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A Conversation With … Muhammad Ali Albakri, Chief Information Officer, Saudi Arabian Airlines,

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CHALLENGES IN CHINA

A new competitor — high-speed rail — impacts airlines serving China

As high-speed rail continues developing across China, the country's airlines are gearing up to the challenges ahead from this new mode of transport.

By Peter Berdy I *Ascend* Contributor

As China unveils its high-speed rail (HSR) network over the coming decade, airlines are faced with adapting to this new competitor. HSR will offer consumers a new choice of travel. Their decision to select air or rail will be made based on availability, travel time, convenience and cost.

Airlines will need to deal with added capacity and price pressure from HSR. Competition is expected to be fierce in short-distance markets where HSR offers a distinct time advantage. The battle will also take place in medium-distance markets where the advantage of HSR is lessened.

State Of HSR

China already has the world's largest HSR network dedicated to passenger transport. Its rail expansion will be the biggest and fastest rail expansion the world has ever seen. The first HSR line opened in 2007 and grew to 8,358 kilometers (5,200 miles) by the end of 2010. This network is targeted to reach more than 13,000 kilometers (8,100 miles) by the end of 2011, and at least 25,000 kilometers (16,000 miles) by the end of 2015, enough to stretch from Beijing to London and back. Plans are to extend the network even further to possibly 45,000 kilometers by 2020.

By 2013, 50 percent of cities on the planned network will be connected to the HSR grid. China's Ministry of Railways' vision is to have the HSR network connect all provincial capitals and cities with populations over 500,000 by 2020. The network would be accessible to 90 percent of the Chinese population.

In this time horizon, neighboring provincial capitals would be only one to two hours apart, and provincial capitals would be only a half to one hour apart from other cities in their province. If economic growth and HSR development takes place as planned, many cities in west and central China facing economic difficulties will be revitalized by the HSR system.

Some HSR hub cities could even see passenger flow growing by as much as 10 times in the coming decade, making them strategically important targets for development including hotels, catering, logistics and properties.

Key elements of this expansion are speed and the technology used by HSR. Airlines fly at 478 kilometers per hour between Beijing and Shanghai versus 300 kilometers per hour by HSR. Easier access to HSR makes door-to-door travel time about equal between the two modes of travel on this key route.

China has enjoyed technology transfer and manufacturing capability of HSR systems due to the eagerness of foreign manufacturers to enter China's huge and lucrative market. Japan's Kawasaki Heavy Industries, France's Alstom, Germany's Siemens and Canada's Bombardier contributed technology that went into China's HSR trains, which are now all made in China.

The rapid development of HSR is a key enabler to stimulate China's economy.

"We went through 30 years when [rail] development fell behind the national rate of growth, so now we have to go faster," said Yang Zhongmin, director general of the Ministry of Railways development and planning department.

China looked to public investment in rail construction to stimulate growth when the global financial crisis hit in 2008. A good part of China's total fiscal stimulus package was spent on transport and most of that was on rail.

HSR is a costly investment. The recently opened Beijing-Shanghai route cost US$33 billion to build. China's total investment in high-speed rail to 2020 had been estimated at about US$300 billion, but recent reports indicate that more than US$600 billion is likely to be spent on rail construction during the 2011-2015 five-year plan alone. However, if the economic objectives are realized, the effects on business and freight, as well as savings in energy costs to move passengers, may very well balance out the extremely high construction costs to develop the HSR network.

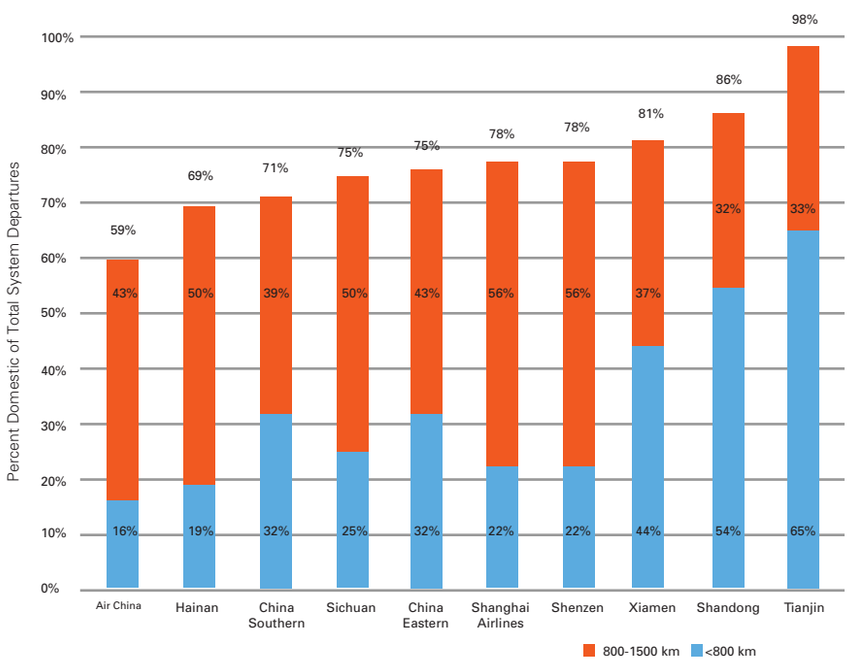
Economic Impact

China is counting on the HSR network to aggressively improve market access, facilitate population mobility, improve logistics efficiency and shrink China's geographic and economic disparities. Development of China's railway network should move travelers around the country in large numbers at unprecedented speeds. Smaller cities in the interior should grow in importance as travel will enable longer-distance trips and job creation.

However, critics of HSR indicate the uptake may be longer than expected. Many Chinese will continue to take slower, cheaper trains.

"China's per capita income is still relatively low and so is the economic value of time,"

Percent System Exposure to HSR Based on Departures
China's Ten Largest Airlines (September 2011 Schedules)



Airline Exposure To HSR *Sabre Airline Solutions* analyzed published schedules for September to determine China's top 10 airlines' potential network exposure to HSR as a percent of their total operations (domestic and international). Two categories were examined using distance bands typically used to compare competition between the two modes of travel: highly competitive (operations less than 800 km) and competitive (operations between 800 km and 1,500 km). Combining both categories, departure exposure to HSR ranges from 59 percent to 75 percent. In the highly competitive category, Air China is the least exposed (16 percent of departures), and China Eastern and China Southern are twice as exposed.

Zhao Jian, an economics professor at Beijing Jiaotong University, wrote in the *China Daily.* "Cheap travel with basic comfort suits ordinary Chinese passengers who do not want to spend three times as much for high-speed tickets just to save a few hours of travel time."

Professor Zhao Jian believes high-speed rail will be unaffordable for most people and that his views have been proven by serious losses incurred on new HSR lines. He asserts that China will face huge economic, social and political risks due to rail development and that a major debt crisis is looming that could become a serious drag on economic development.

If HSR development unfolds as planned, the result should be a more mobile work force with growing markets that are easier to access. In turn, this would stimulate business and economic development. By the numbers, the HSR network should connect more than 250 cities and regions covering a population of 700 million with the potential to moving 4 billion passengers annually by the year 2020.

China's major cities are likely to get even bigger. As a result of mobility, connectivity to the HSR network and reduction in travel times, large cities within proximal distances will continue to expand and their boundaries will blur to create connected mega-metropolitan regions. A Morgan-Stanley research report indicates six super-city clusters within three hours by HSR are likely to develop by 2020, with catchment populations ranging from 67 million to 220 million. As a result of HSR connectivity, the report identified eight emerging hub cities are likely to experience strong growth.

"One of the reasons we built the line was to help boost economic development and business in provinces along the route," said Zhao Guotang, deputy general manager of the Beijing-Shanghai High Speed Railway Co. New houses, offices and hotels have sprouted up along the Beijing-Shanghai corridor.

Enhanced mobility created by HSR is already changing China's economic and business landscape. Real estate prices and investment have surged at China's inland cities that have already been connected by high-speed rail in the last three years. Businesses are flocking to these cities, now just a few hours by bullet train from China's busiest and most international metropolises.

Construction of new HSR lines has had a strong economic effect in the short term, creating jobs and increasing demand for construction, steel and cement. Railway construction fueled the demand for 20 million tons of steel and 120 million tons of cement in 2010. The Beijing-Shanghai route used about 110,000 workers while the HSR line was being built.

HSR is having a substantial impact on urban development as well. Local communities connected to the HSR grid are investing in projects such as new roads to connect to HSR stations, providing easy access to ground transportation by building new subway lines, adding bus service and new parking facilities as well as upgrading infrastructure such as new hotel construction in anticipation of new tourism and traffic. An added benefit of developing new subway lines that reach new HSR stations should help to alleviate local traffic congestion and stimulate growth in urban centers.

At Qufu, the birthplace of Confucius, the new HSR station integrates a travel agency, airport ticketing and transfer services, hotel bookings, and transport information. In addition, roads and infrastructure have been upgraded to connect the city's main tourism areas to the HSR station.

"Everyone is talking about the arrival of the bullet train," said Zhang Mingzhe, a city government spokesman. "They all want to see how it will boost investments, job opportunities and property prices."

Wang Shuang, an analyst with Industrial Securities in Shanghai said that every dollar spent on railway could generate three dollars in investment.

"In terms of a whole region, railways will promote investment along the line in a noticeable way." he said.

Others believe HSR payback will take years.

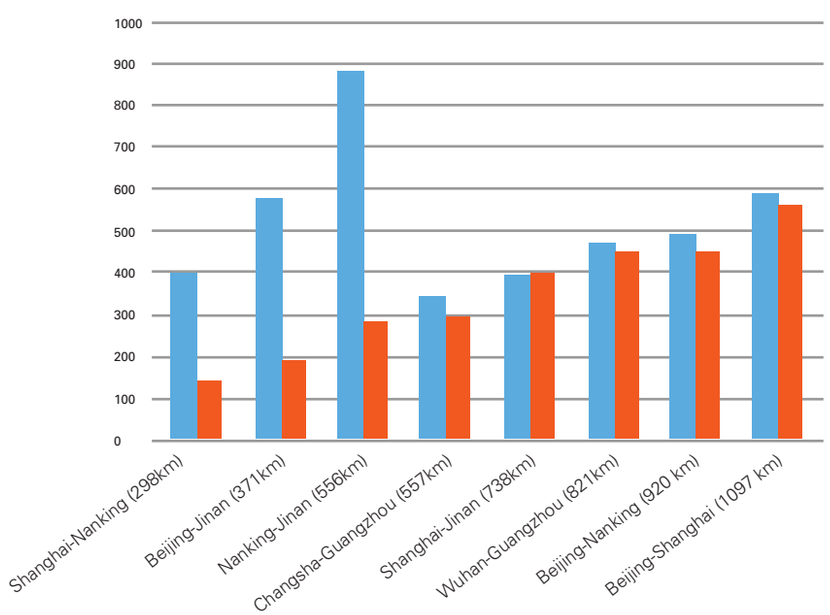
"Typically for infrastructure, healthy building should outpace demand by two to three years," said JP Morgan rail analyst Karen Li. "For high-speed rail, at this point, we may be looking at 5 to 10 years ahead of demand, in my view.

Another concern is that China is incurring heavy debt along the way. Existing HSR projects, the Beijing-Tianjin line in the north, Wuhan-Guangzhou in the south and Zhengzhou-Xi'an in central China, will all face difficulties breaking even, according to Zhao Jian.

HSR Imact On Freight

While HSR will only carry passengers and not cargo, it will play an important role by freeing-up capacity for freight growth. As passenger traffic switches to new HSR, older rail services are made available for transporting freight, allowing for faster and cheaper transport of raw materials, such as coal and wheat, as well as finished products from Chinese factories to shipping docks. The

Comparison of Lowest Economy Air Fares vs. HSR Second Class Fare
July 2011 (air fares include fuel surcharge and airport departure fees)



Airlines Cut Prices Airlines have cut fare prices to compete with HSR. Even the deepest discounted fares are higher priced than HSR, especially on short routes.

Connecting Cities Via Rail In less than two years, 50 percent of cities on the planned network will be connected to the HSR grid. By 2020, the HSR network is expected to connect all regional capitals and cities with populations of more than 500,000, making the network accessible to 90 percent of the Chinese population.

result will also impact roadways since it will be cheaper to switch to rail transport instead of using trucks to move heavy cargo across the country.

Effect On Airlines

After benefiting from years of strong growth and a lack of effective alternatives, China's airlines are facing a serious challenge. China is investing heavily in a modern ground transportation system including new subways and new bus services that offer easy access to the HSR network. HSR trains are more comfortable than planes. HSR is cheap by comparison to air and is far more punctual as well. Additionally, air service requires time consuming arrival, check-in and long boarding procedures (most service on Beijing-Shanghai is wide body). It is also more expensive and plagued by on-time performance problems. One in four flights in China experience delays.

Experience in Europe and Japan shows that HSR takes a substantial market share from airlines. HSR is highly competitive with air service under 800 kilometers and is competitive with airlines at distances from 800 to 1,500 kilometers according to Morgan Stanley transportation analyst Edward Xu.

China's airlines are aware of the potential impact. In several instances, airlines have been forced to cut back frequencies on short-haul sectors due to HSR. Prominent examples are from Wuhan in central China (population of 10 million). Nearly 70 percent of flights less than 600 kilometers have been suspended after HSR was introduced between Wuhan and Guangzhou. Wuhan-Nanjing air service ceased operations at the end of the first quarter, resulting from intense HSR competition.

The number of flights between Changsha and Guangzhou (705 kilometers) was reduced from 12 to three per day due to a stop at Changsha on the Wuhan-Guangzhou HSR. Hainan Airlines and Shenzhen Airlines withdrew from the market, leaving China Southern as the only airline with service. Fares were reduced by 15 percent, but air passenger numbers have still declined by 48 percent to 390,000 during 2010.

The director general of the Civil Aviation Authority of China (CAAC), Li Jiaxiang, indicated half of flights less than 500 kilometers and about 20 percent of flights between 800 kilometers and 1,000 kilometers could become unprofitable as a result of HSR competition. CAAC Vice Minister Wang Changshun said earlier this year the Beijing-Shanghai high-speed line would be "another blow to the air transport industry."

Air China, China Southern and China Eastern Airlines have all acknowledged the threat of HSRs, but have echoed CAAC comments that the threat is focused on sectors below 800 kilometers.

Estimates of the revenue impact on airlines resulting from lower prices and fewer passengers due to HSR are in the neighborhood of CNY10 billion (US$1.5 billion) by 2012. One estimate suggests up to 9 percent of passengers could shift from air to rail transport by 2016.

To remain competitive, airlines have cut prices. After HSR began operating the Beijing-Shanghai route, the cheapest airline ticket was 360 Yuan (US$56) before airport fees and fuel surcharge. Even at the deepest discount fares, airfare is more expensive versus HSR, especially at short distances.

"There will be plenty of travelers willing to switch to trains as they can't stand any more airline delays," said Jack Xu, an analyst with Sinopac Securities Asia in Shanghai.

"Bullet trains will definitely lure some passengers from carriers," said Li Lei, an analyst with China Securities Co. "Airlines will have to assign smaller planes to the route or offer better ticket prices."

China Eastern expects Beijing-Shanghai HSR to affect as many as 10 of its routes from Shanghai's Hongqiao airport, including services to Beijing, Tianjin, Jinan and Xuzhou.

China Southern will eventually have a quarter of its domestic network affected by HSR. China Southern's chairman, Si Xianmin, said of the carrier's 160 domestic routes, 38 are in direct competition with high-speed rail with potential traffic declines of greater than 50 percent on 418 of its approximately 1,700 weekly services.

"Airlines will lose all their current competitiveness, like saving time," he said.

Air China's chairman, Kong Dong, expressed concern about the Beijing-Shanghai HSR service, noting that the route "is our lifeblood." However, the airline is less exposed to HSR competition than other airlines. Air China's manager of investor relations, Rao Xinyu, estimates China's HSR development would have a minimal 2 percent to 3 percent impact on its network.

On domestic routes, Rao stated less than 10 percent of the carrier's revenue is generated from sectors under 800 kilometers, while the carrier's routes under 1,000 kilometers are focused in the southwest, northern and northeast regions, which have minimal impact from HSR.

"There is no point competing head-to-head with high-speed rail," said Wang Zhenghua, chairman of low-cost carrier Spring Airlines. "We will stop our Shanghai-Wenzhou, Shanghai-Wuhan, Shanghai-Fuzhou and other shorter flights in stages."

Spring has started services to Japan and intends to be an active player in other regional international markets.

Beijing-Shanghai High-Speed Rail

The showcase 1,318 kilometer Beijing-Shanghai HSR opened June 30, a year ahead of schedule.

The CRH380 (China Rail High designed for speed of 380 kilometers per hour or 236 miles per hour) trains used on the route are built by Beijing-based CSR.

HSR stations are located close to city centers and offer ease of access to Beijing and Shanghai residents and nearby areas when combined with subway and bus service. Beijing's South Station is six kilometers south of Tiananmen Square. Shanghai's operations are from the Hongqiao station, next to the city's main domestic airport. Shanghai's financial district of Lujiazui is a 40-minute subway ride away.

The Beijing-Shanghai HSR creates a north-to-south trunk route that connects to east-to-west rail lines at two dozen stations along the way.

"It's the network together that makes it work — knowing you can go from Shijiazhuang to Beijing and then transfer to Tianjin, so the coal guys can go to the port and conduct business with their shippers, for example," said John Scales, a rail expert in the Beijing office of the World Bank.

There are three different HSR services operating on the route, with higher fares for the fastest services. The fastest takes four hours and 38 minutes, including a single two-minute stop at Nanjing. A second service will stop at Nanjing and Jinan and will take four hours and 55 minutes. The third service will stop at seven to eight stations along the route and will take 38 minutes longer than the fastest service.

Each stop along the route takes two minutes. The largest HSR trains between Beijing and Shanghai have 16 cars: 10 for second class, four for first class, one business car and one dining car. In addition, there are a handful of VIP sightseeing seats just behind the train drivers. The total number of seats in these trains is 1,066.

There are two VIP sightseeing areas that are configured with two seats that can become fully flat at the touch of a button. The area also has sofas as well as multi-functional entertainment equipment. Passengers can see scenery in the same bird's eye perspective as train drivers.

Business class cars are the premium service offering and have the most space and comfort. These cars have widely spaced leather seats with three seats per row. The seats can rotate as well as become a full flat bed. Each seat is equipped with a foldable LCD TV, a tray table, socket and reading lamp.

First-class seats are very spacious and can rotate 180 degrees. There is a system for news, music and video. Rows of roomy, adjustable seats in second-class cars are arranged two plus three across. Each seat row in first- and second-class has electric sockets for charging mobile phones, computers and other devices. WIFI will be installed in the trains. Passengers can use the phone or Internet, something not possible on many flights.

Distribution And Pricing

All HSR tickets have standard prices. There are no discounts during periods of low demand. However, prices may be set higher during key travel dates or holidays such as Spring Festival. Train tickets must be purchased online, at railway station ticket offices or at a designated agency no more than 10 days in advance. There is no name printed on the ticket. Refunds are made at the railway station, and usually passengers must pay an administrative fee of 20 percent or 50 percent for cancellations. Designated agencies have right to sell railway tickets but cannot issue refunds or provide other services.

Railway tickets are not offered through China's TravelSky reservations system. Currently, a one-way second-class ticket on Beijing-Shanghai HSR costs 555 Yuan (US$86). HSR ticket prices for first class are 935 Yuan (US$145), and 1,750 (US$270) for business class. The price of a second-class HSR ticket is equivalent to about 35 percent of monthly disposable income for urbanites.

"Distribution has improved substantially on HSR since the Beijing-Shanghai route started," said Florence Zhong, sales director in China for *Sabre Travel Network*®. "Previously, travelers had to go to the train station or to a designated train agency to purchase tickets. Now online purchase has provided an additional channel for distributing train tickets. However, it will still take time to integrate HSR into airline distribution systems."

Current HSR fares will attract many travelers on short-distance journeys; however, business travelers are not as price sensitive, so they will choose the most efficient way to travel.

"For many Chinese travelers, ticket prices on HSR may still be considered relatively expensive, and there are other options available such as regular trains and buses," said Zhong.

Airlines Fight Back

Beijing-Shanghai is one of the largest city pairs in the world for air travel and is an important business market. It is among the most profitable domestic city pairs for China's airlines. The average load factor on the route is 85 percent.

Currently, there are 47 daily round trips between Beijing and Shanghai, of which 39 operate from Shanghai's Hongqiao airport and the other nine from the international airport of Pudong, further away from the city center than Hongqiao. Twenty-eight flights are operated by China Eastern Airlines and its newly acquired affiliate Shanghai Airlines. Air China, the second-largest airline on the route, operates 16 flights. Total daily airline capacity is just over 12,000 seats each way. More than 80 percent of departures are on

Photos: ImageChina

Stiff Competition China's bullet trains are expected to lure a number of passengers from airlines. As a result, carriers may have to assign smaller aircraft to specific routes or offer lower ticket prices.

wide-body airplanes such as Boeing 777 and Airbus A330, which have just over 300 seats.

By comparison, there are 34 daily HSR round-trip services between Beijing and Shanghai, offering up to 36,000 daily seats each way with each train having a capacity of more than 1,000 seats per departure.

China Eastern and Air China are taking dramatic steps to minimize market share loss. They have added frequency, streamlined passenger check-in, created dedicated check-in counters and security channels, and implemented additional services such as accelerated baggage claim areas for passengers.

They have also added free shuttle buses to and from the airport. According to *Beijing News*, airlines are expected to park a spare plane at both airports. They will also assign guides at airports to help passengers arriving late get on board in a short period of time. Air traffic control departments are being urged to give priority to Beijing-Shanghai flights when circumstances affect schedules, such as thunderstorms or military maneuvers. Paradoxically, there will also be cooperation between air and rail. Airlines will put passengers on fast trains if flights are seriously delayed or canceled.

China Eastern offers services such as online check-in and the ability to book trips weeks in advance to help retain business travelers. It also plans to make travel more flexible by allowing passengers to fly into Shanghai and then leave from another city at no extra cost.

To compensate for exposure to HSR, China's airlines are looking to international markets. China Southern is accelerating the pace of its international expansion and intends to increase international operations to 30 percent of total routes by the end of the year and to 40 percent over the medium term.

"It's part of the efforts to build up and enhance our long-haul flights on our global route network," said Kong Fansheng, the carrier's vice president of its Beijing branch. "We have set up a tri-hub international route map based on Guangzhou, Beijing and Urumqi."

China Eastern is also increasing focus on international markets. Chairman Liu Shaoyong has said high-speed rail will make it difficult for shorter air routes to be profitable. He stated the airline would "step up its exploration of the global market."

Taking the "if you can't beat them, join them" approach, the airline's deputy general manager, Li Junalso, said airlines should "seek cooperation with high-speed railways to explore international markets they can't reach." Railway officials signed an agreement with China Eastern to integrate services in the future. The Beijing-Shanghai HSR will establish a combined transport service at the Shanghai station with China Eastern, enabling passengers to transfer from railways to airplanes without taking other transportation.

HSR Expansion The expansion of China's high-speed rail represents the world's largest HSR network dedicated to passenger transportation. The network is targeted to reach more than 13,000 kilometers (8,100 miles) by the end of 2011, and at least 25,000 kilometers (16,000 miles) by the end of 2015. Future plans include extending the network even further to possibly 45,000 kilometers by 2020.

Passengers from Tokyo, Seoul, Chinese Taipei and Hong Kong who travel by air can take HSR to Wu Xi, Hangzhou and other cities in Yangtze River Delta region. Passengers will be able to book tickets both for airlines and trains at the designated China Eastern Airlines' site. In addition, ticket-changing service for the two modes of transportation will be accessible at both rail and airline companies.

Air China's Chairman Kong Dong actually sees the nation's high-speed rail network as both a challenge and an opportunity. He stated there would be opportunities to cooperate with high-speed rail, including through codeshare agreements between airlines and rail.

"Airlines and high-speed railways are not like water and fire. Each has its own advantage," he said.

Questions And Concerns

HSR development and safety have been under criticism almost from the onset. Key issues include:

- The high cost to develop the network,
- Top level of corruption and concerns about construction quality,
- Low ridership.

High-speed rail plans have been highly controversial. Some Chinese complain that the new services are effectively forcing up the price of rail travel by reducing the number of cheaper, slower-speed trains.

Professor Zhao Jian has been a longtime critic of high-speed rail. He believes the cost of the project might have created a hidden debt bomb that threatens China's banking system.

"In China, we will have a debt crisis — a high-speed rail debt crisis," he said. "I think it is more serious than your subprime mortgage crisis. You can always leave a house or use it. The rail system is there. It's a burden. You must operate the rail system, and when you operate it, the cost is very high."

The Railways Ministry's debt stands at US$276 billion, almost all borrowed from Chinese banks. Critics claim that fares are too expensive and the majority of Chinese need cheap transportation instead of record setting speeds.

Part of the cost problem has been that each segment of the system has been far more expensive to build than initially estimated. Many trace high costs directly to corruption during construction. Earlier this year, China's railway minister and deputy chief engineer were removed from office after auditors discovered problems with overcharging, unexplained costs and fake receipts.

The highly publicized HSR accident that took place in July near the city of Wenzhou resulted in suspending new HSR construction and recalling problem-plagued trains. The accident, combined with expert warnings of costs and dangers, persuaded the government to scale back development and slow the unsustainably fast expansion. After the accident, the government announced a speed reduction on second-tier trains operating at 250 kilometers per hour to slow to 200 kilometers per hour and launched a nation-wide safety inspection.

A 5 percent cut in ticket prices was also announced to boost lagging ridership, along

Easy Access High-speed rail stations are conveniently located near city centers and are easily accessible to residents of Beijing and Shanghai as well as nearby areas when combined with subway and bus service. Beijing's South Station is six kilometers south of Tiananmen Square.

with a reduction in the Beijing-Shanghai HSR schedule.

"High-speed railways will lose their competitiveness against airlines after the speed cut," said a source from the railway authorities told the *21st Century Business Herald*. "That would be bad news for the Ministry of Railways, which is already in huge debt, and for industries participating in the project."

In August, the manufacturer announced it recalled 54 trains following repeated delays that were blamed on equipment failure.

Going Forward

If safety concerns are overcome and development takes place as originally planned, HSR will create traffic diversion and apply revenue pressure on China's airlines. The shift of passengers from air to HSR could be short term based on strong historical and projected growth rates in air travel. China Eastern's deputy general manager, Li Jun, does not expect the HSR network to have a major impact. He said the airline sector is still in a growth stage and the industry in China still offers tremendous growth potential. As China's economy continues to grow, experts believe there is room for both types of transportation. Passenger demand is projected to more than triple by 2020.

Revenue pressure will be permanent. Airlines must offer deeply discounted fares to compete with HSR. Airlines will be vulnerable in high-demand periods where they typically offer fewer cheap seats and withdraw discount fares to bring in high revenues. Passengers will consider cheaper HSR as an option.

Chinese carriers will need to adopt different strategies to avoid direct competition from HSR. Among them are development of hub-and-spoke networks, operating longer routes, expanding internationally, and tie-ups through codeshares and global alliances. On short-distance markets, airlines will have to look for markets where HSR will not reach, such as in the southwest and northwest, or face tough competition with HSR. To deal with pressures on profitability brought by HSR competition, China's airlines will also have to focus on constant cost control.

China's airlines have some advantages versus HSR. In some cases, the higher cost of air service may not be a determining factor for passengers whose business travel is paid by their companies. More importantly, airline frequent flyer programs are highly valued since they provide a means for families to take vacations.

However, HSR needs to overcome safety and reliability problems, most importantly, and regain public confidence. China has 13 high-speed rail lines in operation, with 26 under construction and 23 more planned. Their current status is unclear.

More than 2,700 years ago, it took Chinese Philosopher Confucius a week to travel from his home town of Qufu to Jinan to teach. If he could travel today, the HSR trip would take less than an hour. Posters and banners in his home town read, "High-speed railway changes life."

There is no question that it will affect the lives of millions of Chinese and cause ripples in China's domestic airline industry.

Morgan Stanley on China high-speed rail

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