

Frankfurt Airport Pioneering Intermodal Air-Rail Developments

Robert A. Payne

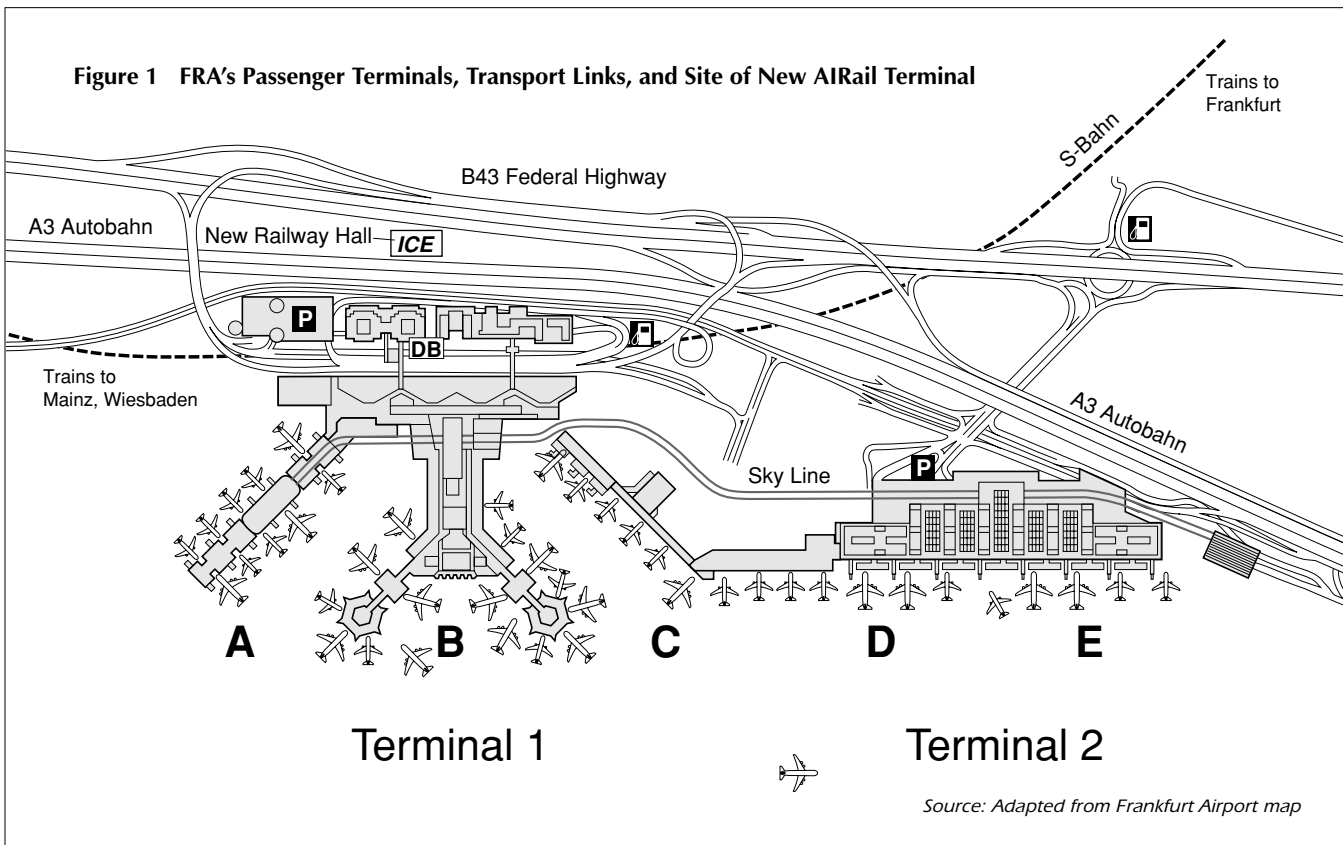
One could say that all routes—air, road, rail, and water—lead to Frankfurt. In particular, Frankfurt Airport (international airport code FRA) is positioning itself as the world's leader in air-rail intermodal transportation, both for passenger and cargo services. Long regarded as a pioneer in intermodal travel, FRA is further enhancing its lead by adding a new state-of-the-art railway station designed exclusively for long-distance services such as Germany's InterCity Express (ICE) high-speed trains. Once the new AIRail Terminal Frankfurt Airport is inaugurated on 27 May 1999, FRA will have three railway stations: two for passenger services and one for cargo. There are many reasons why FRA has become such an important European hub for passenger and cargo traffic. Geography certainly plays a role. Glancing at a map of Europe, one can quickly see that Frank-

furt is strategically located in the middle of the new Europe—one of the world's largest economic markets. And the Frankfurt/Rhine-Main region is one of Europe's strongest and most dynamic economic centres. Frankfurt is home to the powerful European Central Bank, established to oversee the Euro launched on 1 January 1999.

For over 1200 years, Frankfurt has been an important crossroads of commerce and trade in the heart of Europe. Money '...makes the world go round...', but a top-notch transport infrastructure is vital in today's fast-paced age of globalism. Building on Frankfurt's traditions, FRA has helped turn the region into a global gateway. There are few regions in the world where the various modes of transportation are so concentrated, so well developed, and so well integrated.

Via Air, Road, Rail or Water

Frankfurt has excellent links to road, rail, and water networks. Located near the confluence of the Rhine and Main rivers, Frankfurt is a major city along one of the world's most important inland waterways for passenger and freight traffic—some of FRA's aviation fuel is even delivered by barge to a River Main dock and piped a short distance to the airport's fuel farm. In 1992, the Rhine-Main-Danube Canal was opened southwest of Frankfurt, making continuous water transport between the North Sea and the Black Sea possible via Frankfurt. Sightseeing cruises along the Main and Rhine rivers—now an official UNESCO World Heritage Site—are popular with tourists from around the world.



Autobahn on FRA's Doorstep

Europe's first and today's busiest expressway cloverleaf interchange—the Frankfurter Kreuz—is at the northeast corner of the airport not far from the passenger terminals. This is where the A3 and A5 autobahns—the most important autobahns in Germany—intersect and allow quick access to the nation's renowned autobahn network and other expressways throughout Europe. A major 5-year redevelopment to increase the capacity of the Frankfurter Kreuz is half-completed, including rail tunnels for the new high-speed railway line between Cologne and Frankfurt. Parking facilities for a total of about 15,000 vehicles are available at both passenger terminals of FRA. In addition, FRA has its own bus station for charter buses, tour coaches and regional and intra-European bus services.

New Golden Age of Rail

Frankfurt has been an important rail centre since the golden age of trains. Frankfurt's central railway station, or Hauptbahnhof, is one of Europe's busiest stations and offers trans-European connections for those wishing to travel through Europe by train. Many of Europe's national railways have local offices near the Hauptbahnhof.

For more than 25 years, Flughafen Frankfurt/Main AG (FAG)—the Frankfurt Airport company—has been developing air and rail facilities in cooperation with Deutsche Bahn AG (DB AG) and the airlines. The story started in 1972 when FAG inaugurated Terminal 1 with an integrated railway station—a revolutionary concept at that time. Frankfurt became one of the first airports in the world to have direct rail links and even today, these connections are envied by many other airports in Europe and around the world. Each



Aerial view showing model of new AIRail Terminal

(DB AG)

day, more than 200 trains arrive at the airport railway station beneath Terminal 1, making 'rail and fly' travelling convenient and attractive.

Initially, the station only handled local S-Bahn commuter trains to Frankfurt's Hauptbahnhof, just a 12-minute ride away and costing only a few D-marks. Today, the S-Bahn (S-8 line) provides regular commuter service from the airport eastwards to Frankfurt, Offenbach and Hanau, and westwards to Kelsterbach, Raunheim, Rüsselsheim, Mainz and Wiesbaden. Also, InterCity trains operated by DB AG stop regularly at FRA on their way to major cities in Germany.

Over the years, these services have been expanded to other towns and cities in the region and eventually FRA became a mainline station in DB AG's InterCity network. Thus, all major German cities can be reached by rail directly from FRA. Trains from Austria and Switzerland also make regular stops. Until now, the missing element has been high-speed services, which, except for an occasional ICE train, cannot be handled at the existing airport railway station due to capacity limitations.

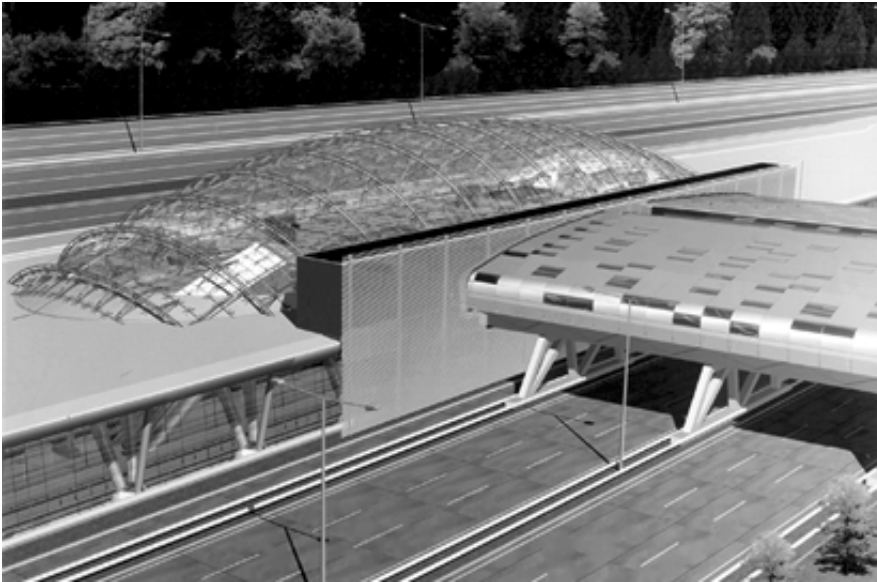
Generally, travellers have to go to Frankfurt Hauptbahnhof to take ICEs. But that's all about to change.

Flying on ICE

Frankfurt Airport will soon become a vital hub for the trans-European high-speed railway network. The ultimate goal is to merge air and rail systems into a single easy-to-use service convenient for all travellers. On 1 October 1997, the foundation-stone for FRA's AIRail Terminal Frankfurt Airport was laid, marking the advent of a new era in seamless travel 'rail and fly' services.

First Phase

The new AIRail Terminal is rapidly nearing completion near Terminal 1 on a narrow parcel of airport-owned land located between the A3 autobahn and the B43 federal highway and parallel to the Sheraton Hotel & Congress Center and the Frankfurt Airport Center (FAC 1), an inter-



Close-up of domed roof of railway hall and adjoining connector building that extends over autobahn to Terminal 1 (DB AG)



Interior view of glass-covered dome roof of railway hall with escalators leading down to train platforms (DB AG)

national office building. The overall project involves two main stages: a first phase for the ICE railway terminal and its connection to Terminal 1; then, sometime early next century, a second phase for a build-over multi-use complex. The first phase cost DM410 million with FAG paying more than half

the cost. Abutting the south side of the ICE terminal, a 230-m connector facility will extend out over the A3 autobahn to a junction near Terminal 1 and then, in the year 2000, directly to Departure Hall B of Terminal 1. It will comprise a tube-shaped core flanked on one side by air-line check-in counters and on the other

side by baggage claim belts linked to the airport's centralized baggage sorting and conveyor system. The connector building will feature moving walkways to speed travellers between the railway station and the centre of Terminal 1. The prime objective is to create a truly seamless travel system whereby ticketing, travel information, baggage and other elements are as integrated as possible, regardless of the transport mode.

Nine Million Passengers

On 30 May, the ICE terminal will enter regular service, allowing air travellers to transfer from their aircraft directly to high-speed ICE train, or *vice versa*. In the coming century, the new AIRail Terminal Frankfurt Airport will become an important link in the trans-European high-speed railway network. With about 10 ICE train departures planned per hour, DB AG is forecasting up to 30,000 passengers per day or about 9 million passengers annually by the year 2010. Compared to the number of travellers now using the existing S-bahn underground airport train station, this will provide enough extra capacity roughly to quadruple FRA's intermodal passenger volume and corresponds to passenger growth expected over the next 10 to 15 years.

FRA will encourage a modal shift of many short-haul flights—particularly within a 400 to 500 km radius of the airport—to the high-speed rail network. Some 35 million people live within a 200-km radius of FRA, a larger catchment than any other European airport, including London Heathrow, Paris Charles de Gaulle, and Amsterdam Schiphol. This will have two immediate benefits for the environment: there will be reduced road traffic to the airport and the freed-up flight capacity can be used to expand intercontinental air services.

Shrinking Travel Times

Currently, intensive construction work is in progress on the new high-speed railway line along the A3 autobahn corridor between Germany's two most important economic regions: the Frankfurt/Rhine-Main Region and the Cologne-Düsseldorf/Rhine-Ruhr Region—Germany's most densely populated region. By enabling ICE trains to travel at speeds of about 300 km/h, the new line will slice the travel time between Frankfurt Airport and downtown Cologne in half to just 58 minutes, making ICEs extremely competitive with planes. In addition, several other existing high-speed lines will bring ICE trains from diverse destinations throughout Germany directly to FRA (Table 1).

With the future emergence of the trans-European high-speed railway network, FRA is poised to become a key hub for high-speed trains travelling from neighbouring countries and perhaps farther afield: as far west as Britain via the Channel Tunnel, as far south as Italy via the Alps, as far north as Scandinavia, and, perhaps, as far east as Warsaw and Moscow.

FRA's high-speed rail project will be a further realization of FAG's strategic vision to evolve into a full-service intermodal

travel port. In other words, it will be a seamless system that is easy to use and that provides maximum convenience and comfort for passengers when they are travelling by various transport modes.

Second Phase

The second phase calls for building a 160,000-m² multi-use complex costing DM750 million on the roof of the AIRail Terminal. Here various activities, such as business, hospitality, leisure, entertainment and shopping, will be combined in an imaginative and attractive way. An international design/concept competition is underway, with 7 companies selected to submit a 'planning intensification and submission of offer' proposal. The short-listed companies are:

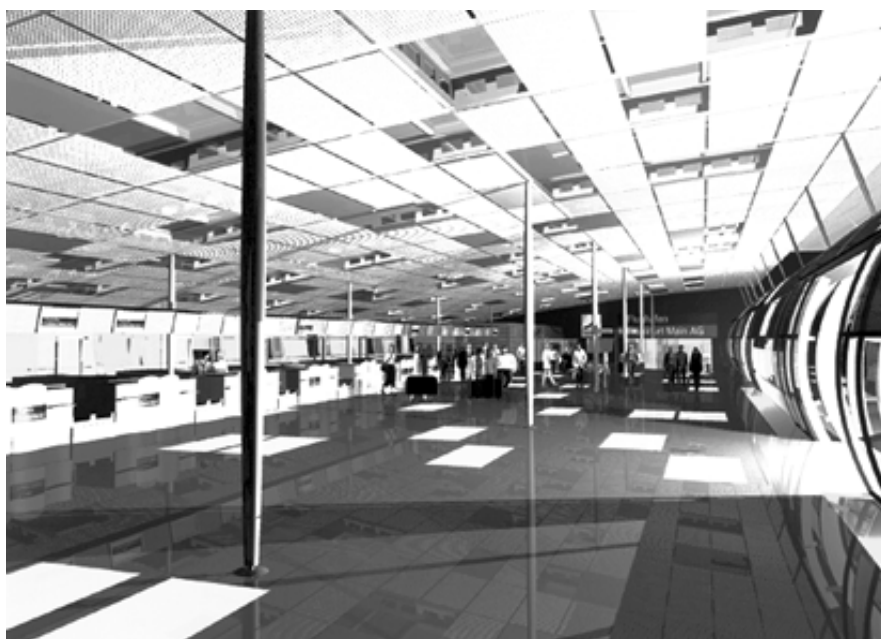
- CBC Immobilienentwicklungs-GmbH, Berlin
- Depfa Immobilienmanagement AG, Wiesbaden
- Köllmann Real Property Development GmbH, Wiesbaden
- Plan Plus Faktor Entwicklungsgesellschaft mbH, Frankfurt
- Tercon Immobilien Projektentwicklungs-GmbH, Munich
- Thyssen Bauträger- und Immobilienentwicklungs-GmbH, Munich
- Walter Bau AG, Augsburg

The final winner, to be chosen in early 1999, will receive building rights to construct the superstructure. Private financing will probably be needed for a project of this scale and nature. The real estate site in question covers 34,233 m² and extends over a length of 660 m and a maximum width of 65 m. This will allow a total of 160,000 m² of space to be developed on seven levels. Thus, AIRail Terminal Frankfurt will be a place where fast air and rail services will converge, where trans-European and global companies will congregate, where business and leisure travellers alike will enjoy seamless travel and a wide range of services and facilities right at the heart of continental Europe's most advanced and strategically located intermodal travel port. The potential of this second phase makes the

Table 1 How ICE Trains to FRA will Reduce Travel Times

From:	Travel Times	
	Today	2002
Amsterdam (Holland)	4:45	3:00
Basle (Switzerland)	3:00	2:13
Bonn/Sieburg	1:48	0:39
Brussels (Belgium)	5:00	2:50
Hanover	3:15	2:15
London (UK)	7:30	5:30*
Munich	3:55	2:58
Stuttgart	1:25	1:02

* by Eurostar



Connector building featuring airline check-in and baggage facilities close to train station

(DB AG)



Interior view showing ICE train arriving at AIRail Terminal Frankfurt

(DB AG)

airport's investment in the railway station attractive in terms of future non-aviation revenues.

EuroTraCS Research Project

European Traveller Care Services (EuroTraCS) is a Frankfurt Airport-led research project partially funded by the EU and aimed at making intermodal travel more efficient and convenient. Three railway companies: DB AG, Austrian Federal Railways (ÖBB), and French National Railways (SNCF), as well as GEC Alsthom, a rail equipment manufacturer, have joined FAG in this innovative project. On the air side, FAG is joined by Aéroports de Paris (ADP), Air France, and Lufthansa. Today's so-called travel chain is characterized by insufficient coordination between different transport modes, especially when it comes to baggage transportation and the diverse information and orientation systems available. Another problem is that travellers can rarely obtain pre-travel information in an understandable form. Intermodal travel booking is still complicated, with each carrier requiring its own ticketing and boarding documents. Also, information and orientation systems along the travel chain do not sufficiently account for unique traveller groups with their cultural, psycho-

logical, and physical (e.g., the disabled and elderly) differences. Currently, there are multiple solutions instead of one simple, integrated and intermodal concept. Thus, the EuroTraCS partners are investigating how to solve these problem areas. The first stage—identifying intermodal problems—involves market and conceptual research. This will serve as the foundation for a second stage—finding solutions—whereby prototype systems will be developed.

Route to Expo 2000

One of the premier international events commencing next century will be the Universal Exposition 2000 in Hanover, Germany. The Frankfurt/Rhine-Main region will serve as the international gateway for many people visiting Expo 2000. Frankfurt Airport has been registered as an official worldwide expo site under the motto

'FRA—the World's Leading Intermodal Travel Port'. FAG will be demonstrating the concept of sustainable mobility and the various aspects in delivering this concept. It is planned to offer these advanced intermodal concepts on the Frankfurt-Hanover route, in cooperation with DB AG and Lufthansa. Of course, FRA's new AIRail Terminal for ICE trains will be a significant element of this project.

Sprinting Ahead

FAG is also a pioneer in intermodal air cargo services with the launch of what is recognized as the world's first regular airport intermodal cargo system. A new DM2 million Rail AirCargo Station was opened at FRA's CargoCity South development on 25 September 1997. It is being used for the CargoSprinter train operated by DB Cargo in partnership with German-based freight forwarders Johann Birkhart and Hellmann. CargoSprinters shuttle daily between FRA and northern Germany—from Hamburg and Osanbrück to Hanover where they link up for the remaining trip to FRA. The CargoSprinter is expected to be expanded to link other major cities/airports in the future. It replaces some road trucking of cargo to the airport, thus making an important contribution to environmental protection. The high-speed passenger trains that will serve FRA from this May have the potential to be adapted to carry freight too. ■



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Mr Payne has been the International Press/PR Manager for Frankfurt Airport since 1991. He graduated in 1980 from Ryerson Polytechnical University, Toronto, Canada, and joined Evans Research Corp., Toronto, where he worked as Director of Research until 1988. He has published a number of articles on FRA in *Gateway Frankfurt*, *Airport Support*, *ICAO Journal*, etc. He is the recipient of the Mark Twain Travel Journalism Award in 1998.