Double-deckers DOMINATE the loco-hauled coach market

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Examining the market for loco-hauled coaches in Europe and North America, SCI Verkehr finds that capacity issues have driven operators to favour double-deck stock

TOP: *Trenitalia has ordered 300 Vivalto double-deck commuter coaches from the Corifer consortium, with long-term plans envisaging a total of more than 900 vehicles*
Photo: Maurizio Tolini

CURRENTLY there are about 225 000 loco-hauled passenger coaches in use on the world's railways. The largest fleets are found in India and China, which together account for more than one-third of the world total. Europe and North America account for another third, with approximately 42 000 vehicles in Western Europe, 23 500 in Eastern Europe and just 6 500 in North America (Fig 1).

For the purposes of its latest study, SCI Verkehr has defined the market as unpowered loco-hauled vehicles. It is important to note that this excludes any vehicles which form part of a multiple-unit or fixed-formation trainset, even if the individual cars are not self-propelled.

Over the past few years, deregulation and regionalisation of the European passenger rail sector, and the resulting growth of competition between operators, has prompted the procurement of large fleets of new stock. Most of this investment has gone into multiple-unit trainsets for regional, inter-urban and high speed services.

Meanwhile, the loco-hauled passenger fleet has diminished as older stock is taken out of service. The ongoing substitution by multiple-units has seen a comparably low level of procurement, and we forecast an average of around 450 loco-hauled coaches per year will be ordered in Europe between 2005 and 2009. These orders are likely to focus on specific niches: double-deck stock for regional and main line operations, and premium inter-city stock. Competitive pressures from other modes are likely to drive further growth in the modernisation and refurbishment market.

Double-deckers dominate

In the 2000-04 period, around two-thirds of new coaches purchased in Europe and North America were double-deck. Germany dominated the market in Western Europe, although large orders were also recorded in Spain, Switzerland and Belgium. In Germany, Switzerland, Belgium, Denmark and Finland, new loco-hauled stock is almost exclusively double-deck. Spain was the only country which purchased a high number of single-deck coaches, due to the delivery of new Talgo stock. Double-deck coaches for commuter rail operators also dominated the North American market.

Over the past five years, Bombardier has been the dominant manufacturer in the Western European market, taking approximately two-thirds of all orders. In second place was Talgo, which had an 18% market share thanks to large deliveries in Finland and Spain. Deliveries to OSE, DB and ÖBB gave Siemens an 11% market share. Most of Alstom's loco-hauled passenger business during 2000-04 was won through consortium projects awarded to Bombardier, notably in Switzerland and Belgium.

Growing demand in the suburban, regional and short-distance inter-city markets is driving the increased procurement of double-deck coaches (Fig 2). Thanks to their higher seating capacity, such trains can carry up to 40% more passengers within the same length, avoiding expensive infrastructure works to extend platforms and remodel stations or add track capacity for extra services.

Overall, the cost per seat of double-deckers is considerably lower than that for single-deck coaches. But individual operators base their purchasing decisions on reliability, availability, compatibility with specific needs and operating costs, as well as the initial capital cost.

In investment terms, the procurement of single-deck stock only makes sense today where double-deck vehicles cannot be used for technical reasons. But other factors may also come into the equation – such as single-deck inter-city coaches offering more space for individual passengers or low-floor commuter stock providing generous free access for rapid boarding or alighting.

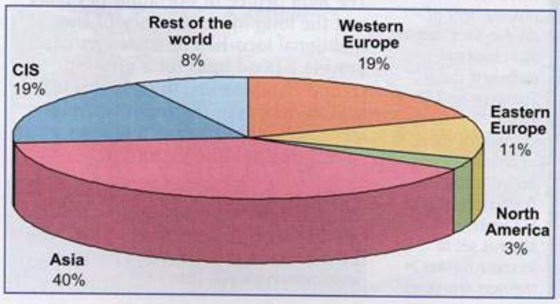


Fig 1. Europe and North America currently account for approximately one-third of the world total of loco-hauled passenger coaches. The market is still growing in Asia, but has started to fall in Europe as operators switch to multiple-units

Italian market will grow

We anticipate that the Italian market will become increasingly significant in 2005-09. Trenitalia's procurement programme includes 300 Vivalto double-deck commuter coaches, and the first of these have already been delivered (above). The Vivaltos are coming from the Corifer consortium, made up of Magliola, Fervet, Rail Services International and Officine Ferroviarie Veronesi, with bogies from Siemens Transportation Systems.

A further 150 to 200 vehicles are

scheduled for delivery in the medium term, and eventually Trenitalia expects to acquire a total of more than 900 double-deck coaches. The operator is also drawing up plans to replace more than 2 000 older single-deck coaches with newer designs to enhance capacity.

The German market will remain at a consistently high level due to the competitive structure now established. DB Regio has around 1 900 double-deck coaches of the type built in Görlitz, which marks a significant change in the make-up of the commuter fleet, given that there were essentially no double-deck coaches in service in West Germany at the beginning of the 1990s.

As well as DB AG, German private operators are increasingly active in the market. Bombardier has supplied 90 low-floor passenger coaches for Connex, which will enter service this month on the Marschbahn between Hamburg and Westerland. In Niedersachsen, the *Land* transport authority LNVG has purchased 106 new double-deck coaches from Görlitz for use by contract operator Metronom. At the end of May 2005 LNVG called down a second option from its original 2001 contract, which will see Bombardier deliver a further 78 double-deck coaches in 2006 and 2007.

Loco-hauled inter-city

Austria remains an important market, thanks to ÖBB's strategic decision in favour of loco-hauled trains for inter-city services, rather than fixed-formation trainsets. In June 2005 ÖBB invited bids for 20 push-pull inter-city sets, for operation at up to 230 km/h. Delivery of the 140 single-deck coaches and 20 driving trailers was originally expected to start in January 2006, but as yet no contract has been awarded.

High speed trains have not yet ventured into Eastern Europe, and passenger services are still dominated by classic trains of loco-hauled coaches. The current trend is mainly to purchase small builds of high-quality inter-city coaches able to run at higher speeds on IC and EC routes, releasing older coaches to be refurbished for use on regional services.

The poor financial situation of many railways in Eastern Europe, and low levels of state funding, mean that the current demand for new stock cannot be afforded. We believe that procurement of new vehicles will remain difficult, at least for the next five years.

Luxembourg Railways is putting into service these push-pull double-deck trainsets. Since October 24 one four-car set has been tested in revenue service on Bern S-Bahn route S1, where BLS is looking at options for increasing capacity from 2010. Each 153 m long set has seats for 578 passengers
Photo: Marcel Vleugels

However, the potential for rail to drive economic development in the region has become the focus of increasing political debate. Inter-city services on trans-European corridors, above all else, could benefit from EU funding assistance.

Despite a few high-profile orders, the ongoing substitution of loco-hauled stock by multiple-units means that the size of the European passenger coach market will continue to shrink. In Germany alone, DB's loco-hauled fleet has already been cut by more than 25 %. We estimate that in Western Europe the loco-hauled fleet will contract by an average of 1% per year, which will reduce the fleet to around 40 000 coaches by the end of 2009. Stocks in Eastern Europe could fall by up to 10% over the same period.

Among the few recent orders for single-deck stock in Western Europe, the 90 Bombardier-built coaches for Connex subsidiary Nord-Ostsee-Bahn are due to take over Marschbahn services in Schleswig-Holstein with effect from this month's timetable change

North American fleet expands

On the other hand, the fleet of loco-hauled coaches in North America is expected to grow steadily. A fairly high volume of orders for regional passenger services is still to be expected in the future, although this will be somewhat lower than order levels in recent years.

Several major operators, such as Metra in Chicago, have recently completed major procurement programmes. However, the average age of many commuter rail fleets remains high, which indicates that further new purchases will be required. In addition, the trend that has been driving more and more cities back to rail as an effective mode of urban transport is set to continue.

During the 1990s, several new commuter rail networks were put into operation, and these are continuing to expand, as are several long-established networks. In addition, the next batch of new projects is coming to fruition. This bodes well for future orders.

The focus will continue to be on double-deck coaches, as this is seen as the best way to maximise capacity at peak times without the need for major investment in the infrastructure. The biggest suppliers of loco-hauled coaches for the North American market are Alstom, Sumitomo, Bombardier and Kawasaki. In 2000-04, these four firms shared almost all the available business, with Alstom as market leader.

Refurbishment sector is growing

The high degree of operating flexibility and the long life expectancy of the traditional loco-hauled passenger coach provide a good basis for a growing second-hand market. In turn, this will lead to growth in the coach refurbishment market in the next few years.

We anticipate that in 2005-09

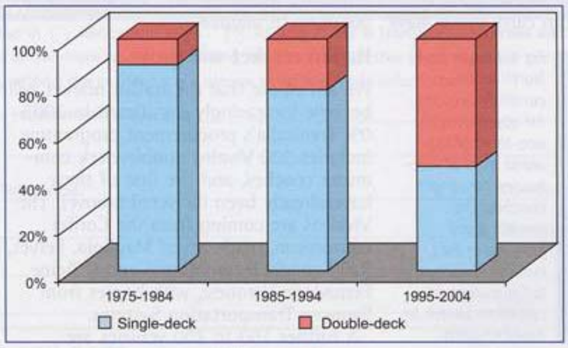


Fig 2. Over the past three decades, the procurement of double-deck coaches has come to dominate the European and North American market, accounting for 55% of orders placed between 1995 and 2004. According to SCI Verkehr, this share is set to increase further in the next few years

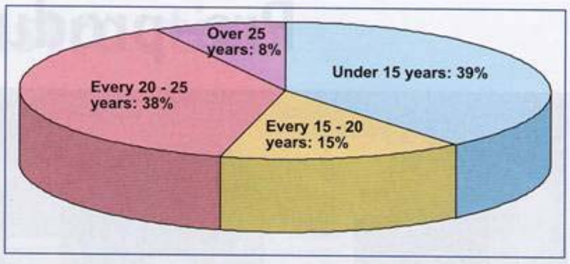
The Passenger Coach Market - Europe and North America was published by SCI Verkehr earlier this year. Copies of this report and other SCI market studies can be ordered online at **www.railwaygazette.com**

approximately 1 250 coaches a year will be refurbished in the three market regions. The largest of these by far is Western Europe, which will account for approximately 850 vehicles per year. The financial constraints in Eastern Europe suggest that refurbishment will be much more significant than new build, running to an estimated 300 coaches a year.

Refurbishment intervals are also becoming shorter (Fig 3). Whereas loco-hauled coaches would traditionally have undergone one engineering-led mid-life refit half-way through a 40 to 50 year life, market pressures mean that coaches have to be refurbished more frequently to maintain an ambience competitive with road and air travel.

Today, only 8% of refurbishment work is carried out at intervals greater than 25 years. The majority of coaches are revamped at between 15 and 20 years, but it is indicative of future trends that 40% of operators are now refurbishing vehicles at intervals of less than 15 years.

Fig 3. Refurbishment intervals for passenger coaches are increasingly less than 20 years. Almost 40% of operators plan to refurbish vehicles more frequently than every 15 years, to stay competitive with other modes



The latest US commuter rail operator to adopt double-deck stock is New Jersey Transit, which has ordered 231 cars from Bombardier to a compact design able to operate through the Hudson River tubes; the first prototypes began acceptance tests in September (RG 11.05 p670)

As passenger expectations rise, coupled with more intensive use of the smaller numbers of vehicles in traffic, we could start to see coaches being refurbished at even more frequent intervals. In some cases, 10-year intervals are being proposed for the future. Thus we believe that the demand for servicing and refurbishment services will continue to grow, despite the overall decrease in the size of the European loco-hauled fleet.

Privatisation, deregulation and contracting out of operations are increasingly focusing train operators' efforts on their core business. This means that servicing, maintenance and repair of rolling stock is being outsourced to external contractors. Many of the manufacturers are becoming heavily involved in this business, and some are developing or upgrading their own maintenance facilities. This development is particularly marked in the UK. One benefit of this approach is that experience gathered from working with older vehicles can be fed back directly into the design and development of new generations of rolling stock.

The extent of refurbishment can also vary greatly, to meet the requirements of individual operators or vehicle owners. Thus it is only possible to give average values for the various regions. In Western Europe, the complete refurbishment of a passenger coach costs around €300 000 to €400 000. In Eastern Europe, the price ranges from €200 000 to €250 000.

The work usually includes renovation or replacement of major subsystems and components. Seats or seat covers, and carpets or floor coverings, are replaced in almost every case. Structural improvements and pressure-sealing, plus rewiring and the introduction of radio and data transmission links can also be incorporated, but these are more commonly reasons cited for new procurement.

In the future, we believe there is a growing potential for operators to outsource such areas as conversion, painting, repair of accident damage and reprofiling wheels. So the market volume for the maintenance companies can be expected to increase over the next few years.

Apart from the major manufacturers, smaller companies operating within national markets and some of the workshops owned or spun-off by the bigger train operators have successfully entered the refurbishment and maintenance market. Between them, these enterprises have considerable experience, and the sector has enough capacity to offer high quality services in refurbishment at relatively low cost.

Although Asian manufacturers have been able to break into the European market for multiple-units, we do not believe that there is the same potential in either new build or refurbishment in the loco-hauled sector. ■

Earlier this year, Bombardier inaugurated a refurbishment centre at Derby. Among its first contracts is the overhaul and facelifting of 110 Porterbrook-owned Mk III coaches for use by National Express Group's Greater Anglia franchisee One

Les deux niveaux dominent le marché des rames tractées

En examinant le marché des rames tractées par des locomotives en Europe et en Amérique du Nord, le cabinet de consultants spécialisé dans le ferroviaire, SCI Verkehr, démontre que les objectifs de capacité ont conduit les opérateurs à préférer le matériel à deux niveaux. Une tendance en direction des compositions fixes et des automotrices en unités multiples signifie que le marché européen pour les rames tractées ira en déclinant, mais le marché restera vigoureux en Italie et en Allemagne. Une croissance continue est attendue pour le petit segment nord-américain, tandis que les rénovations seront une activité croissante en Europe de l'est et de l'ouest

Doppelstöcker dominieren den lokbespannten Personenwagen-Markt

Bei der Untersuchung des Markts für lokbespannte Personenwagen in Europa und Nordamerika findet die Beraterfirma SCI Verkehr, dass Kapazitätsgründe die Betreiber dazu bringen, Doppelstock-Fahrzeuge zu bevorzugen. Der Trend zu festen Zugsverbänden und Triebzügen bedeutet, dass der europäische Markt für lokbespannte Wagen abnehmen wird, aber er bleibt stark in Italien und Deutschland. Ein stetiges Wachstum wird für das kleine nordamerikanische Segment erwartet, währenddem Fahrzeugüberholung ein wachsender Markt in Ost- und Westeuropa sein wird

Los coches de dos pisos dominan el mercado

Examinando el mercado de coches de pasajeros en Europa y Norteamérica, la consultora especialista en asuntos ferroviarios SCI Verkehr nos expone que debido a temas relacionados con la capacidad, los operadores se han visto forzados a favorecer material rodante de dos pisos. La tendencia hacia composiciones fijas y automotores significa que el mercado europeo de coches decaerá, pero el mercado seguirá siendo fuerte en Italia y en Alemania. Se espera un crecimiento continuado en el pequeño segmento norteamericano, mientras que modernizar material existente sí será un negocio en alza en la Europa Occidental y Oriental