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IS COMPETITION ON TRACK A REAL ALTERNATIVE TO COMPETITIVE TENDERING IN THE RAILWAY INDUSTRY? EVIDENCE FROM GERMANY

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ABSTRACT

Since 1994, train operating companies other than the incumbent DB are allowed to run passenger trains on the federal rail network in Germany. The open regional traffic market is mainly regulated with competitive tendering and long distance trains can be run within the framework of an open access to the infrastructure. Germany is the only country in Europe where open access regulated traffic occurred except Great Britain. However, the competitors are very involved in the regional traffic and very few in the long distance traffic. The topic of this paper is to evaluate the situation of the German long distance market and set some explanations why the opening of this submarket doesn't really occur. The long distance operation is actually very dependant on the regional traffic, as three of the four current TOCs demonstrate. Their business model remembers the low costs airlines, but with specific constraints to the railway industry especially the part of the infrastructure in the operating costs. The high level of operational integration between both traffic shows that open access competition in railways largely depends on the market properties of the subsidized tendered traffic.

Keywords: competition; rail passenger transport; Germany; open access; InterConnex

INTRODUCTION

Before the end of the year 2009, the EU-member states have to implement the legislation from the third railway package, especially the opening to competition of the international rail passenger services. For the majority of the European countries, the liberalisation of passenger traffic is something new, since the European Union began this policy with the freight and a lot of countries see a more political issue in the passenger traffic than for freight. International rail services are often operated in cooperation between national incumbents, sometimes through common subsidiaries like *Thalys* for the French-Benelux-German high speed services or formerly *City Night Line* for the Swiss-Austrian-German night trains.

Most of the European countries have chosen to implement the EU-directive in guaranteeing for the TOCs an open access to the rail infrastructure under commercial conditions. Until now, only two member states had already fully opened their passenger traffic (not only international) under the open access regime, Great Britain and Germany. Other member states like Sweden or the Netherlands have partly liberalised their long distance traffic but not only under the rule of open access.

The German railway reform process recognizes constantly competition as a way to increase the efficiency of the system. The different regulation forms of the regional and the long distance traffics lead however to very different results: the market shares of DB's competitors are respectively 18,4% and less than 1%. In the last ten years, only ten attempts in the long distance traffic occurred, often surviving a few months, whereas more than hundred concessions were already awarded in the regional traffic. The question if open access regulation is appropriate for a major part of the railway traffic may be seriously taken into account.

The following first part provides definitions and facts about the situation of the long distance passenger traffic in Germany. The second part presents some cases and the different factors explaining the poor market dynamics on long distance traffic.

COMPETITION FOR TENDERED TRAFFIC VS. OPEN ACCESS COMPETITION: FRAMEWORK AND SITUATION TODAY

In the late 1980's and before the fall of the Berlin Wall, the Federal Republic of Germany began a long reform process of these railways, the so-called *Bahnreform* led by a parliamentary Commission. Two objectives were set as priorities: decrease the financial charge of the railways over public budgets and improve the performance of the rail system. Shortly after the beginning of the work of the commission, the reform got a new dimension because of the reunification of both German States, which also mined the fusion of the two state owned railway companies, the *Deutsche Bundesbahn* in the West and the *Deutsche Reichsbahn* in the East. Some aspects of the German railways reform are related to the transition from a planned to a free market economy since railways were the main transport mode in East Germany especially for goods (71,5% market share for goods in 1989, only 17,2% for passengers, BMV 1991).

In December 1993, the legal corpus was voted by the Parliament and led to the creation of the new state owned railway company, the *Deutsche Bahn AG* (further called “DB”). It defined also a new regulation framework (foundation of the security inspectorate EBA and the heritage manager BEV) but most of all opened the access to DB’s rail infrastructure for other train operating companies (TOC) from 1994 and set the federal states (*Länder*) as passenger transport authorities (PTA) for the regional passenger services from 1996. From that time, the German railway regulation framework of 1993 split practically the passenger rail services into two different markets:

- the regional services (*Nahverkehr*) are a task of the *Länder* since 1996 and need subsidies to cover their operating costs. Competition occurs mainly by tendering;
- the long distance services (*Fernverkehr*) run without public funding and are (or should be) under the oversight of the federal government. Competition is based on open access to the infrastructure.

Legal definitions and reality

The German law for the regionalization of passenger rail services sets a legal definition of what a regional traffic is (*Regionalisierungsgesetz*, 1993, art. 2):

Public passenger traffic in the sense of this law is a passenger transport usually open to the public through transportation means in line operation which are principally destined to satisfy the demand in urban, suburban and regional transport. This is explicitly the case when the majority of the travels by a transport mean does not exceed the distance of 50 km or the travel time of one hour.

In facts, this definition is never used to find out if some traffic are depending of the regionalization law or not, and if they are a task of the *Länder*. The economical and political specific contexts have more influence to determinate the limit between regional and non regional transport services, specially the willingness of the PTA to grant subsidies for the operation or the ability of the TOC to find interest in it. The nature of the specified traffic and the existence of a contracting or principal-agent relationship between the PTA and a TOC for this traffic are the best indicators to distinguish both traffic sorts. In almost all situations, regional services are funded from the PTA in order to cover the gap between the operating costs and the passenger revenues.

In opposition to the regional traffic, the long distance passenger services have no legal definition and could be defined by default regarding the regional traffic as services not under the management of the PTA, i.e. under the responsibility of the federal government, as the German constitution states (*Grundgesetz für die Bundesrepublik Deutschland*, 2009, art. 87e para. 4):

The federal government ensure that the general weal will be taken into account, in particular concerning transport needs, the development and maintenance of the federal rail network and the supply of transport facilities on these network, as far as it does not concern the regional rail traffic for passengers.[...]

However, either the federal Ministry for transport or any other federal institution acts as a “national PTA” like the British Department for Transport does on franchised long distance passenger services in Great Britain. On the contrary, the federal ministry defends the position

that DB is fully responsible for its long distance traffic business (relations, frequency, fares, investments, etc). The role of the federal government is strictly limited on regulation tasks in a given framework (especially since the appointment of a regulatory body in 2006) and on funding indirectly the railway system. Through the financing of new high speed lines, the federal state exert however a major indirect impact on the design of the long distance traffic. Its infrastructure policy is actually stronger than its supply policy for long distance traffic, which only consists since 1994 in guaranteeing a free access to the public rail network.

In this context, DB's long distance services concentrate more and more on a few lines where the transport demand can cover the high costs of DB's standards, which led DB in the last ten years to stop its services on secondary lines serving medium-sized cities (withdrawal of InterRegio product, upgrade IC to ICE lines). Competitors on long distance have to find operation concepts that make a loss-making line for DB a profitable business. Regarding transport planning, this "rule" sets operation boundaries where it would not necessary and can lead to discrepancies in the transportation system, excluding medium-sized cities from the long distance network. As illustrated by KCW (2009, p. 108), between 1999 and 2009, 23 German medium-sized cities lost their long distance train connection and 6 have a worse one because DB stops lines which were barely profitable. 17 further cities could be disconnected to this network until 2015. It's very probable that for a significant part of these cities, the overall socio-economic loss is bigger than the operating loss was/is for DB, which leads to work out that the German long distance regulation is not economically optimal. Experts of KCW (2009, p. 104) talk about a « *fiction* » to operate long distance trains absolutely without subsidies:

The formal requirement [to run long distance services without subsidies] is guilty for the low number of competitors. That is an artefact in an economical point of view and can be shaped only by DB as an integrated company.

The market of regional passenger services

Since 1996, competition in the rail passenger transport took place mostly in the regional traffic. The huge size of the German regional market (630 million train-km) makes however the opening very progressive. In 2009, DB still runs about 500 M train-km and its first competitor Veolia only 29,4 M train-km (KCW, 2009). DB's competitors categories are mainly international groups (Veolia, Arriva, Keolis, etc. 69 M trains-km together), than come region or counties owned TOCs (32 M train-km) and subsidies of neighbouring national incumbents (7,5 M train-km).

The regional market expended quickly in the last 15 years of 130 M train-km more. A very little part of that traffic come from long distance services that were stopped by DB and took other in the regional traffic by the Länder like Hamburg – Flensburg and Munich – Prag. The fact that these lines still run under contract with the PTA without operating changes but need subsidies demonstrates that there were really loss-making for DB (Wewers, 2004).

The competitive tendering represent about the half of the awarded regional traffic. Most of the franchises were won by DB's competitors, especially in the last years (figure 1).

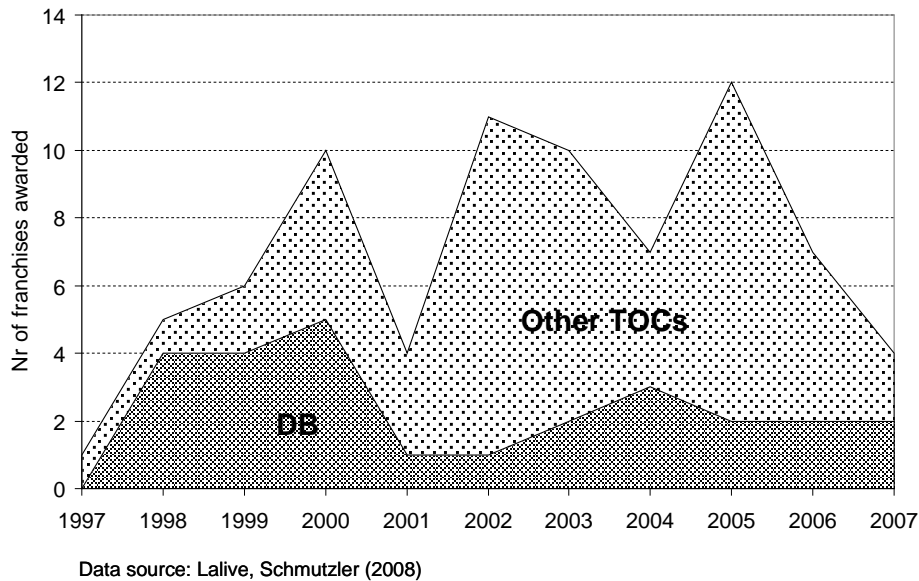


Figure 1: Franchises awarded for regional passenger services in Germany

After 13 years regionalisation, the market share of DB's competitors is 18,4% of the train-km and 10,1% of the passenger-km of the regional traffic (Deutsche Bahn, 2009). In comparison, their presence in the open access services, as the very low market shares illustrate: competitors run only 0,6 % of the train-km and drive 0,2% of the passenger-km of the long distance traffic.

Experiences of open access regulated traffic in Germany

Theoretically, open access traffic is possible in Germany since the railway reform in 1994. But no TOC launched own services until 2000, at the time when DB began to withdraw the loss-making lines. The following table lists all long distance line services operated since the opening of the federal infrastructure to competition (table 1).

Table 1: Long distance line traffic independent from DB in Germany 1994 – 2009

Date	Duration if out	Product name	TOC	Line	Frequency (trains pairs)
9.2000		Berlin Night Express	GVG Georg Verkehrsorganisation	Berlin – Malmö [SE] (night train)	May-Sept: 1 / day Apr, Oct: 4 / week Nov-Mar: 2 / week
12.2000 1.2001	2 months		Eurobahn [today Keolis]	Bielefeld – Cologne	2 / week end
3.2002		InterConnex	Veolia Verkehr	(Gera –) Leipzig – Berlin – Rostock – Warnemünde	2 / day Leipzig – Berlin 1 / day Berlin – Warnemünde
12.2002 12.2004	2 years	InterConnex 2	Lausitzbahn (Connex [today Veolia Verkehr])	(Liberec [CZ] –) Zittau – Cottbus – Berlin – Stralsund (– Binz) (regional train between Zittau and Cottbus)	1 / day Zittau – Berlin 4 / week Berlin – Stralsund (Fr-Mo)
12.2004 12.2006	2 years	from 12.2005: Ostseeland-Express	Connex Sachsen (Veolia Verkehr) From 6.2006 Ostseeland Verkehr (Veolia Verkehr)	Dresden-Neustadt – Berlin – Stralsund	3 / week
6.2003 10.2003	4 months	InterConnex 3	Connex [today Veolia Verkehr]	(Neuss –) Cologne – Berlin – Rostock	1 / day
6.2005 (break 2-4.2009)		Vogtland-Express	Vogtlandbahn (Arriva)	Until 12.2006: (Hof –) Plauen – Leipzig – Berlin From 12.2006: (Hof –) Plauen – Chemnitz – Berlin	1 / day
12.2005		Harz-Berlin-Express	Veolia Verkehr Sachsen-Anhalt (Veolia Verkehr)	Vienenburg / Thale – Berlin (long distance from Genthin)	3 / week end
6.2006 12.2008	2,5 years	Lausitz-Express	Connex Sachsen (Veolia Verkehr)	Leipzig – Görlitz (long distance until Bischofswerda)	1 / day Mo-Sa
6.2009 7.2009	2 weeks	Nacht-im-Zug	Reisezug-Verkehrsgesellschaft	Stuttgart – Berlin (night train)	1 / week

Sources: KCW (2009), websites of the TOCs, miscellaneous.

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NB: the line Cologne – Brussels sets also competition between Thalys and the ICE of DB. DB is however shareholder of Thalys since 2007.

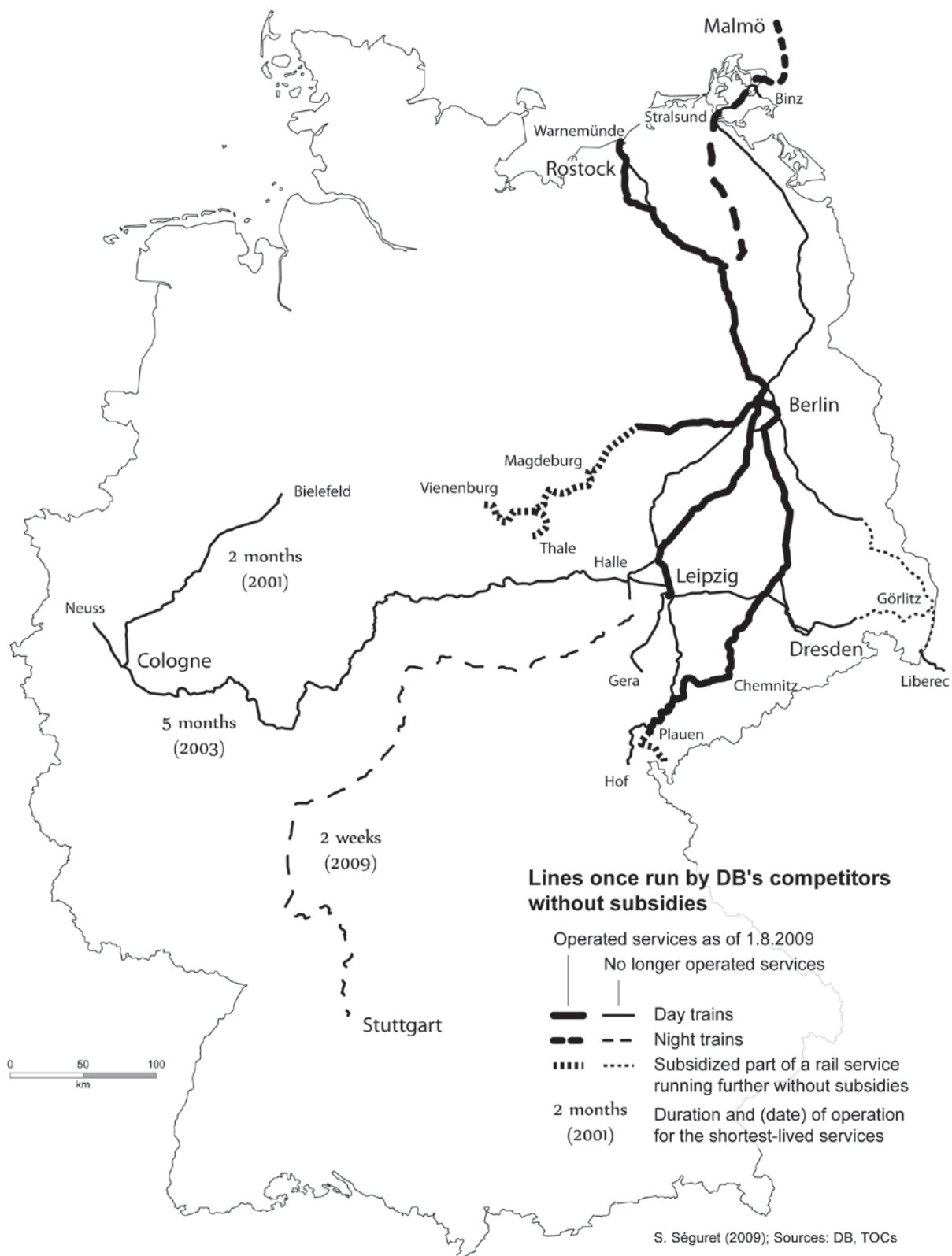


Figure 2: Railway lines on which open access regulated traffic of DB's competitors once occurred in Germany (2000-2009).

The figure 2 depicts that the majority of the long distance services operated by DB's competitors are concentrated in eastern Germany. However, they never built up a real network due to their few connections among them and above all because of the short duration of operation of most of them.

The first TOC (GVG) was a new comer of a few people that took over the night train from Berlin to Malmö from DB, travelling in a ferry through the Baltic Sea. The new operator received the support of the Swedish incumbent SJ, which wanted the service to keep going. A daily pair of trains run at the beginning over the whole year but the service was gradually reduced up to two trains a week, except during the summer, probably due to a few demand off-season and competition with low cost airlines through Copenhagen. Another small TOC launched in 2009 a weekly night train service between Berlin and the Stuttgart/Frankfurt offering an exclusive connexion of medium-sized cities to the capital. It failed after two weeks operation because of operation problems and a very low load factor (*Heilbronner Stimme*, 24.07.2009).

Most of services of DB's competitors were/are however day trains. It started in 2000 with a subsidiary of Keolis which won a franchise in North-Rhine-Westphalia and wanted to connect it with Cologne during the week end. The first trains run practically empty and the company stopped it after two months. In 2002, Veolia – Connex at that time – launched a new connection called InterConnex which run until now despite a lot of revisions and obstacles (see 2.1 for details). The idea was to take over long distance services that DB did not want to operate anymore (InterRegio product off) by using the regional presence of Connex's subsidiaries, which operated different networks won after competitive tendering. After the first experience, it was difficult to extend the concept, partly because of DB's resistance: DB Netz did not find the former InterRegio's paths anymore for the NordWestBahn from Osnabrück to Hanover. For its third InterConnex Neuss – Cologne – Berlin – Rostock, Veolia set for the first time in 2003 a "real" long distance train (loc with and cars) connecting western Germany and doubling the first InterConnex service in Eastern Germany. But the slow travel speed (940 km in 13h, 72 km/h average speed) and the additional costs of the specific rolling stock led the service to be stopped after four months operation, officially due to a lack of profitability: according to Connex, « *the load factor is 45%; 60% would be required for a profitable operation* » (*Mitteldeutsche Zeitung*, 27.10.2003). The concept of a pulled train was although applied later on the first InterConnex line.

Since then, no TOC launched again a pure long distance train. The concept of the following services of Veolia's and Arriva's subsidiaries is to connect their regional operation area with Berlin or Leipzig, using the regional diesel rolling stock already available.

Where do the trains run?

In a geographical point of view, 8 of the 10 lines connect/connected Berlin, mostly in a North-South direction. This concentration over the German capital town could be explained by its high level of attraction for leisure, which is the first travel motive of the passengers. All trains relations are/were planed in order to offer a significant free time in Berlin, some of them are/were running only on the week end.

Over the ten experienced relations, 4 are still in operation today: the night train from Berlin to Malmö in Sweden, the InterConnex from Leipzig to the Baltic coast by Rostock over Berlin, the DMU from the little towns of the Vogtland to Berlin and an another DMU from the towns of the Harz mountains to Berlin. There are all in the eastern part of Germany, like most of the

stopped lines which run in general two years long. All the lines operated in the West of Germany turned quickly to failure and were stopped after a few weeks of loss-making business, as the TOCs reported.

It's also important to consider that the ten open access experiences in Germany are practically not international. Only the night train from Berlin to Malmö could be subject to the new EU-legislation about the opening of the international rail traffic to competition. The main reason why seems to be the unopened free access to the infrastructure for long distance passenger TOCs than the incumbent in most of the adjacent countries of Germany.

How do the trains run?

In an economical point of view, the ten lines are/were operated by eight different TOCs:

- three regional subsidiaries of Veolia (Connex Sachsen, HEX and OLA), one subsidiary of Arriva and one subsidiary of Keolis;
- Veolia's InterConnex under the own management of Veolia Germany;
- two very small companies operating night trains.

Most of the open access traffic is therefore run by regional subsidiaries of international groups which built up their long distance traffic independently from the parent company. Only the InterConnex 1 and 3 products are/were not managed directly by Veolia's subsidiaries.

Except for the night trains, the required board staff are/were always supplied by the regional subsidiaries, which all operate passenger services on networks after winning a competitive tendering. The rolling stock are/were diesel powered and come/came also from these subsidiaries i.e. is/were practically amortised through the subsidised regional traffic (except InterConnex 1 since December 2006 and the third InterConnex, 6-10.2003). That means that the rolling stock is/was quite different with ordinary long distance trains concerning capacity and travel comfort.

Over the ten lines, eight lines or sections were stopped because unprofitable and almost all have registered routes or stops modifications to find an economic viability.

In Addition to the line services listed in the previous table and figure, a lot of companies and societies offer charter train services. Three different organisations can be found out, for example:

- A service provider organises rail journeys with its own rolling stock pulled by a TOC. Ex: the company *BahnTouristikExpress*;
- A TOC running regular regional trains also provides rolling stock for tours but doesn't organize it, like the *Hohenzollerische Landesbahn*.
- A TOC runs regular regional trains and sometimes own charter trains. Ex: the TOC *metronom* (8,2 millions train-km) runs about two pair of charter trains a month from its operating region in the South of Hamburg to Berlin. The round trip ticket costs 15 euros (vs. more than 100 euros with regular trains and IC/ICE) and the trains are often full.

COMPARISON WITH DB'S SERVICES AND CASE STUDY

This second section focuses other the current long distance services of DB's competitors and over the example of InterConnex that sum up all problems met by a the new entrants.

The following table compares the marketing position of DB and its competitors over several origin destinations relations (table 2).

Table 2: Comparison of travel time and prices on relations operated by the current DB-competitors (2009)

Product	Line	Km	Travel time		Cheapest / normal price *		Price difference with DB
			Competitors	DB	Competitors	DB	
InterConnex	Leipzig – Berlin	169	1h25	1h20	12 €/ 20 €	21 €/ 42 € ICE	-50 %
	Berlin – Rostock	226	2h30	2h18	12 €/ 20 €	24,50 / 49 € ICE	-55 %
Vogtland-Express	Plauen – Berlin	326	4h30	3h15	24,7 €/ 29 €	23 €/ 56 € ICE/RE	+5 to -50 %
	Chemnitz – Berlin	229	3h10	2h35	21,3 €/ 25 €	26,5 €/ 53 € ICE/RE	-20 to -50 %
Harz-Berlin-Express	Vienenburg – Berlin	252	3h41	2h30	9,50 €/ 15 €	26 €/ 57 € ICE/RB	-70 %
	Thale – Berlin	232	3h35	3h00	9,50 €/ 15 €	23,5 €/ 47 € IC/RE	-65 %
Berlin Night Express	Berlin – Malmö	277 DE + 105 Ferry + 35 SE	8h50 (night train)	7h35 ICE/RE (day train)	88 €/ 250 €	71 €/ 141 €	+25 to +75 %

* 2nd class, adult alone over 27. DB Cheapest price with BahnCard 50 (discount card costs 225 €).

Sources: websites of the TOCs, DB.

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Except for the particular case of the night train Berlin – Malmö that could only be compared with day trains, DB's competitors are always cheaper than the incumbent, generally twice as much cheaper. Even DB customers with a *BahnCard 50* (50% sale over normal price) would pay about the same price as with the most expensive ticket of the competing company. The travel times do not present such a big difference: by the most significant relations, competitors' trains are maximum 20% slowly than DB's. There is actually no direct competition between both of them because travelling with DB supposes to change, except on the InterConnex route Leipzig – Rostock on which DB came back in 2007. Moreover, except between Leipzig and Berlin, the timetables of competitor's services look very differently from DB's, as only one daily trains pair run each line – every two hours maximum with DB combined with regional traffic.

InterConnex, the only one *real* long distance train

Like for regional passenger services, Veolia is the most important competitor to DB in the open access traffic and the setup of its business follows directly the cessation of the InterRegio trains, which were DB's cheapest long distance trains. The first operation concept built up by Veolia (Connex at that time) was the same as DB's InterRegio – long ways with a

lot of stops – but with lower operating costs. The name of the new product, InterConnex, clarified Veolia’s strategy to connect its different regional networks operated under contracts with the Länder.

The first InterConnex started in March 2002 on the 450 km long way Gera – Leipzig – Berlin – Rostock and is the last one still in operation but with a lot of reorganisations in the meantime. At the beginning, the train stopped in 15 stations, travelled 6 hours and offered three classes with several discounts. It was a DMU from the stock of the neighbouring subsidiary in the region of Rostock. Veolia planned in 2004 to extend the line until Adorf at the Czech border but a regional train already held the requested path on this single track line. In 2006, the concept was changed with 6 stops less and the simplification of the fares in one class and discounts on the Internet. Moreover, DB Netz renewed the line Berlin – Rostock over one year, which made impossible to run daily the trains further than Berlin. Then InterConnex run also a parallel line between Berlin and Leipzig.

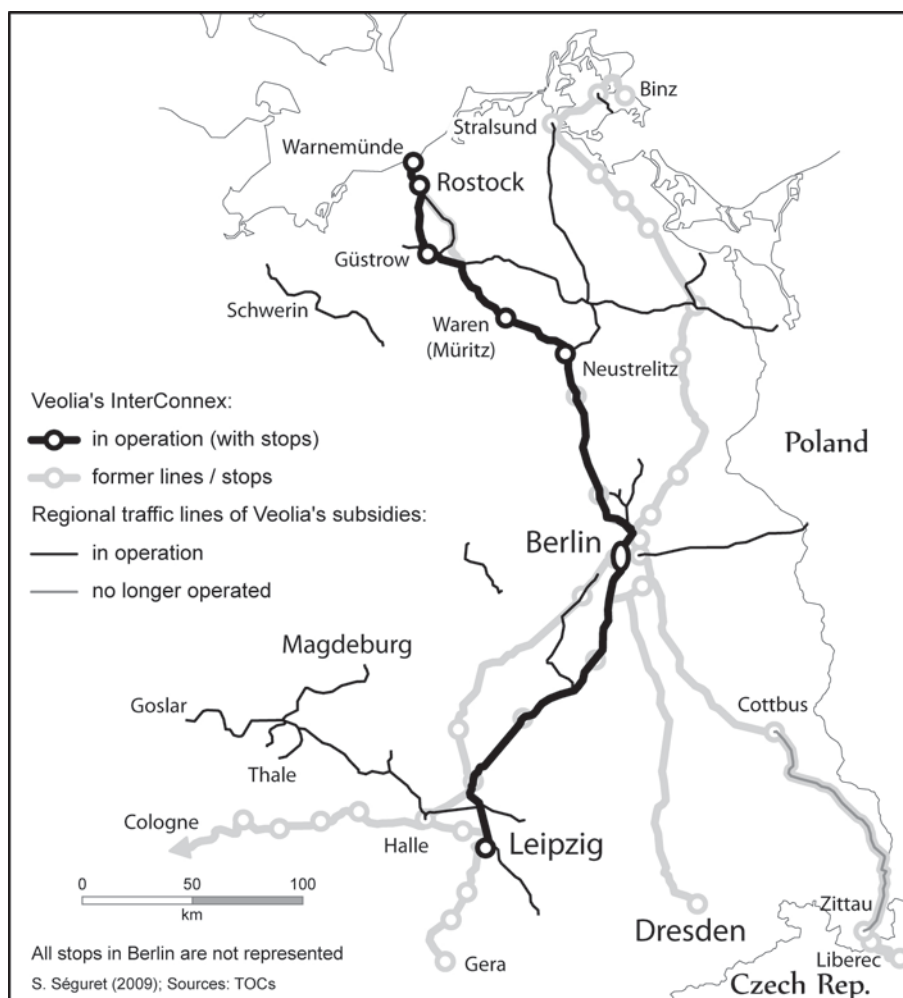


Figure 3: Former and present InterConnex lines (I to III) among Veolia’s regional services in eastern Germany

Mid 2007, the line recovered its original route to Rostock but with some modifications: the line was extended to Warnemünde on the Baltic coast, cut from the section Gera – Leipzig and run now through Berlin’s new city tunnel with a stop at the main station. A second pair of trains from Leipzig to Berlin was also introduced and the line is now operated with a “real” train of 6-8 cars.

Finally, a detour over Güstrow were introduced to stop at this station connecting in a few minutes meantime two regional lines of Veolia's subsidiary OLA (Ostseeland Verkehr), which is an active TOC in the operation of the InterConnex (InterConnex staff and rolling stock are registered by this company).

The renewal of the line brought back DB's long distance trains with one pair of ICEs a day, connecting Rostock to Berlin, Leipzig and Bavaria (the Berlin – Leipzig section was always run by ICEs). The competition on the route to Rostock is actually quite soft: the ICE offers to the inhabitants of Rostock 8 hours of free time in Berlin during the day while the InterConnex typically drives tourists from Leipzig or Berlin to the Baltic Sea over several days (figure 4).

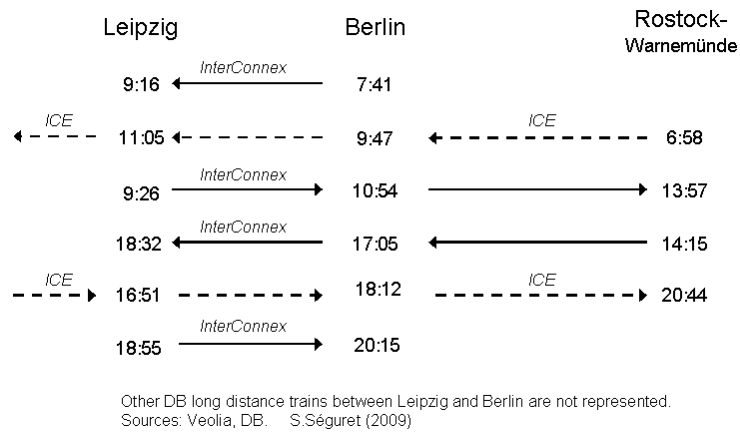
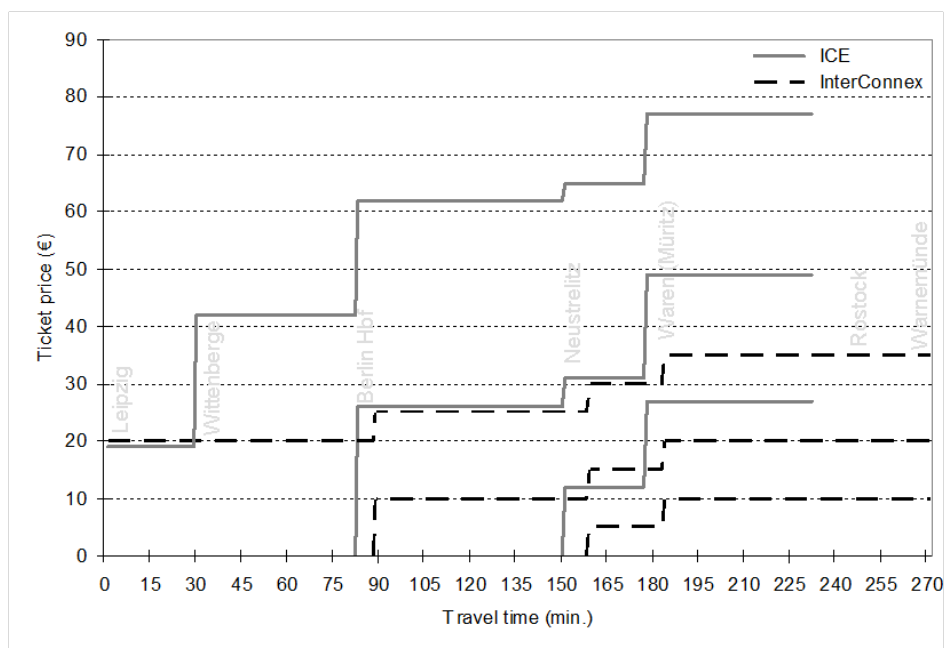


Figure 4: The long distance trains running Leipzig – Rostock

The following figure shows the price/travel time relation by DB and the InterConnex and confirms the relative expensive service of DB.

Figure 5: Price and travel time comparisons between InterConnex and ICE on the Leipzig – Berlin – Rostock route (2009)



InterConnex tickets bought on board (most expensive), ICE tickets at normal price. Prices 2009.
Data: InterConnex, DB. Figure 5. Séguret (2009)

Reading: From Leipzig (min. 0) to Berlin, the ICE ticket costs 42 euros for 83 minutes travel time; The InterConnex ticket 20 euros for 89 minutes.
Neustrelitz – Warnemünde: ICE 27 euros and 81 minutes (from min. 151 to 232), InterConnex 10 euros and 112 minutes (from min. 159 to 271).

CONCLUSIONS

If the goal of the railway regulation is to introduce more competition in the long distance traffic, than the German regulation failed to make it possible. The open access as only one fundamental regulation principle does not lead to more diversity of operators, as their market share stays under 1% nine years after the first new comer. Most of the long distance experiences sum up the reasons of failure: the long distance traffic is wholly depending on the operators of the regional traffic and all experiences demonstrate that is very difficult to run profitable trains between DB's services and the heavy regional traffic. The safer concept is to run low cost trains away from of DB's main lines, with aggressive fares and a maximum operational integration with regional traffic (common means of production). Without the opening of the tendered regional traffic, absolutely no competition would be possible in the open access traffic at the present conditions in Germany.

Maybe the big change on the German long distance rail market will come from Europe. In 2010, the opening to competition of the international passenger traffic could bring competing operators on routes like Paris – Stuttgart – Munich, Amsterdam – Cologne – Zurich or Berlin – Prag – Vienna. Two scenarios are possible: first, the national incumbents prefer to cooperate further than to risk mutual reprisals, which is rough the concept of the national incumbents' alliance *Railteam*. That could be the case if the rail networks are not economically attractive enough (few high speed lines, hard competition with airlines) and the opening would then come from private companies on specific markets. Second possibility, the national incumbents are rather active and set up a real European market mainly between the biggest of them and over the premium network. Private companies would gradually gain market shares in operating low cost services, like it happened in the air traffic. But this last scenario could bear out only if the national passenger services would be also opened to competition and probably only after a very long time. If the biggest European countries change their competition regulation to set up competitive tendering for long distance traffic, they would surely and quickly take advantage of the cost drop made possible by competition.

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