

Summary of the Study

Rail Liberalisation Index 2011

Market opening: comparison of the rail markets of the Member States of the European Union, Switzerland and Norway

A study conducted by IBM Deutschland GmbH in collaboration with Prof. Dr. Dr. Dr. h.c. Christian Kirchner, Humboldt-University, Berlin

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The complete study, the summary and the annexes are available at:

www.deutschebahn.com/liberalisierungsindex (German)

www.deutschebahn.com/liberalisation-index (English)

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1. Introduction

This document is the fourth edition of the Rail Liberalisation Index and, as was the case with the first three editions for 2002, 2004 and 2007, has been conducted by IBM Global Business Services in collaboration with Professor Dr. Dr. Dr. h.c. Christian Kirchner, Humboldt University, Berlin.

The new regulatory framework for international rail passenger transport (Directive 2007/58/EC), Regulation (EC) No 1370/2007 on public passenger transport services by rail and by road, Directive 2007/59/EC for the recognition of the European train driver's licence, the Interoperability Directive 2008/57/EC for the recognition of vehicle approvals and the infringement proceedings against several EC member states by the European Commission alleging inadequate implementation of Directive 2001/14/EC were the occasion for updating the Rail Liberalisation Index between October 2010 and March 2011. In addition, in 2010, the European Commission submitted proposed legislation for a revision of the first railway package ("recast"). The recast is aimed at increasing competition in the rail transport market by eliminating technical, administrative and legal obstacles to market access. Lastly, the new Transport White Paper for 2010-2020 announces new legislation for further liberalisation of rail passenger transport for 2012. In light of these facts, the updated LIB Index is intended to provide facts and figures for the ongoing EU discussions about further opening of the market. The study was presented to the public on April 20, 2011 in Brussels.

The LIB Index compares the status of the relative degree of market opening in the European rail transport markets within the European Union, including Norway and Switzerland, in January 2011. The study is a *benchmark* of the legal and de facto barriers to market access from the perspective of an external railway undertaking (RU¹) seeking access.

Legal access conditions, such as the powers of the regulatory body and the market access regime, are contained in the LEX sub-index (*law in the books*). The de facto access conditions, such as barriers to information, administrative and operational barriers, and the share of the market that is accessible to external RUs, are included by the ACCESS sub-index (*law in action*). The results included in the LEX Index account for 20 percent of the LIB Index, with 80 percent accounted for by the results included in the ACCESS Index. A separate index, which is not included in the LIB Index, the COM Index, indicates the competitive dynamics reflected in rail's *modal split* and in the intramodal market share and number of external RUs active in addition to the *incumbent*. As the access requirements for rail passenger and freight transport differ, in addition to the indices mentioned, separate liberalisation indices are provided for each of these segments.

¹ For explanations of terms, see Chapter 4 Glossary on page 34

To summarise, we can identify the following points.

- Countries that lead in terms of liberalisation also have the highest number of external RUs and external RUs also have the highest market share compared with other countries.
- The countries of the leading group (*Advanced*) have scores that are significantly higher than the second group (*On Schedule*). In the second group (*On Schedule*), most countries are very close to each other in terms of the scores they have achieved.
- Generally speaking, there is a distinctly positive correlation between the results of the LIB Index and those of the COM Index. This can be seen as an indicator that lowering barriers to market access promotes the entry of *newcomers* into the market. However, entry may not occur if it is not economically attractive enough.
- Most countries were able to further improve their score compared with 2007. All countries have made improvements to their relevant legislation and access regimes and have thus promoted market opening. In the course of the EU infringement proceedings, many countries affected have granted their regulatory bodies more independence and greater powers. This is particularly true in France, Belgium, Denmark, Luxembourg, Slovenia and Greece.
- Countries with a strong and independent regulatory body occupy top places in the LIB Index. This includes for example Great Britain, Germany and the Netherlands. This shows that a strong and independent regulator is an important precondition for non-discriminatory access to the rail infrastructure. Furthermore, the necessary level of independence and power of the regulatory bodies is not guaranteed in all European states.
- The leading countries have selected different organisational models with regard to the separation between infrastructure and operations. No identifiable correlation exists between the organisational model and the established degree of market opening.
- Large differences continue to exist between rail freight and rail passenger transport services, which are reflected in the sub-indices. The countries with the highest scores have a smaller difference between rail freight and passenger transport services than the countries with lower scores. However, it can also be seen that even the top group includes one country - the Netherlands - in which purely commercial passenger transport is mostly closed to external RUs because the *incumbent* holds an exclusive concession.
- International, purely commercial passenger transport in accordance with Directive 2007/58/EC is possible in most countries, but in practice, it is operated primarily in international co-operations. In addition to familiar co-operations such as Thalys and Eurostar, new routes are currently coming about between Germany, Austria and Italy as well as between Sweden and Denmark.
- In some countries, national rail passenger services provided under a public service contract continues to be reserved for the *incumbent*, either by law or by concessions, and are thus closed to external RUs. This is the case in Belgium, Switzerland, Finland, France, the Netherlands, Norway, Ireland, Portugal and Spain.

- To date, purely commercial rail passenger services provided by external RUs have been marginal. Though permitted by law in many countries, providing such services remains unattractive for many RUs. However, changes are evident in Germany, Austria, Italy and the Czech Republic, where an increasing number of RUs plan to enter the market for purely commercial rail passenger transport, including high-speed rail transport in Italy.
- Most Eastern European countries remain confronted with a declining proportion of rail traffic compared with other forms of transport. On the other hand, rail accounted for an increasing proportion of the *modal split* in most Northern, Central and Southern European countries. In the opinion of the authors, a variety of reasons exist for the situation in Eastern Europe: in addition to the rising standard of living and the associated increase in attractiveness of individual transport, a lack of investment in the rail infrastructure makes rail less attractive.

2. Rail Liberalisation Index 2011 – Results

2.1. LIB Index results

The current status with regard to the opening of the rail transport market in the 27 countries examined can be divided into three groups as in the previous *Rail Liberalisation Indices*. The boundary thresholds are, as was the case in the *LIB Index 2007*, with a total number of points of up to 600, up to 800 and over 800.

The table below provides an overview of the liberalisation categories from 2002 to 2011:

Market opening categories in the LIB Indices 2002/2004 and 2007/2011 compared

LIB Index points	Groups in the LIB Indices 2002 and 2004	Groups in the LIB Indices 2007 and 2011
800 – 1.000	No country with more than 800 points	Advanced
600 – 799	On Schedule	On Schedule
300 – 599	Delayed	Delayed
100 – 299	Pending Departure	No country with less than 300 points

Table 1

Since the last survey, most countries have continued to advance in terms of market opening. This can be seen for example in the fact that the total points scored by many countries, unlike the previous editions of the LIB Index, have increased. The bottom group in 2002 and 2004 *Pending Departure* – with a boundary threshold of 300 points, was not included in the 2007 LIB Index nor is it included in the current version. The groups are now sub-divided into the *Delayed*, *On Schedule* and *Advanced* categories.

In the top group, the *Advanced* group, which consists of six countries - Sweden, Great Britain, Germany, Denmark, the Netherlands and Austria - market opening is already well advanced. These countries scored over 800 points in the index calculation and reveal the following similarities:

- Both the legal (included in the LEX sub-index) and the de facto access conditions (included in the ACCESS sub-index) are the most advanced in Europe.
- In a European comparison, the significant market shares achieved by external RUs demonstrate that the countries have many years of experience with the market opening process. This experience has a positive effect on the operational network access and regulatory processes.

- With one exception², all countries in the group demonstrated a positive development in the *modal split* for rail between 2001 and 2008 in both rail freight and rail passenger transport.
- All six countries in this group possess regulatory authorities with wide-ranging powers as well as experience in dealing with complaints from external RUs.

Despite their similarities, the six countries have selected different approaches to liberalisation and are therefore distinct from one another, primarily in terms of the de facto and legal access regime for public service and commercial passenger transport, the infrastructure charging system, the powers of the regulatory authority and the infrastructure manager's separation model.

In the Netherlands, although the *incumbent* NS enjoys exclusive concessions for long-distance passenger transport, which are not due to expire until 2015 and not until 2022 in the case of the new high-speed lines³, the country nevertheless remains in the top group, since the market access conditions for external RUs in rail freight transport and in services provided under a public service contract are very favourable. In the other five countries of the top group, RUs have *open access* to rail passenger services provided on a purely commercial basis.

The countries of the top group also differ from one another in their choice of structural model. Germany and Austria, unlike the other countries in the *Advanced* group, have no complete ownership separation of infrastructure and operations. The existence of different models of vertical organisation in the top group indicates that this organisational aspect has no fundamental impact on market opening.

All six countries possess regulatory authorities with wide-ranging competencies and powers, though they differ from one another in relation to their facilities for ordering penalties and fines. The German regulatory authority, the Federal Network Agency, can order the highest penalty payments in Europe. However it does not have the power to impose fines, which in contrast is possible in Sweden, the Netherlands and Great Britain. Nevertheless, appeals against decisions of the regulatory authority in the Netherlands have a delaying effect. In Austria, the SCG and SCK regulatory authorities can neither order penalties nor impose fines.

The *Advanced* group is way ahead of the second *On Schedule* group. The difference between the last country in the top group (Austria, 806 points) and the leading country in the second group (Belgium, 753 points) amounts to a total of 53 points.

² Sweden was the only country to report a slight decline in rail freight transport between 2001 and 2008 of 3 per cent. If the period between 2001 and 2009 is considered, however, the *modal split* for rail freight also increased in Sweden.

³ Operator is the *High Speed Alliance* (HSA), a joint venture between NS and the national airline KLM.

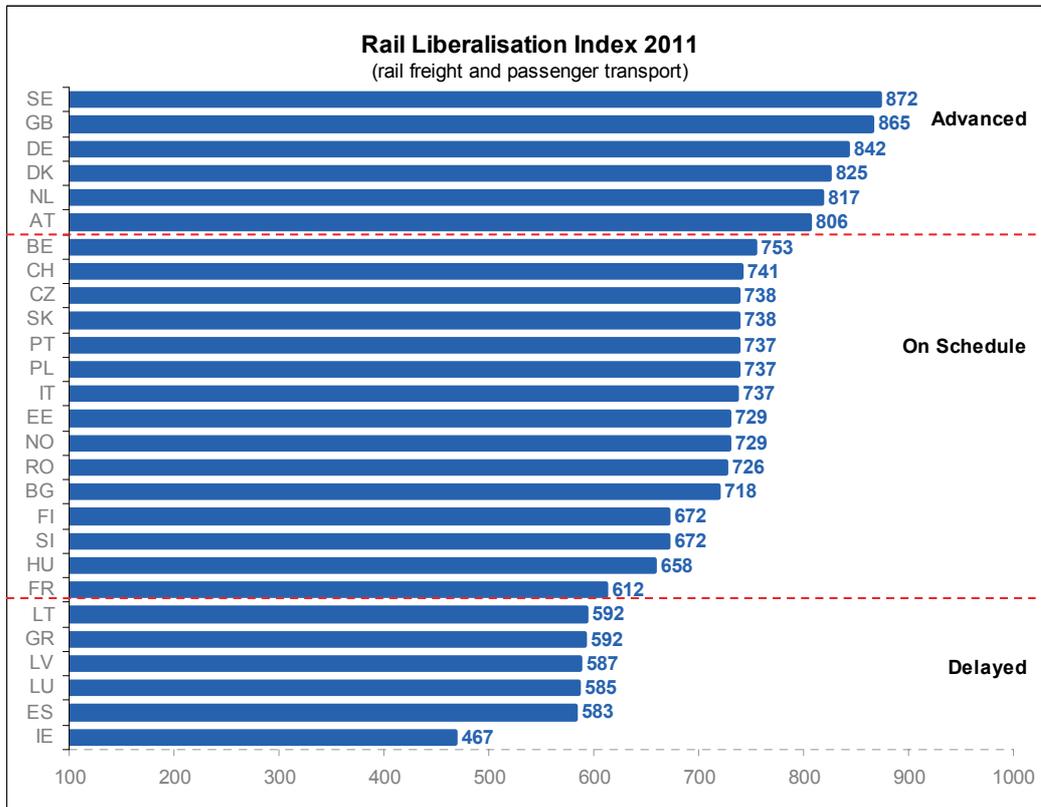


Figure 1

The second, and by far the largest group, the *On Schedule group*, consists of the following 15 countries: Belgium, Switzerland, the Czech Republic, Slovakia, Portugal, Italy, Poland, Norway, Estonia, Romania, Bulgaria, Finland, Slovenia, Hungary and France. These countries scored between 600 and 799 points in the index calculation. In 2007, there were still 19 countries in this group. In 2011 Denmark and Austria moved up into the top, *Advanced* group, the ranking of Lithuania, Latvia and Spain moved into the third, *Delayed* group. This relegation does not mean that the level of liberalisation is worse than it was in 2007. It is due simply to the new questions that have resulted from the third railway package and the more precisely defined award criteria in rail passenger services provided under a public service contract and the lack of experience relating to market access for external RUs. New to the second group is France, which in previous editions of the LIB Index was always assigned to the third group. This promotion is due to the market opening of rail freight transport and international passenger transport, and to the creation of an independent regulatory body. Because the scores achieved by the Czech Republic, Slovakia, Portugal, Poland and Italy are similar or only marginally different and a ranking is thus difficult to identify, it can be said that these countries exhibit a comparable level of liberalisation.

The third group, the *Delayed* group, includes Latvia, Greece, Lithuania, Luxembourg, Spain and Ireland. Compared with 2007, Ireland improved considerably in terms of the number of points achieved, but still has the worst ranking overall. A noticeable feature is that there are no external RUs active in any of the countries in the bottom group.

It can generally be stated that the LEX and ACCESS Indices, with a correlation coefficient of 0.76, reveal a high degree of interdependence. This confirms the view that legal requirements (*law in the books*) are necessary to create the basic framework conditions for de facto market access (*law in action*).

Slovakia, France, Finland, Belgium, Denmark and Sweden made the greatest progress in terms of their ranking in the LIB Index. Compared with the LIB Index 2007, they advanced by more than one position. What is noticeable in four of these countries (France, Finland, Denmark and Sweden) is that organisational restructuring took place in rail regulation. In France and Denmark, independent regulatory authorities were created, while Finland and Sweden incorporated their regulatory bodies into cross-sectoral authorities. Belgium and Slovakia improved as a result of the market opening for rail freight transport services and recent experience with competition in these countries. There is also a positive impact in Belgium due to the better provision of information and the introduction of more transparent administrative processes for issuing operating licences and safety certificates and for awarding contracts.

Virtually all countries improved their scores compared with the LIB Index 2007. Only Spain, Latvia and Lithuania saw a loss of points worthy of any mention. With the progress made in liberalisation and the new EU directives resulting from the third railway package, a number of additional questions were included in the LIB Index 2011 and the weighting of various subject areas was adjusted slightly. In view of the increasing focus on the rail passenger transport market, the associated questions were given a slightly higher rating. There are currently no external RUs active in rail passenger transport in any of the three countries, with the result that virtually no empirical values are available in this market segment.

The most recent EU infringement proceedings relating to inadequate implementation of Directive 2001/14/EC have had a positive impact in many countries in terms of providing the regulatory bodies with greater powers and improving train path access. In most countries, a performance regime including the appropriate bonus/penalty system to improve the quality of rail services is now in place.

The strengths and weaknesses of the individual countries in the liberalisation process and the reasons for the changes can be seen in an analysis of the sub-indices. As a supplement to this analysis, the country reports below and the table of results in Annexes V and VI, in which all the standardised answers for all countries are listed in the survey's questions, are also included.

2.1.1. LEX Index results

The LEX Index accounts for 20 per cent of the LIB Index assessment. Within the LEX Index, the subject area "Regulation of market access" (45 per cent) has been given the

greatest weighting, followed by “Powers of the regulatory authority” (30 per cent) and “Organisational structures of the incumbent” (25 per cent).

A significant improvement in the LEX Index of more than 100 points was achieved by Ireland, Luxembourg, Greece, Bulgaria, Estonia, Denmark and Sweden. These countries improved in terms of rail regulation in the country, market access or the organisational structures of the incumbent. Also the results of the LEX Index of France improved because of the implementation of the independent regulation authority *ARAF*.

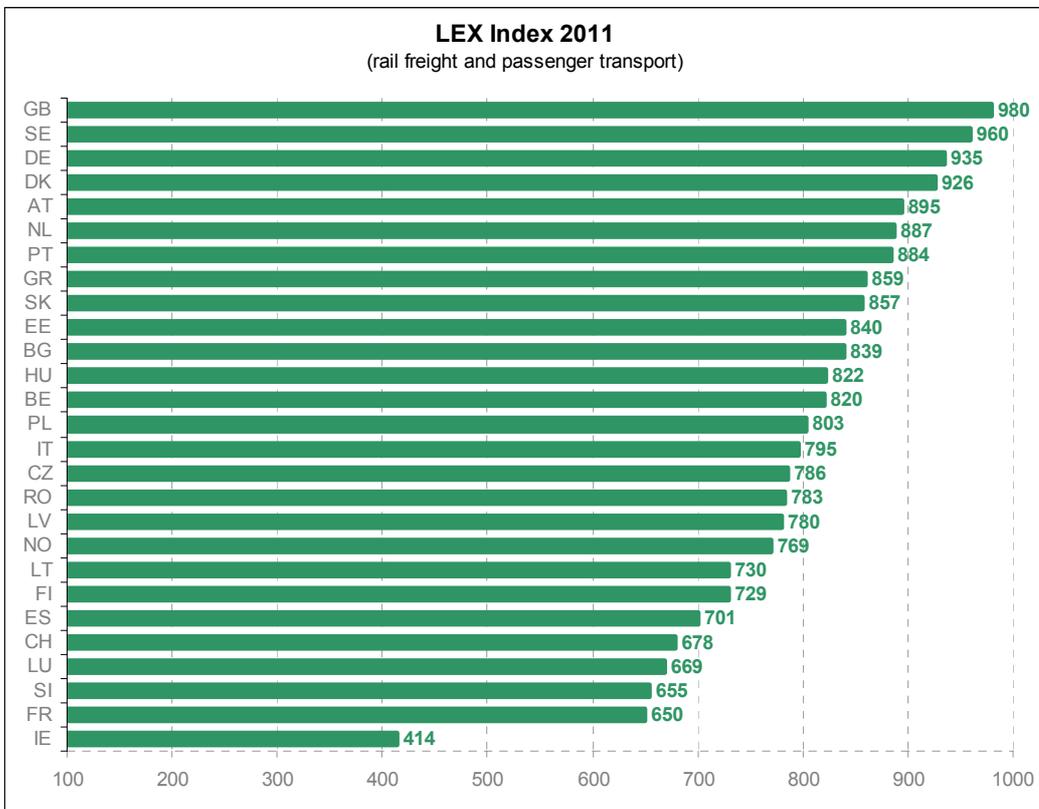


Figure 2

Great Britain (980 points) has the best legal requirements for opening the rail market.

In the case of the following countries, various changes in the ranking can be identified compared with 2007. Second place in the LEX Index is now occupied by Sweden, followed by Germany, Denmark, Austria and the Netherlands. These are the same six countries included in the top group of the LIB Index. They feature special regulatory bodies with wide-ranging powers and comprehensive market access regulation.

In a European comparison, the legal framework conditions in Ireland, France, Slovenia, Luxembourg and Switzerland support network access for external RUs least of all.

The present study reveals the following similarities between all 27 countries in the LEX Index:

- all (former) *incumbents* of the countries examined, in accordance with applicable national law, have independent status and have separated their assets, budgeting and accounting procedures from those of the state,
- open access to the network is legally guaranteed for rail freight transport companies in all countries,
- access to *essential facilities* is legally guaranteed in all countries, and
- all countries have set up a regulatory body.

Separation of infrastructure and operations

With regard to the separation of infrastructure and operations – one of the determinants of the subject area “Organisational structures of the incumbents” that accounts for 25 per cent of the LEX Index (five per cent in the LIB Index) – there are still models in Europe that vary quite significantly. The degree of separation extends from purely accounting separation to a complete ownership separation of infrastructure and operations.

There is full ownership separation in the areas of infrastructure and operations in the following twelve countries: Bulgaria, Denmark, Spain, Finland, Greece, Great Britain, the Netherlands, Norway, Portugal, Romania, Sweden and Slovakia.

In Austria, Belgium, Germany, Estonia, Italy, Latvia, Lithuania and Poland, there is functional, organisational, accounting and legal separation. In Hungary, there is organisational, accounting and legal separation, but no functional separation.

In France and the Czech Republic, although there is organisational, accounting and legal separation in the areas of operations and infrastructure, key train path management tasks, such as train path allocation, are delegated back to the *incumbent*.

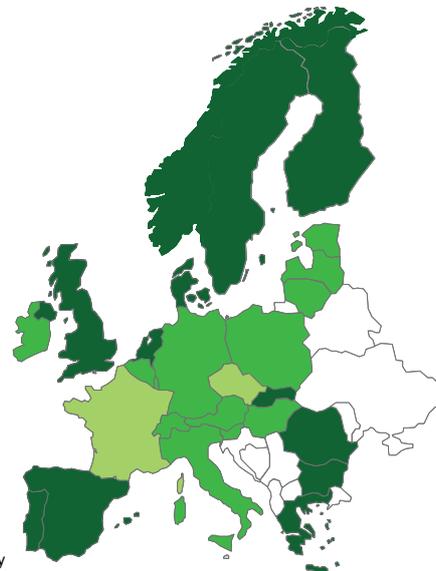
In Switzerland, Luxembourg, Ireland and Slovenia, operations are separated from the infrastructure for accounting purposes only.

Whereas there were seven countries in 2007 that separated infrastructure and operations for accounting purposes only, the number was down in 2011 to just four countries: Switzerland, Ireland, Luxembourg and Slovenia.

A simplified presentation of the separation models is shown below:

Models of separation between operations and infrastructure in Europe

	<p>Separation model (complete ownership separation of infrastructure manager): BG, DK, ES, FI, GR, NL, NO, PT, RO, SE, SK, GB</p>
	<p>Integration Model (legally and functionally separated infrastructure manager, located within a holding company that also owns at least one RU): AT, BE, CH***, DE, EE**, HU***, IE, IT, LT**, LU**, LV**, PL*, SI**</p>
	<p>Hybrid model (independent infrastructure manager that has delegated specific tasks back to the incumbent as part of an agency agreement) CZ, FR</p>



* Separation of the infrastructure manager from the incumbent is planned.
 ** Integrated infrastructure manager with specific tasks (e.g. train path allocation) were transferred to the railway authority.
 *** CH, HU: integrated infrastructure manager with a separate train path allocation body

Figure 3

Most countries maintain separate balance sheets for freight and passenger transport. Only accounting separation exists in Spain, Finland, France, Greece, Ireland and Italy. Whereas in 2007 Portugal and Belgium separated the two areas for accounting purposes only, separate balance sheets have been in use in Portugal since 2009 and in Belgium since 2011 after independent rail freight transport companies were set up.

Market opening

Open access is legally guaranteed for domestic and foreign rail freight transport undertakings in each of the countries examined. Differences exist in granting permission for cabotage services in passenger transport, which can currently be restricted in eight countries.

In the examination of the legal access regime in rail passenger transport for national RUs, a distinction has been made between passenger transport services provided on the basis of public service contracts and those on a purely commercial basis. The access regimes in Europe are still very different. There are countries in which the rail passenger transport market is completely closed to external national RUs (both for services provided on a purely commercial basis and services provided under a public service contract). These include Belgium, Spain, Finland, France and Ireland. While this segment was still completely closed in Greece, Luxembourg and Norway in 2007, external RUs there, as a basic principle, now have the possibility of providing purely commercial rail passenger services. In this segment, external RUs, however, are currently active only in Germany, Denmark, Great Britain, Italy and Sweden. In Austria and the Czech Republic, for example, external RUs are scheduled to enter the segment in this market later in 2011, so that

there will be competition in these two countries in both purely commercial rail passenger services also.

Purely commercial international passenger services with cabotage are rarely seen at the moment in Europe. The first services of this kind are provided by Deutsche Bahn, Austrian State Railways and LeNORD between Germany, Austria and Italy and the service between Denmark and Sweden offered by the Swedish *incumbent* SJ with cabotage between Copenhagen and Odense.

Although a number of countries have legally guaranteed open access for national RUs for passenger services provided on a purely commercial basis, in practice, however, this must often take place in competition with nation-wide services provided under a public service contract, or is not possible because the routes are used for services provided exclusively under a public service contract. This category includes Bulgaria, Greece, Poland, Romania, Slovenia, Hungary, Slovakia and the Baltic states.

The following graphic provides an overview of the countries in which purely commercial rail passenger services are possible, are already provided actively or where this market is closed to external RUs:

Purely commercial rail passenger services in Europe

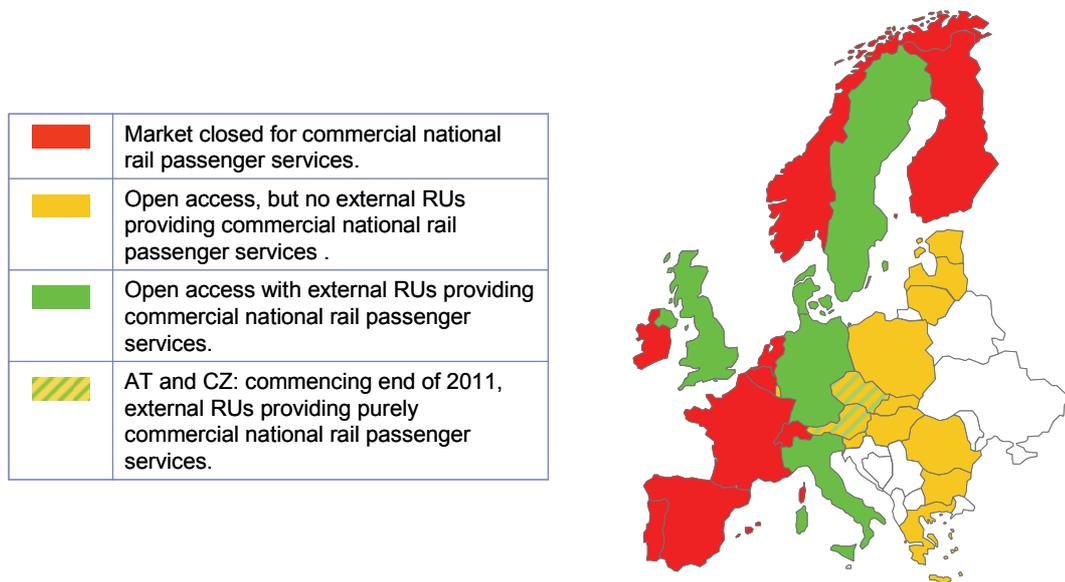


Figure 4

A clear distinction is evident for most Eastern European countries where, according to the law, the market is open to purely commercial rail passenger services, but external RUs are not yet active in this segment due to its lack of attractiveness.

Exclusive rights to purely commercial passenger services in Sweden had until 2010 been reserved, with a few exceptions such as chartered and night trains, to the *incumbent*, SJ. Since 1 October 2010, these services can be provided by all domestic and foreign RUs.

Whereas in 2007, neither Ireland nor Greece granted access rights to foreign RUs for rail passenger services, access has been open for international rail passenger services in both countries since 2011.

The analysis of market access regime shows how important it is to analyse the market that is actually accessible in practice, and not simply the legal options available for awarding contracts. From a legal point of view, formal tenders are possible for passenger services provided under a public service contract, in practice, however, most contracts are awarded directly. In addition, the law in some countries permits the provision of purely commercial rail passenger services, but only under stringent limitations. In Norway, for example, this is possible only in cities, suburbs and only for RUs providing services on their own infrastructure and not on routes served by NSB.

Organisation of the regulatory bodies

Although each country has set up a regulatory body, substantial differences exist in the extent of regulation provided, the contactability and the powers of the individual institutions. Whereas in 2007 approximately half of European countries only could order penalties, a total of 20 regulatory bodies now have such powers. In 19 countries, the regulatory bodies can impose fines. However, the extent and amount of the penalties and fines vary quite considerably. For 13 regulatory bodies, appeals against the decision of the regulatory body have a suspensive effect only (Austria, Bulgaria, Germany, Denmark, Estonia, Greece, Great Britain, Italy, Hungary, Latvia, Portugal, Sweden and Slovenia). In the case of five regulatory bodies, specialised expertise and decision-making responsibility are not provided from one source. In most of these cases, the transport minister or another public institution must decide – with the risk that regulatory issues are not completely free of political influence.

The regulatory bodies in Europe can be divided into three categories: special regulatory bodies, regulatory bodies within a railway authority and regulatory bodies within a ministry. While the model of the *special regulatory body* is the strongest form in terms of its powers and independence from the state and the infrastructure manager, regulatory bodies within a ministry can be considered the weakest form. Some countries have independent regulatory bodies under the ministry of transport. This is e.g. the case in Belgium, Denmark and Italy. As these bodies have own budgets and are independent from the ministries' instructions by law, these countries were not assigned to the group "ministry" but "special regulatory authority". With the exception of Sweden, all countries in the top group (*Advanced*) have an special regulatory body, which is also not in charge of safety issues. In Sweden, the regulation of the railway sector is carried out by the cross-sectoral transport authority, which is also responsible for issuing safety certificates, *Transportstyrelsen*.

Organisation of regulatory bodies for rail transport in Europe

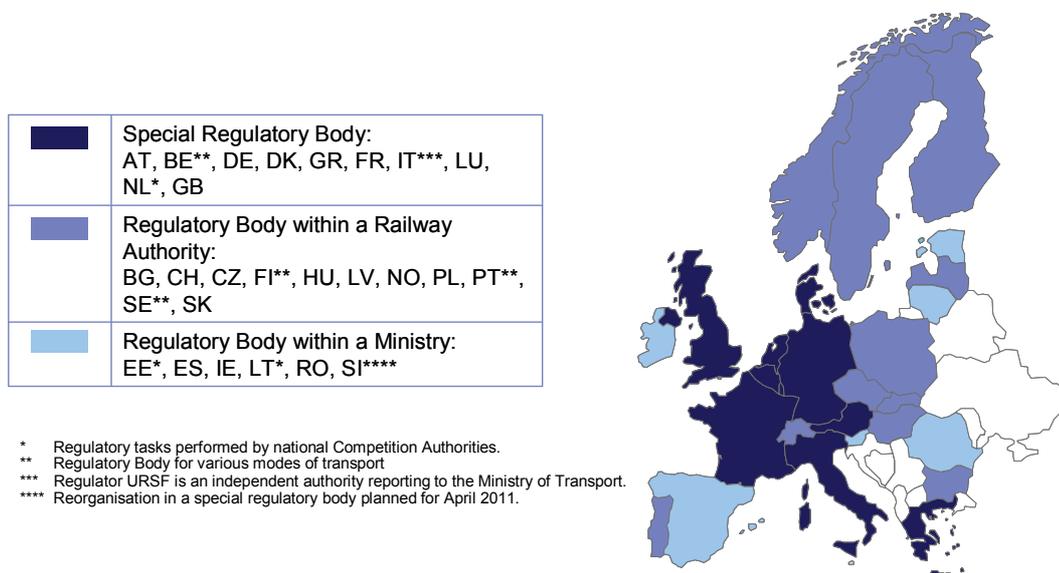


Figure 5

A significant improvement in the LEX Index of more than 100 points was achieved by Ireland, Luxembourg, Greece, Bulgaria, Estonia, Denmark and Sweden. These countries improved primarily in terms of rail regulation in the country, market access or the organisational structures of the incumbent.

Details of all aspects of the LEX Index are included in the country reports or transnational overviews in Annexes V and VI.

2.1.2. ACCESS Index results

The ACCESS Index, which accounts for 80 per cent of the overall index, analyses, evaluates, compares and aggregates the practical market access conditions of the individual countries. The subject areas examined in the ACCESS Index are as follows:

- information barriers (duration of process required to obtain information, quality of personal and non-personal information provided relating to access regime, train path allocation, operating licence, safety certificate and rolling stock homologation),
- administrative barriers (licensing, issuing of safety certificates and the rolling stock homologation process),
- operational barriers (track access conditions, infrastructure charging system, other operational facilities and services),
- the accessible market and the kind of terms and conditions of contract awards in 2009, and
- access to sales services in passenger transport.

In the ACCESS Index, information barriers are given a weight of five per cent, administrative barriers 20 per cent, operational barriers 45 per cent, the accessible market 25 per cent and sales services in passenger transport 5 per cent. Here, again, the higher is the ranking of a country, the lower the barriers analysed.

The median of the ACCESS Index has increased from 675 points in 2007 to 708 points. Once again, it is lower than the median of the LEX Index, which increased from 777 points in 2007 to 803 points. This means that, in the ACCESS Index, 50 per cent of the countries have achieved 708 points or more and in the LEX Index 50 per cent of the countries have 803 points or more. In addition, the values of the countries in the LEX Index are on average 102 points above the values of the ACCESS Index.

With a few exceptions (Ireland, Slovenia and Switzerland), all countries have a higher score in the LEX Index than in the ACCESS Index. This would suggest that the legal requirements overall are more advanced and that the de facto market access conditions for external RUs in most countries are not as pronounced and developed as the legal requirements.

Sweden, Great Britain, Germany and Denmark lead in both the ACCESS Index and the overall index. These countries achieved more than 800 points in the ACCESS Index (with 799 points, the Netherlands are only just below the 800 points mark). This means they have the most favourable de facto market access conditions for external RUs. All of these countries have a relatively high number of external RUs and many years of experience with competition on rail. A detailed analysis of the wide range of parameters collected shows that - as in 2007 - no particular similarities can be identified in terms of the practical aspects of market access. Sweden, for example, has the lowest average infrastructure charges in freight and passenger transport. Germany and Great Britain on average have the highest infrastructure charges for passenger transport in Europe. In freight transport, a train path kilometre at 5.44 euros in Denmark is more than twice as expensive as in Germany (2.46 euros per train path kilometre). The fees charged for issuing licences and safety certificates also vary considerably. While no fees are required for issuing licences in Sweden and Great Britain, licences cost around 5,000 euros in Germany. In Denmark and Germany, fees for issuing a safety certificate are charged according to the workload involved, whereas in Great Britain and Sweden, no fee is required.

Ireland also came in last in this Index with 467 points, more than 100 points behind Spain, which is ranked next to last.

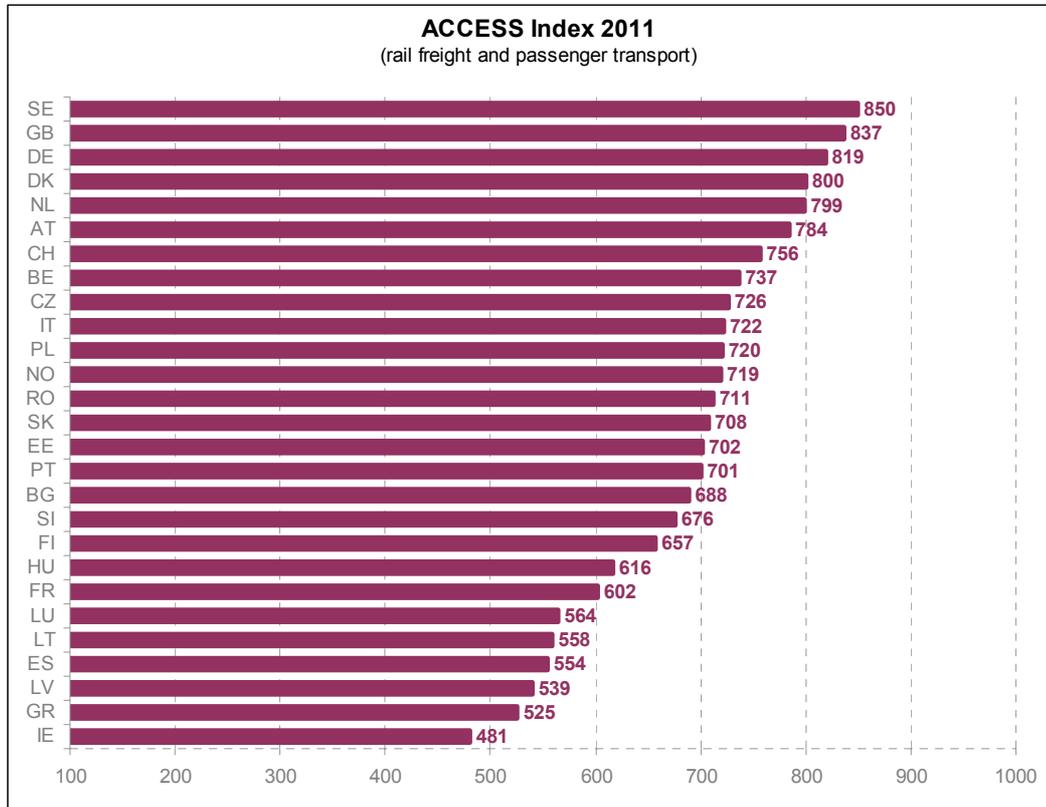


Figure 6

In the analysis of the information barriers in a country, the willingness to provide information is also tested. This aspect is one of the first indicators of how open the relevant authorities in a country are to external RUs seeking access. There are also countries, however, that provide very comprehensive information, but only have a medium degree of market opening.

Switzerland, followed by Belgium, Sweden, Ireland and Germany provides the most comprehensive information in the shortest space of time. In Luxembourg, Bulgaria, Greece and Romania, obtaining information on the network access process required the most amount of time. Almost all authorities provided English-speaking contacts. Most countries publish their network statement as specified in Article 3 of Directive 2001/14/EC. In some cases, however, current versions are only available in the language of the country concerned. In 2006/2007, the Estonian incumbent *Eesti Raudtee* published its network statement once only in English. Since that date, updated versions have only been published in Estonian. Ireland had published no network statement on the cut-off date for the study (January 1st 2011). All that is available is a brief document on infrastructure access (*Access Charging and Performance Regime*), which is available for download from the incumbent's website.

In a European comparison, the issuing of licences, safety certificates and rolling stock homologation certificates (subject area “Administrative barriers”) is carried out most effectively in Sweden, Switzerland, Austria and Great Britain. Spain, Greece and Latvia achieved the worst score in this category, indicating that processes in these countries are time-consuming, costly and bureaucratic.

The legally prescribed time required to issue a licence is limited to one month in four countries only (Lithuania, Romania, Estonia, Slovenia). An analysis of the empirical values supplied by the RUs for this study reveals that the statutory period for the issuing of licences in both market segments (rail freight and passenger transport) is complied with in nine countries only.

With the exception of Switzerland and Estonia, the issuing of a licence in Europe takes at least two months. According to the information supplied by the RUs for this study, the statutory period for the issuing of safety certificates in both market segments (rail freight and passenger transport) is observed in 10 countries. However, the four-month period specified for issuing the Part B Safety Certificate is observed in a total of 17 countries. Only in seven countries (Switzerland, the Netherlands, Germany, Denmark, Belgium, Great Britain) is a Part A Safety Certificate that has been issued in other European Member States accepted without further examination.

With regard to rolling stock homologation – as was the case in 2007 – Romania stands out as a positive example, as do Sweden, Switzerland and Great Britain. The statutory period specified for issuing applications, by comparison with other countries, is very short. The period required for completing the homologation of a regional diesel traction vehicle in Romania is just 30 days, compared with about 120 days in Sweden and Germany.

The operational barriers for external RUs in a European comparison are lowest in the Netherlands, Norway, Belgium and Denmark, and highest in countries such as Greece, Ireland, Lithuania and Latvia, for example. The most striking improvement in this subject area was achieved by Belgium, which in 2007 was still one of the countries with the highest operational barriers. Access to various facilities and services at that time was considered difficult, while it now tends to be classified as unproblematic and non-discriminatory.

Hungary is the only European country with a non-linear infrastructure charging system (the longer the train path, the more favourable the infrastructure charge per kilometre). All other countries have linear infrastructure charging systems with a uniform infrastructure charge per train path kilometre.

Whereas in 2007, Spain and to some extent Poland were the only countries to grant quantity discounts (based on the number of train paths ordered), the infrastructure charging systems in Bulgaria, Latvia, Slovenia and Slovakia now include such discounts as well (quantity discounts are no longer granted in Spain). Discounts for early bookings are granted in Bulgaria, Hungary and Lithuania. Only seven European infrastructure managers reduce train path charges for poor performance, whereas a performance regime has been established in 14 countries to improve quality.

The average infrastructure charge varies significantly from country to country. Even in the case of infrastructure charges for freight and passenger transport, there are in some

cases considerable differences. The charges for rail freight transport are most favourable in Spain, Sweden and Greece. In these three countries, one train path kilometre for a specimen train costs less than one euro. In Norway, there is only a charge for freight shipments with a permissible axle load of over 25 tonnes and for using the line between Etterstad and Gardermoen. For all other shipments and routes, there is no charge. The highest charges for using the rail infrastructure are in Ireland and Latvia, where a train path kilometre for rail freight services costs more than nine euros.

The picture is very much the same in rail passenger transport - in Norway, there are no charges for using the infrastructure in this segment, whereas in Spain and Slovenia, the cost for a specimen train is less than one euro per train path kilometre for both long-distance and regional passenger services. The highest charges, at over six euros per train path kilometre for long-distance services, are found in Great Britain, France and Germany. In regional transport, Great Britain, Latvia and Italy are the countries with the highest charges for using the rail infrastructure at over four euros per train path kilometre.

As in 2007, cancellation fees are charged in just under half of the countries examined when train paths are cancelled. In Denmark, Luxembourg, France, Belgium and Lithuania – depending on the lead time – they can amount to as much as 100 per cent of the infrastructure charges.

The three previously analysed subject areas are of practical significance only in that section of the national rail market that is accessible to competitors in the first place. This means that if sections of the national market are inaccessible to external RUs, then the degree of accessibility of the national rail market will automatically drop as a result. For this reason, the subject area "Accessible market in 2009" is dealt with in the ACCESS Index and is given a weighting of 25 per cent in the sub-index (20 per cent in the LIB Index). In this subject area, the terms and conditions of contract awards are evaluated that are predominantly used in practice.

In rail freight transport, open access exists in all countries. By contrast, the percentage of the market that is actually accessible to external RUs in passenger transport continues to vary quite significantly from country to country. In Germany, *open access* for commercial passenger transport services exists on both long-distance and local transport. The latter is likely to be of theoretical relevance only, since RUs would then be required to provide their commercial services in competition with services provided under a public service contract, which is unlikely to make financial sense. Sweden and Great Britain – to be joined by Germany in future – are currently the only countries in which public service contracts (with few exceptions) are awarded by means of formal invitations to tender. In Great Britain, the operator of the respective route is guaranteed exclusivity. In addition to transport contracts awarded directly on the basis of negotiation, the majority of contracts in the Netherlands and Poland provided under a public service contract are also awarded on the basis of formal invitations to tender. Since October 2010, the market for purely commercial passenger transport services Sweden has been opened. The Swiss parliament is currently deliberating on whether invitations to tender should be anchored in Swiss law (second rail reform 2.2). When existing concessions expire, the intention is also to have the possibility of issuing formal invitations to tender for transport contracts. In 2009, the entire national rail passenger transport market (public service and commercial)

was closed to external RUs in a total of five countries: Spain, Finland, France, Ireland and Luxembourg.

The subject area "Sales services in passenger transport" analyses the accessibility of sales facilities for external RUs. In eight European countries, it is not possible for external RUs to rent space in stations to set up their own ticket sales offices. In seven countries, external RUs have no access to existing sales channels. To date, non-discriminatory access to the existing sales channels is only possible in Denmark, the Czech Republic and Portugal.

2.2. COM Index results

The COM Index, which has not been included in the LIB Index for conceptual reasons, is designed to reflect the competitive dynamics in the rail transport markets. The development and level of rail's share of the *modal split* (20 per cent)⁴, the number of external RUs in relation to the network length (20 per cent) and the market share held by external RUs (60 per cent) are consolidated in this index.

Closer examination of the LIB Index and the COM Index reveals that the countries with the highest scores in the LIB Index also achieved the highest number of points in the COM Index. With a correlation coefficient of 0.84, the two indices also show a high degree of interdependence. This would indicate that *law in the books* and *law in action* are an increasingly important factor in market opening and in increasing the attractiveness of the markets.

Great Britain once again has by far the highest score in the COM Index. Following the liberalisation of the rail market and since the *incumbent* was split up in 1994, competition has increased rapidly. It should be pointed out, however, that one of the main reasons for Great Britain's high score in the COM Index is the high market share of external RUs. This has been included in the index calculation with a weighting of 100 per cent, since the *incumbent* was split up into a large number of smaller companies in the course of the rail reform.

In the COM Index, Great Britain is followed by the Netherlands, Denmark, Estonia and Germany, which also exhibit increasing competition and have achieved a further increase in their ratings compared with the LIB Index 2007 (all achieved over 600 points). Estonia is the only country scoring over 600 points in the COM Index that has not been assigned to the top *Advanced* group, but is assigned to the *On Schedule* group. This is due to the extremely high *modal split* in rail freight transport (48 per cent) and the high number of external rail freight operators (57 per cent).

⁴ Unless otherwise noted, the percentage change in the *modal split* refers to the period from 2001 to 2008 for freight transport and passenger transport. Information on the level of the *modal split* refers to 2008. Source: Eurostat and IBM analyses.

By contrast, there is no competition at all in Ireland, Greece, Latvia, Luxembourg and Finland, and there are only initial signs of competition beginning to appear in Spain, Slovenia and Slovakia⁵.

In the current analysis, the spread is also greater in the COM Index than in the indices described earlier. This suggests that competition is increasing at very different rates in the countries examined. Furthermore, all countries included in the top group of the LIB Index also occupy top places in the COM Index and *vice versa*.

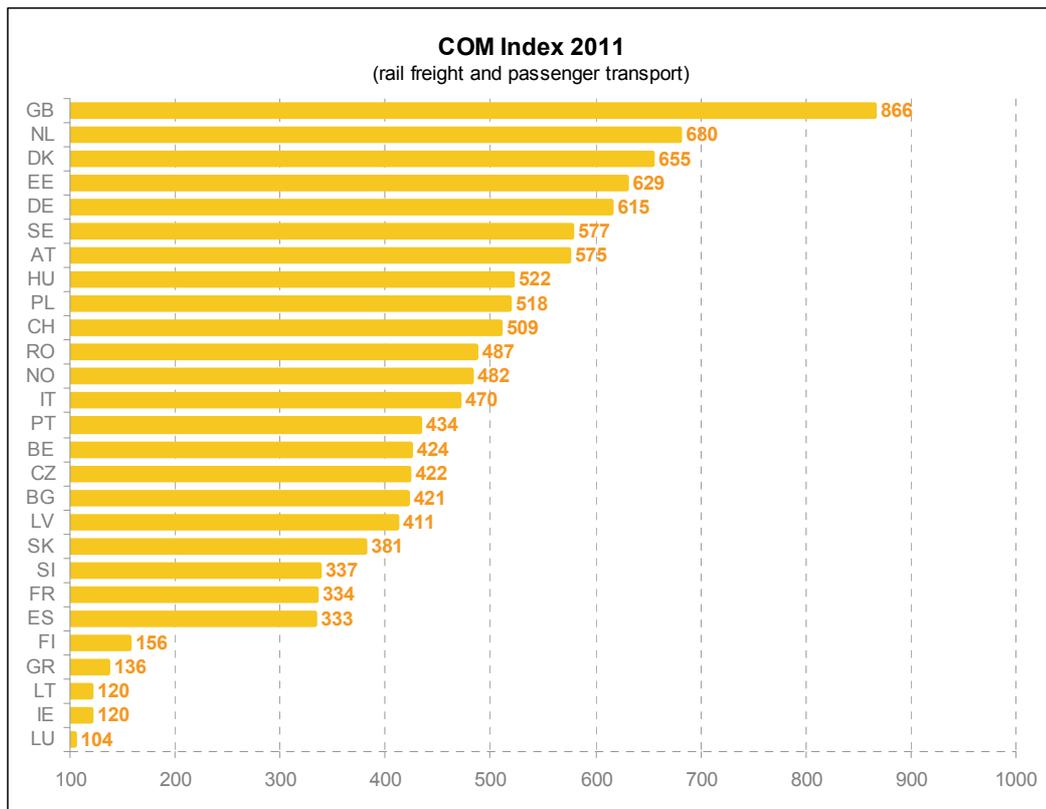


Figure 7

With regard to the development of rail's *modal split* in freight transport from 2001 and 2008, a positive trend can be seen in nine countries. The *modal split* in rail freight has risen in the last few years, for example, in Austria, Great Britain, Belgium, Germany, Denmark, Greece, Finland, Italy and the Netherlands. The highest growth rate in this period was reported in the Netherlands, with an increase of 59 per cent – albeit proceeding from a relatively low level⁶. In all other countries rail's share of the total rail freight transport volume has decreased.

⁵ Based on the subject area *National market shares of external RUs*

⁶ In 2008, the Netherlands saw a *modal split* share of 5.4 per cent in rail freight transport.

Rail's share of the *modal split* in freight transport is highest in Latvia (61.3 per cent), followed by Estonia (44.7 per cent), Lithuania (41.9 per cent) and Switzerland (38.9 per cent). The lowest levels are in Ireland (less than one percent), Luxembourg (2.5 per cent), Greece (2.7 per cent), Spain (4.1 per cent) and the Netherlands (5.4 per cent). Middle-ranking countries include Slovenia (17.8 per cent), Bulgaria (19 per cent) and Romania (20.5 per cent). The European average was 17.9 per cent in 2008.

In passenger transport, rail's share of the *modal split* increased in a total of 16 countries between 2001 and 2008, whereas in the same period examined for the LIB Index 2007, only eight countries reported positive growth. This indicates that rail transport is becoming increasingly attractive in many countries. Rail's share in passenger transport is now no longer over ten per cent in Hungary and Switzerland⁷ alone, but also in Austria and France. All other countries have a share of between one and ten per cent.

Overall, it can be seen that the share of rail passenger transport in the total rail freight transport volume was down in all Eastern European countries between 2001 and 2008, whereas increasing in all other European countries – with the exception of Greece.

Finland, Greece, Ireland, Lithuania and Luxembourg are the only countries to date in which external RUs are not active. While Slovenia in 2007 was also included in this group, external RUs have been providing rail freight services there for some years. The largest number of external RUs by far are active in Germany. As a result of the rail reform, there is no longer an *incumbent* in Great Britain; this means that every RU has been classified as external. This is also the case for rail freight transport in Denmark, Hungary and the Netherlands, where the freight transport division of the *incumbent* was sold.

In almost all countries, external RUs increased their share of the rail freight transport market by more than nine percent between 2006 and 2009⁸. In the LIB Index 2007, this was predominantly to be seen only in the leading countries of the overall index. Apart from the 100 per cent market share resulting from the sale of the incumbent or rail reform in Great Britain, the Netherlands, Denmark and Hungary, external RUs have the largest share of the rail freight market in Sweden (45 per cent), Estonia (30 per cent) and Romania (26 per cent). These high market shares can be seen as evidence for successful liberalisation of the rail freight transport market.

In 13 EU Member States, there are no external RUs active in the rail passenger transport market, while the number of external RUs in the purely commercial passenger transport market is far smaller than in rail passenger services provided under a public service contract. In rail passenger services provided under a public service contract, external RUs have the largest market share in Great Britain (100 per cent), Poland (77 per cent), Estonia (55.3 per cent) and Sweden (45 per cent)⁹. In Germany, the market share of external

⁷ Cf. LIB Index 2007

⁸ Share of transport services in tonne kilometers.

⁹ Share of transport services in passenger kilometers.

RUs increased to 12 per cent in 2009. A market share of over ten per cent is also found in Italy¹⁰ and the Netherlands.

Comparing the COM Index results in terms of market share and the number of active external RUS with the organisational model of the regulatory bodies and that of the infrastructure managers, it can be seen that, in countries that have a special regulatory body with greater powers and more independence, there is more competition than in those countries where the regulatory body is incorporated in a ministry or railway authority.

Comparison of models of regulatory bodies and infrastructure managers in Europe

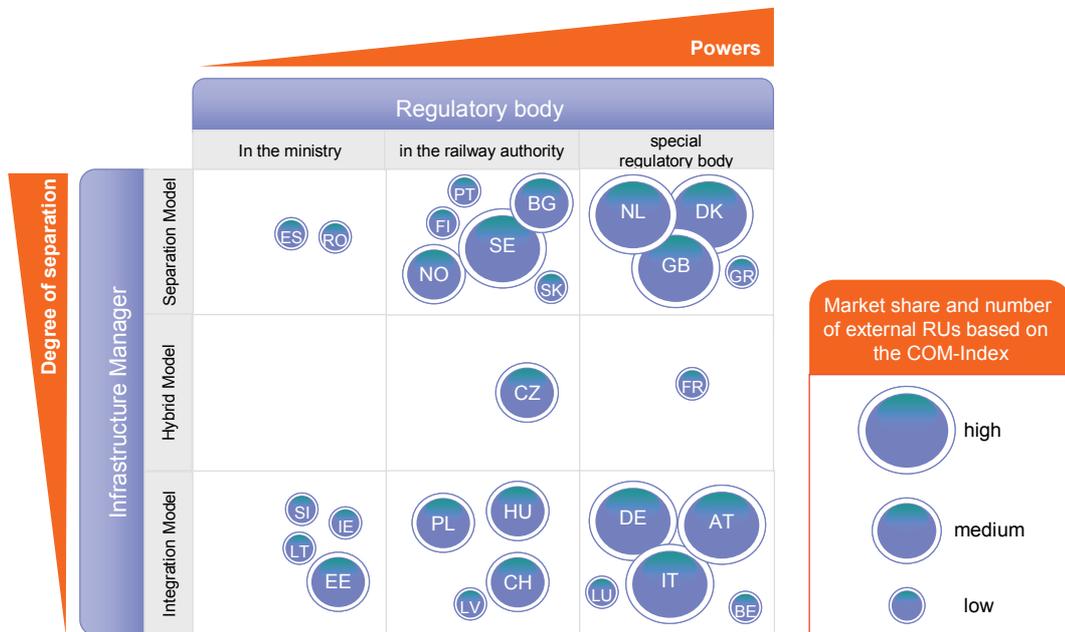


Figure 8

2.3. LIB Index Results - Rail Freight Transport

The rankings in the Liberalisation Index for rail freight transport are calculated by excluding all specific passenger transport questions from the weighting altogether and giving a weighting of 100 per cent to the specific freight transport questions. The weighting given to all other determinants that are not specific to a transport mode remains unchanged and is included as for the LIB Index.

If the groups are broken down as in the overall LIB Index, a total of 14 countries are now assigned to the *Advanced* group and 13 countries to the *On Schedule* group. There are

¹⁰ Including RUs owned by regional authorities.

now no countries in the *Delayed* group. A statistical analysis of the distribution of points demonstrates that the liberalisation process in the rail freight transport market has made considerable progress. The average score is 803 from a total of 1,000 possible points, with a median of 806.¹¹ The differences between the European countries are also much less marked than in the case in rail passenger transport. The standard deviation, for example, an indicator of the spread of values, covers just 68 points in the *liberalisation index for rail freight transport*, but covers 117 points in the *liberalisation index for rail passenger transport*. In all the countries examined, legally guaranteed open access is now provided for both domestic and foreign rail freight companies.

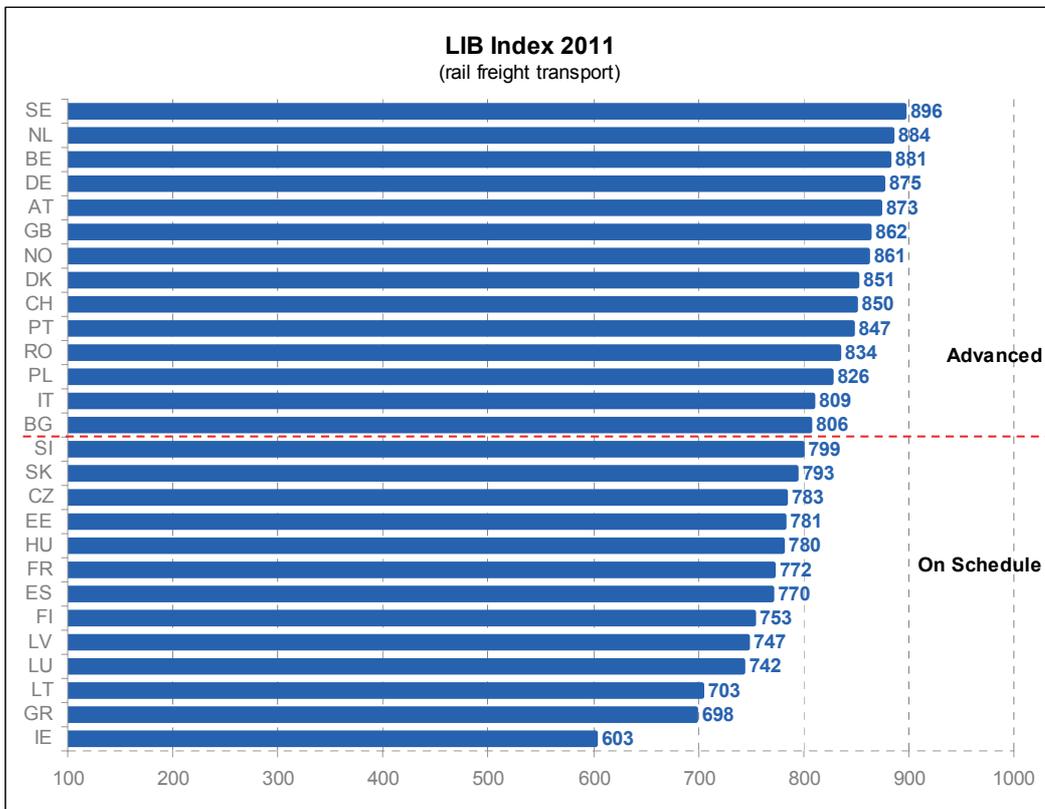


Figure 9

The rail freight transports market in Europe continues to be dominated by companies that operate on an international scale. These are firstly subsidiaries of the *incumbent*, and secondly external RUs that are active in more than one country and predominantly serve attractive niche markets (*cherry picking*).

While new, external RUs are able to focus on niche markets and due to their size offer the benefit of flexibility, it is quite a challenge for the *incumbents* to adapt to the changing market situation. Many RUs have been very successful at this in countries in the top

¹¹ This means that 50 per cent of the countries have received 806 points or more from a possible 1,000.

group (*Advanced*). While the German *incumbent*, Deutsche Bahn, has continuously expanded its international activities in the last few years (most recently in Great Britain, France and Poland), the freight subsidiary of the *Austrian State Railways* acquired the Hungarian rail freight *incumbent* MÁV Cargo (now *Rail Cargo Hungaria*) in December 2008. Since March 2011, the entire shareholding of the German freight operator *TX Logistik* was acquired by the Italian *incumbent* Trenitalia, after Trenitalia had already acquired a 51 per cent shareholding in the company in 2005. It is noticeable that it is the RUs in countries in the bottom group (*Delayed*) in particular that are now having to deal with what in some cases are severe profitability problems.

2.4. LIB Index Results – Rail Passenger Transport

The rankings in the Liberalisation Index for rail passenger transport are calculated by giving all the specific freight transport questions the weighting zero. All other weightings that are not related to a specific transport segment remain unchanged and are included with the same weighting as in the general *Rail Liberalisation Index*.

In the rail passenger transport segment, there are only four countries (Sweden, Great Britain, Germany and Denmark) in the *Advanced* group, fourteen countries in the *On Schedule* group and nine countries, in *Delayed* group. This is a significant difference to the results obtained from the LIB Index for rail freight transport, in which no country is included in the third group. This shows that the liberalisation process in the rail passenger transport market has made far less progress than is the case in the rail freight transport market. The average score is 656 points from a total of 1,000 possible points and the median is 668.¹² Although the median and the average in rail passenger services reveals an improvement compared with the LIB Index for 2007, these scores are still significantly lower than in the case of rail freight transport. This is illustrated in the pair comparison between rail freight transport and rail passenger transport on page 30. The standard deviation in the *liberalisation index for rail passenger transport* is 117 points and is significantly higher than in the *liberalisation index for rail freight transport* (difference of 49 points).

These results illustrate that liberalisation in rail passenger transport overall has progressed much more slowly than in rail freight transport. They also show that there are considerable differences in terms of the progress made in liberalisation in the individual countries.

Germany, Sweden, Great Britain and Denmark in both the *liberalisation index for rail passenger transport* as in the *liberalisation index for rail freight transport* have achieved a score of over 800 points and are thus included in each mode of transport in the *Advanced* group.

In the examination of the legal access regime in rail passenger transport for national RUs, a distinction has been made between rail passenger transport services provided on the

¹² This means that 50 per cent of the countries have received 668 or more from a total of 1,000 possible points.

basis of a public service contract and those on a purely commercial basis.¹³ Access regimes continue to vary quite significantly in Europe as is shown in the following.

The provision of passenger transport services on a purely commercial basis by external RUs— due to exclusive concessions, for example – is not possible in the following countries at the moment: Belgium, Switzerland, France, Finland, Ireland, Spain, the Netherlands, Norway and Portugal.

In Germany, Denmark, Italy, Sweden and Great Britain *open access* exists for national RUs for passenger transport services provided on a purely commercial basis and in these countries external RUs are already active in this market segment.

There are also numerous countries, in which the market for purely commercial rail passenger transport services is also open by law, but at the moment no external RUs are active in this segment. These countries include Bulgaria, Greece, Hungary, Estonia, Latvia, Lithuania, Luxembourg, Poland, Romania, Slovenia and Slovakia. In Austria and in the Czech Republic, which are also included in this category, external RUs have announced that they intend to launch purely commercial rail passenger transport services before the end of 2011.

The analysis of market access regimes shows how important it is, in addition to considering the legal options available for awarding contracts (*law in the books*), to examine the market that is actually accessible in practice (*law in action*). From a legal point of view, competitive tendering is permissible for passenger transport services provided under a public service contract, in practice, however, the direct award of contracts may be more common.

All transport contracts in Sweden, Great Britain, the Netherlands, and now – as a result of a decision by the *Federal Court of Justice* –in Germany are put out to formal tender.

In the following countries the provision of passenger transport services under a public service contract are reserved for the national *incumbents* as a result of existing transport contracts or legal provisions: Belgium, Bulgaria, Spain, Finland, France, Ireland, Luxembourg, Norway and Slovenia.

International rail passenger transport services, in accordance with Directive 2007/58/EC, are open in most countries. However, some countries reserve the right to impose restrictions on cabotage possibilities.

¹³ See the glossary on page 34 for definitions of services provided on a purely commercial basis and services provided under a public service contract.

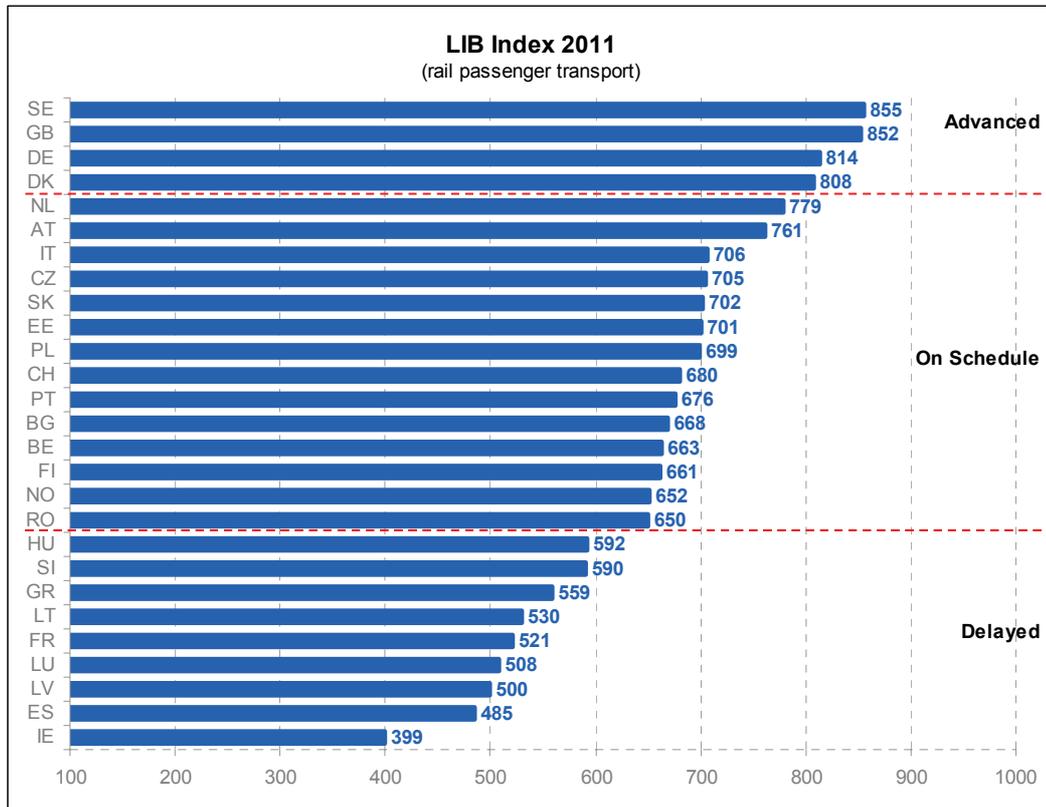


Figure 10

A new aspect in the present LIB Index is the examination of the use of transparency provisions in procurement law in accordance with Regulation (EC) No 1370/2007. Of the 27 countries included in the survey, 15 specific measures designed to make this regulation effective have been implemented to date.

The average infrastructure charge¹⁴ for a specimen train operating rail passenger services varies considerably in the various countries: on long-distance rail passenger services, the lowest charges are reported in Bulgaria, Slovenia, the Czech Republic, Estonia, Spain, Finland, Greece and Norway and vary between one and two euros. The highest charges at over five euros per train path kilometre on long-distance services are levied in France, Great Britain, Latvia and Germany. On local transport services, Great Britain, Italy and Latvia are countries in which over 4.50 euros per train path kilometre are the highest charges levied for using the rail infrastructure.

In most of the countries examined, external RUs are permitted to rent space in passenger stations for their own ticket sales offices. This is not the case, however, in Spain and Italy.

¹⁴ Details of the composition of a standard train are given in Chapter **Error! Reference source not found.** **Error! Reference source not found.** on page **Error! Bookmark not defined.**

As the provision of rail passenger services on a purely commercial basis is still in its infancy, there are currently – with the exception of Italy – virtually no empirical values available.

This also applies to the access to sales facilities in rail passenger transport, such as the use of existing sales channels, RU-independent sales platforms or the sales channels of transport associations or orderers. The Czech Republic, Portugal, Denmark and Great Britain are the only countries at the moment in which all sales facilities in rail passenger transport are available to external RUs as a matter of course with no restrictions.

3. The structure of the Rail Liberalisation Index 2011

The LIB Index 2011 consists of the sub-indices LEX and ACCESS. The COM Index is not included in the overall index. As the so-called market test, however, it forms an integral part of the study. The content of the sub-indices can be summarised as shown below:

Key content of the sub-indices of the LIB Index and the COM Index

LEX Index: (law in the books)	ACCESS Index: (law in action)	COM Index:
What are the legal requirements for market entry and to what extent does a regulatory authority support external RUs?	What do the practical market access possibilities and barriers look like from the point of view of external RUs? Which market is accessible and what allocation procedures are employed?	What are the dynamics of competition in the rail transport market and what progress is being made in rail's <i>modal split</i> ?

Table 2

Structure of the Rail Liberalisation Index

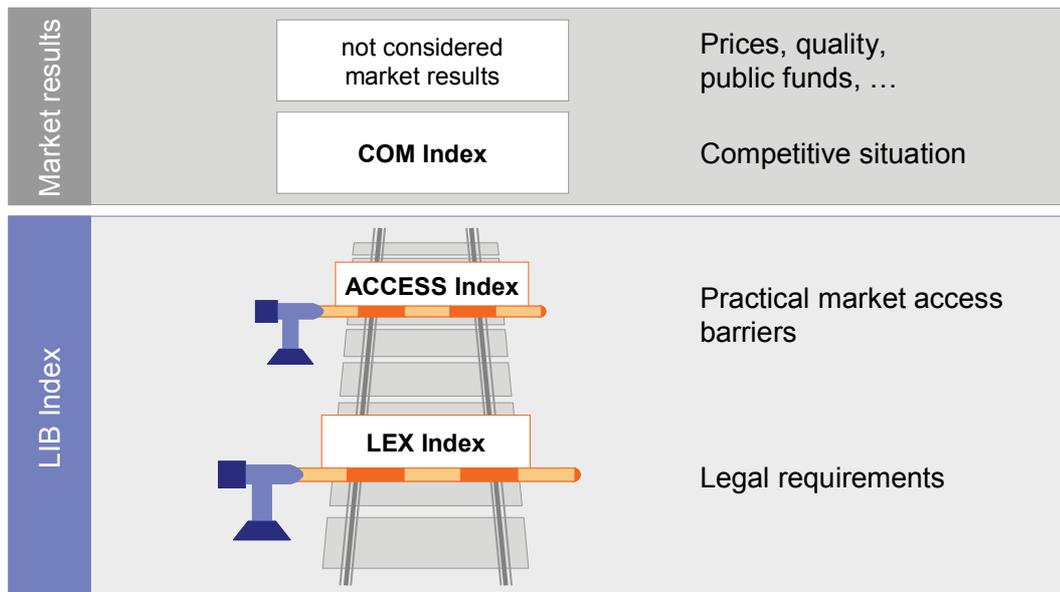


Figure 11

What is being aimed for, as described above, is not an absolute measure of liberalisation, but only the relative degree of liberalisation that has been achieved in the various countries.

Each sub-index is made up of several subject areas, which themselves contain determinants that are subsequently broken down into sub-criteria. These determinants and sub-criteria determine what information is collected during the research work. The LIB Index thus consists of five levels:

- Level 1: LIB Index
- Level 2: Sub-indices (LEX and ACCESS)
- Level 3: Subject areas (I, II, III, ...)
- Level 4: Determinants (1., 2., 3., ...)
- Level 5: Sub-criteria (A, B, C, ...)

LIB Index consolidation levels

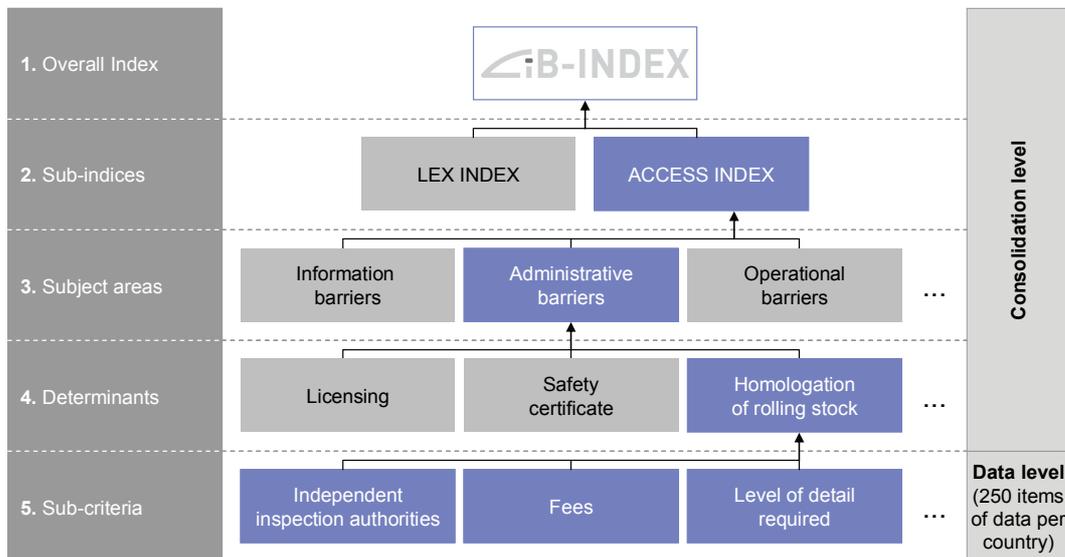


Figure 12

Per country, a total of 250 items of data (6750 in total) were collected, analysed, verified, consolidated and if deemed necessary, broken down into passenger transport services provided under a public service contract or on a purely commercial basis, plus freight transport. In just 2.1 percent of the questions it was not possible to obtain a qualified answer. The data were obtained and verified from regulatory bodies, transport ministries, *incumbents*, external RUs, rolling stock manufacturers and infrastructure managers by

means of interviews and questionnaires. The information-gathering process also encompassed the analysis of secondary materials such as legislative texts, network statements, websites of the relevant undertakings and institutions or other existing studies. To enable verification of the data, several different sources were used for each country.

The sub-indices, the subject areas, determinants and sub-criteria are all weighted in accordance with their individual significance. The determination of the weightings is carried out on the basis of market entry barriers that are associated with the individual questions, and in the past was safeguarded by interviewing experts, performing pair comparisons and plausibility checks. A high value is placed on consistency with the weightings in the LIB Index 2007, to ensure comparability. The detailed catalogue of questions relating to each of the sub-indices LEX, ACCESS and COM, the weightings of the relevant questions and the range of answers are shown in detail in the following annexes:

Annex I:	LEX Index catalogue of questions
Annex II:	ACCESS Index catalogue of questions
Annex III:	COM Index catalogue of questions
Annex IV:	Weightings and range of answers

4. Glossary

External RU	Railway undertaking which has entered the rail market in the course of liberalisation and offers rail transport services (usually in addition to the incumbent).
Incumbent	(Former) state undertaking which had a market-dominant position prior to liberalisation.
Open access	RUs have access to a national rail market which is not restricted by any rights of individual undertakings.
Purely commercial transport	Rail transport services provided by an RU on its own initiative and without any support from the state.
RU	Railway undertaking: a company which provides rail transport services.
Transport under a public service contract	Rail transport services ordered by the state in the form of transport contracts and for which the public purse normally provides subsidies or compensates for losses sustained from the provision of these transport services.

AT	Austria	IE	Ireland
BE	Belgium	IT	Italy
BG	Bulgaria	LT	Lithuania
CH	Switzerland	LU	Luxembourg
CZ	Czech Republic	LV	Latvia
DE	Germany	NL	Netherlands
DK	Denmark	NO	Norway
EE	Estonia	PL	Poland
ES	Spain	PT	Portugal
FI	Finland	RO	Romania
FR	France	SE	Sweden
GB	Great Britain	SI	Slovenia
GR	Greece	SK	Slovakia
HU	Hungary		

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