)	9538	8206	9596	8617	11500	11581	10912	10555

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

3- Market shares of railway undertakings

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
ES	Renfe Operadora	100	0

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

4 – Market structure – open access for commercial services and public service obligations (PSOs)

The Spanish legislation is currently being modified to introduce competition in domestic services.

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access	48%pkm	RENFE Cercanias, FGC, FGV
Directly awarded "exclusive rights w/o PSO" & NO open access	52%pkm	Long-distance services (intercity) like AVE
Total CLOSED	100%	
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN		
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

Sweden

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Sweden	✓	✓	×	✓	✓	49%*

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

Sweden has been at the forefront of rail liberalisation with the introduction of competitive tendering for regional services in the early nineties. In 2010, open access to whole network was introduced ending with the monopoly of the incumbent on the long-distance services (where it operated at its own financial risk).

2 –Overall traffic in passenger-km

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	5946	6271	7706	8338	9771	10462	10706	10674
	International (m pkm)	654	562	537	598	499	555	615	544
	Of which under PSO (m pkm)	2448	3098	3386	3992	4601	4763	5298	n.a.

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

No data is available for the share of PSC services, we will therefore assume the same percentage as per 2009 (i.e. 49%)

3- Market shares of railway undertakings

Sweden does report on the shares of each operator, but according to the support study of Steer Davies Gleave, quoting the IBM Rail Liberalisation Study, estimates that the share of SJ is some 90%.

	Railway undertakings	Market share (%)	Total market share of all but the principal railway undertakings (%)
SE	Arriva Tåg AB	n.a.	n.a.
	A-Train AB	n.a.	
	Bottniatåg AB	n.a.	
	DB Regio Sverige AB	n.a.	
	DSB	n.a.	
	DSB Småland	n.a.	
	DSBFirst Sverige AB	n.a.	
	DSBFirst Väst AB	n.a.	
	Inlandståget AB	n.a.	
	Merresor AB	n.a.	
	Roslagståg AB	n.a.	
	SJ AB	90% (est.)	
	SJ Norrlandståg AB	Cf. SJ AB	
	Stockholmståg KB	Cf. SJ AB	
	Svenska Tågkompaniet AB	n.a.	
	Tågåkeriet i Bergslagen AB	n.a.	
	Veolia Transport Sverige AB	n.a.	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Steer Davies Gleave

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)		
Open access (no PSO in parallel)	51% pkm	
Unrestricted Open access & tendered PSCs in parallel	49% pkm	
Open access restricted only if it compromises PSOs (tendered PSCs)		
Total OPEN	100%	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

United Kingdom

1. Overview of domestic open access for commercial services and public service obligations

Member State	Domestic open access (other than cabotage)		Competitive tendering for PSO services			
	De jure	De facto***	Long-distance	Regional	Suburban	PSO (% p km)
Great Britain	✓	✓	✓	✓	✓	99%*
Northern Ireland	x	x	x	x	x	100%

*cf. tables 2 and 4

0=no PSO applies to long-distance services; C= concession till 2015, w=unsuccessful competitive tendering, government had to make direct award

***= Open de facto= whether new entrants have entered the open access market

UK (for the part on Great Britain) has been at the forefront of rail liberalisation with the introduction of competitive tendering for regional services in the early nineties.

2 –Overall traffic in passenger-km (Great Britain)

		1990	1995	2000	2005	2007	2008	2009	2010
Passenger transport	National (m pkm)	32000	30000	39002	43157	48878	51348	51123	54111
	International (m pkm)				1485	1595	1654	1641	1720
	Of which under PSO (m pkm)				42977	48635	51017	50738	53630

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission

Data does not cover Northern Ireland.

3- Market shares of railway undertakings (Great Britain)

The market shares are to a very large extent influenced by the size of franchises, as open access commercial services are limited.

	Railway undertakings	**Market share (%)**	**Total market share of all but the principal railway undertakings (%)**
UK	Virgin Trains	10,1	89,9
	South West Trains	9,7	
	First Great Western	9,6	
	East Coast	7,9	
	Southern	7,1	
	Southeastern	7,1	
	National Express East Anglia	6,9	
	First Capital Connect	5,8	
	Cross Country	5,5	
	First Scotrail	5,0	
	East Midlands	3,7	
	London Midland	3,3	
	First Transpennine Express	2,7	
	Eurostar	2,6	
	Northern-East	2,2	
	Arriva Train Wales	2,0	
	C2C	1,7	
	Chiltern	1,6	
	Northern West	1,4	

Source: Rail Market Monitoring Survey (2010), contributions from Member States to the European Commission and Steer Davies Gleave

4 – Market structure – open access for commercial services and public service obligations (PSOs)

		Examples
NETWORKS		
Networks that are CLOSED de facto (pkm)		
Directly awarded PSC & NO open access		
Directly awarded "exclusive rights w/o PSO" & NO open access		
Total CLOSED		
Networks that are OPEN de facto		
Competitively tendered PSC (NO open access in parallel)	99%pkm	Situation *de facto*: UK franchises
Open access (no PSO in parallel)		
Unrestricted Open access & tendered PSCs in parallel		
Open access restricted only if it compromises PSOs (tendered PSCs)	100%pkm	Situation *de jure*
	1%pkm	Situation *de facto*: commercial services in open access in the West Coast Main Line (i.e. services that were deemed not to compromise the existing PSCs/franchises)
Total OPEN	100%	
Semi-opened		
Unrestricted Open access & directly awarded PSCs in parallel		
Open access restricted only if it compromises PSOs (directly awarded PSCs)		

ANNEX 5

OPTION ANALYSIS

1. APPROACH TO POLICY OPTIONS

Different root causes of problems - competition for open access lines, competition for PSCs, as well as market distortions linked with limited access to ticketing systems and rolling stock - have been identified as hindering the competition in domestic rail passenger markets. Consequently, this annex considers four groups of options, each proposing measures to remedy these different problem elements. The aim is to justify and make it transparent why certain initial policy measures have been dropped while some new measures have been included during the IA process; and how the options in different groups will be assessed and combined.

For the each group of options the annex explains the context, discusses possible policy choices and screens them on the basis of stakeholder views, effectiveness, efficiency, compliance with subsidiarity principle and overall feasibility. Where relevant, the different aspects of implementation are also discussed.

2. DESCRIPTION OF DIFFERENT GROUPS OF OPTIONS

2.1. A OPTIONS: OPEN ACCESS

2.1.1. Context

Competition in rail market can be organised either (a) through competition *in* the market (the so-called *open access*), (b) through competition *for* the market, i.e. via competitive tendering for public service contracts (PSCs) or (c) a combination of the two.

Experience in liberalised markets and further to the opening of cabotage in international passenger rail services has shown that open access can cause problems of economic equilibrium of Public service organisation (PSO), while also *vice versa* - state support of PSOs can be detrimental to open access. It is therefore important to define how the two approaches relate to each other.

2.1.2. Stakeholder views

During the targeted consultation, majority of respondents (60%) agreed that market integration can be stimulated by additional new open access rights.

Less than 10% of respondents found the current (i.e. the baseline) arrangements completely satisfactory. 55% of stakeholders preferred open access on routes covered by PSCs, though Member States should have a possibility to limit access if the economic viability of a PSC is affected (option A1 below). Open access was seen as most successful on high-speed services and least successful in the urban, suburban and regional segments.

Stakeholder comments were varied, but 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.

Many incumbent RUs said that unrestricted open access competition on all routes will be the most costly solution for taxpayers (option A4 below), and may therefore not be welcome in times of austerity. Some public sector stakeholders emphasised that even if markets were fully opened (like in Sweden and Lithuania) there might still be no new entrants. An association of RUs suggested that open access services would emerge where there was customer demand and would be customer-focused, but that customers do not usually like a choice of operator.

2.1.3. Description of options

In this context, the following options have been initially considered:

- **Option A0: Baseline scenario** - no open access rights provided under EU law. Some Member States have opened certain routes for cross border competition (e.g. Sweden, Italy, Czech Republic, Germany), but non-residents need to acquire a separate license for operations in each Member State. Within the baseline, the progressive implementation of Directive 2007/58/EC may have an effect on market opening through the cabotage arrangements of international rail services[6].

- **Option A1:** Open access provided on the whole network with possibility for Member States to limit access when the viability of PSC is compromised; legal monopolies and local establishment requirements are dismantled.

- **Option A2:** Open access limited to the categories of routes which are pre-determined as commercially viable (such as high speed lines)

- **Option A3:** Open access limited to routes which are not covered by PSCs[7]; legal monopolies and local establishment requirements are dismantled.

- **Option A4:** Open access unlimited.

2.1.4. Screening of options

The initial set of options will be screened in terms stakeholder support, effectiveness in achieving the operational objectives, efficiency and compliance with the subsidiarity principle. In addition, the overall feasibility is verified, i.e. whether the options are legally and/or technically possible pursue. Brief explanation backing the scores is presented in the column 'motivation'.

Key of scores applied:

--- -	decreasingly negative
0	neutral
+ … +++	increasingly positive
/	not relevant
√	complying
~	not complying

[6] In force since January 2010.

[7] If a Member States opts for competition for the market across the whole of its national network, it shall be considered as not grating open access rights

	Stakeholder support	Effectiveness in terms of operational objectives: Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSCs	Access to rolling stock	Integrated ticketing	Efficiency	Subsidiarity	Feasibility	Motivation
Option A0: Baseline	--	0	0	0	0	/	/	0	√	√	Limited positive developments through international cabotage, and national measures.
Option A1: Open access unless PSC affected	++	++	++	0	/	/	/	++	√	√	This is the approach already adopted in some Member States. It would abolish legal monopolies and local establishment requirements. It potentially ensures the cost-effectiveness of public funding for domestic rail passenger services under PSO and applies principles that have already been established for cabotage in international rail services. It minimises the risk of "cherry-picking", protects the viability of PSCs and offers the greatest scope for Competent Authorities to let PSCs on a net cost basis. However it could incite competent authorities to enlarge the range of services covered by PSC in order to limit the scope for open access services.
Option A2: Open access in selected routes	+	+	+	0	/	/	/	?	~/√	~	This option was ranked third by stakeholders. Like option A1, it would abolish legal monopolies and local establishment requirements. However, there is no certainty that rules set in EU legislation could identify in advance, in each individual Member State, either (a) where open access would be viable and would occur and (b) where PSCs would not be needed. Therefore the set of routes to be covered by open access could be difficult to specify.
Option A3: Open access except PSCs	++	+	++	0	/	/	/	+	√	√	Received the second highest rating by stakeholders. Like options A1 and A, it would abolish legal monopolies and local establishment requirements. At the same time the effects might be limited by new PSCs introduced either to meet genuine mobility needs or simply to prevent market opening. More widely, while new PSCs may be introduced, existing ones may never be cut back, raising the

	Stakeholder support	Effectiveness in terms of operational objectives						Efficiency	Subsidiarity		Motivation
		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSCs	Access to rolling stock	Integrated ticketing				
											prospect of a gradual trend to PSCs extending to all stations.
Option A4: Open access unlimited	--	++	++	+	/	/	/	--	~	~	Received the lowest rating form stakeholders being identified as likely to be costly for taxpayers. Unlimited open access may compromise the viability of PSC and put additional pressure on public subsidies. There is no practical experience of how this option could be introduced and would work in a fully liberalised rail industry, but in practice there could be little commercial entry.

Options A0, A1 and A3 will be retained for further analysis of different policy scenarios in the impact assessment.

2.2. B OPTIONS: COMPETITIVE TENDERING OF PSCS

2.2.1. Context

A majority of rail services (an estimated 83% of EU passenger-km) is provided under PSOs and currently several Member States have opted for a direct award of such contracts. This means that in these Member States there is no competition *for* the market (as explained in Section 2.1.1). The Commission's intention is to inject competition into these parts of domestic rail market by applying rules to (a) how the PSCs are tendered out and (b) how the PSCs are defined

2.2.1.1. Tendering procedure

Several aspects of the design of the tendering procedure - such as complexity, bidding procedure, scope of tender - are critical for ensuring that it would lead to successful results. Relevance and applicability of these issues to PSO contracts is discussed below.

- The procedure must take into account of the complexity of the purchase.

In public procurement processes in general, complex projects are purchased through competitive dialogue. Rail service contracts, subject to tender, are often very complex and hence some flexibility should be foreseen in the procedures. The public procurement

Directives 2004/17/EC[8] and 2004/18/EC[9] foresee flexibilities like the competitive dialogue or negotiated procedures. Regulation 1370/2007[10] has already foreseen some flexibility in competitive tendering procedures for public passenger transport services[11] and it provisions can be extended to heavy rail.

- The burden of procedure must be proportionate to the subject matter

It could be necessary to foresee some flexibility regarding the obligation to use competitive tendering procedures, as these entail costs that must not be disproportionate to the price of the service purchased. Therefore, arranging competitive tender for small rail service contracts may not be practical. Regulation should allow competent authorities to procure small variations or additions to commercial services, such as additional station calls, connections, earlier first or later last trains, on a "de minimis" basis. The public procurement Directives 2004/17/EC and 2004/18/EC have therefore foreseen thresholds under which its procedures do not apply, and so does Regulation 1370/2007 for urban transport. The latter can be amended by defining a threshold for heavy rail under which direct awards are possible. The principles of such threshold have already established by Article 5(4) of the Regulation and are linked to annual revenue or gross cost of the PSC or number of vehicle-kilometres covered.

2.2.1.2. *Definition of public service obligation*

In addition, any tender must be defined in a way that suppliers in the market were able to respond to its subject matter. If, for instance, major parts of networks have been put for tender without a liquid rolling stock market, only those possessing rolling stock (i.e. normally incumbent) can respond. Also it could be possible to set certain requirements, which could effectively exclude cross-border operators from bids.

To ensure that the scope of call and that the criteria to perform PSO are necessary, proportionate and non-discriminatory, and allow for an adequate number of competing bids, it is necessary to foresee conditions under which exclusive rights of PSC are defined. This would also provide a mechanism to ensure that networks are not put for tender with the sole objective to preclude competition.

2.2.2. Stakeholder views

During the targeted consultation, majority of respondents (62%) agreed that market integration can be stimulated through compulsory competitive tendering for PSCs. Stakeholders expected it having a positive effect on service quality while allowing savings of public subsidies. The responses suggested that the tender structure must be tailored to the situation, 45% being in favour of the negotiated procedure in public procurement. 80% found that there should be transitory periods for the gradual letting of all PSCs. Stakeholder mentioned also that:

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8 Directive 2004/17/EC of the European Parliament and of the Council, 31 March 2004, coordinating the procurement procedures of entities operating in the water, energy, transport and postal services sectors.

9 Directive 2004/18/EC of the European Parliament and of the Council, 31 March 2004, on the coordination of procedures for the award of public works contracts, public supply contracts and public service contracts

10 Regulation (EC) No 1370/2007 of the European Parliament and of the Council, 23 October 2007, on public passenger transport services by rail and by road.

11 Article 5, § 3 of Regulation 1370/2007 gives the possibility to urban transport contracting authorities to use the negotiating procedure after tender submission or in the phase of pre-selection in order to meet specific or complex requirements within the contract.

- A new entrant underlined the importance of competitive tendering for the quality of rail services.
- Associations of RUs suggested that compulsory competitive tendering would bring benefits such as increased efficiency and quality, as new entrants would develop different solutions and new ideas.
- 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.

As regards the development of compliance criteria at EU level, views were polarised, with a slight majority responding negatively, but 40% supporting more precise rules. None of the compliance criteria included in the questionnaire (quality of train service, impact of public service funding, scope of the contract, proportionality and necessity test) were supported by more than 50% of those with opinion. In any case, if criteria for PSO were to be developed, then a very large majority of stakeholders (95%) agrees that a consultation of stakeholders on those would be needed. A majority of respondents (65%) supports and extension of the compensation rules of Regulation 1370/2007 on PSOs in rail and urban transport in the case of a single bidder.

The targeted consultation of local authorities through the network of the Committee of the Regions reviled that large majority of the local and regional authorities **(**64% of respondents) supported the introduction of additional criteria to be applied by competent authorities (in particular the Spanish authorities and the Association of Europeans Border Regions). In their view common criteria could support single market for rail transport services and bring clear added value, especially from a cross-border point of view. Those being opposed (Extremadura Assembly, Association des regions de France, Vienna City Administration, Wielkopolska Spatial Planning Office , 36% of respondents) argued that there is no need for additional criteria, since the existing regulatory environment already provides all the elements needed. They also consider that local and regional authorities are best placed to respond the needs of users in their territories. Introduction of additional criteria could raise concerns from a subsidiarity point of view. Therefore, if any measures would be proposed, these should take into account the special needs of the different regions and territories in the EU.

2.2.3. Description of options

The options below are designed to address competition for PSCs. Each option contains elements covering the two aspects of PSC competition – tendering procedure and definition.

- **Option B0: Baseline scenario -** competent authorities have the choice between direct award and competitive tendering *(procedure)*, no common criteria for defining PSCs *(definition)*.

  As defined in Regulation 1370/2007 - competent authorities may award PSCs directly or through a competitive tendering process.

- **Option B1:** Mandatory tendering with flexibility *(procedure)*, PSC scope determined according to defined criteria at EU level under the control of national regulatory body *(definition)*.

  Under this option the *tendering procedure* would be mandatory. However, to allow for complexities and differences in national conditions, the requirement of competitive tendering would be subject to de minimis criteria and allotment thresholds, in addition the tendering procedure can be negotiated.

Regarding the *PSC definition,* Member States and/or competent authorities would have the obligation to define transport policy objectives and a desirable transport offer in a detailed and transparent manner (e.g. public transport plan). National regulatory bodies would have to carry out an assessment of compliance of a draft PSO to ensure that it is necessary, proportional, non-discriminatory and cost-effective solution for reaching the predefined transport objectives. PSO should also be financially sustainable (i.e. not underfinanced) and include efficiency and innovation incentives for operators. In addition, national regulatory bodies have to consult the concerned stakeholders on draft PSO definition and to publish results of assessment and consultation. Competent authorities, should provide to the potential bidders information on passenger demand, fares and revenues, to enable to prepare well informed business plan and submit a bid.

- **Option B2:** Mandatory tendering with flexibility *(procedure)*, PSC scope determined according to defined criteria under the control of the Commission *(definition)*

  The same criteria would apply to tendering procedure as under Option B1. The PSC scope will be also defined as under Option B1, however assessment of compliance of PSO definition would be carried out by the Commission rather than by national regulatory bodies.

2.2.4. Options discarded at an early stage

As explained above, while tackling competition for PSCs, there are actually two elements to cover – **(a) tendering *procedure*** and **(b) *definition* of PSC**. A wide range of different sub-options can be considered in both dimensions.

For example, as regards tendering procedure, different degree and choice of flexibility elements, such as negotiation procedure, de minimis principle or allotment threshold, could be used. However, given the diversity of national conditions in which PSCs are used, the only feasible solution is to allow for all these flexibility elements.

Similarly, rules for defining PSC could be based on general legal and/or economic criteria, or alternatively on exhaustive list of compliance criteria. Again, given the variety of national conditions, only the former is practicable. The key question though is whether the application of any criteria should be supervised at the national (better in terms of subsidiarity) or at the EU (better for internal market) level, and this has been reflected in the design of alternative options.

2.2.5. Screening of options

Criteria applied to screening of options are the same as in previous section.

	Stakeholder support	Effectiveness in terms of operational objectives						Efficiency (including public spending)	Subsidiarity	Feasibility	Motivation
		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSCs	Access to rolling stock	Integrated ticketing				
Option B0: Baseline	-	0	0	0	0	/	/	0	√	√	It is up to Member States whether to open their PSO contracts to competition or not. Differences in national approaches remain diverse and may lack transparency.
Option B1: Mandatory tendering, PSC scope assessed at national level	0[12]	+	0	+	+	/	/	++	√	√	This option potentially ensures the competition for PSCs, while providing necessary flexibility to adjust the definition and tendering procedure to the specific characteristics of each PSC. Supervision and transparency requirements should secure against possible abuse or regulatory capture. However, given that control mechanism and PSC criteria will be applied at Member State (rather than EU) level, differences in national approaches are bound to remain, making cross-border bidding less smooth.
Option B2: Mandatory tendering, PSC scope assessed at EU level	-	++	0	++	++	/	/	+	~	~	The same as above, but supervision will be performed at EU level, allowing for emerging more coherent EU approach. However, this option would not comply with subsidiarity principle, as national authorities *per se* are more competent for deciding on appropriateness of PSO. Furthermore, this option would be inconsistent with general policy approach in railways, which has granted any supervision competences to national regulatory bodies.

Options B0 and B1 will be retained for further analysis.

[12] As mentioned in Section 2.2.2, stakeholders in general supported competitive tendering, although only when there is some flexibility built into system. It has not been asked form stakeholders whether assessment of compliance with PSO condition has to be carried out at EU or national level, but subsidiarity concerns highlighted by local/regional authorities point towards less interventionist option. Therefore the stakeholder support scores for option B2 are lower than for option B1.

The appropriate values of de minimis and allotment thresholds are established according to the analysis provided in Annex 8 of this impact assessment.

2.2.6. Aspects of implementation

i. Transition periods

A large majority of the respondents to the stakeholder consultation favoured transitional periods for the gradual letting of all PSCs (80% of respondents agreed).The obligation to tender out new PSC for rail would become effective on 3 December 2019, the date currently mentioned in Regulation 1370/2007 for the application of the provisions on contract award.

There is a need to regulate transitional periods to ensure a minimum of legal certainty to operators and to guarantee the continuity of public rail passenger services. In addition, competent authorities should be given a reasonable time to organise the re-award of existing PSCs.

In this context further to an analysis detailed in Annex 8, it would be reasonable to stipulate that PSCs directly awarded before 3 December 2019 and still valid for a minimum of thereafter shall be re-awarded on a competitive basis according to the following schedule:

- 30% of the volume of such contracts at national level in terms of train-km by 3 December 2020;
- 60% of the volume of such contracts at national level in terms of train-km by 3 December 2021;
- 100% of the volume of such contracts at national level in terms of train-km by 3 December 2022 (or by 31 December 2022).

ii. Levelling the playing field in access to documents

It may be necessary to take measures to ensure that interested parties while preparing an offer under a competitive tender procedure have access to all information (in particular as incumbents have access to all historical data on networks which new entrant can't access) to prepare their offer like information on passenger demand, fares and revenues.

iii. Excluding the direct award of rail PSC based on the internal operator provision

Regulation 1370/2007 provides for the possibility that competent local authorities organising integrated transport services directly award PSC to an internal operator, i.e. a transport operator that they effectively control (e.g. the urban transport operator being a part of the city administration). This provision is not geared to the award of PSC beyond the territory of an urban agglomeration and its immediate surroundings, for instance covering a whole region (which could be a very large territory in some Member States) or even the entirety of the national territory as ~~it~~ this would undermine achieving the internal market objectives of the Regulation. It is therefore necessary to clarify the current text of the Regulation so that it would limit the possibility of direct award to an internal operator to the case of integrated public passenger transport services of an urban agglomeration and its immediate surroundings (to avoid that, for instance, regional competent authorities set up their own railway undertakings and continue to directly award PSC. This practice would

iv. Ensuring continuity of service in the event of a failure of a railway undertaking

The IA support study has identified the risk that bankruptcies or disputes could put to the continuity of a service. There has been diverging practice in this matter in those Member States that have already taken steps to open their domestic passenger rail markets to competition. In Sweden, railway undertakings have been let fail to avoid overbidding (i.e. bidders that provide for bids that are not realistic from an economic point of view). In the UK, the UK government appears to need to take over for the services of the West Coast Mail Line further to the review of the franchise award. Taking measures at EU level to address this problem does seem disproportionate in terms of subsidiarity, therefore it will be left up to the Member State to design and implement relevant safeguard measures.

v. Avoiding 'fake' tenders

One of the problems in competitive tenders is that an incumbent maybe in some circumstances the only potential bidder because of technical aspects of the bid. To avoid these 'fake' tenders, it is proposed to extend the rules of compensation of the Regulation 1370/2007 (which are currently applicable in the event of direct award) to cases where only one bid was submitted.

2.3. T OPTIONS: INTEGRATION OF TICKETING SYSTEMS

2.3.1. Context

Opening markets to competition would necessarily bring some fragmentation. In case of rail, it would mean that customers will have an inconvenience of dealing with different operators, when booking their tickets. Ticketing and information systems are mostly run by incumbents and if new entrants are refused from access to these services, this could create serious distortion of market. Therefore, possible options to regulate ticketing systems are considered within the context of this initiative.

2.3.2. Stakeholder views

Stakeholders consistently ranked intra-modal integration (implicitly including ticket integration) low as a factor in the competitiveness of the rail sector, although they may not have been aware of all the practical issues of cooperation and/or competition between multiple operators. There is more support for inter-availability of tickets or reinforced access rules for ticketing facilities than to compulsory through-ticketing.

- Public sector respondents emphasised the need to be able to buy a ticket from one operator valid for the whole journey, including the services of other operators.
- Passenger associations said that lack of inter-available ticketing worsens the quality and competitiveness of rail, that inter-available ticketing and retail information should be guaranteed, and that there should be a separation of ticket distribution and transport operations.
- One stakeholder said that the effect of market opening would 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.
- Conversely, many incumbent RUs said that the distribution of tickets is one of the core businesses of rail and a means of competitive differentiation

2.3.3. *Description of options*

- **Option T0: Baseline scenario** - implementation of Regulation 1371/2007 within the context of the Recast would bring some positive developments. The Recast foresees that railway undertakings and ticket vendors shall offer, where available, tickets, through tickets and reservations. At the same time, operators of ticketing services are not obliged to supply their services to all railway undertakings, however when they decide to offer services to others, they shall do so in a non-discriminatory manner (i.e. allow access to everyone in equal conditions)[13]. These provisions preserve the commercial independence of RUs, who are not obliged to establish ticket integration schemes but only to sell the ones which are made available.

- **Option T1:** National ticketing systems established on voluntary basis. This option foresees an enabling clause allowing explicitly Member States and RUs to establish national-wide ticketing systems. It would also clarify existing provisions and remove some legal uncertainties (in particular to ensure that the obligation to open ticketing systems applies as soon as arrangements exist between two separate legal entities). It would clarify that such systems must be subject to non-discrimination requirements.

- **Option T2:** National ticketing systems established on mandatory basis, subject to non-discrimination requirements. Under this option Member States are imposed to set up national integrated ticketing systems. These systems should ensure the availability of all tickets throughout the national network.

- **Option T3:** Integrated ticketing systems established at EU level, subject to non-discrimination requirements. Under this option a comprehensive, EU-wide ticketing system will be established, ensuring availability of all tickets for national as well as cross-border travel.

2.3.4. *Screening of options*

	Stakeholder support	**Effectiveness in terms of operational objectives**						Efficiency (including public spending)	Subsidiarity	Feasibility	**Motivation**
		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSC	Access to rolling stock	Integrated ticketing				
Option T0: Baseline	+	0	0	0	/	/	0	0	√	√	Implementation of the Recast should ensure some progress in the integration of ticketing systems, since some RUs have established joint ticketing systems with their

[13] Article 10(1) of the passenger right regulation and Article 13(8) of the Recast.

	Stakeholder support	Effectiveness in terms of operational objectives						Efficiency (including public spending)	Subsidiarity	Feasibility	Motivation
		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSC	Access to rolling stock	Integrated ticketing				competitors and will now have to open them to other RUs in a non-discriminatory manner. On the other hand, some Member States have established national ticketing systems without any EU legal framework and could create problems of distortion of competition.
Option T1: Voluntary national systems	+	0	/	0	/	/	+	+	√	√	This option would reinforce to some extent the impacts of the baseline scenario.
Option T2: Mandatory national systems	-	+	/	+	/	/	++	-	~/√	√	This option has clear advantages for passengers in terms of accessibility to different services. It would also constitute a strong political encouragement to Member States and operators to put in place ticket integration schemes without prescribing specific measures. However the costs and benefits of such systems may vary considerably between Member States depending of the structure of the market (in particular the number of operators and the type of services offered). The efficiency of this measure can be low. Compliance with the subsidiarity principle has to be carefully assessed..
Option T3 EU level system	?	+	0	+	/	/	++	--	~	~	Establishing a single integrated ticketing system for the EU could foster further market integration and provide additional benefits to passengers using cross-border services. However, considering the number of operators involved and the diversity of the services provided, the cost of such measure would be very high while the benefits would remain limited (cross-border traffic represents around 5% of rail trips). This measure would have the same disadvantages than measure 2 in terms of efficiency and subsidiarity.

Options T0, T1 and T2 will be retained for further analysis.

2.3.5. Aspects of implementation

Clearing systems must be made fair and non-discriminatory (i.e. payments must be made in reasonable periods of times as in the rest of the economy).

Also, it is necessary to foresee that railway undertakings in all circumstances accept tickets of other railway undertakings when passengers have been affected by a disruption.

2.4. RS OPTIONS: ACCESS TO ROLLING STOCK

2.4.1. Context

Ownership of rolling stock continues to be dominated by incumbent railway undertakings, which are unable or unwilling to make it available on attractive commercial terms to new entrants. The measures introducing competition for PSCs (B options) can be effective only if there actually are several bidders having access to adequate rolling stock within a reasonable timeframe[14]. E.g. in Germany, all contracts above 5 million train-kilometres have been awarded directly to the incumbent, given that lack of rolling stock has made it impossible for new entrants to bid[15]. In principle, new entrants could commission new rolling stock, but they may prefer to lease it rather than purchase, particularly if they are uncertain about market prospects over the 40-year life of rolling stock assets. Similarly, manufacturers and potential providers of lease financing are unlikely to offer attractive terms if there is uncertainty surrounding future demand for the rolling stock and hence a significant risk of inadequate returns.

2.4.2. Stakeholder views

According to stakeholders, access to rolling stock is another key framework condition for a more competitive rail sector. 65% of respondents (and 90% of those with a view) supported an objective of improving access to rolling stock. 60% of respondents considered rolling stock availability an access barrier to RUs. However, only 20% thought that there should be "automatic" transfer of rolling stock from one operator to another at the start of a new PSC, and there was only 5% net support for "compulsory" transfer or rolling stock. 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. These RUs saw provision of their own rolling stock as a key part of their competitive offer. Overall, stakeholder responses did not support any firm conclusions although some agreed that no universal solution was possible.

2.4.3. Description of options

In this context the following policy options have been identified:

- **Option RS0: Baseline scenario –** no specific EU requirements, but only implementation of State aid Guidelines. Access to rolling stock appears to be a serious problem in Germany, France, Italy, Greece, Portugal, Spain and the majority of Member States that joined the EU in 2004 and 2007. There seem to be no national measures in pipeline to address this issue.

[14] Ordering and authorising rolling stock is not just capital intensive, but also can take up to several years.

[15] SDG analysis

Key issue for emergence of rolling stock market is the number of vehicles per type. It can be anticipated that over time the market consolidation and implementation European standards[16] will lead to harmonisation of vehicle types and would have gradual beneficial impacts on the availability of 2nd hand rolling stock and leasing markets.

At the same time, the single EU vehicle authorisation, as foreseen by another initiative in 4th railway package, should ease to some extent cross-border rolling stock market.

- **Option RS1:** Mandatory creation of rolling stock leasing companies (ROSCOs), with the objective of creating a leasing market for rolling stock.

- **Option RS2:** Mandatory ownership of rolling stock by competent authorities.

  This option would require that competent authorities owned all the rolling stock required to operate the PSCs for which they were responsible. This would place an obligation of competent authorities to make sure that stock would be available.

- **Option RS3:** Mandatory selling or leasing of rolling stock at market price by the previous PSC beneficiary to the new one.

- **Option RS4:** Obligation for the competent authority to take the financial risk of the residual value of rolling stock with choice of means.

  In principle, competent authorities are obliged to provide or procure residual value guarantees on rolling stock if a bidder has no other means of avoiding residual value risk. This would not preclude Member States and competent authorities applying a mix of options RS1 (leasing companies), RS2 (competent authorities own rolling stock) and RS4 (competent authorities provide guarantees) as considered appropriate. It would leave it to competent authorities to decide the "least bad" approach to improving accessibility to rolling stock achievable with the funds available.

- **Option RS5**: Guidelines on best practices of rolling stock procurement.

  This option foresees that the Commission will prepare guidelines which Member States can referrer to when planning national measures for improving the access to rolling stock. The guidelines would build on few successful examples in Member States such as UK and Sweden.

2.4.4. Screening of options

	Stak	**Effectiveness in terms of operational objectives**	Effici	Feas ibilit y	Motivation

[16] The development of interoperability and through-ticketing in domestic rail through the TAP TSI (Commission Regulation 454/2011 on the technical specification for interoperability relating to the subsystem 'telematics applications for passenger services') could ultimately provide technical solutions for non-discriminatory access to ticketing systems in domestic rail services, although this is not its primary purpose of this measure.

		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSC	Access to rolling stock	Integrated ticketing				
Option RS0: Baseline	--	0	0	0	/	0	/	0	√	√	Access to rolling stock remains a major issue in many Member States.
Option RS1: ROSCOs	++	++	0	++	/	++	/	++	~	~	There was generally high support for this option among stakeholders. Also the evidence from Sweden and particularly Great Britain is that an effective leasing market can remove many barriers to entry. Although it would in practice difficult to establish at EU level who should create fund, manage it or, if necessary, regulate them.
Option RS2: Mandatory ownership	-	+	0	++	/	+	/	+	~	~	This option could only apply to existing rolling stock if owners were willing to be bought out and, without powers amounting to confiscation, they would have every incentive to demand generous terms. The potential conflicts with generally established property rights can be avoided by requiring bidders for PSCs to commit to transfer their rolling stock to the competent authority at the end of the contract. There are, however, examples of dominant national incumbents refusing to bid on this basis. Even if operators were willing to accept these terms, it would not be until the end of the next PSC cycle, of up to 22½ years under current EU legislation, that all existing stock would be transferred.
Option RS3: Mandatory selling or leasing	-	++	0	+	/	+	/	+	√ / ~	√/~	20% of stakeholders supported "automatic" transfer of rolling stock and only 5% supported "compulsory" transfer. This option conflicts to a lesser extent with property rights and subsidiarity principle than option RS2, but the core problem of illiquid rolling stock market could imply that it would be difficult to establish "market price".
Option RS4: Sharing financial risks	?	+	0	++	/	+	/	?	√ / ~	√	In this option competent authorities are obliged to take residual value risk on rolling stock. This could raise a perverse incentive to competent authorities to specify old stock. It also requires offering the guarantee in advance, for it to be callable at any time. There are disincentives to the competent authority to terminate a poorly-performing contract and the

	Stakeholder support	Effectiveness in terms of operational objectives							Subsidiarity	Feasibility	Motivation
		Cross-border entry	Abolish legal monopolies	Open PSC market	Common approach to PSC	Access to rolling stock	Integrated ticketing	Efficiency			lack of any obligation on the operator to hand over the stock. More widely, it is not normal procurement practice for competent authorities to be obliged to guarantee the future value of their contractors' assets. It might also be difficult for a competent authority to explain to interested parties why, on early termination of an underperforming operator's contract, it was obliged to buy from it unpopular, unreliable or obsolete stock at a price guaranteed many years earlier(H4.28). Competent authorities might attempt to minimise these difficulties by guaranteeing only a low residual value, limiting the effect of the policy.
Option RS5: Guidelines	0	0	0	+	/	0/+	/	0	√	√	This options would enable to share the best practices between Member States as regards the effectiveness of different approaches to improve liquidity of rolling stock market. However, it's added value would be limited, given that the known successful approaches of UK and Sweden are already known by railways stakeholders.

Given the analysis above, addressing the need for a rolling stock market is likely to be problematic. All of the options considered could be difficult to implement effectively, rapidly or without additional cost. However, options **RS0, RS3 and RS4 will be retained** for further analysis.

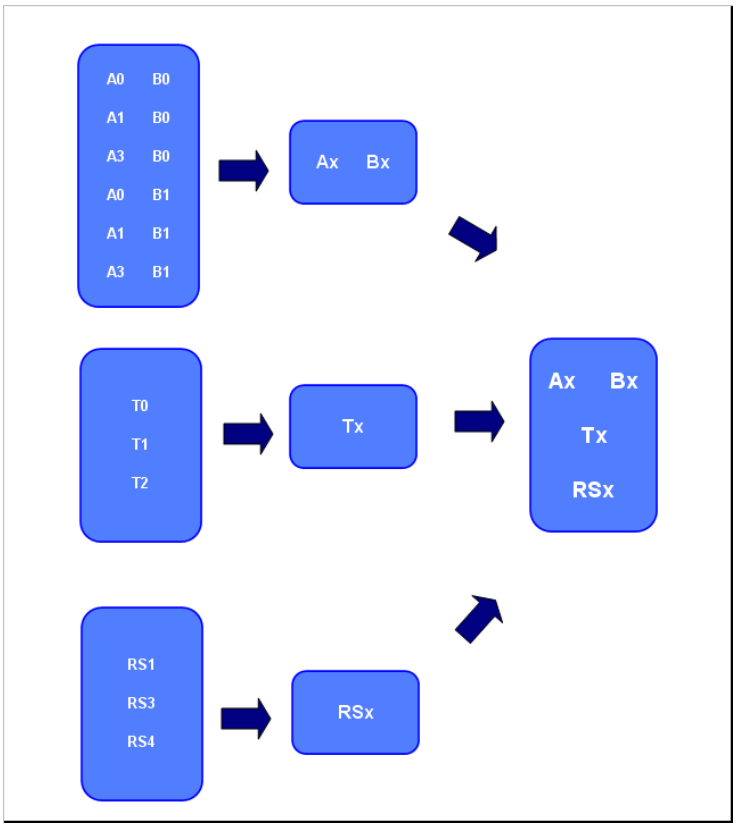
3. SUMMARY OF RETAINED OPTIONS

The table below provides an overview of all the screened and retained options in 4 groups.

Problem element	Respective category of options	Policy options considered	Retained?
Restrictions to provision domestic passenger rail services	**A options: Open access**	**Option A0: Baseline scenario** - no open access rights to domestic rail market provided under EU law	√
		Option A1: Open access with possibility to limit access when the viability of PSC is compromised	√
		Option A2: Open access limited to routes being commercially viable	
		Option A3: Open access limited to routes not covered by PSCs	√
		Option A4: Open access unlimited	
Absence of competition for PSCs	**A options: Competitive tendering of PSCs**	**Option B0: Baseline scenario -** competent authorities can choose between direct award and competitive tendering	√
		Option B1: Mandatory tendering with flexibility, PSC scope under the control of national regulatory body	√
		Option B2: Mandatory tendering with flexibility, PSC scope under the control of the Commission	
Discriminatory access to ticketing systems	**T options: Integration of ticketing systems**	**Option T0: Baseline -** implementation of the Passenger Right Regulation and the Recast	√
		Option T1: voluntary national integrated ticketing systems	√
		Option T2: mandatory national integrated ticketing systems	√
		Option T3: Integrated EU ticketing system	
Limited access to rolling stock	**RS options: Access to rolling stock**	**Option RS0**: Baseline - no specific EU requirements	√
		Option RS1: Mandatory creation of ROSCO**s**	
		Option RS2: Mandatory ownership of rolling stock by competent authorities	
		Option RS3: Mandatory selling or leasing of rolling stock by the previous PSC beneficiary	√
		Option RS4: Obligation for the competent authority to take the financial risks	√
		Option RS5: Guidelines	

4. CONSTRUCTION OF POLICY SCENARIOS

Of 17 options screened in 4 groups, 11 have been retained including 4 baseline scenarios. The combination of all these options could create theoretically 54 scenarios, which would however be impracticable to assess.



A and B options are the core measures of the initiative and their combination determines the means and ambition of market opening. Therefore, the IA will start by assessing the 6 combinations of these core options and concludes which is the preferred one. Then the ticketing (T) options and rolling stock (RS) options will be assessed in order to identify which of these are best to support the market opening.

The combination of the preferred choices in each group would then form a preferred policy scenario, which will be assessed on its own right in order to identify possible overlaps and synergies in impacts.

Annex 6

BIBILIOGRAPHY AND LITERATURE REVIEW ON MARKET OPENING ISSUES

1. Literature review

This annex contains the literature review which outlines variety of existing opinions on the key problems of liberalization and market opening in the railway sector as well as on measures aimed at tackling them. It provides with the European Commission's perspective towards the questions or conclusions of available research in the area. The aim of the review is to provide the background to the measures proposed in the Impact Assessment accompanying the Legislative Proposal on Access to Domestic Passenger Rail Markets (Impact Assessment).

The main issues outlined in the literature review have been grouped into the following categories:

a) measuring performance of railway systems

Measuring the performance of different railway systems is crucial to provide evidence for system inefficiency and suggest measures for improvement. The European Rail Performance Index (RPI) developed by Boston Consulting Group (2012) is one of the most recent analyses measuring three components of railway performance: intensity of use of infrastructure, quality of service, and safety. The report suggests that neither unbundling nor market liberalization have any correlation with rail performance but that a correlation can be observed with direct state subsidization. It states that focusing solely on policy changes such as liberalizing markets and changing governance models may not produce the performance improvements desired. Rather, effective application of public subsidies and investments to drive higher performance may be the critical factor for improving passengers and freight services throughout Europe.

The report suggests that a railway system's overall performance generally correlates with the level of public cost (that is, subsidies and investments in the system), stating that no correlation between performance and the degree of market liberalization or the choice of governance model is found. More generally the report attempts to ask what the drivers of railway performance are on the basis of 3 variables: intensity of use, quality of service, and safety. However, the approach to defining performance is highly simplistic, because it assigns the same weight to each of those variables as well as their constituents. The geographical and demographical specificities of Member States are not taken into account as well as the public opinion on the quality of services is not assessed.

First, the RPI is based on an even split between these 3 variables with no evidence based weighting characteristics. The report itself admits the index's simplicity results in two biases, namely passenger performance relative to freight is over-weighted and big countries are favoured relative to smaller ones. Furthermore, the database used is not fully representative of impacts and benefits across the EU as it does not include Denmark, Estonia, and Greece in the analysis.

Second, all constituting variables are also made from even splits of several variables:

- "The intensity of use" variable is made from an even split of passenger and freight ton km per inhabitant. There is no consideration of Member States' modal share, availability or condition of existing and other modal infrastructure, geographical demography or any other of a multitude of factors that impact on utilisation.
- "Quality of service" is allegedly designed to measure whether the service offered is punctual, fast, and affordable but comes from an even split of four sub-variables, one of which is the percentage of high speed train services within long distance traffic. As a result, more than half Member States are scored unfavorably as they do not have high speed rail lines and only France and Spain score over 50%. The other variables were delays on regional and long distance services, again with no weighting according to Member States' diversity and assuming that both are as important as each other, even though one or other may carry a disproportionately higher number of passengers and price as measured by average price in euro per passenger- km. Also, no adjustments for purchasing power parity have been carried out, thus benefitting some countries over others in the final analysis.

The report compares RPI rating with public cost suggesting that railway systems' overall performance generally correlates with the level of public cost. This is an argument that has been developed through a number of studies. However, the study does not take into consideration the time lag effect or cyclical nature of any infrastructure maintenance, renewal or enhancements, leading to serious distortions in comparing countries across time.

As a result, there are clear limitations in providing sound railway efficiency comparisons on a wide international scale, which may lead to oversimplification and overgeneralization. These limitations were well outlined in numerous studies on stochastic frontier analysis (Cantos and Maudos (2001), Cantos, Pastor and Serrano (2010a), Cantos, Pastor and Serrano (2010b)), which aimed at comparing large number of countries over long period of time. However, neither of them was able to find any hard evidence in favor of any reform in railways as measured by its impact on efficiency of the system. Most methods rank the countries in terms of efficiency in the same order.

In this context, literature as well encounters difficulties to benchmark efficiency and with comparison between Member States. Therefore, the Impact Assessment focuses on the growth and the convergence/divergence of efficiency and productivity ratios since the nineties, and considers railway systems of the 25 Member States as systems that evolved with their own characteristics, mostly shaped by demography and geography (population density, urban concentration).

b) absence of open access rights

Literature analyzing competition in the market (as concerns passengers) is rare as the phenomenon is quite new. Start of activities of prominent new entrants in this market, such as WestBahn in Austria, NTV in Italy or RegioJet in Czech Republic dates back to 2011 only. Also, Sweden has provided open access in 2011 as well. Therefore it is difficult to find sound evidence-based studies on the subject.

However, there is literature on open access to freight markets. 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.

On the other hand, the potential for open access operators to undermine the economic equilibrium of services provided under PSCs is well documented in the existing literature. 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.

c) privatisation and competition for PSCs

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. 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.

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.

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.

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.

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.

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.

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. 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.

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.

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

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.

d) prospective analysis

The evaluation of EU public procurement Directives suggests that savings increase with the number of bids and with the use of open procedures. Savings in the procurement of goods, works and services have reached some 5% (where there are on average 5 bids). In railways, evidence in Germany, Sweden and Netherlands has pointed to savings of 20-30% per tender (ITF, OECD). It could be assumed that 5% of savings is the "benefit of tendering" (i.e. reduced margins of operators), whereas the remaining 15%-25% savings would derive from the "benefit of increased efficiency".

Given that in Member States currently directly awarding their PSC, the subsidy level is about 17 billion EUR, a 20% saving would result in a ball-park figure of 3.4 billion EUR on a yearly basis. Finally, prospective studies have also estimated potential efficiency savings in the 20-30% area. The study on the impact of the opening of rail competition in France carried out by Beauvais Consultants, KCW and RAILCONCEPT (2012) tables on a reduction of 30% of operational costs based on an analysis of different cost headings. In Germany, Booz Allen & Hamilton (2006) in their study on the privatisation of Deutsche Bahn tabled on an efficiency differential of 20% between DB and its competitors.

In an evaluation of introduction of competitive tendering in Dutch regional public railway transport in 1997-2005 Van Dijk (2007) concludes that it has led to a substantial increase in public transport supply an improvement of efficiency, although it did not result in an increase of passenger flows. Tendering for regional rail services has led to larger efficiency gain (20-50%) as compared to direct award contracts (0-10%). Moreover, the analysis shows that neither the number of people employed in the public rail transport, nor their working conditions have changed.

In Germany, introduction of tendering of public transport services for regional transport enabled the local authorities to save 20% and increase the traffic performance by 30%, as reported by Brenck and Peter (2007). Cost-savings have also been reported in Sweden, where competitive tenders have resulted in significant reductions of the public subsidies to the railway passenger services, in some cases producing cuts of 20-30% (Alexanderson and Hulten (2007)).

Although all reports on introduction of competitive tendering outline problems of the reform, these are different in countries and mainly arise due to inappropriate selection of implementation measures. In case of Germany, for example, the central government did not provide sufficient administrative and financial incentives for local governments to engage in even more efficient tendering. In Netherlands, problems with rolling stock emerged. These issues might well be solved with the adequate institutional, financial and policy setup, which proves the point that it is the general set of measures which matters.

e) access to rolling stock

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.

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 quasimonopolistic 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.

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).

f) access to related services

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.

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).

g) social aspects

Difficulties of evaluating social aspects of any changes in railway transport sector arise from the scarce literature available on the subject per se. Recent report of CER (2011) provides a thorough overview of the development of employability in the European railway sector, especially in light of the risks of the ageing workforce. Its main findings conclude that due to ageing, European railway sector will face large workforce shortages within a period of 0-15 years. However, the report does not have the status of a formal, statistical analysis due to data and geographical coverage shortages.

Some additional sources were used to cover the social impact issues in the Impact Assessment. Statistical analysis provided by the EIROnline study (2012) was used to complete the picture about general level of employment, its evolution and some anecdotal evidence on job losses in the EU rail sector. Also. European Commission analyses and monitoring of employment and working conditions in other sectors (primarily air, as provided in SEC(2010) 503 final) reveal a clearer picture of potential benefits and risks related to the impact of restructuring of network industries on the employment levels and working conditions.

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ANNEX 7
ASSESSMENT OF SOCIAL IMPACTS

1. Introduction

The social impacts of the opening of competition in and for the market iin rail will be different in the short, medium and long term (options 1-5 assessed in this Impact Assessment). Railway companies will have to adapt to the Single European Railway Area in the short term and compete with each other in open markets. Changes in the industrial structure of the sector will impose sometimes difficult company restructurings, which may be made more bearable if internal flexibility exists and if the effects are mitigated by adequate planning including a phased approach, and through regulatory safeguards. Also, changes could impact older workers in a different way across the EU because of the different application of legislation.

In the medium to long-term the confluence of the following factors will foster the development of the sector and job creation: economic integration, high oil prices, technology development, congestion in roads and airports, "tertiarization" or development of a service society, tourism, perhaps a decline in disposable income.

The main social issues involved in the development of a Single European Railway Area will arise from the **restructuring** needed to transform the current national railway operators (the "incumbents") into passenger transport operators able to operate throughout Europe in fair competition with many newcomers and the other passenger transport modes. They will also have to share the infrastructure with European multimodal freight operators.

Not all the needed restructuring takes place between firms. Internal restructuring is also needed and the latter requires **flexibility** in order that staff and resources can provide the best of themselves, while providing good working conditions and respecting safety legislation. The **employability** of individual workers will have to be strengthened, first of all within their firms, but also in the railways sector and the transport sector at large. Internal flexibility will reduce the need for external restructuring.

As with all other sectors of the economy, the rail sector has already gone through various reorganisations and restructurings often involving job reductions. As explained in the Annex 3 of this Impact Assessment, jobs have been declining in rail since the 90's; however, UK and Sweden have created jobs since then. In the medium term restructuring will be made easier because the rail sector is expected to become a **growth sector**, well adapted to the needs of a continental and low-carbon Single European Transport Area. The EU is backing this growth with its policies as shown in the White Paper.

This annex describes firstly the scope of the social impact assessment, describing general railway market conditions across the EU and outlines in more detail issues having the key role in how the railway sector will be influenced by proposed actions. The annex describes also the possibilities and options for facilitating the transfer of the sector to the expansion opportunities foreseen in the long term.

3. Impact on employment in railway undertakings

a) long-term growth and demand for railway services

The first impact of the Options 1-5 could be negative as some incumbent companies could be overstaffed due to the public administration character of their employment conditions (see

section 5 (c) *status of workers*). The new and old RUs may close services with little demand and increase the ones with more demand (e.g. by putting more carriages per train). They can also reduce personnel for instance through multi-tasking which means the assignment of a number of tasks to be carried out simultaneously or in a close sequence e.g. when train drivers check at the stations whether passengers have safely boarded the train, or when cabin staff starts cleaning in the airlines industry. Firms can also reduce staff in some places such as management layers or jobs rendered obsolete by new technologies. Still, the general effects on employment will be positive, as a service economy relies largely on passenger transport. Europe is also the main tourist destination in the world.

In theory the historic railway monopolies would be able to exploit better economies of scale and scope at national level but this would be possibly compensated by the slack brought by lack of competition and some level of ineffectiveness in public surveillance. Above all, the new operators would be able to reach economies of scale and scope as well as network externalities not any longer at Member State level but at EU level triggering a higher efficiency-expansion-employment effect.

Although difficult to measure in practice the long-term growth factor proves important in those Member States that have taken the initiative to open domestic passenger services to competition on the basis of national law. In UK, Germany or Sweden it appears that this has led to an increase in the volume and quality of services offered to passengers therefore keeping or increasing the number of jobs in the sector, and allowed salaries to remain competitive as companies (want to) retain solid staff through attractive conditions.

b) workforce shortages

The railways sector is an ageing sector which could give rise in the near future to critical **skill shortages**, in spite of high unemployment in the rest of the economy. The participation of women, the reserve labour pool, is also very low. The risk of skill shortages will be bigger because technological change and cross-border integration will add to the effects of ageing. Taking the example of Belgium, 30% of the current rail workforce will retire over the next 10 years, while opening to competition will be introduced gradually over the same period.

Liberalised market will enable workforce flow towards companies which provide better conditions. New entrants willing to attract skilled workforce will introduce measures to facilitate the transmission of knowledge to them. On the other hand, incumbents will be under pressure to improve working conditions as well, resulting in a more dynamic approach towards workforce in sector in general.

A special survey[17] from 19 European countries has produced a clear picture, even if the interpretations drawn from it do not have the status of a formal, statistical analysis. In workforces totalling 812,366 employees:

- 54% of employees are older than 45 and
- 34% are already past the age of 50.

BOX 1 - AGEING IN SNCB ACCORDING TO A QUESTION PUT IN THE BELGIAN SENATE

Réponse à la question écrite n° 5-2703 de Bert Anciaux (sp.a) du 12 juillet 2011 à la ministre de la Fonction publique et des Entreprises publiques

Le nombre de jours d'absence pour maladie des conducteurs de train

Le nombre moyen de jours de maladie des conducteurs de trains s'élevait selon le Groupe Société nationale des Chemins de fer belges (SNCB) à douze jours en 2006, à quatorze jours en 2007, à treize jours en 2008, à treize jours en 2009 et à treize jours en 2010. Il s'agit ici du nombre moyen de jours d'absence d'un conducteur de train malade. Ce nombre reste donc assez stable.

Proportionnellement le nombre moyen de jours de maladie est considérablement plus bas que la moyenne totale pour le Groupe SNCB. Ceci a sans doute à voir avec l'âge moyen de

Within 10 years, 15 at the latest, this segment of workers will have left the workforce. Whether workers in this age bracket continue in employment for the entire period will depend on whether they can continue to perform their tasks right up until retirement and where working conditions and their health permit this and more specifically depending on what arrangements exist within incumbents for early retirement (meaning earlier than the statutory retirement age). There will be particular problems where these workers are employed in physically demanding jobs.

Skill shortages could be critical, for example, in the deployment of European Railway Traffic Management System which should provide the nervous system of the Single European Railway Area. Drivers, maintenance workers, inspectors and network traffic managers need to **upgrade their skills** to adapt to the **digital era**. Training means should be deployed in a timely manner. EU instruments such as the European Social Fund and national instruments should be used to increase the **employability** of workers, in particular through training. Existing or newly recruited network management employees and public procurement officials will also need training to be able to live up to the requirements of their crucial roles.

BOX 2 – TACKLING THE WORKFORCE SHORTAGE

School cooperation agreements launched by Deutsche Bahn AG targets young people at schools and their teachers with the aim to provide practical activities and courses in the company, led by DB's staff. The program is a win-win situation, because older (experienced and skilled) workers are valued, transfer of knowledge is ensured without interruption and possibilities for younger generation are provided to integrate smoothly into the labor market. This increases the workforce supply for the company, minimizing the risk of potential performance problems in the longer term.

just over 18% against 45%. These proportions are quite insufficient taking into account that the whole of the transport sector is ageing and is older (29% of workers over 50) than the average of the economy (27%). If upcoming skill shortages are to be avoided, a higher female presence will be needed to help replace the retiring baby boom cohorts.

In most transport sectors "mobile jobs" such as drivers, are occupied by men although some crew members are women. High speed trains or short range trains allow an easier conciliation of working and private life. Still women and men raising families could be less mobile due to the pressing need they have to preserve a work-life balance. The strong cultural inertia in the male-dominated transport (and railways) professions cannot be easily changed.

c) higher productivity

The potential impact on employment will greatly depend from the improvements in efficiency compared to the forthcoming ageing of the workforce in railways. Since 1990, some European countries witnessed a growth in productivity of railway sector[18]. Although in some cases this increase of productivity was achieved by cuts in workforce, in other cases reduction of staff does not fully explain the outcome, meaning that better management also played an important role.

If in the 10 years to come we make a retirement simulation of 30% of the rail workforce mentioned under point (b) (some 139.000 persons) retires and we simulate in parallel a productivity improvement of 20%, some 92.600 workers could be affected. However, in reality potential redundancies will be offset by the retirement of 139.000 persons, even more so if the transitional periods for existing contracts were to be foreseen as from 2019 till 2023. In this sense, there is actually a risk of shortages.

At the same time, if the savings of competitive tendering were reinvested to purchase additional passenger-kilometres, the delivery of additional 34 million p-km would require more people work for rail, not counting additional infrastructure and rolling stock demand. Extra workforce needed could be up to 14 000 people. As a result, unless productivity increases by more than 30%, it is very likely that in the mid-long term perspective railways will face shortages of workers.

In any case, measures taken in each Member State will be different as the starting position is also not the same. Those RUs which have not performed well in efficiency improvement will have much more potential in increasing performance, including cuts of staff. Such RUs are mostly, but not always, common to the Central-Eastern and Southern-Eastern part of the EU. Yet as explained in the Annex 3, productivity is difficult to compare between Member States due to geographical concentration of population density)On the contrary, other railway undertakings have already reached the point when further staff cuts will bring no improvement in performance and will face serious risk of workforce shortages in the medium-to-long term.

d) multifunctional positions and multitasking

Our interviews revealed that the introduction of multifunctional positions and multitasking can provide substantial incentives for younger people to work in the railway sector. Young people prefer to have the possibility to try different tasks in order to acquire more skills and be better prepared for possible changes in the labour market, looking at it as a life-learning experience. In addition, multitasking provides more opportunities for flexible time schedule, which is more acceptable for some specific worker groups, such as women, due to maternity-related reasons. In general, such measures could substantially reduce the risk of workforce shortages to railway undertakings, provide more opportunities to specific workforce groups as well as introduce more flexibility.

[18] See table 8b in Annex 3 of this Impact Assessment.

4. Impact on employment in rail-related sectors

Employment in rail-related sectors will be mainly influenced by two key factors. First, the long-term drive for growth in the railway services will directly increase demand for rolling stock and need for infrastructure renewals. This will translate into growth and increased demand for jobs in railway manufacturing and construction business.

Secondly, examples from other sectors (aviation primarily) show that breaking down integration and increasing competitive pressure results in a focus on core activities of the business in order to increase efficiency. Non-core activities to passenger transport, such as maintenance, cleaning, catering tend to be outsourced, thus creating more businesses as well as providing more opportunities for unskilled workforce, securing their share of the labour market.

Between 1998 and 2006, the number of ground handling service providers directly employed by air carriers fell by almost 27%, from 88 000 to 64 000 jobs and of those directly employed by airports remained stable or fell slightly, between 1996 and 2007. However, most of these jobs were outsourced to independent groundhandling service providers, whose total number of workers rose from 13 000 in 1996 to almost 60 000 in 2007.[19]

However, change was not the same across the EU. While employment remained stable, or even increased in several Member States, (Austria, France, Italy, Portugal, Spain), it has, however, fallen sharply in others (Belgium, Denmark, Germany, Switzerland). This indicates clearly the need for adequate national measures to be taken in order to facilitate change and transition.

Regulation 1371/2007 on rail passengers' rights and obligations gives the possibility to Member States to set minimum quality standards for the provision of railway services and can act as an incentive for railway undertakings to deliver quality services.

5. Impact on working conditions and status of workers

a) job security

Workers and employees suffer risks incurred by the firm which employs them. A worker can be dismissed for his lack of performance, lose his job as his firm goes bankrupt, or because of restructuring. Losing one's job is a bad experience for anyone, with important impacts on health and quality of life in general. The mere prospect or possibility of losing it is also a source of stress. All these issues are independent of the introduction of competition in rail. Workers also suffer or benefit from the economic health of the railway sector and of the economy at large.

From the point of view of job security:

- The risk of a public monopoly is that its public authority – competition authorities included – may decide to dismantle it, given its inefficiencies or its lack of functionality with the rest of the economy. A monopoly may sustain more jobs inside the firm but it will support fewer jobs in the rest of the economy than a firm in a competitive market. A monopoly may also afford investing more in R&D making jobs more secure in the longer run.

[19] SEC(2010) 503 final, p. 8. http://ec.europa.eu/transport/modes/air/internal_market/doc/sec_2010_503_en.pdf

- According to Option 4, a PSC offers a maximum of 15 years monopoly and therefore a possible restructuring every 15 years. For the new bidders competition takes place on paper and they only risk the cost of the dossier. They have not contracted yet most of the workers needed to fill a new PSC. The stability offered by long enough PSCs is good for training and for investment. The geographic scope should also be wide enough.
- In open access the railway undertaking risks everything: it may lose its equity, its creditors can lose their loans, and the workers their jobs. There is a perpetual threat of restructuring. Still, it has to be acknowledged that the licences and certificates required to operate a railway service as well as the access agreements have a stabilising role, not to mention the serious financial commitments that a new entrant has to assume.

The losing of a service contract is a particular case where jobs may be at risk, but only in the case where the new contractor does not retain those employed by the previous contractor. If there is high unemployment workers have little choice, but if the market becomes tighter as expected they will be able to choose. Thus some older workers, or some young workers settling down to create a family, could prefer to stay with the new firm in order to remain in the same place where they have home, family and friends, while some single younger workers could prefer to follow the old firm to other places to improve their career perspectives.

According to EU legislation (Directive 2001/23/EC on the approximation of the laws of the Member States relating to the safeguarding of employees' rights in the event of transfers of undertakings) when a firm is transferred, the new owner must respect the labour contracts which exist in the firm which has been acquired. In sectors based on tangible assets and not on manpower the application of the Directive will depend on whether significant rolling stock and other tangible assets are transferred. PSO Regulation 1370/2007 extends the protection of Directive 2001/23/EC allowing for the possibility to transfer employment relationships in cases where Directive 2001/23/EC would have not been applicable (e.g. when rolling stock and other tangible assets are not transferred).

For employees it is important that job security is preserved, but for firms it is also important that skills and quality service are kept. The transfer of workers at the end of a concession is already possible, even going beyond of the scope of Directive 2001/23/EC, in the case of Public Transport according to Regulation (EC) No 1370/2007, if competent authorities decide to require it. It is up to the Member States to decide whether to guarantee job continuity in each case.

Ideally restructuring should take place before the changes foreseen by the Option 4. Smooth restructuring requires anticipation, information and consultation through employees' representatives. It will also require re-training and active help to find new jobs, provided that there are funds available and that the social security will not accept pre-retirement, which has been commonly used to smooth restructuring operations. It also requires money, perhaps from the European Social Fund if Member States include railway restructuring needs in their plans and apply for this kind of EU aid.

The Commission has no role interfering in the public sector like contractual relations that many railway sector workers keep from the past and which are detailed in section (c) below.

b) status of workers[20]

In some countries the employees of the state-owned railway companies have retained the special status they had when the railways were part of the public administration:

- In Belgium, 97% of the employees of Belgian National Railways (SNCB-NMBS) are employed under a special public service employment statute dating back to 1926 and similar to the civil service status, which was kept by SNCB-NMBS employees following the split of the company in 2005.
- In France, employees of the SNCF Group have a special status and specific rules on working time; despite some employees within SNCF Group being employed under non-standard contracts and not enjoying these benefits, there is still some recruitment under the former agreement.
- In Luxembourg, the status of Luxembourg National Railway Company (CFL) employees is similar to that of civil servants and applies to most workers (within CFL Cargo, a joint venture with the private company Arcelor, this status does not apply to workers transferred from Arcelor and to newly hired employees).

In other cases, railway companies still have a significant number of employees with special status, but the framework is changing.

- In Denmark, longer serving employees of Danish Railways (DSB) are employed under the act of statutory civil servants but those hired since 2000 do not.
- In Austria, more than half of the employees of Austrian Federal Railways (ÖBB) employees are tenured public servants. However, under specific transition regulations (a new service law applied to those hired from 1995), a new general collective agreement laying down new service employment regulations for the whole ÖBB Group was concluded in 2004 following the conversion of OBB into a holding company. This agreement included provisions on working hours, leave and reduced sickness benefits.
- In Germany, the number of civil servants employed in the DB Group declined steadily from 24 in 2000 to 14% in 2010). In Norway, employees of Norway Rail (NSB AS) lost their civil servant status but maintained some privileges such as the special severance pay arrangement for state employees or the right of preference for a new post in the public sector if they lose their job due to downsizing or health situation.
- In Greece, employees of the Hellenic Railways Organisation (OSE) and its subsidiaries had a special status, but recent restructuring plans will enact new working terms and conditions for the group's companies that can be modified unilaterally by the management. The new staff regulations approved by the management of TRAINOSE provide for dismissals of employees upon unilateral termination of the contract by the company's management due to financial reasons or, for example, professional inadequacy.

6. Wages

[20] Employment and industrial relations in the railways sector. Eironline, http://www.eurofound.europa.eu/eiro/studies/tn1109030s/tn1109030s_3.htm

It is interesting to compare wages or incomes from drivers in different markets across the EU and their evolution in those countries that have taken steps to open up their domestic rail markets, based on different available sources.

During the conference of the 24 September 2012[21], it was claimed that the wages of train drivers in the UK reached some 50.000 €/year (hence some 4.200 €/month) and that those of private railway undertakings in Germany were at some 86% of the incumbent DB. The PREDIT study in France referred to net monthly driver wages at SNCF between 1500 € (career start) and 3400 € (end) – hence probably between 3000 € and 7000€ brut. In those markets that have been liberalised, new entrants offer attractive salary conditions in order to ensure that they attract the staff and grow their service.

Finally, anecdotal evidence suggests that the opening to competition has not led to a deterioration of income. According to the European Foundation for the Improvement of Living and Working Conditions, between 1999 and 2004, the average monthly income of SJ (Swedish incumbent) would have increased by 18% (during the privatisation period of SJ while market opening had already taken place).

7. Existing social safeguards in rail – the mitigation measures in the social area

The Options 1 to 5) makes it necessary to examine whether there is any need to clarify or adapt the EU horizontal social legislation which applies to railways to the new situation created by the market opening reform as the latter may require a strengthening of the social protection net. The areas of particular interest are those covered by horizontal Directives on the transfer of undertakings (2001/23/EC), working time (2003/88/CE), and posted workers (96/71/EC). These three instruments improve job security, preserve basic working conditions and prevent any unfair competition. They could require measures of enforcement such as exchanges of information or inspections both currently and for the post-reform situation.

In case adaptations or clarifications of the horizontal legislation proved to be necessary this could be done first of all by including social clauses in the market opening legislation. The latter could clarify the application of the legislation to the specific transport sector (e.g. in the case of the Posting of Workers Directive) or could widen the scope of horizontal social legislation (e.g. transfer of undertakings). Secondly, the Union could also issue sectoral social legislation preferably coming from a social partners' agreement and if not as a Commission's own initiative. Examples of these kinds of actions are the Public passenger services regulation (1370/2007) which in its Article 4 (5) builds on Directive 2001/23/EC or the Directive on working conditions in cross-border services in the railways sector (2005/47/EC) which is implementing a social partner agreement.

Measures on training and certification could also be necessary to cope with the dynamism of the sector and to facilitate any redeployment derived from the reform. The sector should make wider use of the European Social Fund support available to that purpose.

Some tools available for the EU social safeguards system are:

a) common EU social standards

[21] *The Last Mile towards the 4th Railway Package*. 24 September 2012, Brussels. See Annex 10 of this Impact Assessment for a summary of the conference.

Taking into account that PSCs incur fewer risks than open access companies, higher social standards might be applied in PSCs by competent authorities. Under Regulation 1370/2007 the competent authority can also ask that a high level of social standards be applied and afterwards monitor that the contract is properly implemented. There may be an impact on wages in case workers from other Member States join the market, but the core labour law of the host MS will be applied to them according to the Posting of Workers Directive or the full labour law, including applicable collective agreements, if they reside in that Member State as worker (free movement of EU nationals). Free movement of workers within Europe would contribute to a wage convergence mostly upwards as the pool of skilled railway workers is quite restrict.

A "race to the bottom" in social conditions would be prevented through a tight market and through EU and national social legislation. There is horizontal EU working time legislation which regulates certain aspects of the working time in railways such as the maximum 48 hours per week and annual leave, although there is an opt-out which allows Member States not to apply the 48-hours' limit, while respecting the general principles of the protection of the safety and health of workers, and provided that strict conditions are respected. Collective agreements may continue to apply. De facto situations which are much better than what the legislation or the collective agreements determine may disappear. Negotiations to arrive at collective agreements may be difficult.

b) working conditions and working time

Railway workers are protected by horizontal EU working time legislation (Directive 2003/88/EC concerning certain aspects of the organisation of working time) and some of them by a Directive (2005/47/EC) on **working conditions** in cross-border rail services.

Directive 2003/88/EC is a framework directive setting out key rights of workers across the EU, such as a limit to weekly working time, a minimum daily rest period, a rest break during working time, a minimum weekly rest period, paid annual leave, as well as extra protection in the case of night work. Directive 2005/47/EC, applicable for cross-border operations, introduced the involvement of the social partners in rail sector, thus ensuring satisfactory working conditions for workers in interoperable rail services. Among other conditions, rail workers are entitled to a daily rest period of 12 consecutive hours and breaks of between 30 and 45 minutes, daily driving time limit of 9 hours on a day shift and 8 hours on a night shift.

An implementation report on Directive 2005/47/EC has been published. This Directive is based on an agreement between social partners. The combination of this Directive with other EU legal acts seems to make it unnecessary at the moment to develop further EU legislation on working conditions for domestic railways. The increase in the number of operators that market opening will imply that Member States will need to increase the resources they devote to the **enforcement of the existing working time rules.**

The purpose of Council Directive 2005/47/EC of 18 July 2005 was to implement the Agreement concluded on 27 January 2004 between the Community of European Railways (CER) and the European Transport Workers' Federation (ETF) on certain aspects of the working conditions of mobile workers engaged in interoperable cross-border services.

> The Agreement provides in Clause 4 that any rest away from home must be followed by a daily rest at home. However, social partners at national or enterprise level may agree upon a second rest away from home. This second rest away from home has been negotiated in only eight Member States: Germany, Hungary, Romania, Slovenia, the Netherlands, France, Italy and Portugal. However, it often only covers

some operators in those countries. This issue has proved divisive among social partners in the railway sector and no agreement has been possible at EU level. The social partners have closed these negotiations for the time being.

A report on the implementation of this Directive has been published. The experience gathered with this Directive could be taken into account in case any new protective measure is judged necessary to accompany the opening of the domestic passenger market.

According to the draft implementation report, when this Directive was adopted 14 Member States had to increase the level of protection of their cross-border railway workers. Some companies, for example, had to decrease the driving time from 10/11 hours to 9 hours during the day and 8 during the night, which should reduce health and safety risks. Most Member States have the same legislation for national and international railway personnel. Nine Member States have a different legislation for national railway personnel and these differences are very diverse. There are, for example, differences concerning driving time, breaks, rest away from home, etc.

The most controversial matter from the start was the regulation of the number of daily rests away from home. The Agreement allowed one daily rest and provided the possibility for social partners to agree upon a second rest away from home. This second rest away from home has only been agreed in seven Member States. For most employees' representatives, the period spent away from home is regarded to have a particularly negative impact on the work-life balance. However, in some countries, where domestic routes are long and as a result there is a traditional habit of spending several days away from home for domestic rail services, the issue appears as less important.

The main impact of Directive 2005/47/EC may, instead, lie in its role as a safety net, that prevents a "race-to-the-bottom" on the issue of working conditions by imposing a harmonised floor below which no operator may go. It thereby ensures a level playing field and prevents unfair competition.

The implementation report contains other data of interest for this Impact Assessment. The total number of locomotive drivers in the EU with licences for at least two countries has been estimated by the abovementioned study commissioned in support of this report at between 5,000 and 7,000. This number of cross-border drivers is limited (less than 10% of all drivers) compared to the total number of train drivers in the European Union, which is approximately 93,000, especially considering that most of these drivers are both involved in domestic services and cross-border services. The number of other cross-border workers is more difficult to estimate. The number of conductors is estimated at 6,000, based on the assumption that on every driver in passenger transport on average two conductors are active. However, most of these conductors will only work cross-border on part of their shifts. Apart from the conductors, some passenger trains have other staff on board, serving passengers such as bar tendering, catering, restaurant or night train staff making beds and breakfast. Other staff numbers are even more difficult to calculate than conductors.

c) transfer of staff

An essential process to smooth restructuring is **anticipation** which is straightforward in the case of concessions or in our case public service contracts where restructurings take place regularly. As these contracts come to an end operators can change. In certain of those cases, in particular where there is significant transfer of assets, the protection of employees' rights will be guaranteed by the application of the horizontal Directive 2001/13/EC on the approximation

of the laws of the Member States relating to the safeguarding of employees' rights in the event of transfers of undertakings, businesses or parts of undertakings or businesses.

The Commission's approach followed in the **Public Service Obligations Regulation** (1370/2007) in rail and road transport is to **leave Member States the possibility** of organising **the transfer of workers** from one concession-holder to the next. Therefore, the existing legal instruments for ensuring employees' rights in case of a transfer of public service contract from one operator to another one appear to be already quite comprehensive while taking account of the situation and needs at local or national level.

In any case, the Commission has carefully assessed the impact on jobs and working conditions of all the options. The Commission has consulted the Social Dialogue Committee on potential impacts that should be also taken into account and has met with ETF. The responses to the stakeholder consultation completed by ETF have been evaluated.

What the Commission **cannot do** is to go towards a **harmonisation of the level of social protection** when there is a transfer of contract. Due to subsidiarity considerations this is clearly an issue for Member States and their competent authorities to decide. This, of course, is without prejudice of the areas covered by EU labour law in force.

d) the posting of workers directive

The emergence of international operators will make the safety net provided by Directive 96/71/EC concerning **the posting of workers** in the framework of the provision of services more important, which obliges granting workers posted from other Member States the protection of the core social legislation of the host country. The PWD applies to staff on board international passenger trains and it will apply in future to posted crews carrying out domestic rail services. Directive 96/71/EC must also apply to all cabotage operations.

To guarantee that the rights and working conditions of a posted worker are protected throughout the European Union, and to avoid "social dumping", the European Union law has established a core of mandatory rules regarding the terms and conditions of employment to be applied to an employee posted to work in another Member State. The core of mandatory rules on posting covers a wide range of issues such as maximum work periods and minimum rest periods, minimum paid annual leave, minimum rates of pay, equal treatment and the conditions of hiring out workers, in particular the supply of workers by temporary employment undertakings. The legislation also tackles issues such as health and safety at work and includes protective measures in the terms and conditions of employment of pregnant women, of children and of young people.

According to Directive 96/71/EC, Member States may derogate from applying minimum levels of pay in case the posting lasts less than one month or is considered non-significant. In the latter case they can also derogate the minimum paid annual holidays, but all the rest should apply such as maximum work and minimum rest periods, as well as health, hygiene and gender measures.

The probability of application of the posted workers directive is mostly theoretical, except in cabotage and international services.

e) licences and certifications for drivers, employability and training facilities

Social dialogue had an important influence in the genesis of the system of **licences and certifications for railway drivers**, as the Commission had put forward the corresponding proposal on the basis of a pre-existing social partner agreement. This system apart from

improving railway safety will facilitate the labour mobility of drivers and increase their employment security. The Commission intends also to put forward recommendations on a system of safety attestations for other crew members.

All train drivers must have the necessary fitness and qualifications to drive trains and hold the following documents:

a **licence** valid for all the Union identifying the driver and authority issuing the certificate and stating the duration of its validity. The licence will be the property of the driver and will be issued, on application, to drivers meeting the minimum requirements as regards medical and psychological fitness, basic education and general professional skills;

a **harmonised complementary certificate** as evidence that the holder has received additional training under the railway undertaking's safety management system. The certificate should state the specific requirements of the authorised service (rolling stock and infrastructure) for each driver and its validity will therefore be restricted.

Training requirements

The employability and intra-European labour mobility within the sector will be reinforced by training and certification at EU level of the qualifications acquired.

The social partners in the railway sector define employability in the following way: "Employability as a strategic concept is based on prevention and aims to create a working environment which maintains and improves the capacity of the workers in respect of qualifications and competences as well as health and fitness in order to be "employable" in general terms. The responsibility is a shared responsibility of the company, the employees, works councils and trade unions".

Existing training centres have a national orientation; greater weight should be given to their ability to operate in international environments. There is a study of 2007 "Rail Training in 2020[22]" on evolution of skills and training in the railway field which provides insights that can also be checked for training in other modes:

Capacity: The existing rail training centres in Europe train an estimated 11,000 train drivers and around 20,000 other rail related staff a year. In comparison, the European railway sector employs more than 900,000 people.

Trainers: In a time with a shortage of train staff, potential trainers may be required to, or prefer to, operate trains rather than teach in a training facility.

Admittance to training: Compared to the rest of the education and training market where one gets the main training prior to the employment it is rather unusual that most often than not in this field the applicant must already be employed by a company before he can be admitted to training and education.

Main challenges: the impression is that it is hard to identify strong agreement on what tomorrow's agenda will be. That said, new regulation, environmental requirements, and internationalisation are seen as very relevant challenges by many training centres. Improving basic qualifications and standardising training to improve job mobility is on the agenda as well.

[22] Rail Training 2020. Training needs and offers in the European railway area the next 10 - 15 years. 2007, http://ec.europa.eu/transport/rail/studies/doc/2007_rail_training_2020.pdf

Internationalisation: half of the training facilities have some form of internationalisation but none of the training centres who answered the questionnaire can be classified as an international training facility.

f) European Social Fund and European Globalisation Fund

Whether as a result of changes of firm or of changes within the firm, the workers have every interest in increasing their employability so that they have employment security rather than job security. Training is a fundamental tool to improve employability, associated if need be with job-search assistance for the unemployed. Temporary workers and ageing workers could require particular attention as firms may have less interest in investing in them given the short period of time that they will remain in the firm.

The main instrument that the Union has to promote training at an EU level is the European Social Fund. The current priority of the European Social Fund is to increase adaptability of workers and firms by improving the anticipation and management of economic change. Within this priority, the European Social Fund supports active labour market measures and lifelong learning actions, including within companies.

However, surprisingly the railways sector makes little use of this resource. The room for improvement in the use that the sector makes of the fund can also be grasped by the fact that the above-mentioned study "Rail Training in 2020" does not mention at all the European Social Fund as a possible source of funding. There is, however, the need to acknowledge that more intensive use of European Social Fund for rail could possibly crowd out other targeted beneficiaries in other sectors.

Railway projects that appear in the European Social Fund website are listed below:

- Vocational training for workers, employees and managers in the Slovak Republic
- Language training for railway employees in SK
- Information technologies and computer skills training in SK
- Education of managers in SK
- Training of railway trainers in Romania for complying with EU standards
- Service-oriented modernisation of the trade union structure in Hungary
- Vocational training programmes for wagon repairers in Lithuania
- Capacity building for managers and staff of Lithuania railways
- Education on handover and takeover of trucks from wagons for CD cargo (Czech Republic)
- Integration of unemployed people in SNCF maintenance workshops

Instruments such as European Globalisation Fund (EGF) may provide substantial support for individual workers during the transition period. Although EGF cannot be used to keep enterprises in business or to help them with structural adjustment, it finances measures aimed at individual workers, such as job-search assistance, careers advice, tailor-made training and re-training, mentoring and entrepreneurship promotion. With up to € 500 million available each year, the EGF helps workers find new jobs and develop new skills when they have lost their old job. In 2011, the fund granted 22 contributions, targeting 21 213 redundant workers in twelve Member States with a total of € 128 167 758 paid from the EGF.[23]

[23] COM(2012) 462 final, p. 9. http://ec.europa.eu/social/BlobServlet?docId=8757&langId=en

g) Information and consultation of employees

The market opening of domestic rail will strengthen the movement towards the creation of large and medium pan-European firms operating in many EU countries. This will give more importance within the railway sector to the companies' or group of companies' European Works Councils through which employees are informed and consulted at a transnational level of the business development and all important decisions that can affect their interests. Notwithstanding the fact that European Works Councils only have powers of information and consultation they can initiate legal action to enforce their rights. A number of European Works Councils which have been set up so far belong to air transport and logistics, two sectors where internationalisation is more advanced than in railways. In railways there are some European Works Councils, such as those of Deutsche Bahn, Arriva, or SNCF. Many European Works Councils have signed agreements about the procedures to follow in case of restructuring.[24]

The right to establish European Works Councils, introduced by Directive 94/45/EC, applies to **undertakings or groups of undertakings with 1000 or more employees**, with **at least 150 in two or more** EU or EEA (Norway, Iceland and Liechtenstein) countries.[25] Since 6 June 2011, national legislation has to ensure that European Works Councils are established and operate within the framework of the provisions of the recast Directive 2009/38/EC.

Several EU Directives in the field of information and consultation of employees apply also at national level. Directive 98/59/EC on collective redundancies (decisions by employers to lay off a group of employees aims to improve protection for workers affected by decisions of this kind. It sets out that any employer contemplating collective redundancies must hold consultations in good time with the workers' representatives, with a view to reaching an agreement. These consultations must, at the minimum, cover means of avoiding collective redundancies or reducing the number of workers affected, and of mitigating the consequences, in particular by recourse to accompanying social measures aimed at redeploying or retraining those workers made redundant.

Article 7 of Directive 2001/23/EC on transfers of undertakings foresees an obligation for a transferor and transferee to inform the representatives of their respective employees affected by the transfer on the timing and reasons of the transfer as well as possible implications for employees and mitigation measures foreseen. Directive 2002/14/EC on the general framework for informing and consulting employees sets minimum principles, definitions and arrangements for information and consultation of employees at the enterprise level within each country. The directive establishes a requirement to consult worker's representatives in case of the development of the undertaking's activities and economic situation, development of employment within the undertaking and any anticipatory measures envisaged and decisions likely to lead to substantial changes in work organisation or in contractual relations.

[24] Consensus by committee? Transport International Magazine, Issue 28 July 2007, http://www.itfglobal.org/transport-international/ti28-ewc.cfm;

[25] Employee Involvement - European Works Councils. European Commission, http://ec.europa.eu/social/main.jsp?catId=707&langId=en&intPageId=211

8. Conclusion.

Market opening does not mean "wild liberalisation" but market regulation at EU level. Market opening of domestic and international rail passenger markets will reinforce each other in the creation of a substantial number of European market operators competing in these and other railways and passenger transport market segments.

It goes without saying that market opening shall respect all requirements of EU social legislation e.g. on working time or training. While this legislation aims at improved living and working conditions it provides in doing so a system of safeguards for the protection of those working conditions. An important part of this social safeguard system has been initiated and developed by the social partners in the context of EU social dialogue.

Further EU horizontal labour legislation which applies to the railways sector includes the Posting of Workers Directive (which guarantees that the working conditions of railway workers in a given Member State will not be undermined by railway workers posted from other Member States); the Transfer of Undertakings Directive lays down the conditions for transfer of staff when a firm is transferred (and would apply in the case of transfer of tenders to new market entrants); the European legislation in the area of information and consultation of employees requires that worker representatives are informed and consulted in case of restructuring.

Previous railway packages have included legislation proposals such as train driver licensing or passenger rights. The present package benefits from these previous proposals and from previous sectoral railway labour legislation such as working conditions in cross-border railway services. It should however encourage railway workers and railway firms to make use of the existing mechanisms so that they set up European Works Councils, they ask for European Social Fund support for training and they help to monitor the application of the Posting of Workers Directive to the railways sector notably in the cases of cabotage.

ANNEX 8

ANALYSIS OF THE SCOPE OF PSC VOLUME THRESHOLDS AND TRANSITORY PERIODS

1. Simulations on the maximum size of thresholds for packages of networks

1.1 - Theoretical analysis

In the problem definition, we identified that in Germany no single competitive tender with a size above five million train-km has ever been won by any other railway undertaking than the incumbent. This is due to a number of factors (e.g. maturity of market, existence of market entry barriers such as limited access to rolling stock, etc.). In other Member States with mature bidder markets and low entry barriers such as for instance the UK PSC volumes of about 45 million train-km have been tendered out successfully. It is clear that if Member States do not ensure that market entry barriers are low defining a broad scope of PSC going up to cover the whole national territory could lead to a market foreclosure even in case of mandatory competitive tendering for PSC.

According to a recent survey commissioned by regional competent authorities in Germany among rail passenger operators has shown that the companies consider PSC volumes of between 2 million and 7 million train-km as "optimal" given the specific financial and operational conditions of running rail passenger services under PSC in Germany.

In this context, it is proposed to proceed to a simulation of the impact of the following maximum absolute thresholds for the size of packages of train services under PSC available for tender:

- 5 million train-km (as much as Lithuania)
- 10 million train-km (slightly less than Slovenia)
- 20 million train-km (slightly less than Bulgaria)
- 50 million train-km (slightly less than Sweden)

At the same time, we have applied an alternative metric based on relative thresholds such as 50%, 33%and 10% of the national volume of rail passenger services under PSC (in terms of train-km).

Usual operational patterns of commuter and regional train services have been applied to estimate "typical" sizes in terms of train-kilometres.

(a) Suburban line

One line of a commuter-type rail operation (e.g. S-Bahn line) appears to represent some 2.3 million train-km/annum. For that, we have assumed a train-line operating with trains every 10 minutes on each direction (hence 12 trains per hour) on 50 km-long line with stops of 1.5 minutes at 20 stations. The line has been assumed to operate from 6:00 till 22:00.

Table 7 - Simulation of a suburban line

Trains per hour	Time span	Hours	Distance (km)	Stations	Speed (kmph)	Travel time (minutes)	Train km/year
8	6:00-22:00	16,00	50	20	40	80	2 336 000

This line would require 8 trains in total.

As a result, the impact of the threshold on suburban rail networks would be the following:

- 5 million train-km threshold: suburban networks will have to be tendered with packages of 2 lines
- 10 million train-km: suburban networks will have to be tendered in packages of up to 6 lines
- 20 million train-km: suburban networks can be tendered in packages of train services of up to 9 lines (the 20 million train-km threshold is likely to maintain the integrity of most suburban networks).
- 50 million train-km suburban networks can be tendered in packages of up to 18 lines (the 50 million train-km threshold is likely to maintain the integrity of suburban networks).

(b) Regional line

One line of a regional rail operation appears to represent some 1.7 million train-km/annum. For that, we have assumed a train-line operating with trains every hour on each direction (hence 2 trains per hour) on 150 km-long line with stops of 1,5 minutes at 8 stations. The line has been assumed to operate from 6:00 till 22:00.

Table 8 - Simulation of a regional line

Trains per hour	Time span	Hours	Distance (km)	Stations	Speed	Travel time	Train km
1	6:00-22:00	16,00	150	8	75	142	876 000

This line would require 3 trains in total..

As a result, the impact of threshold on suburban rail networks would be the following:

- 5 million train-km threshold: regional packages of train services under PSC can cover 5 to 6 lines
- 10 million train-km: regional packages can cover 11 to 12 lines
- 20 million train-km: regional packages can cover 22 to 23 lines
- 50 million train-km: regional packages can cover 57 lines.

1.2 - Impact of thresholds on existing public service contracts

Table 9a provides an indication on the likely impact of the definition of maximum thresholds for PSC volumes both in absolute terms (train-km) and in relative terms (% share of total national rail passenger transport volume under PSC in train-km). The table indicates a) how many packages of train services under PSC would have to be set up for threshold variants in absolute terms (5, 10, 20 and 50 million train-km) and

b) how big the packages could be at most for three variants of thresholds in relative terms (1/10, 1/3 and ½ of the total passenger rail market under PSC).

Table 9a – Number of packages of train services in function of several thresholds (simulation with the total volume of rail passenger transport in million train-kilometres per Member State)

		Number of packages in function of package threshold (in terms of mill. train-km)				Size of packages (millions of train-km)		
	Mo train-km	5	10	20	50	**10%**	**33%**	**50%**
Austria	99.3	20	10	5	2	9.9	6.6	5.0
Belgium	77.1	15	8	4	2	7.7	5.1	3.9
Bulgaria	23.9	5	2	1	0	2.4	1.6	1.2
Czech Repub.	122.1	24	12	6	2	12.2	8.1	6.1
Denmark	74.1	15	7	4	1	7.4	4.9	3.7
Estonia	2.6	1	0	0	0	0.3	0.2	0.1
Finland	35	7	4	2	1	3.5	2.3	1.8
France	395.9	79	40	20	8	39.6	26.1	19.8
Germany	674.9	135	67	34	13	67.5	44.5	33.7
Greece	18.3	4	2	1	0	1.8	1.2	0.9
Hungary	94	19	9	5	2	9.4	6.2	4.7
Ireland	16.6	3	2	1	0	1.7	1.1	0.8
Italy	265.9	53	27	13	5	26.6	17.5	13.3
Latvia	5	1	1	0	0	0.5	0.3	0.3
Lithuania	5.5	1	1	0	0	0.6	0.4	0.3
Luxemburg	7.4	1	1	0	0	0.7	0.5	0.4
Netherlands	113.3	23	11	6	2	11.3	7.5	5.7
Poland	124.3	25	12	6	2	12.4	8.2	6.2
Portugal	30.7	6	3	2	1	3.1	2.0	1.5
Romania	n/a	-	-	-	-	-	-	-
Slovakia	31.6	6	3	2	1	3.2	2.1	1.6
Slovenia	11.8	2	1	1	0	1.2	0.8	0.6
Spain	180.5	36	18	9	4	18.1	11.9	9.0
Sweden	50.3	10	5	3	1	5.0	3.3	2.5
UK	507.4	101	51	25	10	50.7	33.5	25.4

Table 9b – Number of packages of train services in function of several thresholds (simulation with the total volume of rail passenger transport under PSO in million train-kilometres per Member State, where data is available)

			Number of packages in function of package threshold (in terms of mill. train-km)				Size of packages (millions of train-km)		
	Mo train-km	PSO (train-km)	5	10	20	50	**10%**	**33%**	**50%**
Belgium	77.1	77.1	15	8	4	2	7.7	5.1	3.9
Denmark	74.1	74.1	15	7	4	1	7.4	4.9	3.7
Estonia	2.6	2.6	1	0	0	0	0.3	0.2	0.1
France	395.9	275	55	28	14	6	27.5	18.2	13.8
Germany	674.9	513	103	51	26	10	51.3	33.9	25.7
Greece	18.3	18.3	4	2	1	0	1.8	1.2	0.9
Hungary	94	94	19	9	5	2	9.4	6.2	4.7
Latvia	5	2.6	1	0	0	0	0.3	0.2	0.1
Lithuania	5.5	18.3	4	2	1	0	1.8	1.2	0.9
Luxemburg	7.4	7.4	1	1	0	0	0.7	0.5	0.4
Netherlands	113.3	113.3	23	11	6	2	11.3	7.5	5.7
Slovakia	31.6	31.6	6	3	2	1	3.2	2.1	1.6
Spain	180.5	99.8	20	10	5	2	10.0	6.6	5.0
UK	507.4	507.4	101	51	25	10	50.7	33.5	25.4

1.2.1 – Member States where PSC are currently tendered out

While there is no detailed data available for all Member States it is possible to simulate the impact of each of the thresholds on the existing public service contracts of Denmark, Germany, Italy and UK.

(a) Denmark

Table 10 - Packages oft rain services in Danmark

Bundles	Million Train-km
S-Tog	14,6
East Great Belt	12,6
West Great Belt	17
Cross Great Belt	19,2
Average	15,85

Source: Statsbank-DK

In Denmark, the average size of packages has been 15,8 million train-kilometres. Most of the competitive tenders have actually been awarded to the incumbent DSB, except for the West Great Belt which was directly awarded to the new entrant DB Arriva.

If a threshold below 20 million train-kilometres were chosen, then it would be necessary to reorganise packages in Denmark.

If a threshold in relative terms would be applied, the existing packages could be maintained except in case of the 10% threshold.

(b) Germany

In Germany, although the median package put for tender since 2006 has only 0.38 million train-kilometres, no bundle above 5.28 million train-kilometres has ever been won by any railway undertaking but the incumbent. At the same time, all the bundles above 6.36 million train-kilometres have been directly awarded.

Table 11 - Largest contract awards in Germany since 2003

Type of award	Start	train-km	Winner
Direct	2004	98,1	DB
Direct	2003	49,0	DB
Direct	2004	44,0	DB
Direct- expires in 2012*	2002	35,0	DB
Direct	2003	33,0	DB
Direct	2004	32,4	DB
Direct	2003	29,5	DB
Direct	2003	27,8	DB
Direct	2003	16,2	DB
Direct	2005	12,7	DB
Direct – (re-awarded since)	2003	12,5	DB
Direct	2012	11,6	DB
Direct	2010	10,96	DB
Direct	2009	10,1	DB
Direct	2006	9,1	DB
Direct	2007	7,87	DB
Direct	2010	6,85	DB
Competitive	2012	6,36	DB
Competitive	2012	5,28	Other
Competitive	2010	4,9	DB

Thresholds of 50 million train-kilometres would not affect the existing public service contracts in Germany. Selecting a 20 million train-kilometre and a 10 million train-kilometres threshold would only affect respectively 7 and 13 contracts[26] that have

[26] Two contracts with (*) have expired; the S-Bahn of Berlin is one of them and will be for tender with smaller packages in 2012

been directly awarded. Finally, selecting a threshold of 5 million train-kilometres would affect 15 contracts, most of them directly awarded to the incumbent.

In this context, the forthcoming competitive tendering of the Berlin S-Bahn is likely to be one of the largest PSC ever awarded in Germany. In the stakeholder conference of 24 September, the Verkehrsverbund Berlin-Brandenburg announced that it would organise 10 tenders for the 40 million train-km of the whole Land, with 1 tender of 20 million train-kilometres for the Berlin S-Bahn (all lines except the Ring Line) and 1 tender of 10 million train-kilometers (for the Ring Line) – this actually shows that cities can cut their commuter networks.

If a threshold in relative terms would be applied, the existing packages could be maintained in all cases.

(c) Italy

In Italy, although the median package size of public service contracts amounts to 3.18 million train-kilometres, most PSC have been awarded directly. Two PSCs above 5 million train-km are operated by a different operator than Trenitalia: the PSC of Lombardy by LeNord (9.83 million train-km) – in Veneto, a PSC of 11 million train-km has been awarded to a consortium between Trenitalia and ATI Sistemi Territoriali.

Table 12 – PSCs in Italy

Region/Province	RU	Million train-km
Abruzzo	FS-TI	3.96
Basilicata	FS-TI	2
Basilicata	FAL	0.7
Calabria	FS-TI	7.1
Calabria	FC	1.17
Campania	FS-TI	10.56
Campania	Circumv	3.94
Campania	SEPSA	1.63
Campania	MetroC	1.05
Emilia-Romagna	CTI	18.7
Friuli VG	FS-TI	3.27
Friuli VG	FUC	0.23
Lazio	FS-TI	17.3
Liguria	FS-TI	7.4
Lombardia	FS-TI	27.7
Lombardia	LeNord	9.83
Marche	FS-TI	4.19
Molise	FS-TI	2.51
Piemonte	FS-TI	19.9

Piemonte	GTT	1.05
Puglia	FS-TI	7.2
Puglia	FSE	3.3
Puglia	FG	0.4
Puglia	Ferrotram	0.9
Puglia	FAL	0.7
Sardegna	FS-TI	3.6
Sardegna	FSrd	1.13
Sicilia	FS-TI	9.78
Sicilia	Circumt	0.76
Toscana	FS-TI	23.1
Toscana	TFT	0.79
Trento	FS-TI	2.38
Bolzano	FS-TI	3.2
Bolzano	SAD	2.1
Umbria	FS-TI	3.6
Umbria	UM	1.45
Valle d'Aosta	FS-TI	1.75
Veneto	FS-TI	3.16
Veneto	ATI	11.78
Veneto	ST	0.48

Source: Rapporto Pendolaria 2011

The threshold of 50 million train-kilometres would not affect the existing public service contracts in Italy.

Selecting a 20 million train-km threshold would affect the 2 PSCs (i.e. Tuscany and Lombardy), whereas a 10 million train-kilometres threshold would only affect 7 contracts representing 57% of train-kilometres in PSO.

Finally, selecting a threshold of 5 million train-kilometres would affect 12 contracts, representing 72% of train-kilometres in PSO.

If a threshold in relative terms would be applied, the existing packages could be maintained except in case of the 10% threshold where the Lombardia PSC of 27.7 train-km would be beyond the threshold and would have to be broken up.

(d) United Kingdom

In the UK, the average franchise appears to have a size of 25 million train-kilometres. It is important to underline that there is no incumbent with a dominant market share in the UK.

Table 13 - UK franchises

Operator	Train-km

Arriva Trains Wales	22,2
c2c	6,3
Central Trains	
Chiltern Railways	8,4
CrossCountry	30,6
East Coast Main Line Rail	19,2
East Midlands Trains	21,6
First Capital Connect	23,2
First Great Western	40,1
London Midland	22,0
London Overground Rail Operations Ltd	4,3
Merseyrail	5,8
Midland Mainline	0,0
National Express East Anglia	31,2
National Express East Coast	0,0
North Yorkshire Moors Railway	0,0
Northern Rail	43,1
ScotRail	40,4
Silverlink Train Services	0,0
South West Trains	37,5
Southeastern	29,3
Southern	33,0
Thameslink Rail	0,0
Transpennine Express	16,4
Virgin Trains Crosscountry	0,0
Virgin Trains West Coast	34,6
West Anglia Great Northern Railway	0,0
Total Franchised Passenger	469,1

Source: Steer Davies Gleave

A threshold of 50 million train-kilometres would not affect the existing public service contracts in the UK. Selecting a 20 and 10 million train-kilometres threshold would affect respectively 14 and 16 franchises contracts. Finally, selecting a threshold of 5 million train-kilometres would affect all but one franchise contract.

The setting up of a threshold below 50 million train-kilometres would disproportionately affect the UK, which has no incumbent.

If a threshold in relative terms would be applied, the existing packages could be maintained in all cases.

1.2.2 - Simulation of the impact in Member States where PSC are directly awarded

We have made a simulation of the effect of thresholds in 4 Member States (of different sizes) where there is currently no competitive tendering for public service contracts.

(a) Spain

The incumbent RENFE currently operates some 99 million train-kilometres of public service contracts (only long-distance services are not covered by a PSC). It is possible to estimate that the commuter networks of Madrid and Barcelona cover respectively some 40 and 20 million train-kilometres.

Table 14 - Examples of potential bundles in Spain

Operations that fall/could fall under PSO	Train-km (Mo)
RENFE Cercanias & Media Distancia	99
RENFE Cercanias Madrid*	40
RENFE Rodalies Barcelona*	20
Euskotren	4.9
Ferrocarils de la Generalitat de Catalunya	9
FEVE	8

Source: UIC,, RENFE Annual Report and (*) own estimations

A threshold of 50 million train-kilometres would affect the PSC of RENFE, but could leave intact the networks of Madrid and Barcelona. Selecting a 20 and 10 million train-kilometres threshold would imply cutting the commuter networks of Madrid and Barcelona. Finally, selecting a threshold of 5 million train-kilometres would affect the public service contracts of FEVE, FGC and Euskotren.

If a threshold in relative terms would be applied, the existing packages could be maintained except in the case of the PSC of RENFEE for all variants of the threshold definition and the PSC for the networks Madrid and Barcelona in case of the 10% threshold variant.

(b) Belgium

The whole Belgian territory is covered by a single public service contract. The future RER of Brussels is expected to have 23 million train-kilometres[27] , whereas the SNCB PSC covers 41 million train-kilometres in Flanders (the remaining part of the territory with Wallonia should cover then 27 million train-km in Wallonia). The future RER of Brussels is expected to have 23 million train-kilometres[28] .

A threshold of 50 million train-kilometres would affect the PSC of SNCB, but could give the possibility for a regional PSCs. Selecting a 20 million train-kilometres (or less) threshold would imply cutting the commuter network of Brussels and having a network organisation that does not follow regional lines (both Flanders and Wallonia appear to fall above the threshold of 20 million train-kilometres).

[28] Significance-Stratec-Tractebel-Tritel (2009-: Evolution et optimisation du RER de Bruxelles: développement 2015 et vision aux horizons 2020 et 2030 – Rapport pour le SPF Mobilité et Transports

If a threshold in relative terms would be applied, the existing packages could only be maintained in the case of the 50% threshold variant.

(c) Ireland

The public service contract in Ireland appears to cover all services, but the commuter train services (DART, Dublin suburban railways). We estimate that the latter services represent between 3.5-5 million train-kilometres leaving about 10 million train-km for the regional and national rail services under PSC. In these circumstances, any threshold above 5 million train-km will not affect PSCs in Ireland.

If a threshold in relative terms would be applied, the existing package for regional and national train services could not be maintained. The package for the DART services could be maintained except in the case of the 1/10 threshold variant.

(d) Lithuania

Lithuania is covered by a single PSC covering 5 million train-kilometres. In this context, Lithuania would be most likely not affected by any of the choices in terms of thresholds.

If a threshold in relative terms would be applied, the existing packages could not be maintained.

1.3 - Impact on rolling stock of each threshold variant in terms of train-kilometre

Based on the previous assumptions regarding the operation of a suburban and a regional line, we have calculated the number of train units (EMU) and carriages that would be necessary to operate a suburban network and a regional network in terms of train-kilometres.

Table 15 – Number of carriages equivalents needed per package of train services for a suburban network (in train-kilometres)

package of train services (in million train-km)	EMUs	carriage equivalents
2.4	8	48
5	17	102
10	34	204
20	67	402
50	167	1002

Table 16 - Number of carriages equivalents needed per package of train services for a regional network (in train-kilometres)

package of train services (in million train-km)	EMUs	carriage equivalents
0.8	2	11
5	11	68
10	23	137
20	46	274
50	114	685

To approximate the impact of the size of thresholds on required rolling stock, it is possible to estimate the percentage of existing rolling that a bidder would need to procure in order to perform the regional and suburban services of the tendered package of suburban or regional train services (based on our previous assumptions). We have also assumed that 10% of rolling stock would be needed as a replacement for rolling stock in maintenance.

In approximation one could argue that the higher the share of the rolling stock required for the operation of a package of rail routes in a PSC is in the total amount of rolling stock available on a national rail network, the more difficult it could possibly be for a non-incumbent to procure suitable rolling stock. We have highlighted in blue those markets where the needed rolling stock is above 10% of whole Member State's rolling stock.

Table 17 – Percentage of national rolling stock needed to perform suburban PSCs

		Threshold of packages (in train-kilometres)				
MS	Rolling stock	2.5	5	10	20	50
BE	3412	1.5%	3.3%	6.6%	13.0%	32.3%
BG	1602	3.3%	7.0%	14.0%	27.6%	-
CZ	4553	1.2%	2.5%	4.9%	9.7%	24.2%
DK	1737	3.0%	6.5%	12.9%	25.5%	63.5%
DE	18607	0.3%	0.6%	1.2%	2.4%	5.9%
EE	189	27.9%	-	-	-	-
IE	592	8.9%	19.0%	37.9%	-	-
EL	793	6.7%	14.1%	28.3%	-	-
ES	5253	1.0%	2.1%	4.3%	8.4%	21.0%
FR	16524	0.3%	0.7%	1.4%	2.7%	6.7%
IT	12474	0.4%	0.9%	1.8%	3.5%	8.8%
LV	491	10.8%	22.9%	-	-	-
LT	340	15.5%	33.0%	-	-	-
LU	187	28.2%	60.0%	-	-	-
HU	3071	1.7%	3.7%	7.3%	14.4%	35.9%
NL	2531	2.1%	4.4%	8.9%	17.5%	43.5%
AT	2995	1.8%	3.7%	7.5%	14.8%	36.8%
PL	6945	0.8%	1.6%	3.2%	6.4%	15.9%
PT	1043	5.1%	10.8%	21.5%	42.4%	-
RO	3312	1.6%	3.4%	6.8%	13.4%	33.3%
SI	360	14.7%	31.2%	62.3%	-	-
SK	1646	3.2%	6.8%	13.6%	26.9%	-
FI	1033	5.1%	10.9%	21.7%	42.8%	-
SE	879	6.0%	12.8%	25.5%	50.3%	-
UK	11751	0.4%	1.0%	1.9%	3.8%	9.4%

Table 18- Percentage of national rolling stock needed to perform regional PSCs

		Threshold of packages (in train-kilometres)				
MS	Rolling stock	3.5	5	10	20	50
BE	3412	0.1%	0.4%	0.7%	1.5%	3.7%
BG	1602	0.1%	0.8%	1.6%	3.1%	-
CZ	4553	0.0%	0.3%	0.6%	1.1%	2.8%
DK	1737	0.1%	0.7%	1.4%	2.9%	7.2%
DE	18607	0.0%	0.1%	0.1%	0.3%	0.7%
EE	189	1.1%	-	-	-	-
IE	592	0.3%	2.1%	4.2%	-	-
EL	793	0.3%	1.6%	3.2%	-	-
ES	5253	0.0%	0.2%	0.5%	1.0%	2.4%
FR	16524	0.0%	0.1%	0.2%	0.3%	0.8%
IT	12474	0.0%	0.1%	0.2%	0.4%	1.0%
LV	491	0.4%	2.6%	-	-	-
LT	340	0.6%	3.7%	-	-	-
LU	187	1.1%	6.7%	-	-	-
HU	3071	0.1%	0.4%	0.8%	1.6%	4.1%
NL	2531	0.1%	0.5%	1.0%	2.0%	5.0%
AT	2995	0.1%	0.4%	0.8%	1.7%	4.2%
PL	6945	0.0%	0.2%	0.4%	0.7%	1.8%
PT	1043	0.2%	1.2%	2.4%	4.8%	-
RO	3312	0.1%	0.4%	0.8%	1.5%	3.8%
SI	360	0.6%	3.5%	7.0%	-	-
SK	1646	0.1%	0.8%	1.5%	3.1%	-
FI	1033	0.2%	1.2%	2.4%	4.9%	-
SE	879	0.2%	1.4%	2.9%	5.7%	-
UK	11751	0.0%	0.1%	0.2%	0.4%	1.1%

1.4 – Advantages and drawbacks of train-km thresholds

In this context:

- A threshold of 5 million train-km would require less than 10% of rolling stock for regional operations in all Member States and for suburban train services in all but 6 Member States.

- A threshold of 10 million train-km would require less than 10% of rolling stock for suburban operations in all but 6 Member States; regional PSCs would all fall under the 10% share.

- A threshold of 20 million train-km would require less than 10% of rolling stock for suburban operations in 11 Member States; regional PSCs would all fall under 10%

- A threshold of 50 million train-km would require less than 10% of rolling stock for suburban operations in all Member States but the 5 largest in terms of train-km (Germany, France, Poland, Italy and UK); regional PSCs would all fall under the 10% share except for two Member States.

The aforementioned analysis suggests that:

- A threshold of 5 million train-kilometres will ease problems of access to rolling stock but affect most of existing public service contracts

- A threshold of 10 million train-kilometres will ease problems of rolling stock except to run suburban services in small Member States. It would affect PSC in most of the medium sized and bigger Member States; it will not affect most German public service contracts, but will affect all the PSCs for suburban networks of several important cities

- A threshold of 20 million train-kilometres will not ease problems of rolling stock to run suburban services in small Member States; it will not affect German, Danish or most of Italian public service contracts, but it will almost not affect all the PSCs for suburban networks of several important cities as well as PSC in the UK and Spain.

- A threshold of 50 million train-kilometres will cause problems of access to rolling stock but maintain intact most of the public service contracts in the Member States.

- A definition of a threshold in relative terms would ensure that small and medium sized Member States could not set packages of train services at a volume hat would be too big to be rewarded by several bids when being tendered out. In this way, the likelihood would be diminished that only the incumbent would present a bit and hence de facto foreclose the market.

- A definition of a threshold in relative terms would be less effective in the case of bigger Member States as the resulting package sizes would be considerable for all variants of the threshold definition (10%, 33%, 50% of the total national rail passenger volume under PSC). Even in case of the 10% threshold variant the package size could theoretically amount to 60 million train-km in Germany and to 46 million train-km in the UK. However, all bigger Member States (DE, UK, FR, PL, ES, IT) have chosen an administrative breakdown of competent rail authorities that would make it very unlikely that the size of package reaches these dimensions.

However, applying maximum thresholds in relative terms could render it impossible for competent authorities in many small Member States to set the package size at an

optimal level maximising chances to obtain many offers in the tender procedure. In not yet mature markets with remaining market entry barriers, e.g. in terms of difficulties to access suitable rolling stock and staff, it can be assumes that such an optimal package size is between 2 and 7 million train-km.

In conclusion, it is proposed to introduce a two-pronged threshold definition marrying the flexibility of a threshold in relative terms with the possibility of setting the package size at an optimal level guaranteed through a threshold in absolute terms. Thus, the given structure of rail packages in Member States and the estimation of an optimal package size would suggest a two-pronged threshold definition, where the competent authority can choose between the **higher value** of **either an absolute threshold in train-km or a threshold of a percentage of the total national volume of rail passenger services under PSC**.

1.5 – Advantages and drawbacks of train-km thresholds

In this context, we propose to analyse the combination of the two smaller percentages in train-km (5 million train-km and 10 million train-km) together with the two highest percentages (33% and 50%), and to assess the impact in terms of number of packages (and therefore tendering procedure) and the number of Member States where the participation of a new entrant to tender for suburban services will require the new entrant to get hold of more than 10% of all the domestic rolling stock.

Table 19 – Combination of thresholds and packages

Thresholds	Packages	RS MS problem
5 Mo - 33%	64	2
5 Mo - 50%	44	3
10 Mo - 33%	58	4
10 Mo - 50%	41	5

The thresholds of "5 million train-km and 50%" or "10 million train-km and 33%" represent the best combination in terms of packages and Member States potentially not solving the problem of rolling stock. However, under the option "10 million train-km and 33%" the potentially problematic Member States represent a smaller share of the whole market.

Table 20a- Simulation with 10 million train-km and 33%

	Mo train-km	Threshold	RS	Wagons nec.	RS(%)	Packages
Austria	99.3	32.8	2995	114.7	4%	3
Belgium	77.1	25.4	3412	89.1	3%	3
Bulgaria	23.9	10.0	1602	35.0	2%	2
Czech Republic	122.1	40.3	4553	141.0	3%	3
Denmark	74.1	24.5	1737	85.6	5%	3
Estonia	2.6	10.0	189	35.0	**20%**	0
Finland	35	11.6	1033	40.4	4%	3
France	395.9	130.6	16524	457.3	3%	3
Germany	674.9	222.7	18607	779.5	5%	3

Greece	18.3	10.0	793	35.0	5%	2
Hungary	94	31.0	3071	108.6	4%	3
Ireland	16.6	10.0	592	35.0	7%	2
Italy	265.9	87.7	12474	307.1	3%	3
Latvia	5	10.0	491	35.0	8%	1
Lithuania	5.5	10.0	340	35.0	**11%**	1
Luxemburg	7.4	10.0	187	35.0	**21%**	1
Netherlands	113.3	37.4	2531	130.9	6%	3
Poland	124.3	41.0	6945	143.6	2%	3
Portugal	30.7	10.1	1043	35.5	4%	3
Romania	n/a	-	3312	-	-	-
Slovakia	31.6	10.4	1646	36.5	2%	3
Slovenia	11.8	10.0	360	35.0	**11%**	1
Spain	180.5	59.6	5253	208.5	4%	3
Sweden	50.3	16.6	879	58.1	7%	3
UK	507.4	167.4	11751	586.0	5%	3

Table 20b- Simulation with 5 million train-km and 50%

	Mo train-km	Threshold	RS	Wagons nec.	RS(%)	Packages
Austria	99.3	49.7	2995	173.8	6%	2
Belgium	77.1	38.6	3412	134.9	4%	2
Bulgaria	23.9	12.0	1602	41.8	3%	2
Czech Republic	122.1	61.1	4553	213.7	5%	2
Denmark	74.1	37.1	1737	129.7	8%	2
Estonia	2.6	5.0	189	17.5	**10%**	1
Finland	35	17.5	1033	61.3	7%	2
France	395.9	198.0	16524	692.8	5%	2
Germany	674.9	337.5	18607	1181.1	7%	2
Greece	18.3	9.2	793	32.0	4%	2
Hungary	94	47.0	3071	164.5	6%	2
Ireland	16.6	8.3	592	29.1	5%	2
Italy	265.9	133.0	12474	465.3	4%	2
Latvia	5	5.0	491	17.5	4%	1
Lithuania	5.5	5.0	340	17.5	6%	1
Luxemburg	7.4	5.0	187	17.5	**10%**	1
Netherlands	113.3	56.7	2531	198.3	9%	2
Poland	124.3	62.2	6945	217.5	3%	2
Portugal	30.7	15.4	1043	53.7	6%	2
Romania	n/a	-	3312	-	-	-
Slovakia	31.6	15.8	1646	55.3	4%	2
Slovenia	11.8	5.9	360	20.7	6%	2
Spain	180.5	90.3	5253	315.9	7%	2
Sweden	50.3	25.2	879	88.0	**11%**	2
UK	507.4	253.7	11751	888.0	8%	2

2. Simulations on the *de minimis* threshold for packages of routes and networks

2.1- Identification of potential limit values for the de minimis threshold

It is possible to estimate an appropriate *de minimis* threshold in terms of contract size or value for rail on the basis of the costs and expected gains of tendering, or by analogy to the legal provisions for service concessions.

(a) Administrative burden

It would not make sense to require mandatory competitive tendering for PSC of a small volume as the cost of the tender procedure could outweigh the expected benefits. It is therefore reasonable to introduce a *'de minimis'* threshold until which competent authorities can directly award small scale PSC.

In the preparatory study for this impact assessment, Steer Davies Gleave has estimated the total average cost of tender to be 780.000 EUR in the EU15 (with 3 bids) and 390.000 EUR (with 3 bids) in the EU12. The weighted average cost of tender in function of passenger-kilometres is 451.000 EUR (EU27).

Table 21 – Estimation of administrative burden

Average transaction costs (one-off tendering)			
Preparation of tender - Competent Authority	*200,000*	*100,000*	€ (2012 prices)
Preparation of tender-Total cost tenderers	*500,000*	*250,000*	€ (2012 prices)
Participation to bid-cost per tenderer	166,667	83,333	€ (2012 prices)
Average number of tenderers	3	3	Number
Other costs of tender - Regulatory Bodies/Authorities/Courts	*80,000*	*40,000*	€ (2012 prices)
Estimated cost of a legal dispute/Regulatory intervention	800,000	400,000	€ (2012 prices)
Propability of occurrence	0.10	0.10	Number
Total additional transaction costs	780,000	390,000	€ (2012 prices)

If one pessimistically assumes that the efficiency ratio is 10% (i.e. the potential efficiency gains through competitive tendering), then the fixed cost of tendering should not offset 10% the value of the potential contract. As a result, the threshold should be set at 4.5 million EUR.

Table 22 – Thresholds in EUR in relation with assumed efficiency savings

	Efficiency assumption		
Threshold	10%	20%	30%
780,000	7,800,000	3,900,000	2,600,000
390,000	3,900,000	1,950,000	1,300,000
450,000	**4,500,000**	**2,250,000**	**1,500,000**

It is possible to link this contract value threshold to train-kilometres, but this will vary very much from Member State to Member State (cf. infra)

(b) Analogy with similar initiatives of the European Commission

Rail services are service concessions in Regulation 1370/2007. In December 2011, the Commission adopted a proposal to establish rules on the procedures for procurement by contracting authorities using a threshold of 5 million EUR. It is possible to link this contract value threshold to train-kilometres, but this will vary very much from Member State to Member State (cf. infra)

2.2- Impact on existing contracts

(a) Germany

Based on the analysis of Brenck and Peter in 2007[29], it is possible to extract a list of the main contracts directly awarded to DB in value. The smallest contract presented on table 22 amounts to 700 million EUR for 12.5 million train-kilometres/a., the biggest amounts to 8 billion EUR for about 98 million train-kilometres/a. The unit costs of directly awarded rail PSC in Germany vary from about 50 EUR/train-km to 150 EUR/ train-km.

Table 22- Values of important contracts in Germany

State	Conclusion of contract	Train-km (mil. 1st year)	Value (bn €)	Duration of contract
Berlin / Brandenburg	December 2002	35.0	1.9	10 years
Lower Saxony	January 2003	27.8	2.5	10 years
Saxony-Anhalt	March 2003	16.2	2.5	12 years
Hesse (Rhine-Main-Area)[a)]	April 2003	33.0	4.4	11 years
Baden-Wuerttemberg[b)]	July 2003	49.0	4.6	13 years
Hamburg (S-Bahn)	July 2003	12.5	0.7	6 years
Rhineland-Palatinate	January 2003	29.5	2.4	11 years
Northrhine-Westfalia	July 2004	44.0	6.0	15 years
Berlin (S-Bahn)	August 2004	32.4	3.0	15 years
Bavaria	November 2004	98.1	ca. 8.0	10 years
Northrhine-Westfalia[c)]	June 2005	12.7	1.1	11 years

a) Rhein-Main-Verkehrsverbund; b) without region Stuttgart; c) five contracts with different authorities

Source: Steer Davies Gleave quoting Brenck/Peter (2007)

In this context, the threshold of 4.5 or 5 million EUR would have covered none of the 'grand' contracts listed in table 21.

[29] Steer Davies Gleave (2012) quoting Brenck/Peter (2007)

(b) Italy

Based on the analysis of Pendolaria (2011) in 2007, it is possible to extract a list of the main PSCs in Italy. The smallest contract volume presented on table 22 amounts to 2 million EUR for 230.000 train-kilometres. Only 2 contracts would have been excluded from the obligation to tender out these contracts with a threshold of 5.000.000 EUR (one PSC with 235.000 train-kilometres and one with 1.45 million train-km). The unit costs of contracts in Italy vary from 10 EUR/train-km to 35 EUR /train-km, and from 15 EUR/train-km to 30 EUR train-km in France.

Table 23 – Values and train-km of Italian PSCs

Region/Province	Railway undertaking	Million train-km	Contract value (Mo EUR)	EUR/train-km
Abruzzo	FS-TI	3.96	57.30	14.5
Basilicata	FS-TI	2	27.80	13.9
Basilicata	FAL	0.7	20.80	29.7
Calabria	FS-TI	7.1	85.20	12.0
Calabria	FC	1.17	41.60	35.6
Campania	FS-TI	10.56	162.60	15.4
Campania	Circumv	3.94	102.12	25.9
Campania	SEPSA	1.63	28.70	17.6
Campania	MetroC	1.05	27.90	26.6
Emilia-Romagna	CTI	18.7	118.40	6.3
Friuli VG	FS-TI	3.27	36.00	11.0
Friuli VG	FUC	0.23	2.10	9.1
Lazio	FS-TI	17.3	215.00	12.4
Liguria	FS-TI	7.4	97.10	13.1
Lombardia	FS-TI	27.7	313.74	11.3
Lombardia	LeNord	9.83	88.54	9.0
Marche	FS-TI	4.19	40.30	9.6
Molise	FS-TI	2.51	23.50	9.4
Piemonte	FS-TI	19.9	156.85	7.9
Piemonte	GTT	1.05	19.19	18.3
Puglia	FS-TI	7.2	60.00	8.3
Puglia	FSE	3.3	111.00	33.6
Puglia	FG	0.4	14.80	37.0
Puglia	Ferrotram	0.9	22.21	24.7
Puglia	FAL	0.7	15.35	21.9

Sardegna	FS-TI	3.6	36.28	10.1
Sardegna	FSrd	1.13	28.45	25.2
Sicilia	FS-TI	9.78	111.50	11.4
Sicilia	Circumt	0.76	16.00	21.1
Toscana	FS-TI	23.1	242.30	10.5
Toscana	TFT	0.79	5.60	7.1
Trento	FS-TI	2.38	27.00	11.3
Bolzano	FS-TI	3.2	38.48	12.0
Bolzano	SAD	2.1	18.95	9.0
Umbria	FS-TI	3.6	35.95	10.0
Umbria	UM	1.45	4.98	3.4
Valle d'Aosta	FS-TI	1.75		0.0
Veneto	FS-TI	3.16	43.53	13.8
Veneto	ATI	11.78	70.41	6.0
Veneto	ST	0.48	5.58	11.6

Source: Rapporto Pendolaria 2011

It cannot be excluded that there are methodological variations in the calculation of the contract value between the Member States.

(c) France

The PREDIT[30] study provides an analysis of the unit cost of the French public service contracts that have been directly awarded to the SNCF.

Table 24 – values of train-kilometres of French PSCs

Region/Province	EUR/train-km
Alsace	17.78
Aquitaine	18.47
Auvergne	17.78
Bourgogne	17.49
Bretagne	16.95
Centre	17.48
Champagne-Ardenne	18.88
Franche-Comté	17.37

[30] Programme de recherche et d'innovation dans les transports terrestres (PREDIT): Groupe opérationnel n°6 Etude sur l'Impact de l'ouverture à la concurrence dans le transport régional ferroviaire de voyageurs sur la consommation d'énergie et sur les émissions de carbone – Beauvais Consultants, KCW et RAILCONCEPT (2012) quoting "Conseils régionaux (données collectées par Ville, rail et Transports en collaboration avec l'ARF et publiées dans le numéro du 6 avril 2011)

Languedoc-Roussillon	21.96
Limousin	14.69
Lorraine	18.4
Midi-Pyrénées	22.1
Basse-Normandie	17.99
Haute-Normandie	21.99
Nord-Pas-de-Calais	19.33
Pays de la Loire	19.7
Picardie	23.41
Poitou-Charentes	19.23
PACA	26.52
Rhône-Alpes	21.04

2.3-Conclusions

Comparing the situations of Italy, France and Germany allows taking into account different situations in terms of contract cost per train-km. In Italy, a threshold of 4.5 million EUR is likely to cover in some cases contracts with more than 1 million train-kilometres.

Table 25 – Train-km in function of contract value thresholds for given unit costs (EUR /train-km).

Contract value (EUR/train-km)	Train-km as a function of contract value threshold (EUR)			
	3,000,000	4,500,000	5,000,000	10,000,000
10	300,000	450,000	500,000	1,000,000
20	150,000	225,000	250,000	500,000
35	85,714	128,571	142,857	285,714
50	60,000	90,000	100,000	200,000
100	30,000	45,000	50,000	100,000
150	20,000	30,000	33,333	66,667

The choice of a threshold of 4.5 to 5 million EUR threshold implies that in "low-unit cost countries" with say a 10 EUR/train-km, contracts of a size up to 450.000 to 500.000 train-km will be covered by a de minimis exemption from the obligation to tender.

Taking account of possible methodological divergences estimating PSC unit costs across the Union Member States and empirical data available for the UK[31] it is reasonable and proportionate to assume an overall total unit cost of rail PSC (including infrastructure fees)of about 35 EUR/train-km. This would translate into de minimis threshold of either 5 million EUR contract value or a contract size of 150.000 train-km/annum.

3. Transitory periods

In 2010, 37% of the rail passenger market has been open to competition de facto including under tendered out PSC. It can be expected that by 2019, at the end of the transitory period defined in Regulation 1370/2007 for the application of Art 5 on the award of PSC (including the obligation to award PSC based on an open tender procedure), about 50% of the total EU rail passenger market will be open to competition. This assumption is corroborated by an enhanced wave of open tender procedures for PSC in Germany replacing directly awarded contracts in the coming years and a comparable obligation for PSC award recently reinforced in Italy, and competitive tenders for PSCs have already been announced in Austria, Finland and the Czech Republic. Thus by 2019 about 200 billion passenger-km will have been awarded by competitive tender leaving about 200 billion passenger-km of directly awarded PSC to be tendered out after 2019.

In order to assess the effects of different scenarios of transitory periods until effective market opening for rail PSC we can consider the following scenarios:

Scenario 1 - 'Big Bang' – no transitional phase: all PSCs are put for tender at adoption

Scenario 2 – 'Natural expiry of directly awarded PSCs': In principle, directly awarded PSC for rail transport have a legal maximum duration of 10 years. If we assume a proportional, linear distribution of expiry dates for these contracts in the EU, 100% of the existing directly awarded PSC would have still to be tendered out by the end of the transitory period on 3 December 2019. One year later in December 2020 90% of the market volume would still have to be tendered out and so forth. The table underneath illustrates the remaining market volume that still will have to be tendered out for the period 2019 to 2029. The maximum permissive scenario of a transitory period of 10 years for rail PSC would result in an effective market opening only in 2029. An EU market volume of about 20 billion passenger-km would have to tendered out annually during this 10 year transitional period.

Scenario 3 – 'Transitional phasing-in': competitive re-award of total volume of all directly awarded PSC in 2019: 30% by 2020, 60% by 2021 and 100% by 31 December 2022.

Table 26: Market volume still to be tendered out (bill. pax-km) according to various scenarios:

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
Scenario	All										

[31] Nash, C.A., et al. (2006), Passenger rail franchising – British experience, ECMT Workshop on competitive tendering for passenger rail services, Paris 12 January 2006, table 6 showing total cost per train-km of 24 £ in 2004/04.

1: Big-Bang	PSCs tendered										
Scenario 2: natural expiry of directly awarded PSC	200	180	160	140	120	100	80	60	40	20	0
Scenario 3: Transitional phasing-in	200	140	80	0							

The results of this simulation documented in table 26 indicate that an intermediate scenario (N°3) annually an average market volume of 60 billion passenger-km except for the last year would have to be tendered out by the competent authorities, whereas in the 'big bang' scenario, some 200 billion passenger-km would be put in the market at once. In the 'natural expiry' scenario, some 20 billion passenger-km would be put in the market for a period of 10 years. .

The intermediate scenario N°3 would have the advantage of shortening the transitory period until effective rail market opening to 2023 while limiting the market volume to be tendered out (about 60 billion passenger-km)..

Scenario 3 appears hence as the preferred scenario.

ANNEX 9

METHODOLOGY APPLIED TO QUANTITATIVE ANALYSIS

1. INTRODUCTION

This Annex summarises the background information of carrying out the quantitative analysis in different parts of the IA report.

2. IMPACTS OF DIFFERENT OPTIONS ON MARKET LIBERALISATION[32]

2.1 - Option 1

Table 8-2-1 hereunder indicates how each of the categories would change further the implementation of option 1 (broad open access and directly awarded PSCs). However, as the option gives the right to use direct awards, it cannot be excluded that in this option, some Member States that use competitive tendering actually go backwards and decide using direct awards.

[32] Results are incorporated into Section 6 of the main report

Table 8-2-1 - Impact of option 1 on each of the categories of networks

	Million p-km	(%)	Most likely new category	Going backwards
Networks that are CLOSED de facto (pkm)				
Directly awarded PSC & NO open access	76.99	19%	Open access restricted only if it compromises PSOs (directly awarded PSCs)	
Legal monopolies	68.25	17%	Open access (no PSO in parallel)	
Total CLOSED	**152.7**	**38%**		
Networks that are OPEN de facto				
Competitively tendered PSC (NO open access in parallel)	56.75	14%	Competitively tendered PSC (NO open access in parallel)	Directly awarded PSC & NO open access
Open access (no PSO in parallel)	66.83	17%	Open access (no PSO in parallel)	
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	Unrestricted Open access & tendered PSCs in parallel	Unrestricted Open access & directly awarded PSCs in parallel
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	Open access restricted only if it compromises PSOs (tendered PSCs)	Open access restricted only if it compromises PSOs (directly awarded PSCs)
Total OPEN	**146.9**	**37%**		
Networks that are SEMI-OPEN				
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	Unrestricted Open access & directly awarded PSCs in parallel	
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	Open access restricted only if it compromises PSOs (directly awarded PSCs)	
Total SEMI-OPEN	**105.6**	**26%**		
TOTAL OF EU pkm	**405.22**	**100%**		

Option 1 would therefore lead to the following market structure for the EU:

	Optimistic	Pessimistic
OPEN	55%	34%
CLOSED	-	14%
SEMI-CLOSED	45%	53%

2.2 - Option 2

Table 8-2-2 hereunder indicates how each of the categories would change further the implementation of option 2 (limited open access and directly awarded PSCs). However, as the option gives the right to use direct awards, it cannot be excluded that in this option, some Member States that use competitive tendering actually go backwards and decide using direct awards.

Table 8-2-2 Impact of option 2 on each of the categories of networks

	Million p-km	(%)	Most likely new category	Going backwards
Networks that are CLOSED de facto (pkm)				
Directly awarded PSC & NO open access	76.99	19%	Directly awarded PSC & NO open access	
Legal monopolies	68.25	17%	Open access (no PSO in parallel)	
Total CLOSED	**152.7**	**38%**		
Networks that are OPEN de facto				
Competitively tendered PSC (NO open access in parallel)	56.75	14%	Competitively tendered PSC (NO open access in parallel)	Directly awarded PSC & NO open access
Open access (no PSO in parallel)	66.83	17%	Open access (no PSO in parallel)	
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	Unrestricted Open access & tendered PSCs in parallel	Unrestricted Open access & directly awarded PSCs in parallel
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	Open access restricted only if it compromises PSOs (tendered PSCs)	Open access restricted only if it compromises PSOs (directly awarded PSCs)
Total OPEN	**146.9**	**37%**		
Networks that are SEMI-OPEN				
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	Unrestricted Open access & directly awarded PSCs in parallel	
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	Open access restricted only if it compromises PSOs (directly awarded PSCs)	
Total SEMI-OPEN	**105.6**	**26%**		
TOTAL OF EU pkm	**405.22**	**100%**		

Option 2 would therefore lead to the following market structure for the EU:

	Optimistic	Pessimistic

OPEN	54%	34%
CLOSED	19%	33%
SEMI-CLOSED	34%	34%

2.3 - Option 3

Table 8-2-3 hereunder indicates how each of the categories would change further the implementation of option 3 (no open access and competitive tendering of PSCs). However, as the option gives no open access rights, it cannot be excluded that in this option, some Member States actually go backwards and decide restricting the existing open access.

Table 8-2-3- Impact of option 3 on each of the categories of networks

	Million p-km	(%)	Most likely new category	Going backwards
Networks that are CLOSED de facto (pkm)				
Directly awarded PSC & NO open access	76.99	19%	Competitively tendered PSC (NO open access in parallel)	
Legal monopolies	68.25	17%	Legal monopolies	
Total CLOSED	**152.7**	**38%**		
Networks that are OPEN de facto				
Competitively tendered PSC (NO open access in parallel)	56.75	14%	Competitively tendered PSC (NO open access in parallel)	
Open access (no PSO in parallel)	66.83	17%	Open access (no PSO in parallel)	Legal monopolies
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	Unrestricted Open access & tendered PSCs in parallel	Competitively tendered PSC (NO open access in parallel)
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	Open access restricted only if it compromises PSOs (tendered PSCs)	Competitively tendered PSC (NO open access in parallel)
Total OPEN	**146.9**	**37%**		
Networks that are SEMI-OPEN				
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	Unrestricted Open access & tendered PSCs in parallel	Unrestricted Open access & tendered PSCs in parallel
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	Open access restricted only if it compromises PSOs (tendered PSCs)	Open access restricted only if it compromises PSOs (tendered PSCs)
Total SEMI-OPEN	**105.6**	**26%**		

TOTAL OF EU pkm	**405.22**	**100%**		

Option 3 would therefore lead to the following market structure for the EU:

	Optimistic	Pessimistic
OPEN	84%	67%
CLOSED	17%	34%
SEMI-CLOSED	0%	0%

2.4 - Option 4

Table 8-2-4 hereunder indicates how each of the categories would change further the implementation of option 4 (broad open access and competitive tendering of PSCs). This option does not give any room for those Member States that have opened their markets to go backwards towards direct award or limit existing open access.

Table 8-2-4- Impact of option 4 on each of the categories of networks

	Million p-km	(%)	Most likely new category
Networks that are CLOSED de facto (pkm)			
Directly awarded PSC & NO open access	76.99	19%	Open access restricted only if it compromises PSOs (tendered PSCs)
Legal monopolies	68.25	17%	Open access (no PSO in parallel)
Total CLOSED	**152.7**	**38%**	
Networks that are OPEN de facto			
Competitively tendered PSC (NO open access in parallel)	56.75	14%	Open access restricted only if it compromises PSOs (tendered PSCs)
Open access (no PSO in parallel)	66.83	17%	Open access (no PSO in parallel)
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	Unrestricted Open access & tendered PSCs in parallel
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	Open access restricted only if it compromises PSOs (tendered PSCs)
Total OPEN	**146.9**	**37%**	
Networks that are SEMI-OPEN			
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	Unrestricted Open access & tendered PSCs in parallel
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	Open access restricted only if it compromises PSOs (tendered PSCs)
Total SEMI-OPEN	**105.6**	**26%**	
TOTAL OF EU pkm	**405.22**	**100%**	

Option 4 would therefore lead to the following market structure for the EU:

	Optimistic	Pessmistic
OPEN	100%	100%
CLOSED	0%	0%
SEMI-CLOSED	0%	0%

2.5 - Option 5

Table 8-2-5 hereunder indicates how each of the categories would change further the implementation of option 5 (limited open access and competitive tendering of PSCs). This option does not give any room for those Member States that have opened their markets to go backwards towards direct award or limit existing open access.

Table 8-2-5- Impact of option 4 on each of the categories of networks

	Million p-km	(%)	Most likely new category
Networks that are CLOSED de facto (pkm)			
Directly awarded PSC & NO open access	76.99	19%	Competitively tendered PSC (NO open access in parallel)
Legal monopolies	68.25	17%	Open access (no PSO in parallel)
Total CLOSED	**152.7**	**38%**	
Networks that are OPEN de facto			
Competitively tendered PSC (NO open access in parallel)	56.75	14%	Competitively tendered PSC (NO open access in parallel)
Open access (no PSO in parallel)	66.83	17%	Open access (no PSO in parallel)
Unrestricted Open access & tendered PSCs in parallel	22.76	6%	Competitively tendered PSC (NO open access in parallel)
Open access restricted only if it compromises PSOs (tendered PSCs)	0.56	0%	Competitively tendered PSC (NO open access in parallel)
Total OPEN	**146.9**	**37%**	
Networks that are SEMI-OPEN			
Unrestricted Open access & directly awarded PSCs in parallel	89.14	22%	Competitively tendered PSC (NO open access in parallel)
Open access restricted only if it compromises PSOs (directly awarded PSCs)	24.59	6%	Competitively tendered PSC (NO open access in parallel)
Total SEMI-OPEN	**105.6**	**26%**	
TOTAL OF EU pkm	**405.22**	**100%**	

Option 5 would therefore lead to the following market structure for the EU:

	Optimistic	Pessimistic
OPEN	100%	100%
CLOSED	0%	0%
SEMI-CLOSED	0%	0%

2.6- Quantitative analysis of the impacts of the core policy options on market opening

The level of competition will vary in each option depending on the number of passenger-km that will fall either under competitive tendering (for PSCs) or open access - i.e. the so-called "open markets".

	Option 1		**Option 2**		**Option 3**			
	Optimistic	Pessimistic	Optimistic	Pessimistic	Optimistic	Pessimistic	Option 4	Option 5
OPEN	55%	34%	54%	34%	84%	67%	100%	100%
CLOSED	-	14%	19%	33%	17%	34%	0%	0%
SEMI-CLOSED	45%	53%	34%	34%	0%	0%	0%	0%

Options 4 and 5 have the largest potential regarding competition, followed by option 3, 1 and 2 respectively.

3. QUANTITIATIVE ASSESSMENT OF PREFERREFD MARKET OPENING OPTION[33]

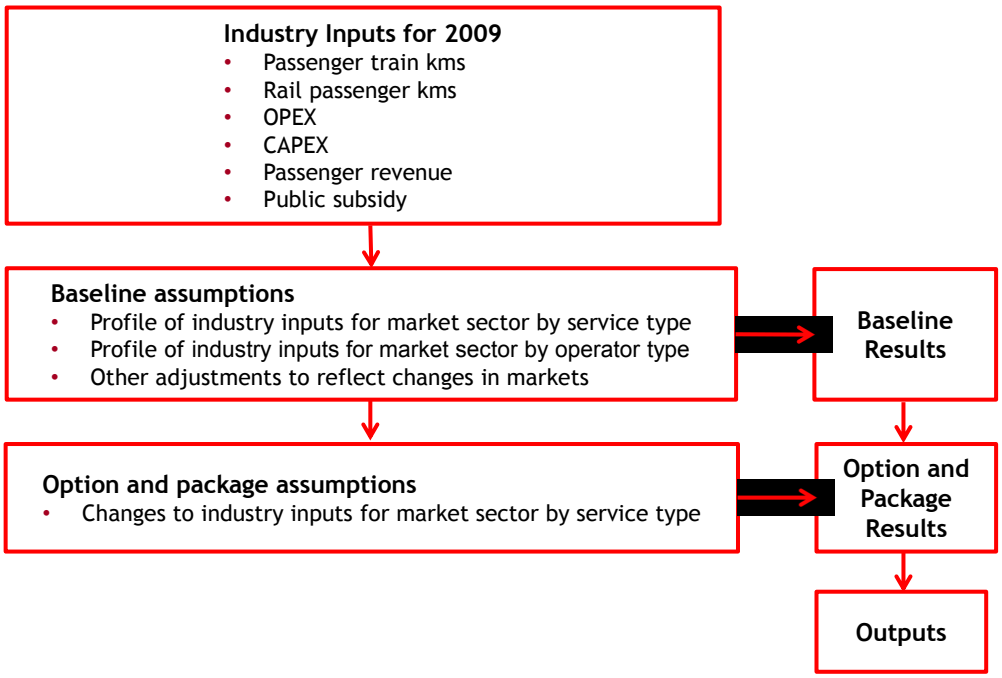
The information in this section is organised as follows:

1. Overview of the **approach** employed
2. Summary of the **input data**
3. Assumptions used to generate the **baseline data**
4. The range of **assumptions** employed in scenario analysis
5. The range of possible **outputs** that can be calculated
6. Sensitivity **analysis**

3.1. Overview of the approach

Overview of the assessment of impacts is presented on the Figure 8-3- 1below:

Figure 8-3- 1 OVERVIEW OF THE ASSESSMENT PROCESS



3.2. Input data

Primary input is industry data by Member State from the following sources:

Table 8-3- 1 INDUSTRY DATA ITEMS AND SOURCES

[33] Results are incorporated into Section 8 of the main report

Industry data item	Source
Passenger train kilometres	UIC 2009
Rail passenger kilometres	RMMS 2009/2012, Transport White Paper 2011
Share of passenger kilometres under PSC	RMMS 2009/2012, Operators' reports 2009/2010, UIC 2009, SDG calculations
Passenger services operating costs (OPEX)	UIC 2009, RMMS 2009, Operators' reports 2009/2010, Infrastructure Managers reports 2009/2010
Capital expenditure on passenger rolling stock (CAPEX)	UIC 2009, Operators' reports 2009/2010, SDG calculations
Passenger Revenue (real)	UIC 2009, Operators' reports, CER Annual Report 2009-2010, SDG calculations
Public Subsidy for passenger services	UIC 2009, CER Annual Report 2009-2010, Operators' reports 2009/2010, SDG calculations

The input data is from 2009, as it is consistent with the 2011 Transport White Paper and the most comprehensive year in terms of alternative data sources such as UIC statistics and most operator reports. All revenue and cost information is in real 2009 prices.

Table 8-3-2 provides a summary of the industry input data by Member State:

Table 8-3-2 BASE YEAR INDUSTRY DATA

Member State	Code	Passenger train km (million)	Rail passenger km (thousand millions)	Passenger services operating costs (€ billion)	Capital expenditure on passenger rolling stock (€ billion)	Passenger Revenue (real) (€ billion)	Public Subsidy for passenger services (€ billion)
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

Member State	Code	Passenger train km (million)	Rail passenger km (thousand millions)	Passenger services operating costs (€ billion)	Capital expenditure on passenger rolling stock (€ billion)	Passenger Revenue (real) (€ billion)	Public Subsidy for passenger services (€ billion)
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
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
Great Britain	UK	470.72	52.77	4.00	0.60	6.39	2.00

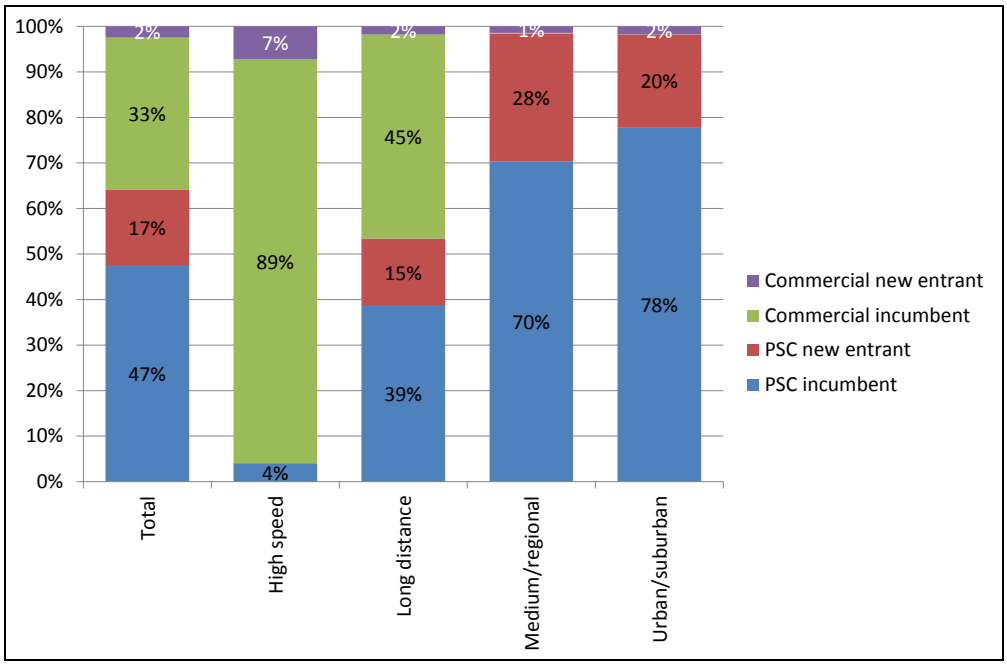
This base year information was then distributed across (a) the different market sectors and (b) the different service and operator types. A variety of sources was used to develop these distribution profiles, the most of important of which were RMMS, Infrastructure Managers and Operators Reports.

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)

Figure 8-3-2 provides an example of the distribution profile for all market sectors by operator and service type as they appear in the baseline for the whole European rail market. Overall, incumbent operators in Member States operate the vast majority of passenger kilometres (around 90-95%). 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.

Figure 8-3- 2 MARKET SECTOR PROFILES BY OPERATOR AND SERVICE



3.3. Baseline Assumptions and Results

The calculations have been developed from a base year of 2009. Changes in the levels of industry inputs were adjusted through assumptions related to the baseline, aligned with the Transport White Paper[34] reference scenario. Baseline position is then adjusted, 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 (see Table 8-3-11).

[34] Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system, http-://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:52011DC0144:EN:NOT

Table 8- 3-3 ANNUAL GROWTH RATES IN BASELINE

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%	

A number of other assumptions have been used to adjust the baseline to reflect changes in the market since 2009 which are not reflected in the 2011 White Paper.

These relate to:

- opening of the Madrid-Barcelona line was included in data on high speed lines
- A further set of segmentations was 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.

Tables 8-3-4 to 8-3-8 summarise these assumptions for each of the market sectors. The assumptions have been based on the review of Member States conducted by the external consultant supporting the IA process. A "1" implies that a particular Member States meets the criteria of the classification and a "0" otherwise.

Table 8-3- 4 HIGH SPEED CLASSIFICATION OF MARKET

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" treated as no)	Institutional separation in baseline
Belgium	BE	0	0	0
Germany	DE	1	0	0
Spain	ES	0	0	1
Finland	FI	0	0	1
France	FR	0	0	0
Italy	IT	1	0	0
Netherlands	NL	0	0	1
Poland	PL	0	0	0
Slovenia	SI	0	0	0
Sweden	SE	1	0	1

Table 8-3- 5 Long distance classification of market

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" treated as no)	Institutional separation in baseline
Austria	AT	1	0	0
Belgium	BE	0	0	0
Bulgaria	BG	0	0	1
Czech Republic	CZ	1	0	1
Germany	DE	1	0	0
Denmark	DK	0	0	1
Estonia	EE	0	0	0
Greece	EL	0	0	1
Spain	ES	0	0	1
Finland	FI	0	0	1
France	FR	0	0	0
Hungary	HU	0	0	0
Ireland	IE	0	0	0
Italy	IT	1	0	0
Lithuania	LT	0	0	0
Latvia	LV	0	0	0
Luxembourg	LU	0	0	0
Netherlands	NL	0	0	1
Poland	PL	0	0	0

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" as treated no)	Institutional separation in baseline
Portugal	PT	0	0	1
Romania	RO	0	0	1
Sweden	SE	1	0	1
Slovenia	SI	0	0	0
Slovakia	SK	0	0	1
Great Britain	UK	1	1	1

Table 8-3- 6 Medium/regional classification of market

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" as treated no)	Institutional separation in baseline
Austria	AT	1	0	0
Belgium	BE	0	0	0
Bulgaria	BG	0	0	1
Czech Republic	CZ	1	0	1
Germany	DE	1	1	0
Denmark	DK	0	1	1
Estonia	EE	0	0	0
Greece	EL	0	0	1
Spain	ES	0	0	1
Finland	FI	0	0	1
France	FR	0	0	0
Hungary	HU	0	0	0
Ireland	IE	0	0	0
Italy	IT	1	0	0
Lithuania	LT	0	0	0
Luxembourg	LU	0	0	0
Latvia	LV	0	0	0
Netherlands	NL	0	1	1
Poland	PL	0	0	0
Portugal	PT	0	0	1
Romania	RO	0	0	1
Sweden	SE	1	1	1
Slovenia	SI	0	0	0
Slovakia	SK	0	0	1

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" treated as no)	Institutional separation in baseline
Great Britain	UK	1	1	1

Table 8-3- 7 Urban/suburban classification of market

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" treated as no)	Institutional separation in baseline
Austria	AT	1	0	0
Belgium	BE	0	0	0
Bulgaria	BG	0	0	1
Czech Republic	CZ	1	0	1
Germany	DE	1	1	0
Denmark	DK	0	0	1
Estonia	EE	0	0	0
Greece	EL	0	0	1
Spain	ES	0	0	1
Finland	FI	0	0	1
France	FR	0	0	0
Hungary	HU	0	0	0
Ireland	IE	0	0	0
Italy	IT	1	0	0
Lithuania	LT	0	0	0
Luxembourg	LU	0	0	0
Latvia	LV	0	0	0
Netherlands	NL	0	1	1
Poland	PL	0	0	0
Portugal	PT	0	0	1
Romania	RO	0	0	1
Sweden	SE	1	1	1
Slovenia	SI	0	0	0
Slovakia	SK	0	0	1
Great Britain	UK	1	1	1

Table 8-3- 8 International classification of market

Member State	Code	De facto open access in baseline	PSC tendering in baseline ("Mix" as treated no)	Institutional separation in baseline
Austria	AT	1	0	0
Belgium	BE	0	0	0
Bulgaria	BG	0	0	1
Czech Republic	CZ	1	0	1
Germany	DE	1	0	0
Denmark	DK	0	0	1
Estonia	EE	0	0	0
Greece	EL	0	0	1
Spain	ES	0	0	1
Finland	FI	0	0	1
France	FR	0	0	0
Hungary	HU	0	0	0
Ireland	IE	0	0	0
Italy	IT	1	0	0
Lithuania	LT	0	0	0
Luxembourg	LU	0	0	0
Latvia	LV	0	0	0
Netherlands	NL	0	0	1
Poland	PL	0	0	0
Portugal	PT	0	0	1
Romania	RO	0	0	1
Sweden	SE	1	0	1
Slovenia	SI	0	0	0
Slovakia	SK	0	0	1
Great Britain	UK	1	0	1

3.4. Assumptions for scenario analysis

For the assessment of the preferred policy scenario (Option 4 (A1 + B1)) assumptions have been developed as anticipated percentage changes to the main industry inputs. Then the range of opportunities and/or behaviours that might result from each of the policy changes was considered. Using a combination of industry expertise, benchmark information and insight in terms of what has happened in particular Member States, input assumptions were formulated. A number of sense-checks has been carried out against available corroborative information.

All inputs are applied as increments above the baseline which has been described in the previous step.

The modelling exercise was developed further to reflect the principal expected effects of the current options and packages, and their relative importance focused on first order and larger effects of combining the impacts of Domestic Passenger Market Opening and that of the Infrastructure Governance initiative.

While calculating impacts of open access, it was checked that assumptions on new entrant costs and new entrant fares would mean that open access was on average commercially viable. International markets were excluded from PSC impacts.

The calculations have been prepared for 2 outcome scenarios:

- **Focus on cost savings**, in which it was assumed that Competent Authorities would aim to minimise expenditure on the railways. This would maximise the financial savings from compulsory competitive tendering but, with no reinvestment in capacity or quality. Given no changes in fares or quality, competitive tendering would bring no additional market growth, mode shift or reduction in greenhouse gases.
- **Reinvestment in higher quality**, in which it is assumed that, on average, Competent Authorities would take 50% of the potential savings of competitive tendering out of the rail industry and "reinvest" the remaining 50% in capacity and/or quality.

Assumptions for combined effects of Domestic Passenger Market Opening and Infrastructure Governance initiatives are set out in the

Table 8-3- 9 below

Table 8-3- 9 ASSUMPTIONS FOR THE ASSESSMENT OF COMBINED IMPACTS

Assumption		IM Scenario 3	Domestic opening	Combined impacts
Open access effects				
Sectors	High speed, long distance, medium/regional, international			
Effects	New entrant's open access train-kilometres as a proportion of current "commercial" train-kilometres	1%	2%	3%
	Share of incumbents' "commercial" services in this sector converted to PSC as a result of open access competition	10%	20%	30%
	New entrant's fares as a proportion of the incumbent's	95%		
	Share of new entrant's passengers taken from incumbents	70%		
	New entrants operating costs per train-kilometre as a proportion of incumbent's	80%		
	Potential reduction in incumbent's operating costs (A)	20%		
	Proportion of incumbent's services stimulated to higher efficiency by new entry (B)	10%	15%	20%
	(AxB) Resulting average reduction in incumbent's costs in this sector stimulated by competition from open access	2%	3%	4%
Compulsory competitive tendering effects				
Sectors	All PSCs, including commercial services becoming PSCs because of open access			
Effects	Reduction in incumbent's share of PSC train-kilometres	2%	10%	15%
	Potential reduction in PSC service operating costs (C)	15%		
	Proportion of PSCs subject to effective competition (D)	25%	75%	90%
	(CxD) Resulting average reduction in PSC costs	3.75 %	11.25%	13.5 %
	Share of PSC cost savings invested rather than retained Scenario 1 - Focus on cost savings Scenario 2 - Reinvestment	0% 50%		
	Quality-related rise: train-kilometres and capital expenditure	0.1%	0.5%	0.75 %
	Quality-related rise: passenger-kilometres and revenue	0.1%	0.5%	0.75 %
Timescales and discounting				
Start	Implementation of Package, creation of open access rights and award of first competitive tenders for PSCs	2019		

End	Last existing PSC contracts replaced in competitive tendering	2025
	Base year for discounting purposes	2019

Further details on assumptions are provided below.

Assumptions for domestic markets with OA in the baseline but no separation

New entrant volumes and costs

New entry volume: In Member States where open access is currently permitted but there is no institutional separation institutional separation might result in an increase in open access equivalent to 1% of the incumbent's "commercial" train-kilometres. 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. 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.

It is assumed that due to efficient business models focusing on market requirements developed by new entrants, their **costs will per train-kilometre be 20% below those of the incumbents**.

Conversion of "commercial" services to PSC

The limited data available suggest not only that many existing "commercial" services are not financially viable, but also that many services considered "commercial" are in fact of only marginal viability. However, there is little firm evidence, from the limited volume of open access which has emerged to date, as to the long term effect of open access on the "commercial" services provided by incumbent under a de jure monopoly, and in particular the proportion that would be converted to PSCs. For our quantitative Impact Assessment it has been assumed that:

- In Member States where open access is currently permitted but there is no institutional separation, IM scenario 3 might result in 10% of the incumbent's "commercial" train-kilometres being converted to PSCs.
- In Member States where open access is not currently permitted, introduction of domestic market opening might result in 20% of the incumbent's "commercial" train-kilometres being converted to PSCs.
- In Member States where there is neither institutional separation nor open access, institutional separation alone would result in no change but package 4 as a whole might result in 30% of the incumbent's "commercial" train-kilometres being converted to PSCs.

New entrant fares

For both IM Scenario 3 and Market opening initiatives new entrants' fares are assumed to be 5% below of those of the incumbent through open access. Sensitivity test below analyses impact of new entrant fares which are 20% below those the incumbent.

The limited financial data available suggests that, even at the lower operating costs new entrants could on average be loss-making if their average fares per passenger-kilometre were below 95% of existing fares. Any corresponding reduction in incumbents' fares, which might be constrained by a national ticketing system including, in some Member States, a fixed system of fares related directly to distance, is not assumed. In addition, any fares reduction by incumbents would reduce their incomes, worsen the finances of their public sector owners, and might result in them becoming loss-making or be converted to PSCs.

New entrant passengers

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.

New entrants will increase overall passenger demand through a number of effects:

- Price elasticity, through the 5% lower fares of new entrants as compared to the fares of incumbents.
- Frequency elasticity, through the increased number of services on routes with new entry.
- Quality elasticity, through the expected higher quality, including factors such as new entrants' higher staffing levels.

The extent and mix of these factors will vary with the fares environment in each Member State and market and the market entry strategy of each future new entrant.

In open access Option A1, as in IM Scenario 3, it is assumed that 70% of the new entrants passengers will be abstracted from the incumbent and that the remaining 30% will result from either mode shift or new travel.

Operational expenditure efficiencies

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 assumption is that incumbents' "commercial" services directly exposed to open access would, under pressure from competition, achieve reductions of 20% in operating costs, bringing them up to the levels of efficiency of new entrants. It is assumed that the proportion of incumbents' "commercial" services stimulated to achieve these 20% operating cost reductions is:

- 10%, from the 1% additional entry with IM Scenario 3 alone
- 15%, from the 2% additional entry with market opening alone
- 20%, from the 3% additional entry with both IM Scenario 3 and market opening

Assumptions for markets with tendering in the baseline but no separation

Incumbent PSC train-kilometres

New entrants' ability to win PSC tenders depends, at least in part, on the size of the PSC and the provision of suitable framework conditions, particularly relating to effective unbundling and the accessibility of rolling stock and transfer of staff. Practice shows that new entrants tend to win small tenders more often than big ones. In the absence of comprehensive arrangements to facilitate the transfer of staff, and given the potentially large scale of at least some PSCs it is assumed that:

- In Member States with no institutional separation but competitive tendering, institutional separation might enable new entrants to win a further 2% of the incumbent's share of PSCs.
- In Member States with no competitive tendering, package 4 might enable new entrants to win 10% of the incumbent's current share of PSCs.
- In Member States where there is neither institutional separation nor competitive tendering, institutional separation alone would result in no change but package 4 might enable new entrants to win a further 15% of the incumbent's current share of PSCs.

Operational expenditure

The effect of competition on the costs of PSCs will depend on the existing situation. There are two extremes that can be characterised:

- In PSCs where the incumbent has been generously supported and faced little pressure to strive for efficiency, there may be scope for cost reductions. Given the constraints that the PSC imposes how the services are operated, these might be around 10%.
- In PSCs where the incumbent has been starved of cash or underfunded, the efficient levels of costs may be above the subsidy currently made available to the incumbent, implying that PSC operating costs might rise after tendering.

Although there might be scope to reduce all PSC operating costs by 10%, it is reasonable to expect obtaining these savings on PSCs for which there is effective competition:

- In Member States with no institutional separation but competitive tendering, it is assumed that new entrants winning 2% more of the incumbent's current PSCs results in reductions in the prices and costs of 10% of the incumbents' services.
- In Member States with institutional separation but no competitive tendering, it is assumed that new entrants winning 10% of the incumbent's current PSCs results in reductions in the prices and costs of 60% of the incumbents' services.
- In Member States where there is neither institutional separation nor competitive tendering, it is assumed that new entrants winning 15% of the incumbent's current PSCs results in reductions in the prices and costs of 75% of the incumbents' services.

It may be difficult for 75% of current PSCs to be effectively contestable in the absence of effective framework conditions relating not only to rolling stock but also to staff transfers.

Reinvestment

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. Two assumptions have been made:

- 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.

Quality-related rises in activity

A set of assumptions describes how compulsory competitive tendering changes train and passenger kilometres, CAPEX and revenue:

- Implementation of IM Scenario 3, train-kilometres and capital expenditure as well as passenger-kilometres and revenue will increase by 0.1% if 50% of savings are reinvested.
- Market opening initiative will increase train-kilometres and capital expenditure as well as passenger-kilometres and revenue by 0.5% if 50% of savings are reinvested

Timescales and discounting

The Fourth Package legislation would require implementation from the Member States in December 2019, after which the benefits of open access and compulsory competitive tendering would begin to appear. The rate of emergence of open access services is uncertain, but evidence suggests that it might take at least ten years before all profitable opportunities for new entry are exploited.

The scenario chosen for the rate of tendering of PSC contracts (30% by December 2021, 60% by December 2023 and 100% by December 2025), suggests that all the benefits of the Fourth Package would emerge gradually over the six-year period from December 2019 to December 2025, and that the full benefits would appear in 2025 and thereafter.

All impacts are discounted at 4% per annum to 2019, the year in which the Fourth Package legislation would come into effect.

3.5. Output results

As a result, a range of outputs over a 26 year period between 2009 and 2035 was generated. These include key metrics such as turnover, capital investment, costs to the industry, average fare, passenger kilometres, mode shifts and CO_2 emissions. These results can be presented by cluster of Member States, and by market sector or any combination of the above.

3.5.1. Segmentations

A number of segmentations is used in input and output data to reflect differences in the market. The segmentations are summarised in the Table 8-3-10 below.

Table 8-3- 100 SEGMENTATIONS USED IN CALCULATIONS

ID	Segment name	Segments	Details
1	Market sectors	5	High speed, Long distance, Medium/regional, Urban/suburban, International
2	Operator type	2	Incumbent, New Entrant
3	Service type	2	Public Service Contract, Commercial[35]

Five *market sectors* were defined as follows:

- 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[36]
- Urban and suburban (US) serving a city or conurbation and the surrounding suburbs or commuter catchment area.

Two *operator types* are used 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 Bah in Germany.
- New entrant: all non-incumbent operators in a given market. Examples include NTV in Italy and RegioJet in the Czech Republic.

The final segmentation is *the service type,* whether it is run as a Public Service Contract (PSC) or as a commercial operation. This differentiation was important to identify the network areas where open access operations are truly viable and those markets where the impact of competitive tendering will be strongest.

[35] including legal monopolies operating non-PSC lines

[36] UIC defines high-speed, long-distance and urban/suburban services. Here, the category of "medium/regional" has been added 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 the competent authorities. For example regional contracts in Sweden and franchises in Great Britain.
- Commercial: all non-PSC services which can include incumbent operators in a given market who operate on a commercial basis, for example high speed services in France and Spain, or new entrants operating open access services.

3.5.2. Outputs

As a result, a wide range of outputs is reported:

Calculations were generated for 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 PSCs
  - PSCs (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

NPVs are calculated over the period 2019 and 2035 using a 4% discount rate.

Calculation of CO_2 emissions

The impact on greenhouse gas emissions is measured in terms of million tonnes of CO_2 reduction (above the baseline) and the equivalent NPV 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).

3.5.3. Aggregations

The results can be aggregated or disaggregated in a number of ways:

- For the total rail market
- By market sector
- Aggregated into clusters of Member States for each market sector using a definition as described in Table 8-3-11.

Table 8-3- 11 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 2019 estimate EU-27 train-kilometres	34%	25%	18%	10%	13%

Clusters are used to disaggregate the impacts of the preferred option and Package on different groups of Member States.

Figures 8-3-3 and 8-3-4 below present the time series and intermediate results for 2 core scenarios.

Figure 8-3- 3 – Detailed results of NPV calculations

(a.1) – IM Governance - Scenario 1 – Savings

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Option U2																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	0.877	0.056											0.012	0.023	0.034	0.045	0.056	0.067	0.066	0.066	0.065	0.065	0.064	0.064	0.063	0.063	0.062	0.061
Long distance	€ billion/year	1.288	0.095											0.019	0.037	0.054	0.070	0.086	0.102	0.100	0.098	0.096	0.095	0.093	0.091	0.089	0.088	0.086	0.085
Medium and regional	€ billion/year	2.383	0.176											0.034	0.068	0.099	0.130	0.160	0.188	0.185	0.181	0.178	0.175	0.172	0.169	0.165	0.162	0.159	0.157
Urban and suburban	€ billion/year	1.187	0.089											0.018	0.034	0.050	0.066	0.081	0.095	0.093	0.091	0.089	0.087	0.085	0.083	0.082	0.080	0.078	0.076
International	€ billion/year	1.194	0.076											0.016	0.031	0.047	0.062	0.077	0.091	0.090	0.090	0.089	0.088	0.087	0.087	0.086	0.085	0.084	0.084
Total		**6.929**	**0.491**										0	**0.098**	**0.193**	**0.285**	**0.374**	**0.460**	**0.543**	**0.534**	**0.526**	**0.517**	**0.509**	**0.501**	**0.493**	**0.485**	**0.478**	**0.470**	**0.463**
U2 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
a	€ billion/year	6.247	0.445											0.089	0.175	0.257	0.338	0.415	0.490	0.482	0.474	0.466	0.459	0.451	0.444	0.437	0.430	0.423	0.416
b	€ billion/year	0.655	0.047											0.009	0.018	0.027	0.035	0.044	0.051	0.051	0.050	0.049	0.048	0.047	0.047	0.046	0.045	0.044	0.044
c	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
e	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		**6.902**	**0.491**										0	**0.098**	**0.193**	**0.285**	**0.373**	**0.459**	**0.541**	**0.533**	**0.524**	**0.515**	**0.507**	**0.499**	**0.491**	**0.483**	**0.475**	**0.467**	**0.460**
Prorate to be consistent with analysis by market sector																													
Net gain to economy		**NPV**																											
a	€ billion/year	6.272																											
b	€ billion/year	0.658																											
c	€ billion/year	0.000																											
d	€ billion/year	0.000																											
e	€ billion/year	0.000																											
Total		**6.929**																											

(a.2) – IM Governance - Scenario 2 – Reinvestment

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Option U2																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	0.812	0.052											0.011	0.021	0.032	0.042	0.052	0.062	0.061	0.061	0.060	0.060	0.059	0.059	0.058	0.058	0.057	0.057
Long distance	€ billion/year	0.999	0.074											0.014	0.028	0.042	0.055	0.067	0.079	0.077	0.076	0.075	0.073	0.072	0.071	0.069	0.068	0.067	0.066
Medium and regional	€ billion/year	1.316	0.097											0.019	0.037	0.055	0.072	0.088	0.104	0.102	0.100	0.098	0.097	0.095	0.093	0.091	0.090	0.088	0.086
Urban and suburban	€ billion/year	0.657	0.049											0.010	0.019	0.028	0.036	0.045	0.052	0.051	0.050	0.049	0.048	0.047	0.046	0.045	0.044	0.043	0.042
International	€ billion/year	1.003	0.064											0.013	0.026	0.039	0.052	0.064	0.077	0.076	0.075	0.075	0.074	0.073	0.073	0.072	0.071	0.071	0.070
Total		**4.786**	**0.335**										0	**0.067**	**0.132**	**0.196**	**0.257**	**0.316**	**0.374**	**0.368**	**0.363**	**0.357**	**0.352**	**0.347**	**0.341**	**0.336**	**0.331**	**0.326**	**0.321**
U2 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
a	€ billion/year	4.172	0.297											0.059	0.117	0.172	0.226	0.277	0.327	0.322	0.317	0.312	0.306	0.301	0.297	0.292	0.287	0.282	0.278
b	€ billion/year	0.538	0.038											0.008	0.015	0.022	0.029	0.036	0.042	0.042	0.041	0.040	0.040	0.039	0.038	0.038	0.037	0.036	0.036
c	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
d	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
e	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		**4.709**	**0.335**										0	**0.067**	**0.132**	**0.194**	**0.255**	**0.313**	**0.369**	**0.363**	**0.357**	**0.352**	**0.346**	**0.340**	**0.335**	**0.329**	**0.324**	**0.319**	**0.314**
Prorate to be consistent with analysis by market sector																													
Net gain to economy		**NPV**																											
a	€ billion/year	4.240																											
b	€ billion/year	0.547																											
c	€ billion/year	0.000																											
d	€ billion/year	0.000																											
e	€ billion/year	0.000																											
Total		**4.786**																											

(b.1) – Market Opening - Scenario 1 – Saving

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Package 4: option T1+RS4+B1+A1																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	3.764	0.239											0.050	0.099	0.148	0.195	0.242	0.288	0.285	0.283	0.280	0.278	0.275	0.273	0.271	0.268	0.266	0.264
Long distance	€ billion/year	8.188	0.603											0.118	0.232	0.342	0.447	0.549	0.647	0.635	0.623	0.612	0.601	0.590	0.579	0.568	0.558	0.548	0.538
Medium and regional	€ billion/year	10.303	0.759											0.149	0.292	0.430	0.563	0.691	0.814	0.799	0.784	0.770	0.756	0.742	0.729	0.715	0.702	0.689	0.677
Urban and suburban	€ billion/year	7.592	0.570											0.112	0.220	0.323	0.421	0.516	0.606	0.593	0.580	0.568	0.556	0.544	0.533	0.521	0.510	0.500	0.489
International	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		**29.848**	**2.171**										0	**0.429**	**0.843**	**1.242**	**1.627**	**1.997**	**2.354**	**2.312**	**2.271**	**2.230**	**2.191**	**2.152**	**2.113**	**2.076**	**2.039**	**2.003**	**1.967**
Package 4 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net gain to economy		**NPV**																											
a	€ billion/year	5.999	0.427											0.085	0.168	0.247	0.324	0.399	0.471	0.463	0.455	0.448	0.441	0.434	0.427	0.420	0.413	0.406	0.400
b	€ billion/year	15.360	1.093											0.218	0.429	0.633	0.830	1.021	1.205	1.185	1.166	1.147	1.128	1.110	1.092	1.074	1.057	1.040	1.023
c	€ billion/year	0.209	0.015											0.003	0.006	0.009	0.011	0.014	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.015	0.014	0.014	0.014
d	€ billion/year	4.353	0.310											0.062	0.122	0.179	0.235	0.289	0.342	0.336	0.330	0.325	0.320	0.315	0.309	0.304	0.300	0.295	0.290
e	€ billion/year	4.594	0.327											0.065	0.128	0.189	0.248	0.305	0.360	0.355	0.349	0.343	0.337	0.332	0.327	0.321	0.316	0.311	0.306
Total		**30.515**	**2.171**										0	**0.433**	**0.853**	**1.258**	**1.650**	**2.028**	**2.394**	**2.355**	**2.316**	**2.279**	**2.242**	**2.205**	**2.169**	**2.134**	**2.100**	**2.066**	**2.033**

Prorate to be consistent with analysis by market sector

Net gain to economy		**NPV**
a	€ billion/year	5.868
b	€ billion/year	15.024
c	€ billion/year	0.204
d	€ billion/year	4.258
e	€ billion/year	4.494
Total		**29.848**

(b.2) – Market Opening - Scenario 2 – Reinvestment

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Package 4: option T1+RS4+B1+A1																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	3.561	0.226											0.047	0.094	0.140	0.185	0.229	0.272	0.270	0.267	0.265	0.263	0.260	0.258	0.256	0.254	0.252	0.249
Long distance	€ billion/year	5.918	0.436											0.085	0.168	0.247	0.323	0.397	0.467	0.459	0.451	0.442	0.434	0.426	0.419	0.411	0.403	0.396	0.389
Medium and regional	€ billion/year	6.851	0.505											0.099	0.194	0.286	0.374	0.459	0.541	0.531	0.522	0.512	0.503	0.494	0.485	0.476	0.467	0.458	0.450
Urban and suburban	€ billion/year	5.128	0.385											0.076	0.149	0.218	0.285	0.348	0.409	0.400	0.392	0.384	0.376	0.368	0.360	0.352	0.345	0.337	0.330
International	€ billion/year	0.000	0.000											0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total		**21.457**	**1.552**										0	**0.308**	**0.604**	**0.891**	**1.167**	**1.433**	**1.690**	**1.660**	**1.631**	**1.603**	**1.575**	**1.548**	**1.521**	**1.495**	**1.469**	**1.443**	**1.419**
Package 4 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Net gain to economy		**NPV**																											
a	€ billion/year	4.307	0.306											0.061	0.120	0.178	0.233	0.286	0.338	0.332	0.327	0.322	0.316	0.311	0.306	0.301	0.296	0.292	0.287
b	€ billion/year	11.367	0.809											0.161	0.318	0.469	0.614	0.755	0.892	0.877	0.863	0.849	0.835	0.821	0.808	0.795	0.782	0.770	0.757
c	€ billion/year	0.153	0.011											0.002	0.004	0.006	0.008	0.010	0.012	0.012	0.012	0.011	0.011	0.011	0.011	0.011	0.011	0.010	0.010
d	€ billion/year	3.006	0.214											0.043	0.084	0.124	0.163	0.200	0.236	0.232	0.228	0.225	0.221	0.217	0.214	0.210	0.207	0.204	0.200
e	€ billion/year	2.975	0.212											0.042	0.083	0.123	0.161	0.198	0.233	0.230	0.226	0.222	0.219	0.215	0.212	0.208	0.205	0.201	0.198
Total		**21.808**	**1.552**										0	**0.310**	**0.609**	**0.899**	**1.179**	**1.450**	**1.711**	**1.683**	**1.656**	**1.629**	**1.602**	**1.576**	**1.550**	**1.525**	**1.501**	**1.476**	**1.453**
Prorate to be consistent with analysis by market sector																													
Net gain to economy		**NPV**																											
a	€ billion/year	4.237																											
b	€ billion/year	11.184																											
c	€ billion/year	0.150																											
d	€ billion/year	2.958																											
e	€ billion/year	2.927																											
Total		**21.457**																											

(c.1) – Combined Impacts - Scenario 1 – Saving

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Option U2+A1+B1																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	6.260	0.398											0.083	0.165	0.245	0.324	0.402	0.478	0.474	0.470	0.466	0.462	0.458	0.454	0.450	0.446	0.442	0.439
Long distance	€ billion/year	11.811	0.870											0.171	0.335	0.493	0.645	0.792	0.933	0.916	0.899	0.883	0.867	0.851	0.835	0.820	0.805	0.790	0.776
Medium and regional	€ billion/year	14.614	1.077											0.211	0.414	0.610	0.799	0.980	1.154	1.133	1.113	1.092	1.072	1.053	1.034	1.015	0.996	0.978	0.960
Urban and suburban	€ billion/year	10.242	0.769											0.152	0.297	0.436	0.568	0.696	0.817	0.800	0.783	0.766	0.750	0.734	0.719	0.703	0.689	0.674	0.660
International	€ billion/year	1.194	0.076											0.016	0.031	0.047	0.062	0.077	0.091	0.090	0.090	0.089	0.088	0.087	0.087	0.086	0.085	0.084	0.084
Total		**44.122**	**3.189**										0	**0.632**	**1.242**	**1.831**	**2.399**	**2.946**	**3.474**	**3.414**	**3.355**	**3.296**	**3.239**	**3.183**	**3.128**	**3.074**	**3.021**	**2.969**	**2.918**
U2+A1+B1 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
a	€ billion/year	14.115	1.004											0.200	0.394	0.582	0.763	0.938	1.107	1.089	1.071	1.054	1.037	1.020	1.003	0.987	0.971	0.956	0.940
b	€ billion/year	19.506	1.388											0.277	0.545	0.804	1.054	1.296	1.530	1.505	1.481	1.457	1.433	1.410	1.387	1.364	1.342	1.321	1.299
c	€ billion/year	0.250	0.018											0.004	0.007	0.010	0.014	0.017	0.020	0.019	0.019	0.019	0.018	0.018	0.018	0.018	0.017	0.017	0.017
d	€ billion/year	5.426	0.386											0.077	0.152	0.224	0.293	0.361	0.426	0.419	0.412	0.405	0.399	0.392	0.386	0.380	0.373	0.367	0.361
e	€ billion/year	5.522	0.393											0.078	0.154	0.228	0.299	0.367	0.433	0.426	0.419	0.412	0.406	0.399	0.393	0.386	0.380	0.374	0.368
Total		**44.819**	**3.189**										0	**0.637**	**1.252**	**1.847**	**2.423**	**2.979**	**3.516**	**3.459**	**3.402**	**3.347**	**3.292**	**3.239**	**3.186**	**3.135**	**3.084**	**3.034**	**2.985**
Prorate to be consistent with analysis by market sector																													
Net gain to economy		**NPV**																											
a	€ billion/year	13.895																											
b	€ billion/year	19.203																											
c	€ billion/year	0.246																											
d	€ billion/year	5.342																											
e	€ billion/year	5.436																											
Total		**44.122**																											

(c.2) – Combined Impacts - Scenario 2 – Reinvestment

			2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
I; Demand growth on previous year																													
High speed				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Long distance				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Medium and regional				0.8%	1.9%	1.9%	1.9%	1.9%	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%
Urban and suburban				0.9%	2.1%	2.1%	2.1%	2.1%	2.1%	1.9%	1.9%	1.9%	1.9%	1.9%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
International				2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.9%	2.9%	2.9%	2.9%	2.9%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Total				1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	2.0%	2.0%	2.0%	2.0%	2.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Option U2+A1+B1																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
High speed	€ billion/year	6.001	0.381											0.080	0.158	0.235	0.311	0.385	0.459	0.455	0.451	0.447	0.443	0.439	0.435	0.431	0.428	0.424	0.420
Long distance	€ billion/year	9.468	0.698											0.137	0.268	0.395	0.517	0.635	0.748	0.734	0.721	0.708	0.695	0.682	0.670	0.657	0.645	0.634	0.622
Medium and regional	€ billion/year	10.525	0.775											0.152	0.298	0.439	0.575	0.706	0.831	0.816	0.801	0.787	0.772	0.758	0.744	0.731	0.717	0.704	0.691
Urban and suburban	€ billion/year	7.597	0.570											0.112	0.220	0.323	0.422	0.516	0.606	0.593	0.581	0.568	0.556	0.545	0.533	0.522	0.511	0.500	0.489
International	€ billion/year	1.003	0.064											0.013	0.026	0.039	0.052	0.064	0.077	0.076	0.075	0.075	0.074	0.073	0.073	0.072	0.071	0.071	0.070
Total		**34.593**	**2.488**										0	**0.494**	**0.971**	**1.432**	**1.877**	**2.306**	**2.720**	**2.674**	**2.629**	**2.584**	**2.540**	**2.497**	**2.455**	**2.413**	**2.373**	**2.333**	**2.293**
U2+A1+B1 with Clusters																													
I; Timing assumption (by year)														17%	33%	50%	67%	83%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Assume entry builds steadily over 15 years																													
Net gain to economy		**NPV**																											
a	€ billion/year	10.950	0.779											0.156	0.306	0.451	0.592	0.728	0.859	0.845	0.831	0.818	0.804	0.791	0.779	0.766	0.754	0.741	0.729
b	€ billion/year	15.737	1.120											0.224	0.440	0.649	0.851	1.046	1.235	1.214	1.195	1.175	1.156	1.137	1.119	1.101	1.083	1.065	1.048
c	€ billion/year	0.213	0.015											0.003	0.006	0.009	0.011	0.014	0.017	0.016	0.016	0.016	0.016	0.015	0.015	0.015	0.015	0.014	0.014
d	€ billion/year	4.161	0.296											0.059	0.116	0.172	0.225	0.277	0.326	0.321	0.316	0.311	0.306	0.301	0.296	0.291	0.286	0.282	0.277
e	€ billion/year	3.904	0.278											0.055	0.109	0.161	0.211	0.260	0.306	0.301	0.296	0.292	0.287	0.282	0.278	0.273	0.269	0.264	0.260
Total		**34.966**	**2.488**										0	**0.497**	**0.977**	**1.441**	**1.890**	**2.324**	**2.743**	**2.698**	**2.654**	**2.611**	**2.569**	**2.527**	**2.486**	**2.446**	**2.406**	**2.367**	**2.329**
Prorate to be consistent with analysis by market sector																													
Net gain to economy		**NPV**																											
a	€ billion/year	10.834																											
b	€ billion/year	15.570																											
c	€ billion/year	0.210																											
d	€ billion/year	4.117																											
e	€ billion/year	3.863																											
Total		**34.593**																											

Figure 4 – Detailed results of market sector and cluster calculations

(a.1) – IM Governance - Scenario 1 - Savings

		Market sectors						Clusters					
Unbundling Option U2 **All results are illustrative estimates**		Total	High speed	Long distance	Medium/regional	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	6.73	0.69	1.26	2.48	1.26	1.05	6.73	6.06	0.66	0.00	0.00	0.00
Profits to new entrants	billion	0.20	0.09	0.08	0.00	0.00	0.02	0.20	0.21	-0.01	0.00	0.00	0.00
Financial costs													
Transaction and adminstration cos	billion	-1.37	Note: average of unbundling costs €1-2.9 billion					-1.37	Note: average of unbundling costs €1-2.9 billion				
Total	billion	**5.56**	cannot be allocated to market sectors					**5.56**	has not been allocated to clusters				
Key indicators in medium term													
Increase in annual turnover/passen	billion	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Increase in annual capital investme	billion	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00
Change in average fare per passeng	%	0.01%	-0.01%	0.00%	0.00%	0.00%	-0.01%	0.01%	-0.01%	0.01%	0.00%	0.00%	0.00%
Mode shift													
Increase in annual passenger-kilo	billion	0.8	0.3	0.3	0.0	0.0	0.3	0.8	0.7	0.1	0.0	0.0	0.0
From road	billion	0.2	0.1	0.1	0.0	0.0	0.1	0.2	Abstraction by mode has not been				
From air	billion	0.2	0.1	0.0	0.0	0.0	0.1	0.2	identified at the level of clusters				
New entrant PSC volume													
Annual train-kilometres in baselir	million	859	0	209	422	201	28	859	73	25	754	2	4
Annual train-kilometres with Opti	million	878	1	212	431	206	28	878	92	26	754	2	4
Net increase	million	19	1	3	9	5	1	19	18	1	0	0	0
New entrant open access volume													
Annual train-kilometres in baselir	million	127	63	25	21	17	0	127	78	1	49	0	0
Annual train-kilometres with Opti	million	135	66	28	21	17	2	135	84	2	49	0	0
Net increase	million	8	3	3	0	0	2	8	7	1	0	0	0
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Option U3	%	19.8%	7.5%	17.0%	30.1%	22.6%	9.2%	19.8%	10.1%	2.2%	87.1%	0.4%	0.6%
Net increase	%	0.5%	0.4%	0.4%	0.6%	0.6%	0.8%	0.5%	1.4%	0.1%	0.0%	0.0%	0.0%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	0.0	0.0	0.0	0.0	0.0
Net value of annual CO2 emission	million	-3.2	-1.1	-1.1	0.0	0.0	-1.0	-3.2	-2.7	-0.5	0.0	0.0	0.0

(a.2) – IM Governance - Scenario 2 - Reinvestment

		Market sectors						Clusters					
Unbundling Option U2 **All results are illustrative estimates**		Total	High speed	Long distance	Medium/regional	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	4.58	0.64	0.97	1.39	0.70	0.89	4.58	4.03	0.55	0.00	0.00	0.00
Profits to new entrants	billion	0.20	0.10	0.08	0.00	0.00	0.02	0.20	0.21	-0.01	0.00	0.00	0.00
Financial costs													
Transaction and adminstration cos	billion	-1.37	Note: average of unbundling costs €1-2.9 billion					-1.37	Note: average of unbundling costs €1-2.9 billion				
Total	billion	**3.42**	cannot be allocated to market sectors					**3.42**	has not been allocated to clusters				
Key indicators in medium term													
Increase in annual turnover/passen	billion	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0
Increase in annual capital investme	billion	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00
Change in average fare per passeng	%	0.01%	-0.01%	0.00%	0.01%	0.00%	-0.01%	0.01%	-0.01%	0.01%	0.00%	0.00%	0.00%
Mode shift													
Increase in annual passenger-kilo	billion	1.1	0.3	0.3	0.1	0.1	0.3	1.1	0.9	0.1	0.0	0.0	0.0
From road	billion	0.3	0.1	0.1	0.1	0.0	0.1	0.3	Abstraction by mode has not been identified at the level of clusters				
From air	billion	0.2	0.1	0.0	0.0	0.0	0.1	0.2					
New entrant PSC volume													
Annual train-kilometres in baselir	million	869	0	212	427	203	28	869	74	26	764	2	4
Annual train-kilometres with Opti	million	889	1	214	436	209	29	889	93	26	764	2	4
Net increase	million	19	1	3	10	6	1	19	19	1	0	0	0
New entrant open access volume													
Annual train-kilometres in baselir	million	129	64	26	22	17	0	129	78	1	50	0	0
Annual train-kilometres with Opti	million	137	67	29	22	17	2	137	85	2	50	0	0
Net increase	million	8	3	3	0	0	2	8	7	1	0	0	0
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Option U3	%	19.8%	7.5%	17.0%	30.1%	22.6%	9.2%	19.8%	10.1%	2.2%	87.1%	0.4%	0.6%
Net increase	%	0.5%	0.4%	0.3%	0.6%	0.5%	0.8%	0.5%	1.4%	0.1%	0.0%	0.0%	0.0%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-0.1	0.0	0.0	0.0	0.0	0.0	-0.1	-0.1	0.0	0.0	0.0	0.0
Net value of annual CO2 emission	million	-4.3	-1.1	-1.3	-0.5	-0.3	-1.1	-4.3	-3.7	-0.5	0.0	0.0	0.0

(b.1) – Market Opening - Scenario 2 – Saving

		Market sectors						Clusters					
Market opening Package 4 **All results are illustrative estimates**		Total	High speed	Long distance	Medium/regional	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	29.84	3.28	8.29	10.43	7.83	0.00	29.84	5.87	14.90	0.20	4.25	4.61
Profits to new entrants	billion	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.12	0.00	0.00	-0.11
Financial costs													
Transaction and adminstration cos	billion	-0.42	-0.02	-0.10	-0.18	-0.12	0.00	-0.42	-0.07	-0.15	-0.04	-0.02	-0.14
Total	billion	**29.43**	**3.27**	**8.19**	**10.25**	**7.71**	**0.00**	**29.43**	**5.79**	**14.88**	**0.17**	**4.23**	**4.35**
Key indicators in medium term													
Increase in annual turnover/passen	billion	0.3	0.2	0.1	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0
Increase in annual capital investme	billion	0.03	0.02	0.01	0.00	0.00	0.00	0.03	0.00	0.02	0.00	0.00	0.01
Change in average fare per passeng	%	0.02%	-0.03%	0.04%	0.00%	0.00%	0.00%	0.02%	0.00%	0.06%	0.00%	0.03%	-0.04%
Mode shift													
Increase in annual passenger-kilo	billion	2.0	1.3	0.7	0.0	0.0	0.0	2.0	0.0	1.6	0.0	0.2	0.3
From road	billion	0.5	0.3	0.3	0.0	0.0	0.0	0.5	Abstraction by mode has not been identified at the level of clusters				
From air	billion	0.5	0.4	0.1	0.0	0.0	0.0	0.5					
New entrant PSC volume													
Annual train-kilometres in baselir	million	837	0	204	411	196	27	837	71	25	735	2	4
Annual train-kilometres with Pack	million	1015	4	258	483	244	27	1015	108	86	738	35	49
Net increase	million	179	4	55	72	48	0	179	36	61	3	33	46
New entrant open access volume													
Annual train-kilometres in baselir	million	124	62	25	21	17	0	124	76	1	48	0	0
Annual train-kilometres with Pack	million	138	71	30	21	17	0	138	76	11	48	2	3
Net increase	million	14	9	5	0	0	0	14	0	10	0	2	3
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Package 4	%	23.1%	8.6%	20.9%	34.4%	27.1%	8.4%	23.1%	10.8%	7.7%	87.4%	7.0%	8.2%
Net increase	%	3.8%	1.4%	4.3%	4.9%	5.0%	0.0%	3.8%	2.1%	5.6%	0.3%	6.6%	7.6%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-0.1	-0.1	0.0	0.0	0.0	0.0	-0.1	0.0	-0.1	0.0	0.0	0.0
Net value of annual CO2 emission	million	-8.0	-5.3	-2.7	0.0	0.0	0.0	-8.0	0.0	-6.2	0.0	-0.6	-1.2

(b.2)– Market Opening - Scenario 2 – Reinvestment

		Market sectors						Clusters					
Market opening Package 4 **All results are illustrative estimates**		Total	High speed	Long distance	Medium/regional	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	21.45	3.12	6.03	6.98	5.32	0.00	21.45	4.24	11.06	0.15	2.95	3.04
Profits to new entrants	billion	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.12	0.00	0.00	-0.11
Financial costs													
Transaction and adminstration cos	billion	-0.42	-0.02	-0.10	-0.18	-0.12	0.00	-0.42	-0.07	-0.15	-0.04	-0.02	-0.14
Total	billion	**21.04**	**3.11**	**5.93**	**6.80**	**5.20**	**0.00**	**21.04**	**4.16**	**11.04**	**0.11**	**2.93**	**2.79**
Key indicators in medium term													
Increase in annual turnover/passen	billion	0.9	0.2	0.2	0.2	0.2	0.0	0.9	0.2	0.5	0.0	0.1	0.1
Increase in annual capital investme	billion	0.13	0.02	0.04	0.04	0.03	0.00	0.13	0.02	0.05	0.00	0.01	0.05
Change in average fare per passeng	%	-0.14%	-0.04%	-0.14%	-0.22%	-0.11%	0.00%	-0.14%	-0.12%	-0.18%	-0.05%	-0.13%	-0.01%
Mode shift													
Increase in annual passenger-kilo	billion	8.4	1.5	2.4	2.7	1.8	0.0	8.4	1.7	4.1	0.1	0.9	1.7
From road	billion	3.5	0.3	0.9	1.3	0.9	0.0	3.5	Abstraction by mode has not been identified at the level of clusters				
From air	billion	0.7	0.4	0.3	0.0	0.0	0.0	0.7					
New entrant PSC volume													
Annual train-kilometres in baselir	million	842	0	205	413	197	27	842	72	25	739	2	4
Annual train-kilometres with Pack	million	1027	4	261	489	247	27	1027	110	88	742	36	51
Net increase	million	186	4	57	76	50	0	186	38	64	3	34	47
New entrant open access volume													
Annual train-kilometres in baselir	million	125	62	25	21	17	0	125	76	1	48	0	0
Annual train-kilometres with Pack	million	139	71	30	21	17	0	139	76	11	48	2	3
Net increase	million	14	9	5	0	0	0	14	0	10	0	2	3
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Package 4	%	23.0%	8.6%	20.8%	34.1%	26.8%	8.4%	23.0%	10.8%	7.8%	87.4%	7.1%	8.3%
Net increase	%	3.7%	1.4%	4.2%	4.6%	4.8%	0.0%	3.7%	2.2%	5.7%	0.3%	6.7%	7.7%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-0.6	-0.1	-0.2	-0.2	-0.1	0.0	-0.6	-0.1	-0.3	0.0	-0.1	-0.1
Net value of annual CO2 emission	million	-33.2	-5.8	-9.5	-10.5	-7.2	0.0	-33.2	-6.7	-16.1	-0.4	-3.5	-6.5

(c.1)– Combined Impacts - Scenario 1 – Saving

		Market sectors						Clusters					
Combined Option U2+A1+B1 **All results are illustrative estimates**		Total	High speed	Long distance	Medium/regiona	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	43.91	5.39	11.96	14.90	10.64	1.03	43.91	13.69	19.03	0.25	5.34	5.61
Profits to new entrants	billion	0.21	0.11	0.08	0.00	0.00	0.02	0.21	0.20	0.18	0.00	0.00	-0.17
Financial costs													
Transaction and adminstration cos	billion	-0.40	Note: (1) costs of PSC and open access cannot be					-0.40	-0.02	-0.10	-0.17	-0.11	0.00
Transaction and adminstration cos	billion	-1.37	allocated to market sectors.					-1.37	Note: average of unbundling costs €0.7-2.0 billion				
Total	billion	**42.35**	(2) average of unbundling costs €0.7-2.0 billion					**42.35**	cannot be allocated to clusters				
Key indicators in medium term													
Increase in annual turnover/passen	billion	0.5	0.3	0.2	0.0	0.0	0.0	0.5	0.1	0.3	0.0	0.0	0.0
Increase in annual capital investme	billion	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Change in average fare per passeng	%	0.04%	-0.05%	0.06%	0.00%	0.00%	-0.01%	0.04%	-0.01%	0.09%	0.00%	0.04%	-0.06%
Mode shift													
Increase in annual passenger-kilo	billion	3.8	2.3	1.3	0.0	0.0	0.2	3.8	0.7	2.5	0.0	0.2	0.5
From road	billion	0.2	0.1	0.1	0.0	0.0	0.1	0.2	Abstraction by mode has not been				
From air	billion	0.2	0.1	0.0	0.0	0.0	0.1	0.2	identified at the level of clusters				
New entrant PSC volume													
Annual train-kilometres in baselir	million	842	0	205	413	197	27	842	72	25	740	2	4
Annual train-kilometres with Opti	million	1140	11	296	531	275	28	1140	153	117	744	53	73
Net increase	million	297	11	91	118	78	1	297	81	92	5	51	69
New entrant open access volume													
Annual train-kilometres in baselir	million	125	62	25	21	17	0	125	76	1	48	0	0
Annual train-kilometres with Opti	million	154	78	35	21	17	2	154	83	16	48	2	5
Net increase	million	29	16	10	0	0	2	29	7	16	0	2	5
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Option U3	%	25.6%	10.1%	23.8%	37.4%	30.1%	9.2%	25.6%	13.7%	10.6%	87.6%	10.5%	12.0%
Net increase	%	6.4%	2.9%	7.1%	8.0%	8.0%	0.8%	6.4%	5.1%	8.5%	0.5%	10.1%	11.4%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-0.3	-0.2	-0.1	0.0	0.0	0.0	-0.3	0.0	-0.2	0.0	0.0	0.0
Net value of annual CO2 emission	million	-15.1	-9.0	-5.1	0.0	0.0	-1.0	-15.1	-2.6	-9.8	0.0	-0.8	-1.9

(c.2)– Combined Impacts - Scenario 2 – Reinvestment

Combined Option U2+A1+B1 All results are illustrative estimates		Market sectors						Clusters					
		Total	High speed	Long distance	Medium/regiona	Urban/suburban	International	Total	A: integrated part-liberalised	B: integrated not liberalised	C: separated liberalised	D: separated part-liberalised	E: separated not liberalised
			HS	LD	MR	US	IN		a	b	c	d	e
NPVs to 2035, discounted at 4% to 2012													
Financial benefits													
Profits to incumbents and/or savi	billion	34.38	5.19	9.62	10.78	7.93	0.86	34.38	10.63	15.39	0.21	4.11	4.03
Profits to new entrants	billion	0.21	0.11	0.08	0.00	0.00	0.02	0.21	0.20	0.18	0.00	0.00	-0.17
Financial costs													
Transaction and adminstration cos	billion	-0.40	Note: (1) costs of PSC and open access cannot be					-0.40	-0.02	-0.10	-0.17	-0.11	0.00
Transaction and adminstration cos	billion	-1.37	allocated to market sectors.					-1.37	Note: average of unbundling costs €0.7-2.0 billion				
Total	billion	**32.82**	(2) average of unbundling costs €0.7-2.0 billion					**32.82**	cannot be allocated to clusters				
Key indicators in medium term													
Increase in annual turnover/passen	billion	1.7	0.3	0.5	0.5	0.4	0.0	1.7	0.5	0.8	0.0	0.2	0.2
Increase in annual capital investme	billion	0.2	0.0	0.1	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.1
Change in average fare per passeng	%	-0.25%	-0.06%	-0.25%	-0.39%	-0.20%	-0.01%	-0.25%	-0.21%	-0.33%	-0.10%	-0.23%	-0.01%
Mode shift													
Increase in annual passenger-kilo	billion	16.1	2.7	4.7	5.0	3.4	0.3	16.1	4.4	7.0	0.2	1.6	2.9
From road	billion	0.3	0.1	0.1	0.1	0.0	0.1	0.3	Abstraction by mode has not been				
From air	billion	0.2	0.1	0.0	0.0	0.0	0.1	0.2	identified at the level of clusters				
New entrant PSC volume													
Annual train-kilometres in baselir	million	846	0	206	415	198	27	846	72	25	743	2	4
Annual train-kilometres with Opti	million	1162	11	302	541	280	28	1162	158	124	748	56	77
Net increase	million	316	11	96	126	82	1	316	86	99	5	54	73
New entrant open access volume													
Annual train-kilometres in baselir	million	126	62	25	21	17	0	126	76	1	48	0	0
Annual train-kilometres with Opti	million	155	79	35	21	17	2	155	83	16	48	2	5
Net increase	million	29	16	10	0	0	2	29	7	16	0	2	5
New entrant market share													
Market share in baseline	%	19.3%	7.2%	16.6%	29.4%	22.1%	8.4%	19.3%	8.7%	2.1%	87.1%	0.4%	0.6%
Market share with Option U3	%	25.5%	10.1%	23.6%	36.9%	29.7%	9.2%	25.5%	13.8%	10.8%	87.5%	10.7%	12.1%
Net increase	%	6.2%	2.9%	7.0%	7.5%	7.7%	0.8%	6.2%	5.1%	8.7%	0.4%	10.3%	11.5%
Emissions reductions													
Net change in annual CO2 emissio	tonnes	-1.1	-0.2	-0.3	-0.3	-0.2	0.0	-1.1	-0.3	-0.5	0.0	-0.1	-0.2
Net value of annual CO2 emission	million	-63.4	-10.8	-18.6	-19.6	-13.3	-1.0	-63.4	-17.2	-27.7	-0.8	-6.2	-11.4

3.6. Sensitivity analysis

Due to the limited empirical evidence to underpin key assumptions, there is a wide range of uncertainty linked to qualitative estimates. To explore the effects of uncertainty further, several sensitivity tests were carried out to investigate the effects of more optimistic or pessimistic assumptions. The assumptions used for these sensitivity tests are summarised in Table 8- 3-13 below.

Table 8-3-13 Scenario assessment: assumptions for sensitivity tests

Issues	Test	Assumption	Core assumption	Alternative assumption
Incumbent response	Fewer "commercial" services survive open access	70% of "commercial" services become unviable and subject to PSCs once open access develops.	20% of commercial services becomes PSC	70% of commercial services becomes PSC
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.	New entry fares are 95% of incumbent's	New entry fares are 80% of incumbent's
Efficiency gains	Higher potential efficiency gains	"Commercial" and open access operators and effectively contestable PSCs become 25% more efficient.	Opex per train-km falls by 12.25%	Opex per train-km falls by 20%
	Lower potential efficiency gains	"Commercial" and open access operators and effectively contestable PSCs become 10% more efficient.	Opex per train-km falls by 12.25%	Opex per train-km falls by 5%

Table 8-3-14 summarises the results of the scenario analysis.

Table 8-3-14 Results of sensitivity tests

All changes are illustrative estimates	Financial benefits (NPV, € bn)	Increase in annual revenue (€ bn)	Increase in annual CAPEX (€ bn)	Increase in passenger km (bn)	Increase in new entry market share (% points)
Scenario 1 –Focus on saving					
Higher potential efficiency gains	50.4	0.3	0.03	2.0	3.8%
Fewer "commercial" services survive open access	30.1	0.2	0.03	1.9	3.9%
Core assumptions	**29.4**	**0.3**	**0.03**	**2.0**	**3.8%**
Lower fares offered by open access operators	29.3	0.2	0.03	2.2	3.8%
Lower potential efficiency gains	13.6	0.3	0.03	2.0	3.8%

Scenario 2 – Reinvestment					
Higher potential efficiency gains	35.5	1.3	0.21	13.3	3.6%
Fewer "commercial" services survive open access	21.5	0.9	0.13	8.5	3.8%
Core assumptions	**21.0**	**0.9**	**0.13**	**8.4**	**3.7%**
Lower fares offered by open access operators	20.9	0.8	0.13	8.5	3.7%
Lower potential efficiency gains	10.0	0.5	0.08	4.9	3.8%

4. CALCULATIONS OF ADMINISTRATION AND ENFORCEMENT COSTS

Specific assumptions for the baseline and the individual options and packages were also made around administration and enforcement costs. These are reported as outputs but do not form the core inputs or calculations.

4.1. Approach

Administration and enforcement costs were analysed using a methodology that is similar to the standard cost approach set, out in the IA Guidelines for administrative costs. The particular focus was on the monetary quantification of additional cost burden to the industry, generated by the introduction of the preferred policy scenario.

The approach differs from the IA Guideline standard cost model, as all transaction costs have been computed, not only those that could be accounted for information obligations. For example, it has been taken into account both the costs that have to be met by operators and public authorities to prepare and run tenders, or to bid for tenders[37] as well as other compliance costs like those incurred to prepare or to define the PSC.

For the purpose of this analysis this 'extended' approach to administration costs was considered relevant for two reasons:

- The policy options have a significant impact on the entire set of transaction costs of industry and public authorities (EU, national and local) and, as such, need to be analysed in detail
- It would be very difficult, if not infeasible to separate administrative and compliance costs.

4.2. Assumptions

4.2.1. Cost related to tendering process (tendering transaction costs)

[37] It can be also argued that for operators, the costs related to participation in tenders could be considered marketing rather than administrative costs. However, for the purpose of this analysis these are included in administration costs.

Following the overall logic of standard costs model, the costs are calculated as the product between the average cost of the required transaction ('price') and the total number of transactions performed per year ('quantity'):

The average cost per tender (price)

In Member States where compulsory competitive tendering has yet to be introduced, the policy would result in additional transaction costs. Average cost per tender has been estimated on the basis of the information available at industry level using the costs:

- incurred by public authorities to launch a tendering process and
- operators to respond, considering an average participation of three tenderers and allowing for possible legal disputes on the results.

Different costs for EU15 and EU12 Member States have been considered to reflect the difference in salary levels across the industry, although it was assumed that EU12 costs will catch-up with EU15 by 2025

- €780,000 per tender in EU15
- €390,000 per tender in EU12 (in 2012 values).

Underlying assumptions are summarised in the figure below.

Figure 8-3- 5 – Underlying assumptions for calculating the cost of tenders

Average transaction costs (one-off tendering)				
Preparation of tender - Competent Authority	*200,000*	*100,000*	€ (2012 prices)	Covers only additional tasks required by the tendering process like tender preparation and enforcemen, but not those carried out in any case (e.g. planning of services, contract enforcement, etc.)
Preparation of tender-Total cost tenderers	*500,000*	*250,000*	€ (2012 prices)	Only additional burden due to tender process considered
Participation to bid-cost per tenderer	166,667	83,333	€ (2012 prices)	
Average number of tenderers	3	3	Number	
Other costs of tender - Regulatory Bodies/Authorities/Courts	*80,000*	*40,000*	€ (2012 prices)	Costs at national or EU level
Estimated cost of a legal dispute/Regulatory intervention	800,000	400,000	€ (2012 prices)	
Propability of occurrence	0.10	0.10	Number	
Total additional transaction costs	780,000	390,000	€ (2012 prices)	
EU15 catch up -Average growth per year 2012-2025	-	5.5%	€ (2012 prices)	EU15 catch up with EU12 by 2025

The number of tenders (quantity)

It has been also assumed that

- the baseline reflects the evolution of the current situation and foresees a small increase in the total number of tendered PSCs in the future (in Member States that were considered more likely to adopt this instrument without EU intervention) and
- for each option or package there will be an incremental number of new PSCs per NUTS2 territorial unit, unless a different pattern is already in place nationally.

Figure 8-3- 6 – Underlying assumptions for calculating the number of tenders

Contract features	EU15	EU12	Unit value	
Total number of contracts (PSC)				
Current situation	273	6	279	Assumes that 85% of all possible contracts (i.e. NUTS 2 regions) are already regulated through a PSC in EU15 against 10% in EU12 in the current situation
Baseline	289	11	300	Assumes that 90% of all possible contracts (i.e. NUTS 2 regions) are regulated through a PSC in EU15 against 20% in EU12
Option B1	321	58	379	All contracts will have a PSC under B1

A five year ramp-up period for the introduction of additional foreseen PSCs was also established. It was considered, that by 2020, a large share of the costs will be in place as the institutional reforms to set up tenders will have been implemented in most member states as well as the fact that additional PSCs will have come into force in several member states. An average duration of PSCs of seven years is assumed to estimate the number of tenders that are likely to be issued per year in the 2015 to 2035 period.

4.2.2. Implementation and monitoring costs of PSCs.

In addition to the costs related to the tendering process assumptions have been also made around the additional transaction costs due to the implementation and monitoring of a greater number of PSCs, particularly in those Member States where at present there is limited recourse to such contracts as mentioned above.

Implementation costs

As with the average cost per tender, the average introduction cost per PSC has been estimated on the basis of the information available at industry level, concerning the costs incurred by public authorities to set up a PSC for the first time. Differences in salary across the industry have been reflected through considering EU15 and EU12 Member States separately. It has also been assumed that EU12 contracting authorities will most likely require a higher effort to set this type of contract given a lesser level of familiarity with the instrument and the different institutional framework within which they operate.

The average introduction cost per PSC is calculated to be:

- €750,000 per tender in the EU15 and
- €500,000 in the EU12 (2012 values).

Figure 8-3- 7 – Underlying assumptions for calculating the PSC introduction costs

One-off cost of PSC				
Cost of setting a PSC	750 000	500 000		More work needed in EU12 but lower labour cost.
Rump-up period to get all PSC				
Rump-up	5	5	Years	All new additional contracts established by 2020
Average monitoring cost				
Average yearly cost of PSC	*78 000*	*39 000*	€ (2012 prices)	We consider yearly cost as 10% of one-off cost of tendering transaction costs
EU15 catch up -Average growth per year 2(	-	5,5%	€ (2012 prices)	EU15 catch up with EU12 by 2025

Monitoring costs

The annual cost of monitoring a PSC has been assumed to be equivalent to 10% of the tendering transaction costs.

4.2.3. Change in administration costs of new open access operations

A change in administration costs which would be incurred by *operators* and *public administrations* is assumed to apply to situations and options where new open access operations are in place.

For *operators*, it has been assumed that new open access operations will require one additional FTE (full time equivalent) per Member State for open access operators. This FTE represents the sum of all additional tasks that will be undertaken by operators of the sector due to the implementation of a policy change. Different gross salaries estimated through industry interviews have been used for EU15 and EU12 MS to reflect the differences in rail industry costs among these countries, although EU12 values are assumed to catch-up with EU15 ones in the longer term.

Figure 8-3- 8 – Underlying assumptions for calculating the cost of administration for operators

Assumptions	EU15	EU12	Unit value	
Additional FTE at industry level	15	10	FTE	It is assumed 1 FTE per MS where there are railways. This represents the cost at industry level, i.e. the sum of all additional tasks to be done by operators of the sector
Additional FTE at Public Administration level	-	0	FTE	It is assumed that the additional work undertaken by Competition Authorities compensate the lower amount of work for Regulatory Bodies with respect to the current situation
Avarage gross salary	87 237	21 885	€ 2012 prices	
Yearly growth rates	0%	7%	Real terms	

For *public administration*, it has been assumed that the additional work undertaken by competition authorities is cancelled out by the lower amount of work for regulatory bodies with respect to the current situation.

4.2.4. Implementation costs of IM Scenario 3

Additional costs of IM Scenario 3 are based on a recent study by Merkert et al (2012). Estimated transactions costs in Germany, Great Britain and Sweden include the procuring of access rights, franchise bidding and the allocation of train costs and are shown in Table 8-3-15 below.

TABLE 8-3-15 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)

The difference between the estimates of transactions cost as a proportion of total operating cost for Germany and Sweden is taken as an indication of the additional transactions costs arising from IM Scenario 3. Recognising that the estimates cover the costs of competitively tendering PSCs and other costs arising from institutional separation undertaken under existing legislation, the following assumptions have been made:

- 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.

In applying the proportions shown in the third column of the Table 8-3-15, it has been assumed that transactions costs are broadly scalable according to overall operating costs. This gives an estimate of the incremental costs of institutional separation of 0.32% of total operating costs (0.76% - 0.44%).

The costs of legal disputes and enforcement associated with an increase in competitive tendering are likely to be reduced in the event that market opening is combined with institutional separation. Separation as envisaged under IM Scenario 3 can be expected to reduce discriminatory behaviour and improve financial transparency. The probability of the need for legal or regulatory intervention has been therefore reduced from 10% to 5%.

Study by Merkert et al (2012) 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, so estimate of a 50% reduction in these costs through the introduction of separation in support of market opening is therefore considered conservative.

4.2.5. Assumptions for freight

The benefits of institutional separation arising in the freight sector, additional to the benefits arising in the domestic and international passenger sectors, have been estimated as an increase in turnover rather than a decrease in costs. The freight sector has been liberalised since 1 January 2007 under Directive 2004/51/EC, and is subject to extensive inter-modal competition, so efficiency savings should already have been stimulated.

However, further separation, where it does not already exist, could reduce discriminatory practices and improve transparency, increase the number of new entrants, stimulate price reductions and competition in some cases and generate new freight activity. Therefore, it will produce an increase in revenue from freight operations 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.

4.2.6. Results

The analysis of costs has been carried out for the period 2019-2035 and has included the classification of Member States into the clusters defined in Table 8- 3-12 above.

NPVs are calculated over the period 2019 and 2035 using a 4% discount rate.

Figure 8-3- 9 DETAILED CALCULATIONS OF ADMINISTRATION AND ENFORCEMENT COSTS

Admin costs

TOTAL IMPACTS

Option B1

A Competitive tendering transaction costs		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Baseline	Transaction costs EU15		21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571	21 728 571
	Tranaction costs EU12		719 642	759 223	800 980	845 034	891 511	940 544	992 273	1 046 849	1 104 425	1 165 169	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714	1 225 714
	Total transaction costs		22 448 214	22 487 794	22 529 551	22 573 605	22 620 082	22 669 115	22 720 845	22 775 420	22 832 997	22 893 740	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286	22 954 286
	NPV (2012 base year)	319,47																					
Option B1	Transaction costs EU15		35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571	35 768 571
	Tranaction costs EU12		3 794 477	4 003 173	4 223 348	4 455 632	4 700 692	4 959 230	5 231 987	5 519 747	5 823 333	6 143 616	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857	6 462 857
	Total transaction costs		39 563 049	39 771 745	39 991 919	40 224 203	40 469 263	40 727 801	41 000 559	41 288 318	41 591 904	41 912 188	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429	42 231 429
	NPV (2012 base year)	579,00																					
Difference	Transaction costs EU15		14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000	14 040 000
	Tranaction costs EU12		3 074 835	3 243 951	3 422 368	3 610 598	3 809 181	4 018 686	4 239 714	4 472 898	4 718 908	4 978 448	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143	5 237 143
	Total transaction costs		17 114 835	17 283 951	17 462 368	17 650 598	17 849 181	18 058 686	18 279 714	18 512 898	18 758 908	19 018 448	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143	19 277 143
	NPV (2012 base year)	259,52																					

B PSC setting one-off costs		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Baseline	EU15: cost additional to current situation		2 407 500	2 407 500	2 407 500	2 407 500	2 407 500																
	EU12: cost additional to current situation		520 000	520 000	520 000	520 000	520 000																
	Total one-off costs		2 927 500	2 927 500	2 927 500	2 927 500	2 927 500																
	NPV (2012 base year)	13,03																					
Option B1	EU15: cost additional to current situation		7 222 500	7 222 500	7 222 500	7 222 500	7 222 500																
	EU12: cost additional to current situation		5 220 000	5 220 000	5 220 000	5 220 000	5 220 000																
	Total one-off costs		12 442 500	12 442 500	12 442 500	12 442 500	12 442 500																
	NPV (2012 base year)	55,39																					
Difference	EU15		4 815 000	4 815 000	4 815 000	4 815 000	4 815 000																
	EU12		4 700 000	4 700 000	4 700 000	4 700 000	4 700 000																
	Total one-off costs		9 515 000	9 515 000	9 515 000	9 515 000	9 515 000																
	NPV (2012 base year)	42,36																					

C PSC monitoring costs - yearly costs		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Baseline	Monitoring costs EU15		22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200	22 534 200
	Monitoring costs EU12		503 750	531 456	560 686	591 524	624 057	658 381	694 591	732 794	773 098	815 618	858 000	858 000	858 000	858 000	858 000	858 000	858 000	858 000	858 000	858 000	858 000
	Total monitoring costs		23 037 950	23 065 656	23 094 886	23 125 724	23 158 257	23 192 581	23 228 791	23 266 994	23 307 298	23 349 818	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200	23 392 200
	NPV (2012 base year)	326,38																					
Option B1	Monitoring costs EU15		25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000	25 038 000
	Monitoring costs EU12		2 656 134	2 802 221	2 956 344	3 118 942	3 290 484	3 471 461	3 662 391	3 863 823	4 076 333	4 300 531	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000	4 524 000
	Total monitoring costs		27 694 134	27 840 221	27 994 344	28 156 942	28 328 484	28 509 461	28 700 391	28 901 823	29 114 333	29 338 531	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000	29 562 000
	NPV (2012 base year)	405,30																					
Difference	Monitoring costs EU15		2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800	2 503 800
	Monitoring costs EU12		2 152 384	2 270 766	2 395 658	2 527 419	2 666 427	2 813 080	2 967 800	3 131 029	3 303 235	3 484 913	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000	3 666 000
	Total transaction costs		4 656 184	4 774 566	4 899 458	5 031 219	5 170 227	5 316 880	5 471 600	5 634 829	5 807 035	5 988 713	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800	6 169 800
	NPV (2012 base year)	78,91																					

D Total transaction costs: (A) + (B) + (C)		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Baseline	Transaction costs EU15		46 670 271	46 670 271	46 670 271	46 670 271	46 670 271	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771	44 262 771
	Tranaction costs EU12		1 743 392	1 810 678	1 881 666	1 956 557	2 035 568	1 598 924	1 686 865	1 779 643	1 877 523	1 980 787	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714	2 083 714
	Total transaction costs		48 413 663	48 480 950	48 551 937	48 626 829	48 705 839	45 861 696	45 949 636	46 042 414	46 140 294	46 243 558	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486	46 346 486
	NPV (2012 base year)	658,89																					
Option B1	Transaction costs EU15		68 029 071	68 029 071	68 029 071	68 029 071	68 029 071	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571	60 806 571
	Tranaction costs EU12		11 670 611	12 025 395	12 399 691	12 794 574	13 211 176	8 430 691	8 894 379	9 383 570	9 899 666	10 444 148	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857	10 986 857
	Total transaction costs		79 699 683	80 054 466	80 428 763	80 823 646	81 240 247	69 237 262	69 700 950	70 190 141	70 706 237	71 250 719	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429	71 793 429
	NPV (2012 base year)	1039,69																					
Difference	Transaction costs EU15		21 358 800	21 358 800	21 358 800	21 358 800	21 358 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800	16 543 800
	Tranaction costs EU12		9 927 219	10 214 716	10 518 026	10 838 017	11 175 608	6 831 767	7 207 514	7 603 927	8 022 143	8 463 361	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143	8 903 143
	Total transaction costs		31 286 019	31 573 516	31 876 826	32 196 817	32 534 408	23 375 567	23 751 314	24 147 727	24 565 943	25 007 161	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943	25 446 943
	NPV (2012 base year)	380,80																					

Open Access Option

A Additional transaction costs		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Difference	Additional transaction costs EU15		1 308 551	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788	1 395 788
	Additional transaction costs EU12		268 099	286 865	306 946	328 432	351 423	376 022	402 344	430 508	460 643	492 888	527 390	564 308	603 809	646 076	691 301	739 692	791 471	846 874	872 367	872 367	872 367
	Total additional transaction costs		1 576 650	1 682 653	1 702 734	1 724 220	1 747 211	1 771 810	1 798 132	1 826 296	1 856 431	1 888 676	1 923 178	1 960 096	1 999 597	2 041 864	2 087 089	2 135 480	2 187 259	2 242 662	2 268 155	2 268 155	2 268 155
	NPV (2012 base year)	26,67																					

Total Admin Costs

Total		NPV (€ mil)	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
			€																				
Difference	Additional transaction costs EU15		22 667 351	22 754 588	22 754 588	22 754 588	22 754 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588	17 939 588
	Additional transaction costs EU12		10 195 318	10 501 582	10 824 972	11 166 450	11 527 031	7 207 789	7 609 857	8 034 435	8 482 786	8 956 249	9 430 533	9 467 451	9 506 952	9 549 219	9 594 444	9 642 835	9 694 614	9 750 017	9 775 510	9 775 510	9 775 510
	Total additional transaction costs		32 862 669	33 256 170	33 579 560	33 921 037	34 281 619	25 147 377	25 549 445	25 974 023	26 422 374	26 895 837	27 370 121	27 407 039	27 446 540	27 488 807	27 534 032	27 582 423	27 634 202	27 689 605	27 715 098	27 715 098	27 715 098
	NPV (2012 base year)	407,46																					

Table 8- 3-1611 and Table 8- 3-17 summarise the administration and enforcement costs assumed for each country cluster.

Table 8- 3-16 Administration and enforcement costs for A1 (broad open access)

	Cluster a	Cluster b	Cluster c	Cluster d	Cluster e	Total
Total effects NPV (€ mil.)	4	9	2	4	7	27

The variation in transaction costs across clusters is attributable to the different number of Member States grouped in each, and is highest for clusters b and e which include 10 and 7 Member States respectively.

Table 8- 3-17 Administration and enforcement costs for B1 (mandatory competitive tendering)

	Cluster a	Cluster b	Cluster c	Cluster d	Cluster e	Total
Total effects NPV (€ mil.)	70	136	18	21	132	377
Tendering costs	41	95	14	8	102	260
PSC costs	29	41	4	13	30	117

The highest cost increases are assumed to be incurred by non-liberalised Member States: clusters b and e. In these Member States at present, the recourse to public tendering is almost negligible and the adoption of PSCs is limited, especially in EU12 MS. Cluster c assumes the lowest increase in these costs as it is composed of two Member States that have already liberalised and opened most of their rail market to competitive tendering, Sweden and Great Britain in the United Kingdom.

ANNEX 10

"The Last Mile towards the 4th Railway Package"
24 September 2012, Brussels
Summary document of the conference

Keynote addresses

Mr Siim Kallas, Vice-President of the European Commission

Many challenges lay ahead to enable the trans-European rail sector to achieve its full potential through the creation of a single European railway area. Plenty of progress has been made with recent agreement on the recast of the First Railway Package which will stimulate investment, improve market access conditions and reinforce national rail regulators. More reform is needed for rail to compete effectively with other modes, by removing barriers, attracting more operators to the market, making the industry more efficient and raising service quality, punctuality and reliability.

EU-wide standards are required, allowing trains to be built and certified to run everywhere in the EU and saving money in the process. The European Railway Agency (ERA) should become the authority to issue safety certificates and vehicle authorisations provided there is technical compatibility.

A combination of open access to domestic rail passenger markets and of competitive tendering for public service contracts (PSCs) should be encouraged to provide competition in and for the market.

Infrastructure management functions such as charging and the allocation of rail capacity, financial transparency, maintenance, renewal, upgrade and development of the infrastructure, day-to-day traffic management and the provision of real-time information must be kept apart from the operation of transport services and be exercised independently through a separated structure.

Mr Dominique Riquet, Member of the European Parliament (PPE-FR)

The creation of an integrated transport system had proven difficult with a continued need to overcome physical and organisational barriers. The freight industry has demonstrated the benefits of opening up the markets. It is time for rail to adapt to single European market ways of thinking and embrace interoperability, transparency, create the right fare conditions and open up the infrastructure. The extension of the competences of ERA should be supported, hoping that one day a single European regulator may exist.

Plenary I: Opening a new page in European Railways

(Moderator: Mr Matthias Ruete, Director General - European Commission, DG MOVE)

Ms Catherina Elmstäter-Svard, Swedish Minister for Infrastructure

Rail restructuring in Sweden started in 1988 when despite attempts at a financial overhaul, the quality of rail transport and infrastructure could not be maintained. Railway transport was not customer driven. There was a lack of funding for investment. The incumbent had become a "state within a state" that asserted its own interests at the expense of common interests.

Infrastructure management was separated from the operation of rail transport, both in terms of organisation and decision-making. The supply of rail transport services was diversified within a competitive procurement system. In return, demand for rail transport as well as investment in railway infrastructure and rolling stock began to increase. More rail companies were established; both railway freight and passenger transport increased capacity and efficiency. A vertically separated railway system

considerably reduces the need for any detailed regulation which is neither efficient nor sufficient.

Some difficulties will remain which will need to be resolved in a way that does not damage competition. How shall we deal with the introduction of ERTMS in a neutral way without specifying the equipment to be purchased but ensuring interoperability? What incentives are needed to ensure that the infrastructure manager (IM) operates efficiently, and on the basis of the demand of rail companies for capacity so that they can offer transport services that correspond to customers' requirements? An effective and consolidated rolling stock market is urgently required.

Mr Mauro Moretti, Chairman - CER

The rail sector needs a fair and stable regulatory framework, not one that changes every two or three years. Rules must be homogenous and valid for everybody to create a sound business environment, to attract private and public investment and to create a Single European Railway Area.

We must streamline the certification and authorisation processes that constitute huge barriers for market entry and consider the efficiency gains that an enhanced ERA may benefit the sector with, such as centralising some functions currently performed by national safety authorities (NSA), speeding up the processes for rolling stock authorisation and placing on the market, safety certification of railway undertakings (RUs) and the development and application of the legal framework. Since there seems to be agreement on this point, the Commission's proposal should be "fast tracked" through the legislative procedure in the case of ERA.

Consideration must be given to the best way to open domestic markets. Open access services must not lead to the detriment of services provided under PSCs.

Studies on different organisational models on the market show mixed results and suggest that other variables (such as system costs, modal share, and State funding) have a significant impact on performance. Different structures work best in different circumstances and therefore a flexibility of structural models may be beneficial.

Mr Philippe De Backer, Member of the European Parliament (ALDE-BE)

According to Directive 91/440/EEC, Member States have to separate infrastructure and services with the final aim of increasing rail's market share The results have been disappointing because most Member States did not want to give up their national monopolies. 3 rail packages have followed, 21 years later we are still discussing the issue. Eurostat data shows rail share of passenger and freight transport in still low for the EU27 at 6.3% and 10.2%.

A single European rail market will help to reach the 60% GHG emission reduction by 2050 as laid down in the Transport White Paper of 2011.

Member States must put interoperability into practice, allowing cross acceptance and a single process of placing vehicles into service. It's unacceptable to let years pass by before taking any action.

Trade unions claim that liberalisation leads to less safety on rail which is untrue and unproven.

ERA works well and it is accepted by all stakeholders so it should be turned into the one stop shop that is needed. In the future national technical and safety rules should

no longer exist. There should be one authority that gives out licences, gives vehicles authorisation and monitors and controls the market.

It is very difficult to convince Member States of the added value an open market brings, as in most cases national passenger transport is in the hands of the State-owned incumbents. However, if carried out in a consistent manner, it will give the passenger greater choice and lead to better quality of service. Market liberalisation should be accompanied by a legal separation between IM and RU. Unbundling should be the standard. The debts many companies are bearing now are the result of the existing inefficient integrated structure. Efficiency gains are desperately needed, also for the public purse.

Mr Mark Hopwood, Managing Director - First Great Western, First Group

First Great Western is the largest train passenger operating business in the UK with over 25% of the market, winning tenders to operate long-distance, regional and commuter services.

Privatisation in the UK had been born from British Rail not delivering, with poor performance and low passenger satisfaction. Innovation came from the introduction of market competition which has been so successful that significant growth has now led to a change of political context (all UK political parties support rail investment), limited support for returning to public sector operation and a continued move to funding from the fare payer rather than the taxpayer.

In London and South East demand is already 10% above forecasts and is likely to be by 2020 33% above 2007 expectations. Twice yearly National Passenger Surveys conducted by an independent organisation provide a focus of passenger perception with a number of aspects of the service provided. This is in addition to four weekly customer services monitoring to ensure that the service provided meets the needs of passengers.

A firm framework with flexibility for innovation and partnership needs to be created to allow private companies to grow in Europe. Obstacles to new entrants must be tackled, such as direct award in some “open” markets. Without leasing companies, state/regional authorities will need to absorb financial risks or new entrants will not be able to lease or acquire stock. Through-ticketing arrangements should be managed alongside a "clearing house" mechanism run by an independent body to ensure fairness and reimburse operators quickly.

Mr Vicenzo Cannatelli, Vice President – NTV

NTV entered the Italian rail market following the advent of liberalisation but it needed 6 years from incorporation to starting its transport services.

In Italy, many constraints exist as both the IM and train operators are 100% owned by the same companies. The cost of high speed access was one of the highest in Europe at more than € 13 per train-km and the homologation process not well defined and continuously thwarted by the incumbent operator. It took 45 months from request of homologation to commercial service operation.

The Italian Government announced in January the creation of an independent Transportation Authority which will have to introduce fair competition in all railway sectors and to constrain uncompetitive situations. It may analyse the benefits of unbundling in the upcoming months.

NTV have invested over € 1 billion in 25 trains, depots, IT, training and staff. The benefits have spread to the customer as the advent of NTV has had a positive effect on the incumbents' services as well. Prices have decreased while additional services are being operated with higher frequencies. Marketplace innovation has also led to a new more efficient mix of sales channels with 70% coming from the internet. This all demonstrates the vital benefits of the liberalisation agenda.

Plenary II: Railways - an agenda for growth, innovation and employment in Europe

(Moderator: Mr Karel Vinck, ERTMS coordinator)

Mr Melchior Wathelet, Minister of Mobility – Belgium

Rail has an enviable record on safety and respect of the environment. Rail demand is continually growing. Mobility leads to growth; therefore we need to remove bottlenecks, harmonise interoperability rules and introduce ERTMS.

Today, rail is not the preferred mode of transport for most Europeans or for key businesses. To chang this, we have to establish a single European rail market providing non-discriminatory access to all operators and to increase the predictability of major investments. Member States must take the responsibility to develop a corporate long term infrastructure development plan.

Mr Svend Leirvaag, Vice - President Industry Affairs - Amadeus

Connecting railways and other modes of transport will become the number 1 priority for European consumers. The integrated European transport system has to enable travellers to plan, book, pay for and collect their tickets in a seamless way. The sector needs to start preparing for deregulation and increased competition.

An efficient and competitive European railways sector will strengthen the competitiveness of Europe and their enterprises but this requires changes. Currently the dynamics of the marketplace mean that high price variation exists and sharing of technology to drive expansion and to keep costs down is not widely used. For instance, distribution channel ticketing bonds required for each and every RU could be replaced by a single European bond to cover them all.

Mr Johannes Mansbart, Chief Executive Officer - GATX

It is vital that entrants have availability of rolling stock on reasonable terms. The entities in charge of maintenance of vehicles (ECM) require solid operating data. An automated data exchange should be developed in a standardised format between workshops, keepers, RUs and customers.

New regulations such as vehicle noise emission standards have a material impact on the life cycle costs of rolling stock and as they deliver public rather than commercial benefits, manufacturers are not driven to seek the best solutions, choosing where applicable to pass the costs onto the RU.

Maintenance concepts need to be finetuned with unified rules and standards, optimised spare part logistics, shared services, component swaps, more preventive and less reactive maintenance.

ERA should be given a stronger role including the rights to enforce common rules and to bring clarity to a single information database.

Mr Stefan Roseanu, Chief Executive Officer - CFR Călători (RO)

The national railway passenger operator in Romania had been created in 1998 by splitting the former national railway in line with EC directives. Its key challenges are a very old fleet, poor infrastructure and a lack of investment funds.

Rail travel has been decreasing by 20% in train kilometres and by 60% in the number of passengers, with a corresponding increase in car usage. Acquisition of new rolling stock is essential to reverse this trend. Open access to domestic passenger markets and competitive tendering for PSCs are expected to improve the quality of services.

Workshop 1 – Rolling stock: reduced time-to-market

(Moderator: Mr Marcel Verslype, Director - European Railway Agency)

Mr Patrizio Grillo, Deputy Head of Unit B2 (Single European Railway Area) – DG MOVE

Several key problems identified in the sector relate to differing interpretations and implementation of EU law by Member States. National rules are often unclear, inappropriate, non-transparent (including incumbent staff seconded to NSAs), or they overlap with existing technical specifications of interoperability (TSIs). The authorisation process is long (up to 2 years), uncertain and expensive due to the multiplicity and unnecessary repetition of tests and verifications. The costs of safety certificates and for vehicle authorisations can be hugely variable.

On the basis of the impact assessment, the Commission suggests that ERA take the final decision on safety certification and vehicle authorisation in cooperation with NSAs. In this way, a single vehicle passport issued by ERA would be valid in all Member States.

Mr Alan Bell, Head of Railway Safety Policy - ORR UK

The length of time to get new vehicles into service leads to increased capital costs and hampers innovation. Inconsistent implementation of rules and bureaucracy delay the process further.

ERA's role should be enhanced to a 'partner' role promoting harmonisation and ensuring that the current structure works as it should by monitoring the implementation of directives and resolving disputes. The advantages of NSAs should not be lost including the knowledge base and feedback loop at a local level.

Mr Philippe Citroen, Director General – UNIFE

It takes on average 600 days to gain authorisation and the process is tying up € 1.4 billion capital that could be utilised for other benefits. There has only been a partial transposition of the Safety and Interoperability Directives, allowing a number of national processes to survive. UNIFE, CER, UIP and ERFA therefore all strongly support the enhancement of the role of ERA to become the European Railway Safety Agency. It should also become an appeal body and have decision-making powers in the event of disputes about vehicle authorisation processes and/or safety certificates. It should identify unnecessary national rules and be able to request their removal like aviation (EASA) and maritime (EMSA) agencies do.

RUs need to review their procurement processes to support standardisation amongst manufacturers as such initiatives have the potential to reduce costs and time to enter the market.

Mr Vicenzo Cannatelli, Vice President - NTV

Liberalisation should lead to better efficiency for all stakeholders and cheaper prices for users, however changes are required in order to get private investors to invest capital in the railway. The most fundamental of such changes was the need to set non-discriminatory rules and a clear timeframe for authorisation process that should become transparent.

Mr Konstantin Skorik, European Business Development Director – Freightliner

In freight transport, manufacturers and operators are reluctant to "experiment" and bring new innovative products to the market. There are fundamental differences in complexity, timing and cost of certification between locomotives and wagons due to different Member State requirements on safety and signalling systems, the lack of cross-acceptance, requirements for repetitive tests, unclear procedures and obstructive NSAs and IMs.

ERTMS costs may burden rail freight operators making them less competitive against road; however, success stories are possible like the certification of new GE Powerhaul locomotive in the UK which was delivered in less than two years through close cooperation between the parties involved during the design and construction phases.

There should be a clear role for ERA as a facilitator of cross-acceptance or as a one-stop shop, provided NSAs fully accept ERA rulings. Both ERA and NSAs should be urged to work fast and adhere to the interoperability rules.

Mr Michael Cramer - Member of the European Parliament (Greens-DE)

Fair competition is needed between modes of transport and a cross-modal plan is required to start this process. Cross-acceptance of rolling stock must be beneficial and more efficient but a more precise framework is required. We need a register of infrastructure so that all bidders have transparent access to the necessary information.

The new Airbus plane cost € 1 million for acceptance worldwide before introduction, whereas rolling stock costs in some cases twice that amount for acceptance in just one country.

Workshop 2 – The optimal infrastructure manager for the future

(Moderator: Mr Jean-Eric Paquet, Director, DG MOVE.B)

Ms Sian Prout, Head of Unit B2 (Single European Railway Area) – DG MOVE

Problems identified in the governance of IMs relate to efficiency and equal access. Railway infrastructure is a natural monopoly and the current governance arrangements do not provide sufficient incentives to respond effectively to the needs of users. There are no incentives for European cooperation. Existing separation requirements do not prevent conflicts of interests or discriminatory behaviour. There is a persistent risk of cross-subsidisation without complete financial transparency. It has to be ensured that all IM activities which are potential sources of conflicts of interest are subject to separation requirements which guarantee at least legal, economic and financial independence from RUs, regarding institutional independence as an objective.

The proposed approach for the creation of common rules for the governance structure of IMs will ensure that all RUs are on an equal footing. It will include economic

incentives and performance indicators, promote cooperation between IMs, establish a coordination body with IMs, RUs, customers, users and public authorities.

Ms Debora Serracchiani, Member of the European Parliament (S&D-IT)

Despite the recast ensuring greater competition between rail operators and better supervision by independent regulators, the primary goals of railway legislation have not been achieved. If we want to create a single market for railways, non-discriminatory access to rail infrastructure is essential. Member States must not use a no-one-size-fits-all excuse to preserve their current model. The goal is a system where a train can access each station in Europe and circulate throughout the infrastructure. Investment in the interoperability of the network and also in rolling stock is required along with a real separation of the IM from the operator to get rid of discrimination.

The conclusion of the Advocate General appears to be that the holding system is compatible with existing law. If in the aviation sector each airline had to ask the permission of their counterparts in other countries before being able to make any flights, the market would be far less competitive. Therefore the Commission must act fast to improve existing legislation.

Mr Hubert du Mesnil, President - EIM

A key role of separated IMs is to cooperate with their neighbours to form the backbone of European transport, over and above strict modal or national interests. This is one of the main differences from IMs structurally linked to their national carriers.

The optimal IM must adapt to customer needs, be entirely above suspicion and stand above any conflict of interest. At the same time, it shall be safe and efficient. This will create value for the whole system, including users and taxpayers through control over costs, prices and capacity.

Mr Garry White, Head of European and Strategic Affairs - Network Rail

Experience from the UK showed that liberalisation opened up valuable opportunities for new and existing operators, promoted new services and investment for passengers creating a competitive market served by over 20 passenger operators. Liberalisation has led to major growth in passenger demand (over a billion more passengers each year now), high levels of safety, punctuality and passenger satisfaction. There is a five-year agreement of €43 billion to finance the UK infrastructure with over €10 billion for capacity increase.

The McNulty study published last year recommended several changes to achieve potential efficiencies of around 30% through evolution, but ruled out radical legislative reform as disruptive and distracting. The industry should determine, under transparent and regulated conditions, how to work together for the benefit passengers, freight users and taxpayers.

IMs and RUs can deliver efficiencies through better alignment of incentives, higher train utilisation, new technologies, and stronger partnerships. Progress is being made towards building these ‘alliances’ at local level, based on shared information to create joint objectives with shared risk and reward benefits. Alliances do not mean the creation of new joint entities, with both sides retaining legal responsibility and decision-making powers.

An independent IM becomes a natural system integrator providing information to customers, coordinating research and development with suppliers, leading innovation for the benefit of the industry in a transparent, non-discriminatory and network-oriented manner.

Mr Rafal Milczarski, Managing Director - Freightliner Poland

To achieve the objectives of the Transport White Paper of 2011, IMs should be non-discriminatory, transparent, efficient and adequately financed. Maintenance of rail and road infrastructure should be financed by Member States in a way to eliminate modal discrimination (current proportions in Poland are 70% in road and 30% in rail). Rail share in EU cohesion fund spending should be at least 40% in EU-15 and 50% in EU-12 for 2014-2020. Access to basic loading and discharging assets and sidings must no longer be restricted.

Mr Ludger Sippel - BAG-SPNV

Rail authorities have good experience of competitive tendering of regional services and have been able to reduce subsidies on rural, suburban and interregional lines by up to 15%, 23% and 47% while improving the level of quality significantly. However, infrastructure charges and costs for staff and energy are increasing, while public budgets for financing non profitable services are becoming tighter.

There are several problems linked to the operation of infrastructure by integrated railway companies. Station and infrastructure charges paid by regional rail transport are not transparent and include high overhead costs. Some package deals have led to overcompensated directly awarded PSCs.

It is necessary to fully unbundle RUs and IMs in order to solve the structural problems of the integrated railway companies including transparency concerning business planning, cash-flow management, internal funding, financial flows across the group, cross subsidisation, profit transfer agreements and discrimination in the development of infrastructure based on the needs of incumbent RUs.

Workshop 3 – Rail and the value for society

(Moderator: Mr Alain Flausch, Secretary General – UITP)

Mr Eddy Liégeois, Head of Unit A5 (Legal matters & Infringements) – DG MOVE

Problems of poor service quality and operational performance in domestic rail passenger markets are driven by low intra-rail competition, inefficient use of public funds and a variety of national approaches to the provision of access. The objective is to open domestic rail passenger markets, getting better value for money spent on public services and creating more uniform business conditions.

Open access may be limited when the economic equilibrium of a PSC is compromised. Tendering of PSC should become mandatory. Member States, competent authorities and RUs should also be encouraged to set up integrated ticketing schemes and to use existing provisions on transfer of staff if necessary.

Mr Philippe De Backer, Member of the European Parliament (ALDE-BE)

Passengers often prefer the car because rail transport has poor service, is not punctual and has limited intermodal connection. For freight, cross border transport is made difficult by Member States by different entry barriers, causing unreliability and delay so customers choose road instead, despite congestion. A move away from the one-

mode approach to focus on the multimodality for goods and passenger transport is now required.

Legal separation between the IM and the RU is the best way to create a level playing field with transparency, clarity and no more cross subsidies, leading to more efficient railway companies requiring less state funding. The TEN-T network aims to create a unified transport network, removing bottlenecks, upgrading infrastructure and streamlining cross border transport operations for passengers and businesses on an intermodal basis. Railways are the backbone for these corridors.

Mr Christopher Irwin, Vice President - EPF

Consumer satisfaction with rail services in the EU is relatively poor with many passengers considering rail travel a distress purchase rather than the mode of choice. Consumer needs must be addressed using market opening and the advent of competition as a driver, measuring satisfaction and monitoring outcomes and considering end-to-end journey requirements.

Public transport and spatial planning must be considered to address congestion. Investment in capacity needs to be enabled by providing dependable services offering integrated seamless interfaces between modes. Through-ticketing and effective information systems should facilitate the use of collective transport.

Mr Michel Quidort, Director Institutional Relations - Veolia Transdev - EPTO

EPTO members (9 largest private public transport companies in Europe) support the opening of the passenger transport markets for competition.

Since market liberalisation a number of countries have seen considerable benefits: the UK (additional 450 M passenger journeys, 20 bn pkm between 1987 and 2009), the Netherlands (20–50% gains through competitive tendering efficiencies), Germany (28% increase in train km, 26% reduction in subsidies paid, 43% increase in patronage, 500 km of re-opened lines and 300 re-opened and new stations), France (Rhônexpress 55% increase in passengers in 19 months), Sweden (20–30% subsidy reductions through tendering and much higher customer satisfaction). Competition does not impact safety and employment conditions are not an issue. In the UK, train drivers earn some 50,000 EUR per year, while in Germany the drivers of private operators earn 86-94% of the wages of DB. Sustainable working conditions are required with lean management, empowerment, local responsibility and an ability to match the working time needs of local employees.

Competitive awarding procedures must become standard to provide value for society. This should be through a general obligation to tender for PSCs with a clear scope and no impairment of open access to ensure no restriction of market opportunities for new entrants. Direct award should remain an exception restricted to specific situations for limited duration. Tenders should be defined at local level and be coherent territorially and economically. Strong, independent national regulators with an adequate level of resources should co-operate through an EU network.

Mr Hans-Werner Franz, Managing Director - VBB

Competition for the regional and local rail market in Germany is still dominated by DB Regio with 76% of the market even though 91% of awards were made by competition.

Where competition exists benefits have included increases in patronage of up to 30%, improvements in quality and customer satisfaction, lower prices and cost reductions of 10-50%. Contracts should be at least 8 years with gross incentive contracts by taking risk preferred.

Interest in vehicle financing is slowly on the increase again but most banks possess little understanding of the SPNV market and therefore take a conservative approach which plays to DB's advantages of being a federal enterprise and therefore having more favourable credit conditions and low residual-value risks.

Mr Tim Gilbert, President – EPTOLA

With an asset life of 30–35 years, lessors are long-term investors in the market who provide flexible access to rolling stock throughout a competitive process. The market needs clarity, consistency and stability to allow continued growth.

Mr Ton Spaargaren – Gelderland province (NL)

When it was decided that the Dutch rail company should operate profitably, 32 train services (6 in the province of Gelderland) didn't fit the business case so, they were decentralised with competitive tendering. The province invested about € 100 M during the last 10 years, leading to a 26% increase in train km. Tenders are awarded on the basis of economic advantages rather than just the lowest price. They are net cost contracts (the operator is responsible for the industrial and commercial risks). Criteria relating to the concession include quality, sustainability, price, travel information and marketing strategy. The management of the PSC is based on output criteria such as punctuality, reliability or complaints.

An intermodal public transport network is desirable with the train as the backbone and bus transport feeding in, with transfer points such as Park and Ride facilities.

Plenary III: Presentation of Workshop findings

(Moderator: Mr Keir Fitch, Deputy Head of the Cabinet of Vice-President Kallas - European Commission)

Summaries of workshops by the moderators

Mr Verslype: There is a need for immediate action to prepare for a single certificate, but attention must be paid in the short term to better implementation of the current regime. There seems to be general agreement on the reinforced role of ERA but there are different possible solutions such as one-stop-shop, partnership with NSAs or ERA as single authorising body. An appeal body and a procedure to settle conflicts regarding vehicle authorisation is required; transparency of rules and processes should be improved and monitored. There seems to be a genuine enthusiasm in defending a Commission proposal which does not exist yet; several participants lobbied for more ambition and faster delivery.

Mr Paquet: Unbundling is the most contentious of the issues discussed. However, there is broad consensus on the needs of a better governance for IMs containing efficiency drivers. Arguments were raised about equality, impartiality and the need for a level playing field. In this respect it is difficult to see how an incumbent RU can make fair decisions on others. The Commission has to make a proposal ensuring stability for the medium to longer term, bearing in mind the potential tensions between equal access and efficiency.

Mr Flausch: A move to mandatory competitive tendering of PSCs with open access to domestic rail passenger markets would provide improved value through a reduction in public subsidies and improvements in service quality and infrastructure use. Tendering should not only be dependent on price; barriers to cross-border tenders should be removed. Most statements about social dumping or safety problems in liberalised markets are simply untrue. Access to rolling stock is vital for market entry. Integrated ticketing and workforce integration could lead to increased productivity.

Plenary IV: Presentation of the Eurobarometer survey and Conclusions of the Conference

Mr Matthias Ruete, Director-General - European Commission, DG MOVE

After a presentation of the Eurobarometer survey which had been carried out in the framework of the consultation process, Mr Ruete underlined that the three key workshop issues discussed would be properly addressed following a robust impact assessment and in-depth stakeholders' consultation.

Despite its comparative advantages versus road, rail is not considered reliable enough, flexible enough, innovative enough and affordable enough. All stakeholders appear to realise that current regulatory arrangements are not optimal. Long and costly procedures and discriminatory access barriers have caused a lack of new market entrants across many Member States.

Stakeholders also seem to agree that a new concept of a single vehicle "passport" valid in all Member States issued by ERA would improve efficiency. ERA may also be tasked with the facilitation of the deployment of ERTMS, strengthened communication, improved economic evaluation and cost-benefit analysis, and an enhanced role in international relations and research.

Further improvement of non-discriminatory access to rail infrastructure through clarifying the relations between IMs and RUs are required to create the Single European Railway Area. The Commission is finalising proposals for the opening of domestic rail passenger markets and mandatory competitive tendering for PSCs. Market opening requires integrating ticketing schemes and access to rolling stock to enable new RUs to participate in tender procedures.

Taxpayers expect that rail infrastructure usage will be optimised rather than restricted to the benefit of specific commercial interests for historical reasons.