Strategy

Eurotunnel
2020 potential traffic estimate (Extract)

December 2013

pwc

Executive summary (1/3)

Context and objectives

The cross-Channel passenger rail traffic was 9.91mpax in 2012, split between Brussels - London and Paris - London traffics.

Deutsche Bahn and EIL announced recently that they are considering the opening of new direct lines linking London and the four destinations Cologne, Frankfurt, Amsterdam and Geneva : hence the cross-Channel rail traffic is expected to increase in the next few years.

Traffic forecasts cannot reflect specific operators choices as the exact calendar of operations, the relevant potential tariff policy adjustments, and the operational network issues relative to the projects (rolling stocks, congestion) cannot be quantified. Nonetheless a global forecast of the potentially generated new traffic can be soundly calculated, as per the objective of the current study.

Results are twofold. On one hand, we present the 2020 potential traffic, based on standard appreciation of traffic increase considering all new direct lines (including cabotage), and on the other hand, we present what we call the 2020 probable traffic, which takes into account a qualitative perspective on the economic feasibility and more conservative generated traffic volumes based on the appreciation of the current competitiveness of the rail/air offer.

2012 Cross-Channel rail passenger traffic :

9,91 million pax

Executive summary (2/3)

Potential increase of traffic

1.8 million additional pax by 2020 from the natural growth of the current traffic

2.5 million additional pax by 2020 generated by the opening of new direct lines

Potential 2020 cross-Channel traffic estimate : 14.2 million pax

- Cross-Channel potential traffic is larger than the current one due to two main phenomena:
  - **The natural growth of traffic :** the share of rail+air traffic on the London-Paris and London-Brussels has been stable : the traffic is growing due to the global growth of exchanges on these routes. Traffic between two points, as academic studies show, can be derived from the GDP growth of the concerned areas. More precisely, one can estimate the traffic growth based on two economic factors: the areas' GDP growth forecasts and the elasticity of the high speed rail traffic to GDP growth. On this basis, the expected natural growth is on average up to 1.6% per year between 2012 and 2016 and 2.4% per year for the 2016-2020 period. It leads to an increase of traffic of 1.8 million of passengers.
  - The main effect of the announced new rail direct lines is to reduce the journey time, hence the competitiveness of the rail offer. Journey time is the main driver explaining the air/train share of traffic. On top of this new balance of the traffic split between the two modes, a new direct line creates new traffic. In total, the modal shift and traffic increase should reach 2.5mpax by 2020.

– These estimates don't take into account specific technical and operational constraints (congestion _in particular of LGV Nord_, time schedule, availability of the rolling stock, regulatory constraints, etc.) which can prevent the realisation of the announced new lines.

– The key hypothesis of the forecast is that all new direct lines are open as soon as 2016. Indeed, experiments show that around 4 years are needed to achieve the potential traffic increase and to stabilize the traffic. The rising effectiveness of the offer, the adaptation of the competitive offers (flight frequency, price adjustments), and the traveller's experience feedback require time to come into plain effect. As a consequence, the opening calendar of the new lines creates sensitivity in the results.

Executive summary (3/3)

2020 probable traffic estimation: 13.5 million of passengers

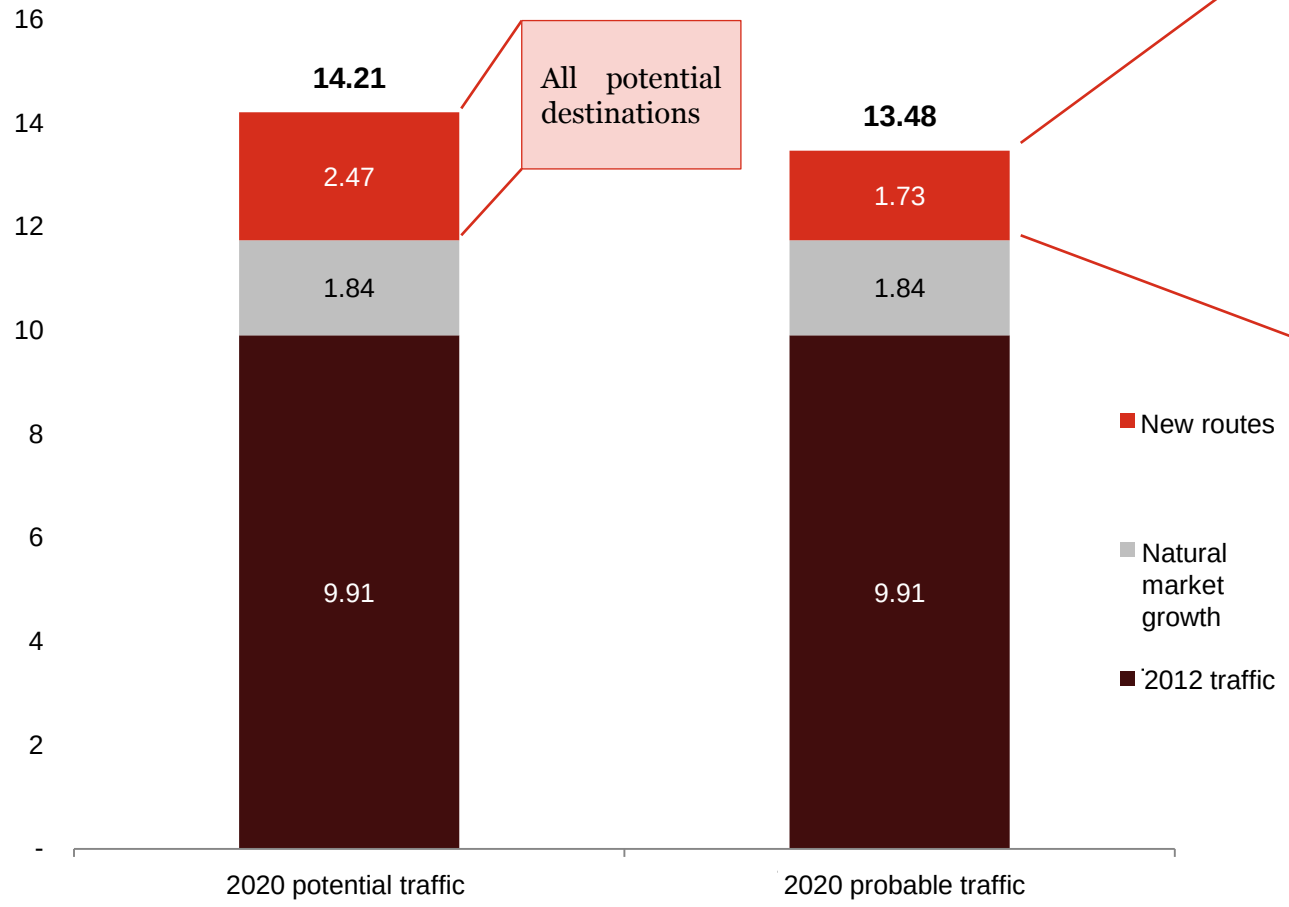
- Literature review shows that variations between traffic estimates (based on rail journey time) and reality may be explained by other factors such as the price competitiveness of the new offer, the frequency of alternative modal propositions, or the reliability of the service. For some destinations, the potential total traffic seems too small to generate reliable and economically viable rail offers, and at the very least, these destinations may not be in the top priority of the rail operators. Similarly, other major destinations studied (Amsterdam, Frankfurt, Cologne, Geneva) have as of today an unfavourable pricing policy of trains when compared to air services. Channel Tunnel tolls are not the issue as they represent only a minor part of the total price.
- Probable traffic highlights the inclusion of such elements in the analysis: it excludes very small cabotage destinations and adopts a conservative approach to the traffic increase estimates .
- Consequently, the probable traffic increase generated by the opening of **Amsterdam, Cologne, Frankfurt and Geneva** new direct lines with London should result in an traffic increase of 1.7 million of passengers, that are added to the natural growth of the traffic.
- Again, these results do not take into account technical and operational constraints and the hypothesis is maintained that all openings occur in 2016.

Probable traffic increase

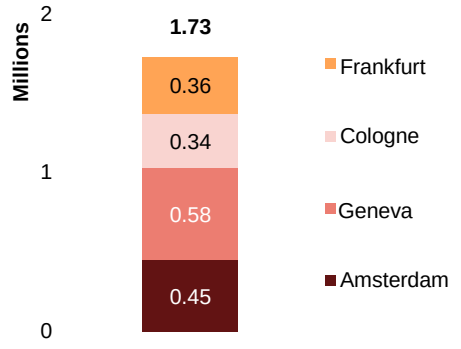
3.5 million additional pax by 2020

Potential and probable traffic by 2020

2020 potential and probable traffic



2020 probable traffic increase split by new direct destination



- Only Amsterdam, Geneva, Frankfurt, Cologne (opening in 2016) are included
- Conservative approach to take into account the unfavourable rail price competitiveness and the flight frequency necessary to adjust before reaching full potential

Cross Channel rail passenger traffic estimates in 2012 and 2020 by origin/destination (O/D)

City	2011-2012 average London O/D traffic	Estimated number of 2012 London rail O/D pax	Estimated 2012 rail market share	Natural market growth until 2020	Pax gain with the opening of direct routes	Pax gain with the direct routes – Conservative view	2020 rail market share	Estimated number of 2020 London rail O/D pax	2020 London O/D rail passengers – conservative view
Amsterdam	3 069 633	1 752 289	36%	**276 913**	**564 700**	**451 760**	44%	2 593 902	2 480 962
Antwerp	236 405	285 024	55%	**49 251**	**84 086**		66%	418 361	
Rotterdam	122 042	98 639	45%	**15 588**	**30 788**		54%	145 015	
Cologne	1 261 021	516 063	29%	**139 521**	**426 395**	**341 116**	44%	1 081 980	996 701
Frankfurt	1 861 837	436 044	19%	**117 888**	**447 428**	**357 942**	31%	1 001 359	911 874
Genève	2 223 526	584 117	21%	**154 238**	**722 958**	**578 366**	37%	1 461 312	1 316 720
Lyon	505 588	219 088	30%	**60 925**	**50 758**		35%	330 771	
Nice	1 193 997	72 687	6%	**20 213**	**27 791**		7%	120 691	
Aix-Marseille	409 011	75 122	16%	**20 890**	**37 383**		20%	133 395	
Avignon	3 080	732	19%	**203**	**170**		22%	1 105	
Montpellier	127 084	23 661	16%	**6 580**	**11 775**		21%	42 016	
Nantes	90 649	19 785	18%	**5 502**	**4 584**		21%	29 870	
Bordeaux	317 270	54 825	15%	**15 246**	**105 053**		33%	175 124	
Toulouse	493 953	34 197	6%	**9 510**	**35 776**		11%	79 482	

Source: CAA, PwC analysis

New direct lines to London should have a positive impact on cross-Channel rail passenger traffic

Presentation of potential new Eurostar and Deutsche Bahn direct routes to London

Source: http://www.telegraph.co.uk/travel/travelnews/10340316/Eurostar-to-launch-direct-service-to-Amsterdam.html, DB, EIL

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- **Eurostar International Limited (EIL)** has announced in **2012** that it wants to:
  - Launch a permanent **Lyon – London direct route by 2015 /2016**
  - launch a direct service to Geneva
- In **2013**, EIL has announced the launch of a direct route to Amsterdam by December 2016
- Finally, EIL is studying the possibility of launching direct routes to London from **Western and Southern France**

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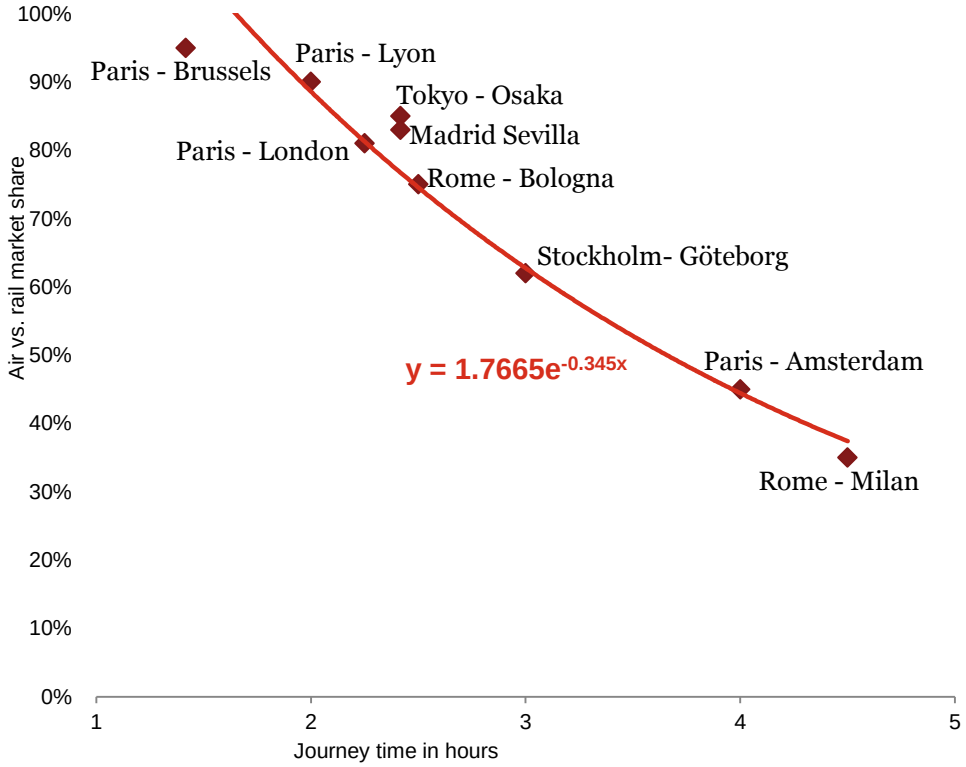
- **Deutsche Bahn** obtained in **June 2013** an operating license for passenger services in the Channel Tunnel and wants to launch direct routes to London starting **in 2016** from:
  - **Amsterdam**
  - **Cologne**
  - **Frankfurt**

- *It should be noted **that none of the above direct routes have yet been confirmed** by either EIL or Deutsche **Bahn in 2013** and that the practical aspects (journey time, border controls, cabotage, etc.) have not been decided upon.*
- *The present study thus evaluates the market potential of these routes and cannot be assimilated with a traffic forecast*

Rail market share is estimated using the journey time/market share standard model

There is an exponential relation between train /air market shares and the train journey time

Journey time vs. rail market share : exponential curve

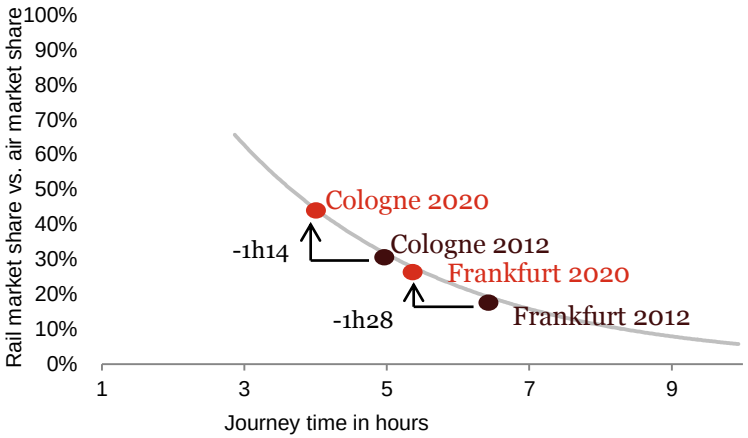


Source: OECD

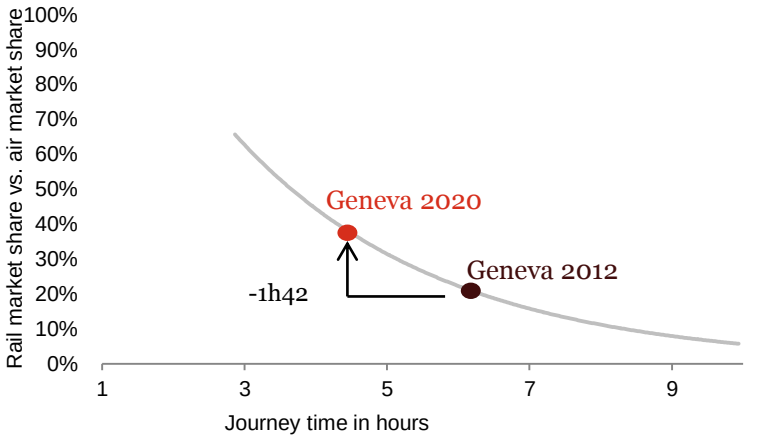
- The estimation of traffic increase related to the modal shift is based on the standard exponential relation between train market share of traffic relative to air traffic and the train journey time.
- Although different models exist, the OECD data has been used, as it has more accurate destination in its database and the data is more recent.
- This methodology is academic and standard method used to measure the impact of journey time reduction on traffic.
- Journey time is the main driver. Academic economists consider it to explain 80% of all traffic shifts.
- **The relationship between train market share relative to air traffic and train journey time is used here to estimate the 2020 potential traffic.**

All new direct lines to London are reducing the journey time by ~at least 30 min, leading to an increase in market share on the given route relatively to air transport

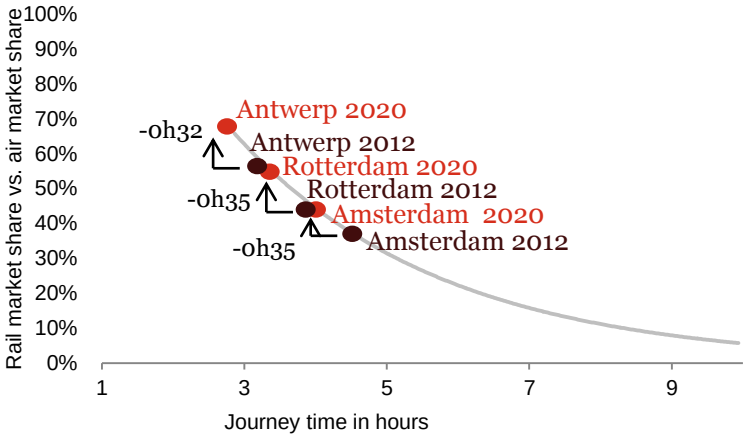
Germany



Swiss



Netherlands/Belgium



- Train journey time reduction forecast (see press release by EIL / DB) should translate into a rail market share increase.
- For Cologne and Frankfurt, time–savings should translate into a gain of respectively 12 et 15 points of market share.
- Rail market share on the Amsterdam - London route should rise from 36% to 44% thanks to a 35 minutes journey time reduction.
- The market share gain on the Geneva-London route can be estimated at 17 points.

Market share increase depends on the global journey time

Cross-Channel traffic should benefit from reduced train journey time thanks to direct lines

Current market share of rail vs. air traffic and increased market share by 2020 for the routes with potential new direct lines