



Suburban and Regional Railways Landscape in Europe

ERRAC

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Foreword

For the last 15 years, the European Union has initiated significant steps aimed at reaching its strategic goals of revitalising railway transport and achieving a modal shift in favour of rail. Concepts such as separation of infrastructure and operation, interoperability, access fees, security certificate all derive from the various regulations and directives included in the successive so-called "railway packages". Due to the principle of subsidiarity, this policy is mainly targeted at long distance cross-border traffic and especially freight. The creation of the European Railway Agency in 2004-2005 will further consolidate the role of the EU in the railway business.

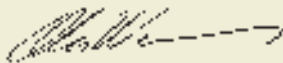
However, the scope of this legislation, although not primarily directed at commuter and regional railways, has been extended to this business sector, especially through the interoperability requirements, and this will not only continue but increase in the future.

The importance of regional and commuter railway is implicitly recognised, but small and medium-sized railway companies' needs, especially as regards their future development, are not easy to highlight. Existing statistics cover mainline railways and large national companies well, however the data on the fragmented market of regional railways remains scarce and partial. That was the reason for ERRAC, the European Rail Research Advisory Council, proposing to launch a comprehensive survey on the "European Suburban and Regional Railway Landscape". For the first time, there was an ambition to draw an accurate overview of the importance of the regional railways in Europe: to analyse who the stakeholders are (companies, lines, fleets etc.), their performance and contribution to mobility, employment, economic vitality of cities and regions.


This study, carried out by UITP¹ (the International Association of Public Transport), has been financed by the European Commission as part of an FP6 Research/Coordination project called ERRAC SSA.

As expected at the beginning of the study, the challenges of collecting statistical data on regional and suburban rail services turned out to be considerable. In cases where one railway operator handles the majority of passenger services in a country, the operator does not split available data into long distance and regional/commuter trips, or at least this information is not in the public domain. In other cases, notably the UK, where market conditions are characterised by a strong competitive environment, the railway operators are reluctant to disclose data, and data of ministries, PTEs or railway regulating bodies are scarce and incomplete. Another important challenge was, in some cases, the different approach at a company or country level on establishing data indicators which made it difficult, in certain areas, to draw a meaningful comparison on European level.

These and other factors would explain why such a study was not attempted earlier. Although aware of the limitations imposed by the available information, the current study presents the most complete picture possible of the present situation and constitutes a sound basis for further exploration.



Åke Wennberg
ERRAC Chairman



Roberto Cavaliere
President of UITP

¹www.uitp.com



Introduction

Definitions

For the purposes of this study, the definition of regional railways established by UITP in the mid 1990s has been used: Regular non-tourist passenger railway services within a medium sized territorial and political entity larger than a city and smaller than a country.

In countries where specific political bodies exist at this level (regionalisation), it is mostly subject to contracts between those political authorities and railway operators ("railway undertakings"). Such services may be provided on infrastructure owned by the national infrastructure manager, or the regions or belonging to the operator.

In the course of the survey, two different market segments emerged: the suburban (and commuter) transport services which are distinctly different from the regional services. Typical suburban railway service would include a trip of maximum 15km and less than 30 min. travel time. The regional railway service is indicatively a trip of maximum 70km and a transit time of 30 to 60 min.²

Although considerable, these differences do not prevent the inclusion of commuter and regional rail services in the same study, as they are clearly interconnected. The process of urban sprawl frequently results in cases of function overlap and mixed features on the same line. As an example, the lines operated by FGC in Catalunya start in the city centre and operate nearly like metros in the dense corridors of the agglomeration, and then split and branch out deep into the hinterland, as a typical regional service.

The working definition for each indicator in this study will be given in the relevant section of the Results Description.

Presentation of Results

Results of the survey are presented in an aggregated way at the level of a country or a group of countries. There are four groups of countries: former EU 15 countries (*EU15*), the new Member States of the EU since 2004 (excluding Malta and Cyprus, which do not have any railways) (*New Member States*), the partner countries from EFTA (Norway and Switzerland) (*EFTA countries*) and the EU acceding and candidate countries (excluding Former Yugoslav Republic of Macedonia) (*Candidate countries*). It was deliberately decided not to aggregate the current EU 25 countries because the railway market features are very heterogeneous and would weaken the interpretation of data.

For the purpose of a more in depth analysis, in a number of representative countries, data of the main railway operator is compared to aggregated data of other operators (i.e. in Germany, the statistics of regional and commuter lines operated by 24 subsidiaries of Deutsche Bahn are compared to data of all nine Connex - now Veolia Transport - companies on the one hand, and to data of the 33 remaining 'independent' railway undertakings on the other).

Results Description

The results of the study are grouped under the following headings:

1. Company profile and relationship with authorities
2. Supply data
2. Demand data
3. Network data
5. Rolling stock data
6. Research and innovation

² It should be noted that a small part of national statistical data on regional railway services is based on a different assumption, notably that a trip of up to 100km is considered as a regional rail service.

1 Company Profile and Relationship with Authorities

There are about 220 passenger railway companies in the 29 European countries included in this study. In a country where many companies active in regional railways are wholly owned by the same railway operator, they have been counted as one company. This is the case for Deutsche Bahn (24 companies reporting to the business unit "Personenverkehr"), SNCF (20 regional "TER" + Ile de France), RENFE (15 regional divisions and 11 "Cercanias" divisions), etc. In the UK however, the basic reference unit is the franchise, even though a company can operate several franchises (e.g. First Group or National Express Group).

Out of the total number of companies identified, data on 201 companies was collected and is presented in this study. This remarkable 91% coverage rate should be underlined. However, it should also be noted that data are completely missing for Greece and Croatia, and that the largest operator in Denmark failed to provide information.

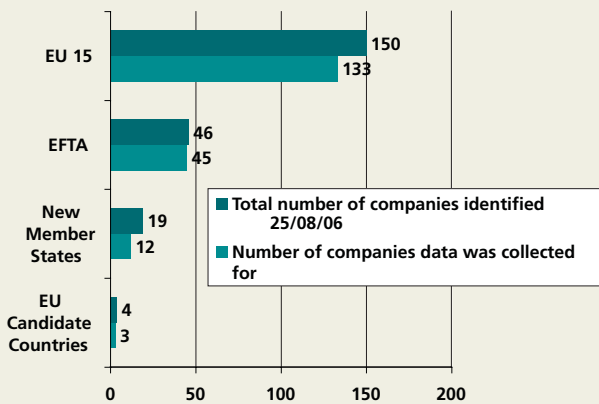


Chart 1: Number of companies per group of countries (total and included in the survey)

The majority (68%) of the 220 companies are headquartered and operating in the EU15 countries, serving 67% of the European population (of 29 countries included in the survey). A closer look will however reveal that this significant number of companies in EU15 is largely resulting from the sum of companies in only a third of the countries, and in particular of the large number of companies in Germany (49), Italy (27) and UK (24).

Switzerland, with 42 railway operators, ranks second in terms of number of companies but first if number of companies compared with population.

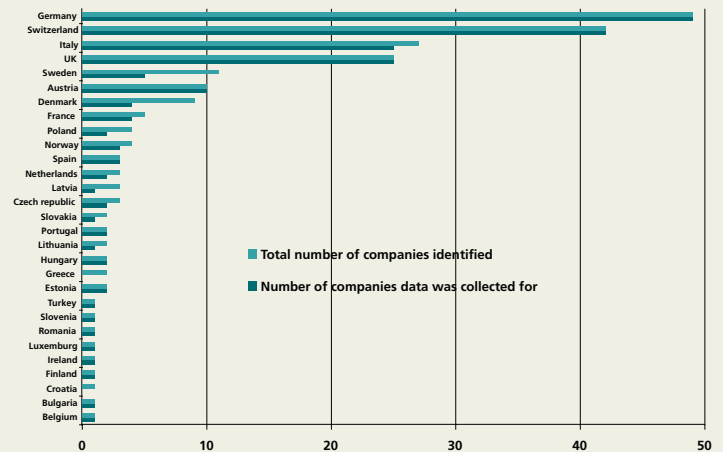


Chart 2: Number of companies per country (total and included in the survey)

As demonstrated in the above chart, in about 70% of the countries included in the survey regional and/or suburban rail passenger services are provided by more than one railway operator. Furthermore, in 2006, a number of countries are preparing for a rail services restructuring including introduction of regional railways and therefore providing for an increased number of railway undertakings (i.e. Hungary and Romania). This indicates a gradual shift towards a more competitive environment in the passenger rail services sector. Although the current split in business is still largely in favour of large national rail operators, the growing number of companies and the further extended tendering procedures for regional lines are an indication of a market development in line with the general principle pursued by EC railway policy and the expected objectives for high quality cost effective rail transport.

As mentioned earlier, this process is clearly most advanced in some EU15 states and in Switzerland. Although more than one company operates in almost all new Member States, the share of small companies is something of a token amount. On the other hand, four smaller EU15 countries (Luxembourg, Belgium, Ireland and Finland) and the candidate countries have not yet launched the process of de-monopolising rail passenger services. The network size and the fear of inefficiency losses is one of the argument used by the advocates of this status quo situation.

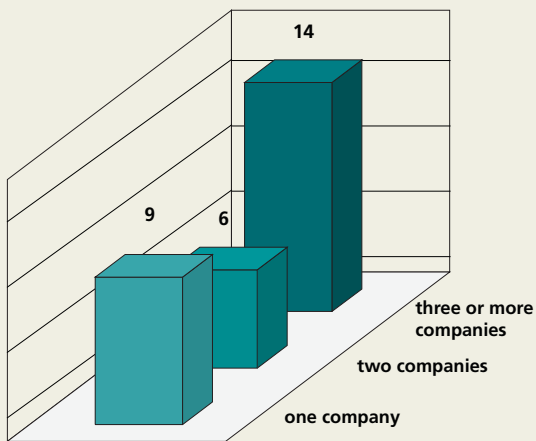


Chart 3a: Number of countries according to number of companies operating regional rail services

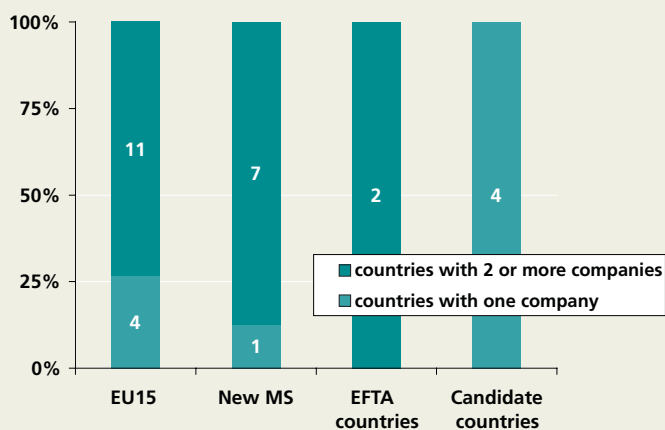


Chart 3b: Split of countries according to number of companies operating regional rail services

1.1 Staff

(Definition: The number of full time equivalent staff employed for the operation of the railway service (excl. staff devoted to infrastructure duties)

In the European countries covered by the survey, there are at present approximately 360,000 staff employed in the provision of regional/commuter rail services. This makes up roughly a fourth of the 1.2 million people employed in the rail sector in these countries.³ However, it excludes personnel involved in long distance, freight and infrastructure activities.

Just for the sake of comparison, this is approximately the same number as for all 34 European airlines affiliated to AEA (Association of European Airlines): 368,000 staff to operate their global business. And these companies carry 20 times fewer passengers...

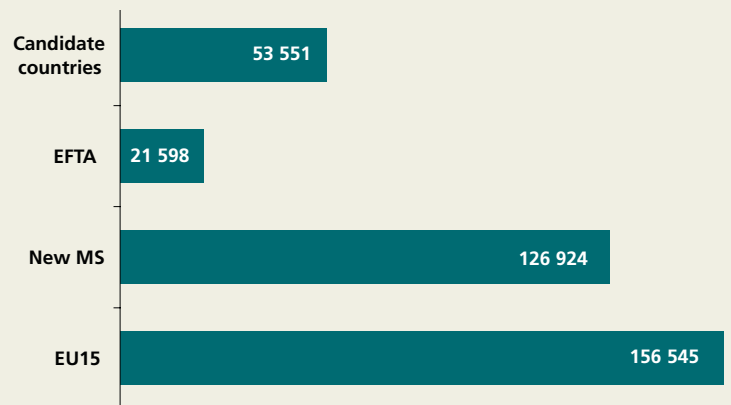


Chart 4: Number of employees per group of countries

³ UIC statistics (Metro and Light Rail not included)



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The largest number of staff is almost equally split between EU15 and EU new Member States. These figures, however, should be put into perspective by comparing with turnover generated and passengers transported to judge the relative productivity of the sector.

More than 85% of the staff is employed in the large national companies. A sample of representative countries displays this trend and confirms its validity across all country groups: EU15, New Member States, EFTA.⁴ Please remember that for the Danish data, DSB regional divisions are not included (only DSB S-Tog / Commuter trains around Copenhagen).

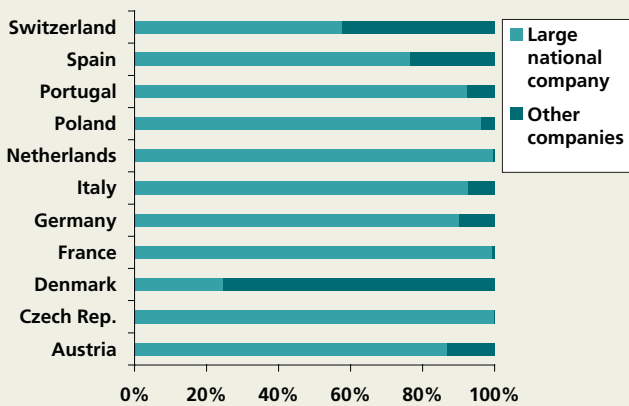


Chart 5: Percentage of staff employed in large national companies and in 'SMEs' per country

1.2 Turnover

(Definition: Addition of income from commercial revenue (passenger fares, advertising etc.) and various subsidies/compensation paid by the competent organising authority for public service requirements)

Unfortunately, data for UK companies was not available with a sufficient level of accuracy for the railway subsidiaries of the operators, so the figures have to be taken with some circumspection, as they do not give a complete picture. A similar lack of sufficient information for Turkey led to the UK and Turkey

not being included in the analysis of data related to turnover). The total turnover of the sector is approximately EUR 21.7 billion. Again, for the sake of giving an order of magnitude, this is the equivalent of the GDP of Luxembourg for 2004.

While about 45% of the staff is employed in the EU 15 countries, these countries account for more than 85% of the total turnover. The new Member States that employ another 40% of the staff generate a little under 10% of the turnover. This difference is at least partly due to differential in price levels. However, it is also clear that companies in new Member States are still in the middle of streamlining and restructuring processes, and efficiency and productivity gains are possible to a larger extent than in EU15 (where this process took place over the last two decades).

The situation in the candidate countries (Bulgaria and Romania) is even more contrasted with 5% of the staff and 0.6% of the turnover.

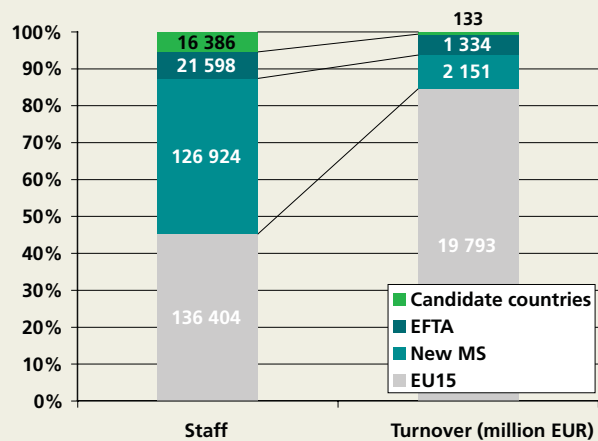


Chart 6: Staff and turnover per group of countries (UK excluded from EU15 and Turkey excluded from Candidate countries due to insufficient data on turnover)

⁴ This of course does not refer to countries where only one railway operator provides passenger services.



In chart 7a below, out of ten selected countries with the highest turnover, Germany clearly stands out as the one with both the largest number of passengers and generating the largest turnover in regional and commuter rail services. France ranks second for the same indicators. Detailed distribution of the eight other countries across the grid based on passenger and turnover volumes is shown in Chart 7b.

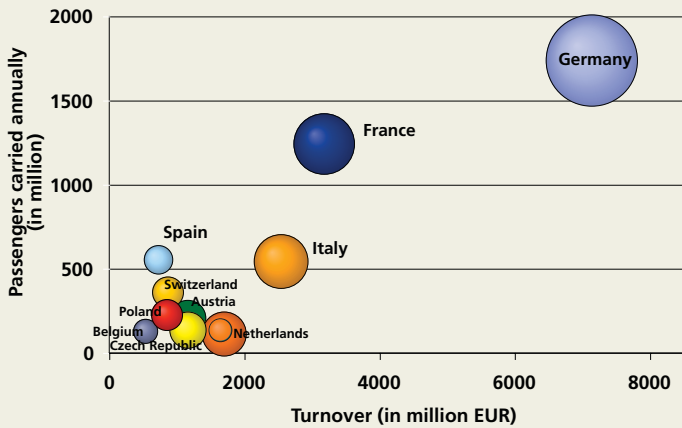


Chart 7a: Passengers carried and turnover in 10 selected countries with highest turnover

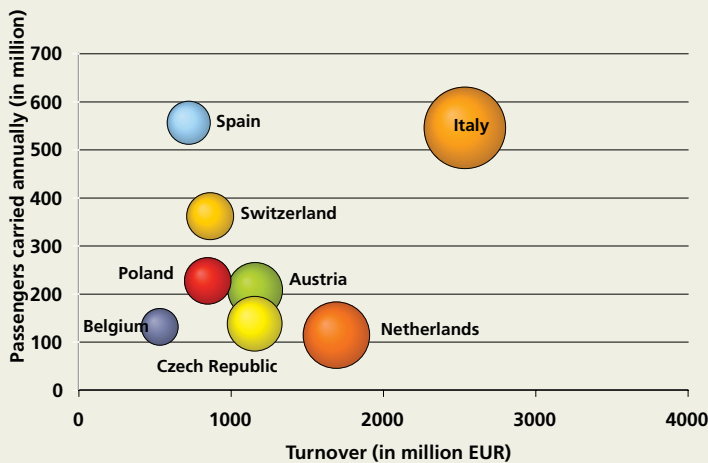
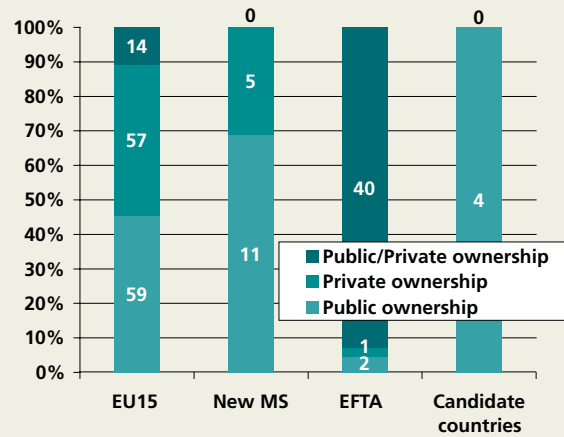


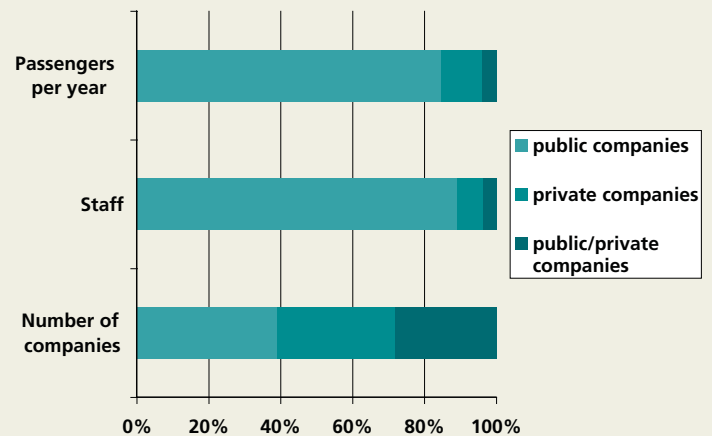
Chart 7b: detail

1.3 Ownership of the assets of the company

(Definition: Whatever the legal statute of the company, its assets can be fully public (PU), fully private (PR), or mixed public/private (PP))



Charts 8a: Company ownership distribution per group of countries



Charts 8b: Share of passengers, turnover and staff per type of company

Public companies represent roughly one third of the railway operators active in regional and commuter services. They transport however nearly 90% of the annual number of passengers. They employ 90% of the total staff. This distribution confirms the assumption that private companies tend to be more of an "SME profile" and public companies tend to be much larger.

1.4. Scope of company activities (company operating services only on the regional network or wider)

The survey results clearly indicate that the biggest number of only regional operators is established in the EFTA countries, and in EU15 countries (where they represent some 68% of the total number of companies). However, a closer look reveals that such local companies are predominantly found in a limited number of countries (notably in Switzerland (40, i.e. close to 90% of the total number of companies), Germany (42), Italy (25) and Austria (8).

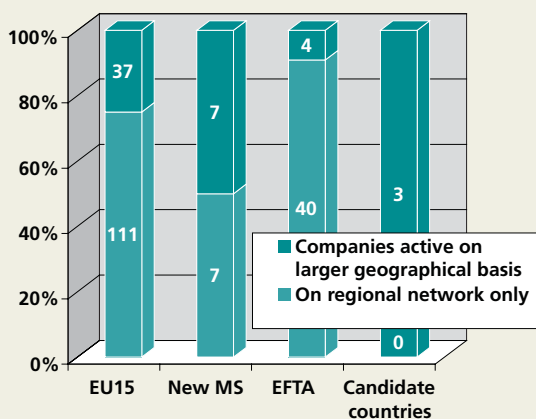


Chart 9: Split between companies operating on regional network only and companies active on larger geographical basis

The survey reveals that, in most of the European countries with several rail operators, there is usually only one that is not operating exclusively on the regional network (one large national company). The chart below shows the distribution of the regional and commuter rail business between large national companies (operating

country-wide) and the rest of the railway operators (operating only on the regional network) in ten selected countries with the highest turnover (Austria, Czech Republic, France, Germany, Italy, Netherlands, Poland, Portugal, Spain and Switzerland).

In this country sample, large national companies account for 90% of the relevant regional and commuter business in terms of turnover and about 70% in terms of transported passengers. They employ about 85% of the staff.

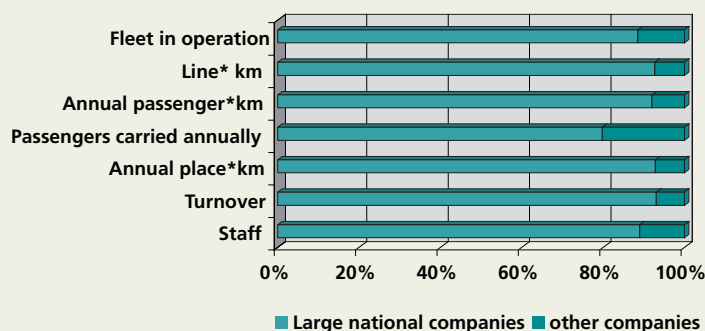


Chart 10: Split between large and small companies in 10 countries

2 | Supply Data



2.1 Annual vehicle x km

(Definition: One vehicle corresponds either to one car, one wagon or trailer. Trains with inter-circulation are not considered as articulated elements and therefore each wagon should be considered as one vehicle)

After a thorough analysis of the information received and collected, it proved to be impossible at this stage to draw a comprehensive picture of this parameter on a European level. The main reason for this is a considerable lack of consistency in the data collected. Many companies have provided information on vehicle x km, as it was specified in the survey. Just as many have provided the information expressed in train x km, another widely used indicator. Although the information is available, it proved to be impossible to operate an accurate conversion from one indicator to the other without distorting the outcome to an unacceptable level of uncertainty.

For information, companies in the following countries had their data available in train x km: Belgium, Germany (DB and Veolia-Connex), Luxembourg, Portugal, UK, Lithuania, Poland, Romania, Bulgaria, Slovakia and SBB in Switzerland.

Data in vehicle x km is available in the rest of the countries, including the "independent" companies in Germany.

2.2 Annual place x km

(This question relates to seats or standing passengers)

Given the above mentioned difficulty, perhaps a better indicator of the offer/supply would be expressed in seat x km. However, a too large proportion of respondents did not provide this data. In addition, part of the information provided was expressed in seat x km and another part in place x km including standing passengers. Therefore it remains challenging to create a very reliable picture of the offer of regional and commuter services.

2.3 Kind of passenger regional rail services provided

(Definition: The company may operate regional passenger services on commercial services and/or following public services requirements, as follows:

- Services with public service requirements in relation to one regional/local authority only (PSR1)
- Services with public service requirements in relation to more than one regional/local authority (PSR2)
- Services operated on a full commercial basis (FCB)

Full commercial basis is found only extremely rarely in the commuter and regional railway business. As a reminder, tourist lines have been excluded from the survey. In the majority of cases, companies are operating their regional and commuter rail services with Public service requirements (and financial compensations) in relation to one authority. This is either the case for companies contracted by one regional or local authority for a given service supply (the prevailing situation), or the case for large national companies contracted by one national authority for all their regional rail services (eg. Belgium, Norway). In the first scenario, this can encompass the entire



business of small companies with a strong/exclusive local base, or larger companies (or their wholly owned subsidiaries) for a part of their business. For instance, full operation of 7 lines for Vogtlandbahn or the 4-line package of "Sauerlandnetz" for DB Rheinland.

In Germany, the situation is complex. Länder have been responsible for organising and funding regional railway services since 1994. However, each Land is free to choose its own approach, and can "outsource" the daily tasks to ad-hoc sub-regional organisations (Regio, Verbund, Zweckverbund etc.).

2.4 Other services provided by the company

(Definition: Other rail services include: freight service, bus and/or coach services and long-distance passenger services)

A considerable proportion (about 80% of the total number) of railway operators providing regional passenger rail services also provide other services, such as long distance passenger transport or freight transport. Out of these 80%, freight services come first, followed by bus and coach services and long distance passenger transport (LDP).

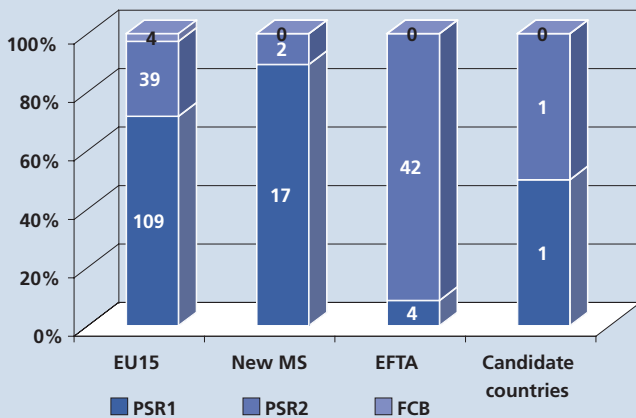


Chart 11a: Distribution of contract type per group of countries

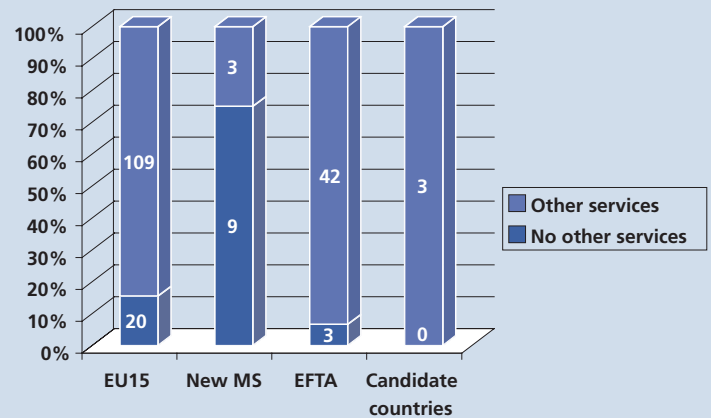


Chart 12a: Distribution of companies providing other services

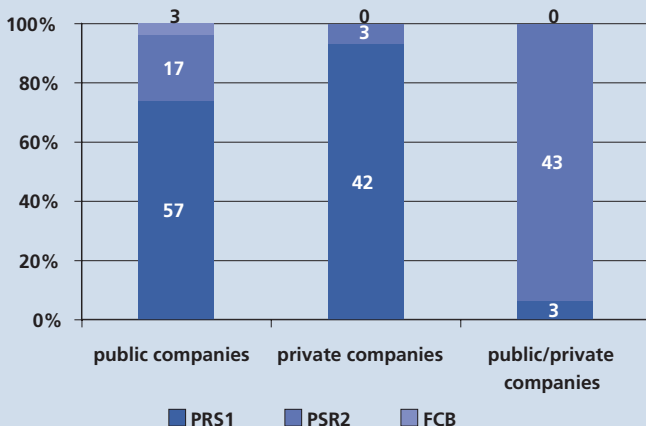


Chart 11b: Distribution of contract type per type of companies

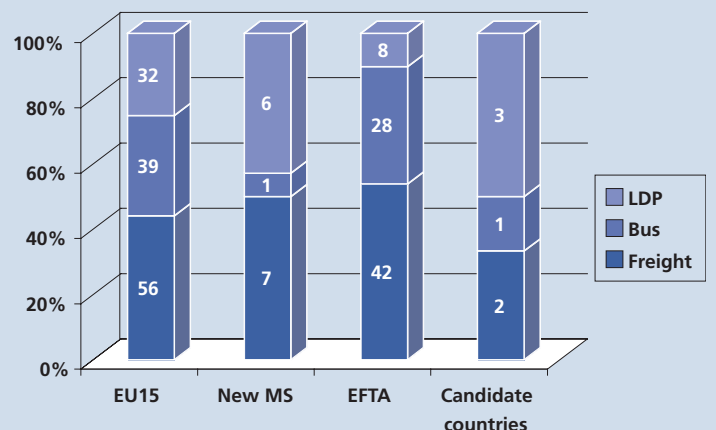


Chart 12b: Distribution of companies by type of service



2.5 Regional passenger rail services operated in coordination with other public transport networks

(Definition: The regional rail services may be operated with a certain level of coordination with other public transport services, ie. long distance rail services or urban public transport services (metro, light rail, bus). The main types of coordination are the coordination of fares (CF), the use of the same type of tickets (ST), the coordination of services in time and space ("rendez-vous"), and the coordination or integration of information for customers (CI))

Out of the collected data, information on coordination of services is not available for about 35 companies. 140 companies however coordinate their regional rail services, with a variety of options of the type and level of coordination.

Rail operators in Switzerland all coordinate their activities at every level mentioned in the survey - national, regional and urban. However, most of the other companies did not provide an answer to this question and therefore it is impossible to make a comparison on a European level.

More data was collected concerning the type of coordination. The most frequent type of coordination is the coordination of information (96% of companies where data is available), followed by the coordination of fares (92%), the use of common tickets (91%) and the coordination of services in time and space (87%).

Virtually all companies that coordinate their services do so in more than one respect with the following exceptions: the UK, where there is only information coordination; Belgium, where only fare coordination exists; Ireland, where the only form of coordination is common ticketing.

All four types of coordination take place in the large majority of operators in Switzerland, in Austria and in Germany. Some companies in Sweden, Hungary, Italy and the Netherlands also coordinate services in all fields.

However the variety of possible scenarios makes it difficult to go into any further detail.

2.6 Public service contract

(Definition: Contract with public service requirements and subsidies paid to the operators to offset relevant operating deficit. This contract can be awarded directly (DA) by negotiation or following an open call for tenders (CFT). In some cases, an operator may deliver the service on behalf of another operator who has the contract (sub-contracting - SC))

The absence of contracts or sub-contracting is very rare. In EU-15, contracts are awarded roughly half by tender and half by direct award. Please note that a "contract unit" is irrespective of its business value. If specific data on contract value was available, the picture might look different.

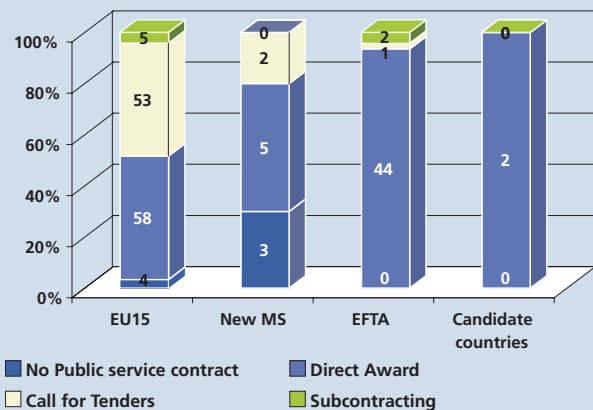


Chart13a: Award model for contracts

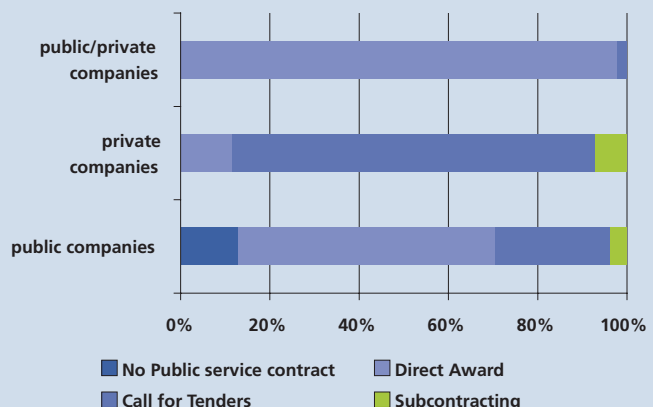


Chart 13b: Award model for contracts

Among the small companies, there is a difference between 'new entrants' (mainly powerful French and British groups) and 'historic' undertakings, mainly based in Switzerland and Germany, but also in Austria, Italy and Spain. For the first category, market opening and calls for tender are the only way of penetrating a market. The second category, which operates its business on 'tradition' is particularly vulnerable. Of course, in the wake of gradual market opening, these companies benefit from the so-called incumbent position (unrivalled knowledge of the system and the local market), but in the event of losing a bid, are threatened with simply disappearing because they do not have a 'fall back business'.

2.7 Contract type

(Definition: There are mainly two types of contract remuneration schemes: Net cost (NC - Industrial (cost) and commercial (revenue) risk borne by operator) and Gross cost (GC - Industrial risk borne by operator / commercial risks borne by authority))

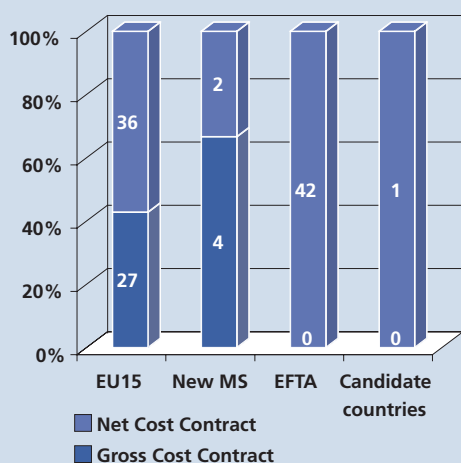


Chart 14a: Split of contract types per group of countries

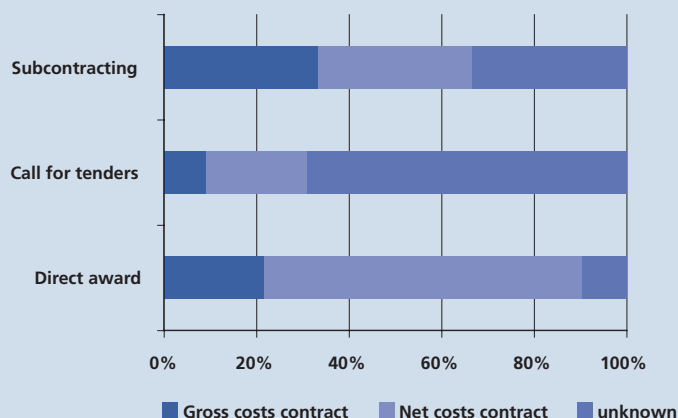


Chart 14b: Split of contract types per award type

Only half of companies have provided the information. However, out of the available information it was still possible to draw some valuable indications.

The choice of contract type is highly dependent on the recent experience of operators and regional authorities. Feedback on experience is not yet sound enough to yield a consolidated opinion on this issue. In our sample, net cost contracts (industrial and commercial risk borne by operator) seem to be increasingly popular and widespread, certainly after experience has been gained. This trend, already identified in an earlier UITP study⁵, gives more responsibility and entrepreneurial freedom to the operator, who is the one bearing the revenue risk and who is given room to deploy its customer-orientation strategy and know-how. One original emerging formula is to turn the gross cost contract into net cost at some stage during the contract period, around half-time. This demonstrates a willingness of authorities to allow the winning bidder some time to improve its knowledge of the market.

Although most cases of contracts awarded through competitive tendering do not give details on the remuneration type (gross vs. net costs), the apparent growing popularity of net cost contracts seems to be shared between contracts awarded directly or following calls for tender.

⁵ Regional Railways Contracts for Passengers Transport, in Public Transport International, 02/2006.

2.8 Potential competition with liberalised cabotage services

(Definition: European legislator intends to liberalise international passenger rail services. This also includes the so-called cabotage traffic (i.e. passengers getting on and off the train on the same side of the border). Such services could be in competition with regional, subsidised services)

Less than 20% of companies would experience direct competition arising from the liberalisation of international passenger rail services. This is mostly the case for large national companies that also operate services in border regions. However, only a small part of their business would be affected. There are very few cases of small companies that would face potential competition as a result of this development. The Directive on international passenger rail market opening (COM(2004) 139 final) which is

part of 3rd Railway Package allows Member States to make provision to protect Public Service contracts in case of serious disruption of the economic balance of these contracts.



3 | Demand Data



3.1 Annual number of passengers carried

The total number of passengers per year is more than 6.8 billion.

The passengers on regional or commuter trips represent by far the biggest share of all rail trips in Europe: they account for about 90% out of the total number of rail passengers (including long distance trips) and 50% of the total number of passenger kilometres per year⁶.

In the acceding and candidate countries, whose population represents about 18% of the total population of the countries in this survey, the number of passengers does not exceed 174 million (or 3% of all passengers transported). However, if Turkey is not included in the group, then the figures are respectively 6% of the population and 2% of passengers carried per year.

About 80% of the passengers using regional and commuter rail services are inhabitants of EU15 countries (whose population is about 67% of the total). This proportion is largely due to the significant number of passengers in Germany and France.

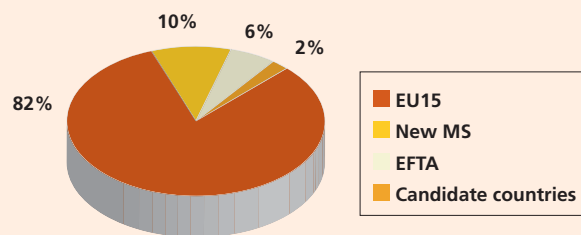


Chart 15a: Passenger split by country group

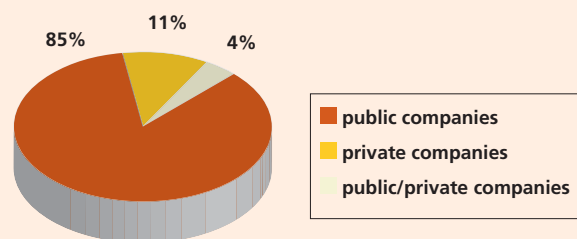


Chart 15b: Passenger split per type of company ownership

⁶ Comparison with UIC statistics (metro and light rail not included)



A more detailed presentation of the yearly number of passengers transported ranks Germany first, with about 1.7 billion passengers, or roughly one quarter of the total, followed by France with 17%, the UK with 10% and Spain with 8%.

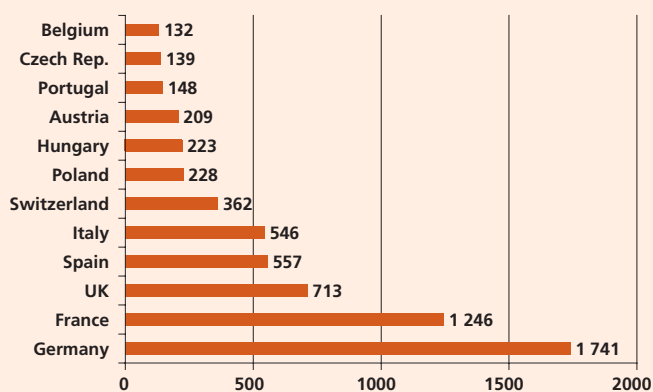


Chart 16: Number of passengers in some European countries (top 12 in terms of passengers transported per year)

Taking the population into account, the biggest "consumer" of rail services is by far Switzerland (with 49 trips per person yearly), followed by Luxembourg (27 trips) and Austria (25). France and Germany rank equal with 21 trips per inhabitant per year.

It is worth noting that the commuter and regional rail services around Paris (RER operated by SNCF and RATP) account for 1 billion trips yearly (respectively 570 million for SNCF and 430 million for RATP in 2004), i.e. 80 % of the total of France⁷.

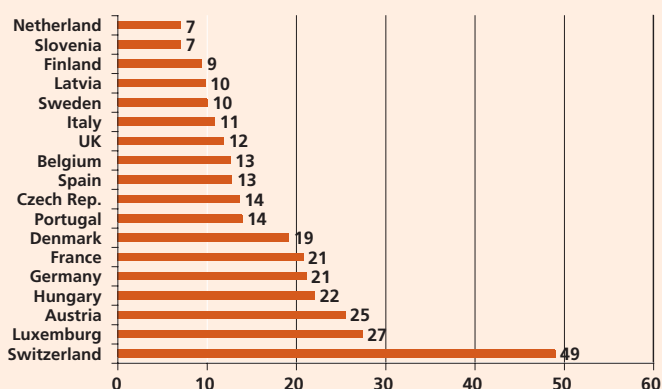


Chart 17: Number of trips per inhabitant per year

3.2 Annual passenger x km

The total number of annual passenger kilometres in Europe is about 194 billion with the following distribution by regions (country group): 74% in EU 15 countries, 18% for new Member States, 5% for candidate countries and 4% for the EFTA countries.

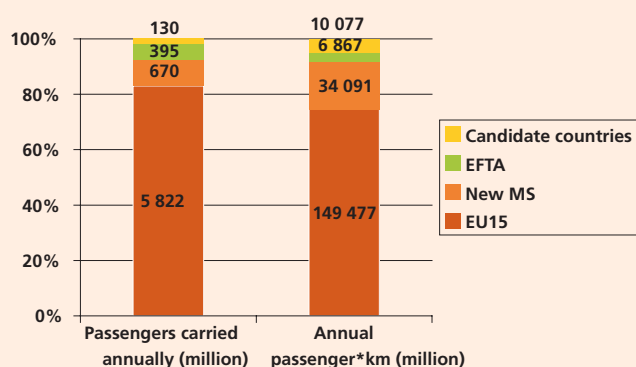


Chart 18: Comparison of passenger x km and passenger carried per group of countries

The number of passenger x km of 10 countries as well as the percentage of the total number (188 billion) of passenger x km that they represent are included in the following charts. They are compared with the number of passengers for these countries.

⁷ From a consumer perspective, RATP RER is an intermediate service between regional and urban rail services. As the average trip length on RATP RER is over 10 km, RATP RER has been included in the survey. However, due to the density of the services and to the nature of the infrastructure, RATP RER cannot be regarded as part of the European "conventional rail" system covered by the Railway Packages.

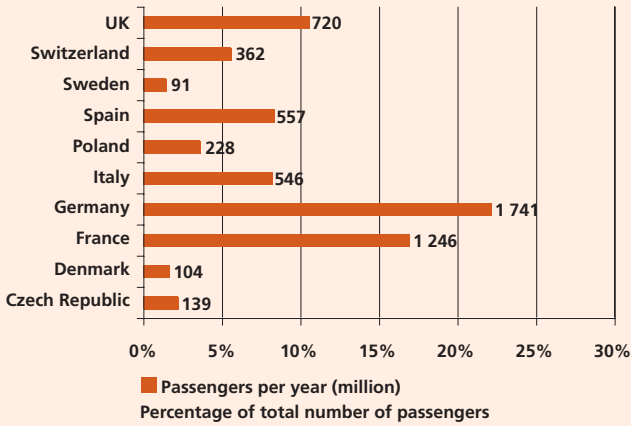


Chart 19a: Distribution of demand in 10 selected countries: passengers

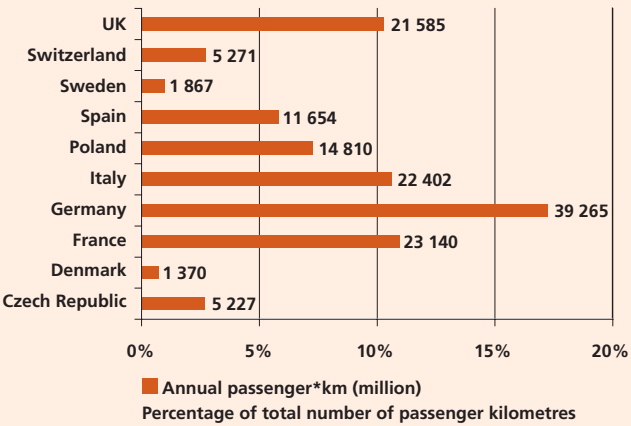


Chart 19b: Distribution of demand in 10 selected countries: passenger x km

As a result, the aggregated average distance travelled is 25.2km in EU-15 countries, 17.3 in EFTA, 50.8 in the new Member States and 77km in the candidate countries. In EU-15, the average is 'pulled down' by the dominant weight of purely suburban data, and especially of Ile-de-France (nearly 15% of all passenger transported in Europe).

Throughout the countries where data is available, the average distance is of about 27.9km (a weighted average representing the size of regional or commuter rail services by taking into account the passengers carried annually). The analysis however shows some distinction between these countries.

A certain interconnectedness could be established between the average distance per trip and the number of passengers per one kilometre of track (which would represent the relative density of the network and would indicate the functional use of the network).

Based on the chart below, the majority of the countries present an average distance of 20 to 30km and a density of less than 200 000 persons per one kilometre of track line. When the average distance diminishes and the usage density increases, the services can be categorised as typically commuter rail service versus regional rail services.

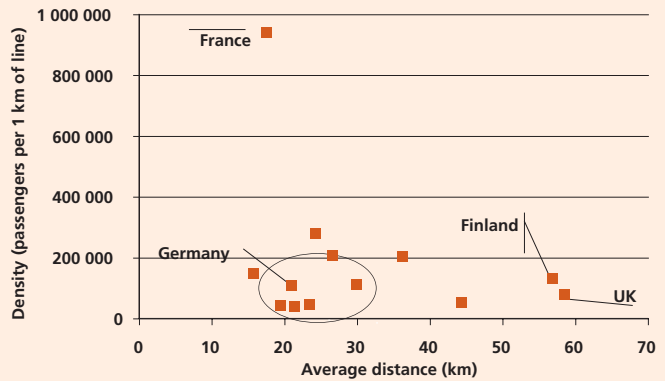


Chart 20a: Average distance travelled and intensity of infrastructure use

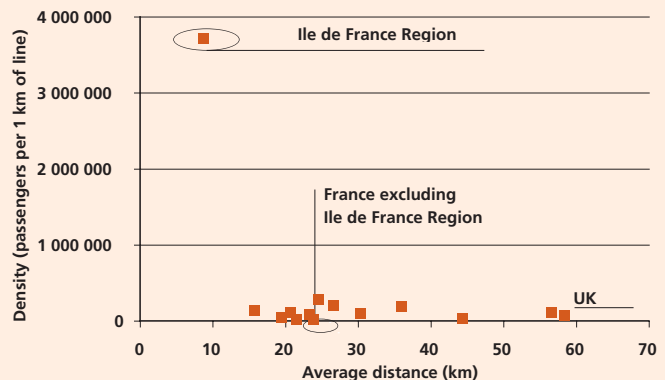


Chart 20b: Average distance - with split of France and Ile de France Region

4 Network Data

4.1 Number of lines operated

Many companies that completed the survey did not provide data on the number of regional and commuter lines they operate.

4.2 Gauge: Standard (1453mm), Metric (1000mm), Other (specify)

From a total of 188 000 km of track (see 4.3), 2 303 km are metre gauge (1.2%), and 26 900 of other gauge (14%), of which 17 900 km (9% of total) are the so-called Iberic gauge. As expected, standard gauge is dominant and represents some 80% of the total.

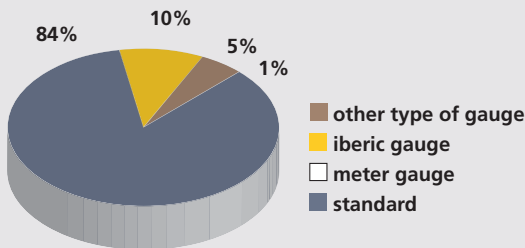


Chart 21: Gauge type

4.3 Track length (km)

(Definition: The length of physical infrastructure is taken, irrespective of the fact that one or several line(s) are using the same alignment over a certain distance)

The total track length is approximately 185 000km.

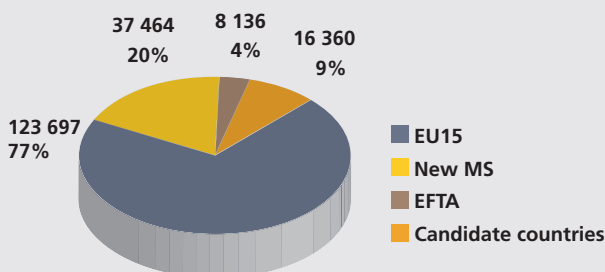


Chart 22a: Total track length in km per region

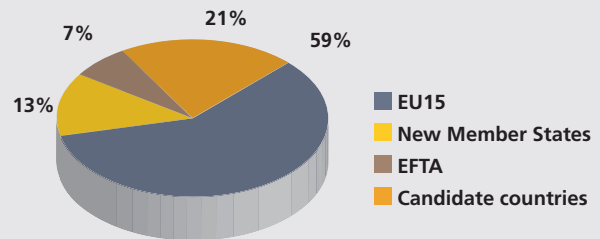


Chart 22b: Total territory in thousand km² per region

The density of rail network per km² is calculated by comparing track length with the total territory. The low density of the candidate countries group is strongly influenced by the extremely low average density of the network in Turkey. The densest networks are to be found in (decreasing order) Switzerland, Germany, Czech Republic, Luxembourg, Hungary, Belgium, Austria, Slovenia. The least dense networks are the Finnish, the Swedish and the Irish, followed by Norway, Estonia and Turkey.



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4.4 Separation of the regional network from the rest of the railway system

(Definition: The 2nd railway package specifies that Member States can exclude from the scope of Directive 2004/49 on Safety "networks that are "functionally" (FS) or "physically" separate (PS) from the rest of the railway system and intended only for the operation of local, urban or suburban passenger services, as well as railway undertakings operating solely on these networks")

We are aware that the notions of 'physical' and 'functional' separation may lack accuracy and that there may be some grey areas. However, the following chart is an attempt to quantify what proportion of the European network is 'separated' in the sense of the EC legislation. It illustrates the fact that nearly 85% of the regional and commuter rail infrastructure is not separated from the European conventional rail system. Chart 23a clearly confirms that small railway companies tend to operate on lines that are not part of the European railway network.

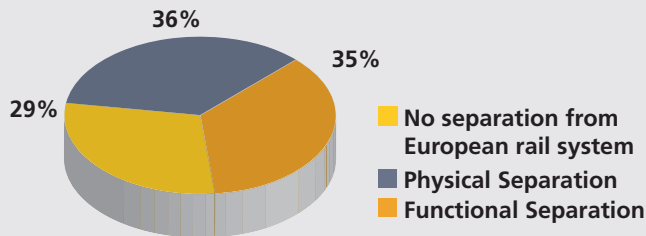


Chart 23a: Percentage of companies running services on rail infrastructure physically, functionally or not separated from the European rail system

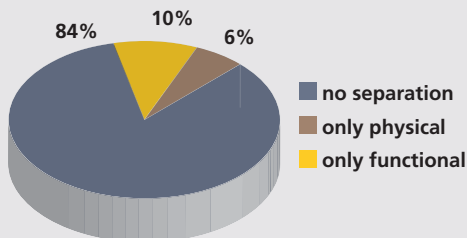


Chart 23b: Total track length in km of infrastructure that is (or is not) part of the European rail system

4.5 Ownership of infrastructure

(Definition: In Europe, most railways infrastructure lies with the national infrastructure manager (NIM). However, some regional lines may deviate from this model, with the infrastructure owned by the operator (O) or in other hands (else))

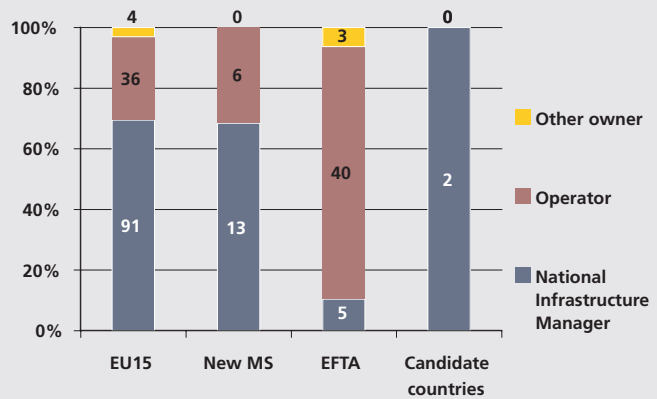


Chart 24a: Infrastructure ownership by group of countries

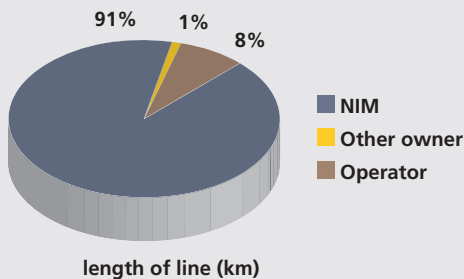


Chart 24b: Distribution of track length in km by ownership type

The survey confirmed that only a very limited share of infrastructure lies in the hands of actors other than the National Infrastructure Managers established by Directive 91/440/EEC. Only 8% of the infrastructure belongs to railway operators, mainly due to historical reasons. Operator-owned infrastructure is to be found mainly in Ireland, Luxembourg, Hungary (where it represents 100% of the infrastructure, and results from failure to implement European Directives), Lithuania (900km out of 1067km), Switzerland (2598 km, i.e. 46% of the entire infrastructure), Germany (1955km) and Austria (535km). Less than 1% belongs to other actors such as local authorities, etc. in Spain, Denmark, Italy and France.



4.6 Other operator on the line

(Definition: The European model of separation of infrastructure and rolling stock aims at allowing traffic from different operators to run on same infrastructure. However, this is not always the case. Please indicate if another operator, for passenger (P) or freight (F) traffic, is using the infrastructure)

On some 45 000km (24%) of the total length of the European network (included in this survey), there are no rail operators other than the one providing regional and commuter rail transport. On about 10 000km (5%) there is one or more other rail operators transporting freight, on 9 500km (5%) there is one or more rail operators providing passenger services, and on 101 000 km (54%) of the network there is one or more operators providing both freight and passenger services.

4.7 Station management

(Definition: The company may be in charge of station management, eg. passenger information, ticket sales etc., or this could be the responsibility of the infrastructure manager)

Information on station management was available for 99 companies. In 16% of these cases, it is the Infrastructure manager that is responsible for station management, and in the rest of the cases it is the Operator.

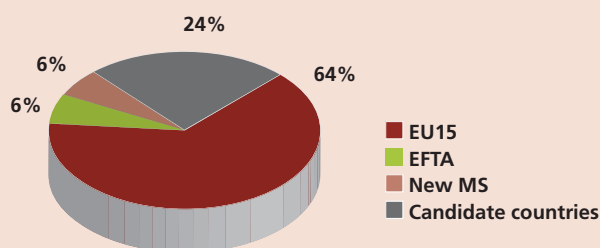
When the infrastructure belongs to the Infrastructure manager, only in one third of the cases it is responsible for the management of stations as well; in other two thirds it is up to the operator to fulfil this task.

5 | Rolling Stock Data

5.1 Rolling stock type

(Type and number of units per type: Locomotives, Unmotorised carriages (Single deck and Double deck) and Motorised carriages (Diesel multiple units - DMU and Electrical multiple units - EMU))

Survey respondents were asked to provide data on number and type of their fleet used in the provision of regional and commuter services. In total, about 64 000 units (excluding locomotives) make up the "regional and commuter" fleet. Their distribution across the country groups is as follows: 64% in EU15, 24% in the new Member States, 12% equally split between candidate countries and EFTA countries.



Total number of vehicles (excluding locomotives)

Chart 25: Total number of vehicles, excluding locomotives

A more detailed look at the countries with the largest fleet ranks the top ten countries as follows:

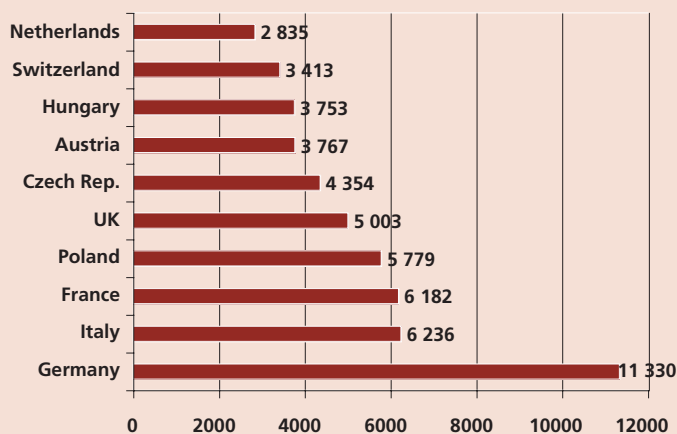


Chart 26: Size of rolling stock fleet by country

The difficulties experienced in some cases to differentiate between 'vehicle' and 'train' units should be noted here, particularly in relation to the number of DMUs and EMUs. In some cases, a multiple unit would be counted as one vehicle; in others, each part of the multiple unit would be considered as a separate vehicle for statistical purposes. Data provided from the respondents was compared with and analysed against other available fleet information in order to assess its consistency. However, it proved to be impossible at this stage to identify all cases where a multiple unit is counted as one vehicle and where it is counted as more. Moreover, many of the responses received contained insufficient information on fleet numbers and further inquiries are still needed to complete the picture.



Looking at the type of rolling stock, by far the most prevalent is single deck carriages (39% of the total fleet), followed by electric multiple units (24%).

Unmotorised vehicles form the majority of the rolling stock in the candidate countries (86%), new Member States (80% of their fleet) and EFTA countries (75%). In EU-15, single deck carriages represent 29% of the rolling stock and double deck carriages account for a further 15%⁸.

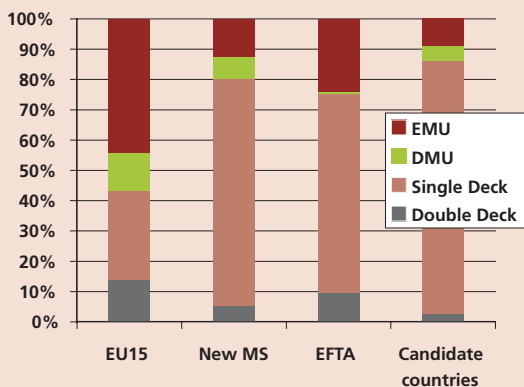


Chart 27: Split of Rolling Stock per type and per group of countries

The large majority of double deck vehicles are operated in EU-15 countries (about 75% of all double deck vehicles can be found in the countries presented in this survey). The largest share of EMUs are also to be found in EU-15 countries, where EMUs represent about 44% of the fleet. If DMUs are added, the result reveals a predominance of multiple units (56% of the total fleet in EU15).

Private companies largely own and/or operate motorised carriages - more than 90% of their rolling stock is composed of EMUs (75%) or DMUs (close to 18%).

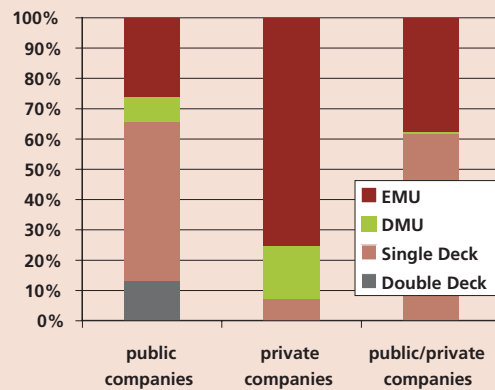


Chart 28: Split of rolling stock per type and per company ownership

⁸ The calculations exclude a large part of the data for Germany and Denmark. In both cases, the data on rolling stock is only available in an aggregated way and not by type. Therefore, the tables below are generated with only limited portion of information available on fleet split in Germany, and no data on Denmark.

5.2 Rolling stock ownership

(Definition: Rolling asset belonging either to the operator or organising authority. It can also be owned by the operator, but purchased with public subsidies/support), or leased from a Rolling stock company. There are also cases of leased rolling stock)

Half of the companies responded to this question. From the available data, the lion's share remains traditional operator ownership (nearly 90%) with public subsidies in half of the cases.

Data on leasing is far from comprehensive. Large companies tend to have a variety of asset ownership models and schemes, but have failed to provide details on their breakdown.

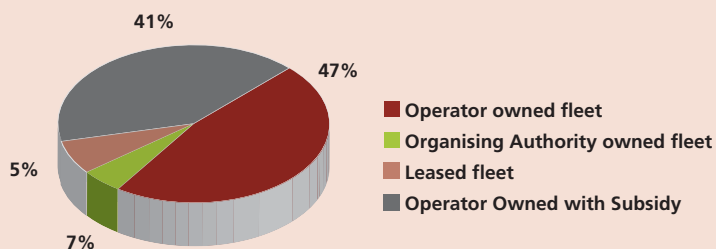


Chart 29: Distribution of rolling stock ownership

5.3 Orders for new rolling stock

An answer to this question was not provided in most cases, and it is thus impossible to make a comparison of current developments on European level.



6 | Research and Innovation Data

From the 201 companies surveyed, 43 completed and returned the form, of which 27 provided information specifically on Research and Innovation needs and activities. For the other 158 companies, data was collected by the project team at UITP via national associations or on the basis of primary (company reports) and secondary literature sources.

The findings below are the summary of the responses received supplemented with additional information from various other sources, including previous discussions with UITP members during meetings of the Regional and Suburban Railway Committee.

Of the 27 respondent companies which provided information on R&D, 16 operate exclusively regional and/or commuter traffic. Eleven are national companies active in all railway market segments, and are therefore more likely to be covered by other ERRAC studies.

Seven out of the 16 'local' companies do not perform R&D activities.

Very few companies provide data on the level of expenditure (as % of turnover) dedicated to R&D activities. The range lies between 0.5 and 4%.

The framework for conducting R&D is:

- Internal project (11/14)
- Cooperation with industrial partner (10/14), followed by
- Universities/research centres (8/14).

Only two respondents explicitly mention projects carried out at European level. R&D appears to be mainly conducted at national level (5 responses).

Eleven out of 27 responses state that the regional public authorities have specific research policy for rail transport.

R&D areas can be summarized as follows:

E-ticketing	15
Intermodality	12
Rolling stock	10
Control command	5
Passenger information	3
Socio-economic studies	3
Infrastructure	2

Interestingly, the main areas of research needs identified here do not seem to be specifically rail research.

If we look more specifically into the various areas, we can detail the specific research needs expressed:

Rolling stock:

- tram-train
- PRM accessibility and Train/platform interface
- passenger counting device reliability
- fire safety
- energy storage and management
- vandalism-proof material
- light-weight material
- noise abatement
- maintenance optimization
- harmonized diagnosis data transmission for easier operation and maintenance

Infrastructure:

- station design and train/platform interface
- performance reliability for signalling + switches
- platform/track remote monitoring
- on-board systems
- maintenance optimization
- harmonized diagnosis data transmission for easier operation and maintenance



Intermodality:

- cooperation between operators and modes
- route finder
- pilot system in city

E-ticketing:

- use of cellular phones and www as sales channel.

Socio-economic studies:

- sustainable development
- demand survey
- demography
- behavioural, time value
- diversification of income sources (real estate, retail, advertising etc.)
- increasing awareness of authorities and the general public on the current services offered by local rail
- added value of a better use of suburban and regional rail services
- trade off bus/rail services



Conclusions

The regional and commuter rail market plays an important role as part of the overall passenger rail market. It is also a challenging public transport market, significantly contributing for ensuring sustainable urban mobility, encouraging modal shift from private car and decongesting transport corridors providing access to major European cities.

Regional and commuter rail has been explicitly recognised as a European R&D target not only in ERRAC SRRA but also in ERRAC Rail 21 brochure among the rail priorities for FP7. An active participation of regional authorities and regional operators in this process is highly recommended. It is currently a market that is opening up in several European countries. This part of rail activity is, however, not strongly represented at the European level, at least as far as local operators are concerned.



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