

APPLYING LOW COST AIRLINE PRICING STRATEGIES ON EUROPEAN RAILROADS

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ABSTRACT

European railroads must reduce costs and increase revenues if they are to remain successful during the coming years. This is especially true as intermodal competition (e.g. from low cost airlines) increases, but also because of the coming intramodal competition when new companies are free to offer passenger rail service throughout the European network. Many of the strategies that railroads can use to achieve these objectives can be modeled after the low cost airline industry, which is pioneering the implementation of innovative and creative business concepts in the transportation industry. European railway companies have used two approaches to address competition: applying pricing strategies to their regular networks and organizing subsidiary companies to offer new services. It has been difficult to introduce yield management strategies on regular service due to the structure of railway networks. Deutsche Bahn (DB) tried an ambitious program called PEP in 2003. The PEP program created customer confusion and revenue losses for the railroad; it was replaced with a new approach after several months. More recently railroads have introduced yield pricing on a small number of specific trains. France and Italy have established separate affiliates to test new marketing strategies and service concepts. Both programs have been successful. This paper describes the application of low cost airline pricing strategies on European railroads. The experience has shown that successfully transferring these strategies to the railroad business has not been simple, but as intermodal and intramodal competition continues to increase European railroads must become more innovative.

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1. INTRODUCTION

The market for intercity passenger transportation in Europe has changed drastically in recent years due to deregulation in the airline industry and the growth of low cost airlines. Low cost airlines (as well as traditional airlines) now provide strong competition for intercity rail service, the traditional choice for trips under 400-500 km (that are not made by auto).

European railroads have reacted to increased competition by introducing strategies, modeled after low cost airlines, intended to increase ridership and revenues including:

- Reducing operating costs;
- Yield management;
- Reducing perceived ticket costs; and
- Increasing revenues by offering amenities.

Railroads have used two approaches for implementing these strategies: applying them to existing service or applying them to trains operated by 'new' companies.

Many railroads have used the first approach, making a limited number of tickets for regularly operated trains available at a discounted price (often over the internet). This allows railroads to practice yield management, reduce perceived ticket costs and reduce the cost of ticket sales. [16, 17]

France and Italy have used the second approach; their national railways organized subsidiary companies to offer 'new' services. These new subsidiaries have more flexibility for implementing pricing strategies and placing un-conventional products in the market than national railroads.

This paper describes how these approaches have been used by European railroads. The following section outlines the first approach, applying strategies in regular service. Section 3 describes examples of the second approach, creating a subsidiary company to offer new rail service. Section 4 presents conclusions and recommendations.

The research is based on applying management concepts used in one mode of transportation to another. There is little published research on the specific subject of applying low cost airline strategies to rail systems, although there is a growing literature on the impacts of low cost airline competition on rail system patronage and revenues (see references). Consequently, the methodology used to collect much of the data presented in this paper was a series of detailed e-mail and telephone interviews completed by the authors.

2. APPLYING LOW COST AIRLINE STRATEGIES IN REGULAR SERVICE

Market Competition Between Air and Rail

The competitive situation between airlines and railroads in Europe has changed significantly in the last decade. On the one hand railroads have invested in new high speed technology that reduces travel times between major cities to make rail travel more competitive with flying (especially considering generally high access times for air travel and low access times for rail). On the other hand, the emergence of low cost airlines have significantly reduced the price for air travel, making it much more affordable. [1]

While it is clear that the emergence of low cost airline competition has had an impact on rail patronage and revenues, the significant differences between these modes of transport make it difficult to estimate that impact exactly. The main problem is that railroads operate very dense networks with huge numbers of origin-destination (OD) pairs; in contrast most airline networks (especially low cost airline networks) offer a much more limited number of OD pairs. Therefore, one must measure competition on specific OD pairs to gauge the impact of competition. Furthermore, the difference in capacity is often huge, with railroads providing high capacity and airlines limited capacity.

France's national rail operator (SNCF) has estimated that rail lost approximately 4% of its mode share for trips between Paris and southern France in the two months following introduction of

easyJet service. [2] A survey of low cost airline travelers at six German airports indicated that 20% of them would have used rail if the LCA was not available and 13% would have considered using rail if the LCA was not available. [3] Finally, simply the fact that railroads are reacting to the entry of LCAs shows that they are having an impact.

In any case, the impact of low cost airlines (LCA) on railroads is important, especially since railroads exhibit strong economies of scale which means that the marginal cost of carrying additional passengers are very low and any loss of passengers reduces revenues without substantially reducing costs. [4]

Introducing LCA Pricing Strategies on Railroads

The low cost airline business model can be summarized as reduce operating costs and increase load factors using yield management techniques. Yield management uses pricing strategies to manage seat sales. Thus LCAs offer a limited number of seats at a low price and raise prices as seats are filled and as it gets closer to the travel date.

It is more difficult than airlines to use yield management effectively. One reason is that railroads are “open” systems while airlines are “closed” systems. This means that when an airplane takes off customers can only exit at the destination airport; in contrast, a railroad passenger can exit (or board) the train at any intermediate stop. This raises a problem for railroads, if they offer a very low price to compete with a LCA on a specific OD pair, passengers traveling anywhere on the route can buy this low priced ticket even if there is no competition on the intermediate OD pair. A second difficulty is that one of the main advantages of rail travel is the travel flexibility (e.g. ability to travel on any train, ability to break-up the journey); it is more complicated to provide this flexibility in a yield management system.

A good example of the difficulty in implementing LCA strategies on railroads is Deutsche Bahn’s introduction of a yield-management based fare system called PEP in 2003. The PEP system changed the existing kilometer-based fare system to relation-specific system (e.g. city to city prices) and offered base fares as well as early booking discounts of 40%, 25% or 10% (with different restrictions and advance purchase requirements). The base fare tickets were fully changeable while the discounted fares were for a specific train. Rebookings and ticket cancellations incurred high penalties (cancellations from 15€ to 30€ and rebookings for 45€). The PEP program also changed the discount program for the DB BahnCard (an annual discount program) and group tickets. [5] While the PEP program was similar to many airline programs, it was being introduced to a customer base that was used to a much simpler and more flexible system of railroad ticketing.

The PEP system’s complexities and restrictions brought bitter complaints from passengers and consumer organizations as well as a precipitous drop in passenger numbers and turnover in the first half of FY2003; passenger-kilometers fell by 7% for long-distance rail travel. While specific quantitative data has not been made available to analyze the exact problems, it is clear that not enough thought was given to the specific manner yield management techniques were implemented within the railroad environment, and Deutsche Bahn did not sufficiently take into consideration the advantages and disadvantage of rail and competing modes of transport in designing the program. The PEP was amended in August 2003 into a simpler program. [5]

In contrast to Deutsche Bahn’s experience with the PEP program (which was introduced throughout the entire DB network), other railroads have focused on implementing yield management on services that operate more like airlines. For example high speed trains such as France’s TGV and EuroStar service and overnight sleeper trains. Also, the Austrian National Railroad’s SparSchiene program uses yield management on both overnight and selected daily trains. (www.oebb.at) These examples require passengers to make reservations for specific trains and therefore it is easier to practice yield management.

Customer Price Perception

An extremely interesting finding from the market research done in Germany to evaluate the impact of LCAs on railroads is that LCA customers generally perceive rail ticket prices to be higher than airline ticket prices. For example, on the route Berlin-Cologne, customers perceive rail ticket prices to be 42% higher than air prices although the average price is 28% lower. [3] In other words customers

make two perception mistakes: they believe airline tickets are less expensive than they really are and they believe train tickets are more expensive than they really are; in the case of the Berlin-Cologne market these add up to a perceived rail fare of about €87 versus an actual fare of about €44.

This huge difference between perception and reality can be explained by airline advertising campaigns which promote the lowest available fares (often not including taxes and surcharges), but which are only available on a very limited basis. This advertising creates the impression that LCAs have generally lower ticket prices when the opposite is true.

The difficulty in implementing yield management for railroads has made it hard for railroads to use this same strategy, but the high speed rail and Austria's SparSchiene program seem to be having a positive impact. The SparSchiene program is very heavily advertised even though it is made available for only a limited number of tickets. The Austrian National Railroad continues to add new destinations to the program (telephone interview, Gudrun Czapka, ÖBB-Personenverkehr AG).

Another approach to reducing customer price perception is to offer special fare sales. Germany has been successful with spring travel promotions and a joint promotion with the Lidl supermarket chain. The Lidl program allowed customers to purchase a ticket at the supermarket that allowed one-day of travel anywhere on the Deutsche Bahn network for €50, an very inexpensive rate for longer trips. The 1 million tickets made available for this program were sold out within five hours. [6] A general program like this does not have the advantage of yield management, where low prices are used to attract customers to trains with low passenger loads, but it does make an impact on price perceptions. The lesson is to offer a limited number of easy to understand tickets with a high profile.

Beyond Pricing

An important result of the experimentation with pricing strategies on railroads has been the recognition that customers care about more than simply the price. They also value flexibility, travel time and convenience, and they may have personal preferences for traveling on a specific mode. Finally, travel decisions vary depending on the trip purpose (e.g. business versus leisure). [4]

The competitive strengths of railroads – which are based on all these qualities – must be considered when developing a pricing strategy. This leads logically to the idea that it would be good to test different pricing and quality combinations in the marketplace. However, it is difficult to test new programs and pricing strategies on existing railroads, therefore, as described in the following section, France and Italy have created independent companies (subsidiaries of the national railroads) to experiment with new ideas.

3. USING SUBSIDIARIES TO INTRODUCE NEW STRATEGIES [7]

The second approach railroads can take to introduce new pricing and operating strategies is to start new companies that apply these strategies to their “own” trains. This has two significant advantages, first, it allows the new company to experiment with more drastic changes than would be possible if the strategies were being implemented by the national railroad throughout its network; and, second, it creates a distinction in the customers' minds between this new train and normal trains (which helps customers more easily accept differences in prices, reservation policies, and services).

France's SNCF and Italy's Trenitalia both started subsidiary companies in 2004 to test strategies for increasing ridership, improving revenues and reducing costs. In terms of seat capacities offered, both represent nothing more than niche products, but they provide an important laboratory for testing new strategies and products. This section outlines the two services.

iDTGV – The French Piggyback Experimental Train

In 2004, the French National Railway (SNCF) organized an independent subsidiary to offer new service designed to compete with low cost airlines between Paris and the Mediterranean coast. The new service, called iDTGV, began operating on December 6, 2004. The first iDTGV train served the route from Paris to Toulon via Avignon and Marseille. In June 2005, a second iDTGV train began service from Paris to Montpellier via Nîmes. A single train makes one round-trip daily (additional trips are offered on Thursdays to Saturdays seasonally).

The iDTGV is a single TGV-Duplex double deck train that is coupled with a standard TGV Méditerranée train. Each train can carry 500 passengers. The iDTGV offers 8,000 weekly seats (9,000 during the summer) compared to the TGV Méditerranée, which provides 300,000 seats every week.

The train's name iDTGV stands for "interactivité et détente" (interactivity and recreation) TGV (http://www.idtgv.com/design/BR/homepage_br.htm). The iDTGV provides two classes of service: "iDzap" and "iDzen." The "iDzap"-area is located on the upper deck and provides services for which passengers pay extra including: entertainment (DVDs, game consoles, and traditional games), health-related services (e.g. massages – see Figure 1), and improved food service. Furthermore, companies and groups can reserve a special lounge area for meetings or other purposes. The "iDzen"-area is located on the lower deck and provides a quiet atmosphere, where the use of cell phones is forbidden. In order to facilitate a restful journey, a recreation package including eye mask, neck pillow, and earmuffs is sold to passengers.

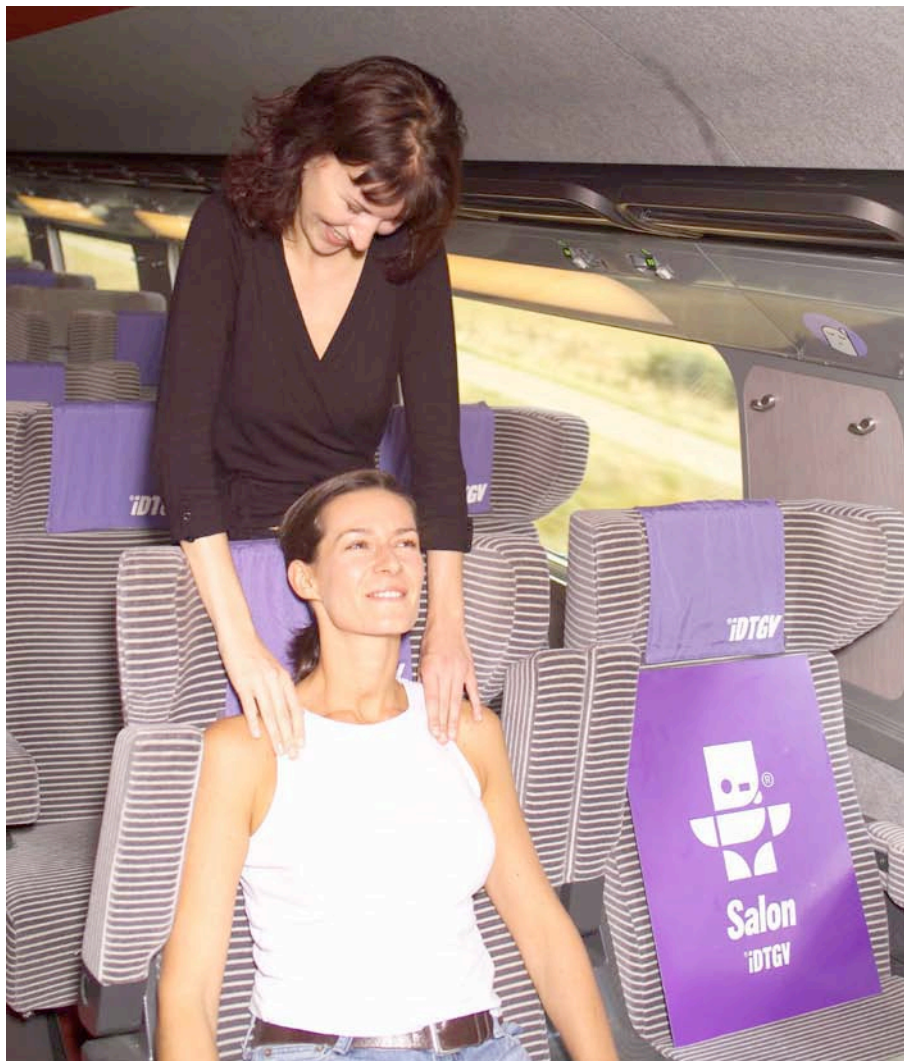


Figure 1: iDTGV customers can have massages on board. (Source: SNCF)

As in the case of regular French high-speed rail service, passengers must buy tickets for specific trains. The iDTGV tickets are only sold on the Internet, but customers can choose between nine different ticket suppliers, which receive a commission based on the number of tickets sold. The tickets can be printed out at home or on special self-service machines located in train stations. After the ticket is booked it cannot be canceled, although it can be changed until the evening before the original departure date for a €10 fee (if the ticket has not already been printed out).

The iDTGV also uses several strategies for reducing operating costs. First, tickets are checked electronically before passengers board the train using PDA-checking devices (staff on the platform

scans barcodes printed on the tickets as shown in Figure 2) eliminating the need for a conductor. Furthermore, since iDTGV is attached to a regularly scheduled TGV Méditerranée there is no need for a locomotive driver. The iDTGV pays infrastructure charges on a pro-rata basis. The iDTGV trains use the train sets intended for use on the TGV EST-line (expected to begin service in 2007), which have already been delivered. As a result of all these measures the SNCF estimates that the total costs of an iDTGV-run are up to 20% lower than regular TGV train operation.



Figure 2: iDTGV employees scan tickets on the platform. (Source: SNCF)

Since the iDTGV is clearly a different product from normal train service it is possible to fully implement a yield management ticketing system. Therefore, ticket prices for the Paris-Marseille line start at €19 for 2nd class seats (1st class: €39) and increase stepwise up to regular TGV fares (€88.80 / €122.70) depending on the booking date and booking level. The lowest price tickets are limited to 10% of the total number of seats offered. Tickets booked near departure time can exceed the regular TGV full price. Bookings can be made a maximum of six months in advance (up from a maximum of four months originally) and in contrast to all other SNCF trains, which can only be reserved two months in advance. Price reductions normally given for specific groups (e.g. families with children, military, railway employees) are not given for iDTGV tickets.

Finally, the iDTGV offers a very high quality of transport service. Travel times are equal-to or less-than the competitors (air and private automobile).

Assessment of iDTGV Service

The SNCF is satisfied with the number of passengers attracted by the new iDTGV service. Over 57,000 tickets were sold for the new service within the first two months. This volume was supported by a two-week special offer price and a one million-Euro marketing campaign. The Internet site (www.idtgv.fr) registered 260,000 visitors over the two-month period.

In contrast to the PEP fare system introduced in Germany, customers have accepted the fare conditions, since they resemble those used by low cost airlines and it is clear that they are for a “different” train. From the beginning passengers have made advanced reservations due to the progressive pricing system. Initially more than 14% of reservations were made for journeys over two months in the future; by June 2005 this rose to over 25%. The average ticket price is reported to be €45, while an average purchase amounts to €75.

In total, over 470,000 passengers used the iDTGV during its first year of service. The target average load factors of 75% on the Paris-Marseille line and of 70% on the Paris-Montpellier line have been exceeded (compared to an average load factor of 70% for regular TGVs). The new service has helped stem the loss of passengers to airlines. On the lines leading from Paris to Marseille (railroad market share: 67% / air traffic market share: 33%), Montpellier (64% / 36%), and Toulon (68% / 32%) a gain of two or even three percentage points was obtained [15]. While these results encouraging it is likely that easyJet’s elimination of service between Paris and Marseille was more due to an insufficient number of landing slots at Paris-Orly airport than to aggressive price-competition from the iDTGV.

The results of a customer survey found that 84% of all iDTGV passengers are satisfied with the service quality (40% said they were “very satisfied”). The high passenger acceptance of value added services has also contributed to the success of iDTGV. According to the SNCF, DVD-rental, game rental and magazine sales are used by 16% of all passengers. Furthermore, 37% of iDTGV passengers use the new food service, compared to an average of only 15% for regular TGV dining cars.

The risk of cannibalization between iDTGV and higher-valued SNCF products is considered to be low. According to a passenger survey, 60% percent of all iDTGV passengers probably would have chosen to drive or fly if the new rail service had not existed. Most iDTGV users are between 25 and 59 years of age, and equally split between male and female passengers. Most passengers (88%) use the Internet everyday and 92% use the iDTGV for private trips. [8] By the end of 2005, 12% of the iDTGV passengers had booked six or more train trips.

The concept’s success led to the opening of new iDTGV corridors in 2006. On January 23, iDTGV service was started between Paris and Bordeaux as well as Paris and Toulouse. On April 3, service started on the route from Paris to Nice via Avignon, Aix-en-Provence, Toulon, St. Raphael, and Cannes. With these service increases passenger volume is expected to exceed one million. At the same time, sales are expected to more than double from the 2005 level of €22 million.

Union Opposition to iDTGV

Initially France’s railroad unions vehemently opposed the iDTGV, fearing that the independent operating company might be the beginning of railway privatization. More specifically the unions asked whether the iDTGV threatens the French concept of railroad public utility or undermines its underlying principles. [9]

France has a very strong public utility of transportation law that describes what type of service transport providers must provide. Since the iDTGV service does not offer the standard discounts, sells tickets differently and operates differently from regular SNCF service, unions questioned whether this new service met the law’s requirements. For example, since tickets are only available on the internet the service does not treat everyone equally (those without access cannot buy tickets).

The answer to the unions’ question is extremely complex since the concept of what constitutes public utility in transportation is evolving rapidly and because of the close link between public utility and the demands of society (i.e. what society demands should be public utility, but may not be specified in the French public utility law). However, while the iDTGV service is the most visible evidence of the evolving concept of public utility of transport, it is also clear that the process

of adopting to new societal demands actually began with the marketing of TGV and other earlier SNCF commercial offers. [9]

Interestingly, the reaction of unions against the iDTGV service supports the SNCF's decision to offer this new service through a separate company. Given the union opposition it would have been difficult to test the new strategies on normal SNCF trains.

iDTGV – An Experiment in Value Added Services

One of the most important aspects of the iDTGV is that it applies the strategy of value added service to a railroad. The iDTGV concept is targeted to the behavior of “multi-optional” passengers, who want low-priced services combined with luxury products. These customers are only willing to pay a small amount for the basic service (travel). But, at the same time, they have an increasing willingness to pay for the satisfaction of desires arising from stimuli spontaneously presented to them.

In order to serve these customers, the iDTGV offers comparatively low fares and markets these fares extensively. This stimulates travel demand and creates the perception of low prices in the minds of potential customers. The innovative part of iDTGV strategy is to generate additional revenue by providing a wide range of attractive supplementary services to complement the transport service. In this regard, the customer's perception of having saved money (with the low fares) results in a consumption-friendly mood that increases sales of these services.



Figure 3: iDTGV rents games to customers as one of its value-added services. (Source: SNCF)

This strategy of using value-added services to increase revenues has been used successfully by low cost airlines. For example, in 2004, supplementary services contributed 14% of Ryanair's total revenue and growth rates for supplementary services were higher than for transport service. [10] Ryanair's CEO, Michael O'Leary, has been quoted as saying that he expects to offer free flights in the future, he expects to earn all income from supplementary services. [11]

Interestingly, value added services may have a potentially stronger market on trains since many train trips are long enough to watch full length movies, in contrast to many intra-European flights. Thus an appropriate in train entertainment concept could become a key element of new railway products, for which passengers would be willing to pay extra. In other words railroads should think of journey time as a period for passengers to consume services (such as entertainment). In contrast the marketing of many railroads (e.g. Deutsche Bahn) focuses on the journey as time to be utilized constructively.

When designing this type of value added service, companies must recognize that even innovative and popular supplementary services become less attractive over time. The iDTGV operating company recognizes this fact and ensures that passengers experience a constant change in the on-train environment. For example according to contractual agreements between the SNCF and the caterer the food service must change menus three times a year and the selection of DVD movies is updated regularly, taking into account the wishes of the customers.

In summary, France's iDTGV combines low base ticket prices, a hip image, effective cost reduction strategies and revenue enhancement from sales of value added services into an attractive product for both customers and the operator. This approach has been successful and some of the strategies pioneered on the iDTGV are being already implemented on other French trains.

Trenitalia TrenOK Service

The Italian National Railway company (Trenitalia) also organized an independent subsidiary to offer new service designed to compete with low cost airlines. Italy's service, called TrenOK, started operating on December 12, 2004 (<http://www.trenok.com>).



Figure 4: TrenOK's colorful paint scheme. (Source: Trenitalia)

The TrenOK makes one round trip on the 580-kilometre route between Rome and Milan stopping also at Florence and Bologna. TrenOK practices a simple form of yield management; there are three basic categories of ticket: €9, €19, and €25. A limited number of tickets is available in the

lower price points until they are sold-out or it gets close to the travel date, then tickets are sold at the higher category. In comparison, regular EuroStar fares between Rome and Milan are €46.

In March 2005, capacity of the Rome-Milan TrenOK was doubled by adding a second trainset to the consist and new service was introduced on the route Rome-Bari. For the first six months all tickets on the Rome-Bari route cost €9. According to Trenitalia's management, following this trial period, 50% of all seats offered for the Rome-Bari corridor continued to be available at the lowest fare (interview: Massimo Genzer, director of Trenitalia's passenger transport division).

In contrast to iDTGV, TrenOK uses a multiple channel strategy for ticket sales rather than solely over the Internet. Passengers may purchase tickets by phone, from ticket machines located in train stations, or from ticket agents on the platforms in addition to over the Internet. Tickets are non-refundable and reservations cannot be changed, except for €25 tickets, which passengers can change for a fee.

TrenOK operates old Pendolino trains (ETR 450 train sets), which are colorfully painted (see Figures 4 and 5). They are composed of second-class coaches only and seat 390 people. In order to reduce personnel costs TrenOK employees are paid 17% less than employees of Trenitalia doing similar jobs.

Similar to low cost airlines, the train does not serve main downtown stations (except for Bologna Central) because of higher user fees for these stations. Instead, TrenOK serves suburban stations including Rome Tiburtina, Florence Campo di Marte, Milan Rogoredo, and Milan Lambrate. The northbound trip from Rome to Milan starts in the early morning; the southbound return trip leaves Milan at 7:53 pm.

The trip on TrenOK takes slightly longer than the regular high-speed trains that operate in the corridor (southbound one minute longer, northbound 15-minutes longer). However, since the trains do not serve main stations, total travel times can be higher. In contrast to iDTGV the TrenOK travel time of about 4.5 hours (between Rome and Milan) considerably exceeds the airplane travel time. TrenOK offers only 780 daily seats between Rome and Milan, compared to 27,600 seats on the EuroStar and IC trains operating in this corridor.

Trenitalia considers its TrenOK service to be a tremendous success based on the large number of passengers it has attracted. Over 20,000 tickets were sold within 12-days of service being announced, before service had even started, leading to the result that TrenOK was fully booked until the middle of February. Over 90% of these tickets were sold via the Internet. In total over 150,000 passengers used the TrenOK service on the Rome-Milan route and over 65,000 on the Rome-Bari route by the end of June, 2005. More recent data has not been published and could not be obtained from Trenitalia.

TrenOK - An Experiment in No Frills Service

TrenOK offers basic "no frills" transportation by offering a very simple three-step pricing system, only one class, and no supplementary in-train services. The main aspects of this concept are providing low fares by maintaining a low cost structure and simultaneously preventing cannibalization, which otherwise would reduce sales of more expensive train tickets. TrenOK minimizes cannibalization by establishing restrictive booking conditions, limited service (one trip per day), use of older trains without first class seats, and use of suburban stations.

In contrast to the iDTGV and low cost airlines, TrenOK's simple pricing system does not allow the application of a highly sophisticated yield management system. Instead, TrenOK focuses on reducing operating costs (by using retired rolling stock, stopping at suburban stations, not paying passengers compensation for delays etc., and cutting personnel costs). However, the TrenOK does pay the full infrastructure costs.

The TrenOK focuses on serving a young, price-oriented target group, which means that the long journey times for train trips on this corridor are of less importance since air travel is not its main competitor. It is relatively easy to obtain tickets given the multiple channel ticket distribution strategy and the lowest fare (which cannot be matched by any other transport) is offered on a comparatively large number of seats. In view of this price structure, the implementation of effective cost saving measures is of vital importance.



Figure 5: TrenOK uses old ETR Pendolino trains. (Source: Trenitalia)

4. CONCLUSIONS AND RECOMMENDATIONS

This research considers how business strategies from one of the most innovative transportation business have been implemented in another transport sector. [12] Specifically, how European railroads have implemented operating and pricing strategies modeled on low cost airlines in an effort to increase patronage and revenues. These strategies fall into four main areas:

- Reducing operating costs;
- Reducing perceived ticket costs;
- Yield management; and
- Increasing revenues by offering amenities.

This paper has described examples of how railroads have implemented these strategies in existing services but has focused on the creation of new services (products) created with the explicit purpose of testing and implementing these strategies by the SNCF and Trenitalia.

4.1 Reducing Operating Costs

All European railroads are seeking to reduce costs; therefore this research focused only on how the new services, SNCF's iDTGV and Trenitalia's TrenOK, were able to reduce operating costs.

Both the SNCF and Trenitalia use strategies similar to low cost airlines to reduce costs in their new products. They have reduced the cost of ticket sales using the internet (iDTGV tickets are only available on the internet).

The iDTGV has reduced personal costs by requiring passengers to check-in on the platforms before boarding the train and connecting the iDTGV to an existing TGV (eliminating the need for an additional operator). The iDTGV has also contracted-out on-board services such as food and sales of value added products. TrenOK has reduced operating costs by paying lower wages, serving mainly suburban stations and using older equipment.

4.2 Reducing Perceived Ticket Costs

An important problem for European railroads is that customers perceive rail tickets to be more expensive than airline tickets. This perceived price difference is caused by the huge amount of airline advertising presenting the lowest possible fares even though these fares often have very limited availability. Railroads are addressing this problem by advertising their own low fares created using yield management techniques on all-reserved services and implementing simple (but limited) network-wide promotions (such as Germany's very popular €50 Lidl ticket in 2005). As outlined below, the iDTGV and TrenOK are both examples of special services that can use yield management effectively to offer a limited number of (heavily advertised) low fares.

4.3 Yield Management

It is difficult to implement yield management systems on railroads given the open-system nature of railroad networks and long passenger experience with fully flexible unreserved tickets. Germany's experience implementing the PEP program in 2003, which offered a complicated program of discount prices for specific trains, proved to be extremely unpopular with customers and reduced revenues. It was replaced with a simpler program after six months. Following this experience, Germany's DB and other railroads are implementing pricing strategies more carefully, often starting with all-reserved services such as high speed service or night trains.

Since the iDTGV and TrenOK are both perceived by the public to be 'different' services, and therefore they have been able to use yield management effectively; customers know they are buying a ticket for a special train and realize that tickets have conditions similar to airline tickets.

In the long run railroads must develop new techniques for systematically applying yield management strategies that take advantage of the rail system's significant flexibility and convenience. While these strategies will be based on those used by airlines, they will be more complex given the huge scale of railroad networks and services. Developing a workable yield management program is essential for railroads given their cost structure; a railroad's marginal costs are generally lower than average costs and therefore filling underutilized trains costs little but can significantly increase revenues. Developing yield management strategies for a railroad network is an excellent area for further research.

4.4 Increasing Revenues by Offering Amenities

The iDTGV is the best example of a railroad using the low cost airline technique of selling amenities to passengers to increase revenues. The iDTGV offers a wide variety of products from improved food to massages. It also divides the train into quiet and active zones allowing passengers to choose how they spend their time. Additional research on the iDTGV's amenity program would be very interesting since this is a key strategy of Ryanair, Europe's most successful low cost airline.

Another consideration, just hinted-at in the iDTGV program, is the impact of giving passengers a wider choice in how they use their travel time (quiet/active). Exploring the question of how the ability to do various things while traveling impacts mode choice is an extremely interesting subject for additional research. [13]

Other railroads are considering ideas for increasing revenues with amenities but these programs are hard to test given the complexity of implementing them on a large network. For example, some of Germany's ICE trains have video screens in the seatbacks and have experimented with movies, but this required all the seatbacks in certain wagons to have the screens. The iDTGV, since it is independent and offers only a few trains, can experiment much more easily with new products and ideas; for example, simply renting individual DVD players and movies. (Note that Deutsch Bahn is removing the screens as part of the refurbishment program for the ICE-1 trains.)

Ideas from traditional airlines are also being explored by European railroads. For example, Austria, Germany and several other railroads have started building business lounges at main stations where first class passengers can relax before boarding trains. The idea here is to increase revenues by encouraging people to purchase first class tickets. While airport lounges are most common for traditional airlines, EasyJet, the second largest low cost airline in Europe, offers the ability for its passengers to purchase lounge use for a specific time (on line when they book their tickets). This could be an idea for railroads.

Finally, almost all airlines and travel-related businesses have put into place customer loyalty programs (frequent traveler programs), it would be interesting to consider how railroads might use these types of programs. It will also be interesting to see how European railroads use the recently formed Railteam, designed to improve coordination of passenger trains operated by different companies and modeled after airline alliances (e.g. Skyteam, Star Alliance), to attract new customers and improve efficiency.

4.5 Developing and Implementing New Pricing and Operating Strategies

Finally, new strategies are useless if they cannot be implemented. The SNCF and Trenitalia both have been successful starting subsidiary companies for the specific purpose of testing and implementing new strategies for increasing ridership, improving revenues and reducing costs. While both services have been successful commercially and as testing grounds, the market positioning strategies between them differ significantly.

France's iDTGV is the more daring and interesting product. It is targeted to attracting passengers who would otherwise not travel by train by offering low fares with amenities (for sale) and a hip image. Strategies from the iDTGV are being implemented or considered for other French trains. Italy's TrenOK takes the opposite approach, offering strict "no frills" service. It is targeted to budget travelers and uses a variety of strategies to prevent cannibalization (i.e. to prevent those willing to pay higher prices, such as business travelers, using TrenOK).

In summary, European railroads must reduce costs and increase revenues if they are to remain successful in the coming years. This is especially true as intermodal competition (e.g. from low cost airlines) increases, but also because of the coming intramodal competition when new companies are free to offer passenger rail service throughout the European network. Many of the strategies railroads can use to achieve these objectives can be modeled after the low cost airline industry, which is pioneering the implementation of innovative and creative business concepts in the transportation industry.

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