



GROUPINGS OF REGIONAL CITIES IN THE AIRPORTS AND AVIATION SECTOR

Category 1 – A large market with clear aims and objectives

Category 2 – A large market with growing aims and objectives

Category 3 – An emerging market with growing aims and objectives

Category 1			Category 2			Category 3		
Chengdu	Suzhou	Xiamen	Baotou	Dongguan	Shaoxing	Foshan	Ordos	Wenzhou
Hangzhou	Tangshan	Xi'an	Changchun	Dongying	Wuhan	Harbin	Qingdao	Yantai
Nanjing	Tianjin		Changsha	Jinan	Wuxi	Hefei	Shijiazhuang	
Shenyang	Weifang		Changzhou	Nantong	Zhengzhou	Ningbo	Weihai	
			Dalian	Quanzhou	Zibo			

China is in the midst of a RMB1.5 trillion accelerated programme to increase the number of airports. Between 2005 and 2010, 33 new airports were constructed, with an equal number renovated or expanded, bringing the total number to 175. According to the Civil Aviation Administration of China, by 2015 China will have over 230 airports, requiring over 4,500 aircraft and offering a capacity to carry 450 million passengers each year. The number of airports is projected to continue increasing to 270 by 2020 and 300 by 2030. The next five years will see the greatest growth in airport development in China's history.

By the end of 2010, Beijing Airport had overtaken London Heathrow as the world's second-largest airport by passenger numbers. Shanghai Pudong is now the world's third-largest airport by cargo volume.

Chinese domestic air-cargo volume increased by 52 per cent in 2010. It is no surprise then that DHL, which already operates three global hubs in Hong Kong, Leipzig and Cincinnati, has announced a fourth global hub to be based in Shanghai, covering their China and North Asian routes.

With many Chinese cities announcing ambitious plans for airport expansion, a range of opportunities are being created for UK companies. Beginning with infrastructure development, there are many requirements such as engineering service centres, cargo and passenger-handling technology, and training for both crew and staff. There are also a multitude of opportunities to supply to Chinese and localised foreign-invested manufacturers.

AIRPORT GROUPS

Under the recently announced 12th Five-Year Plan, China is to form five Airport Groups, which will act as airport economic zones supporting air logistics and the aviation industry in general.

The five groups are:

The Northern Airport Group:

The centre of this group, and a major international aviation hub, is Beijing Capital Airport. The provinces and municipalities covered will be Beijing, Hebei, Heilongjiang, Jilin, Liaoning and Tianjin. Regional hubs will be operated from Harbin, Shenyang, Dalian and Tianjin. Shijiazhuang, Taiyuan, Hohhot and Changchun will operate as supporting airports. Emphasis is being given to the development of Harbin as a hub into the North East of China and to the development of Mohe, Daqing, Erlianhot and Fuyuan for the expansion of routes into Eastern Russia.

Shenyang will finish reconstruction of the Taoxian airport terminal, complete a second runway, and open extra facilities for cargo handling and a catering centre. Two industrial parks are being created to house engineering companies and component manufacturers. **Shijiazhuang** will build a new terminal, extend the runways to facilitate wide-bodied aircraft, and construct new warehousing with international customs clearance.

The East Airport Group:

The centre of this group, and a major international aviation hub, is Shanghai Pudong Airport. The provinces covered will be in the Yangtze River Delta (Shanghai, Zhejiang, Jiangsu and Anhui), Jiangxi, Shandong and Fujian. Regional hubs will be operated from Shanghai Hongqiao, Hangzhou, Nanjing and Xiamen. Qingdao will be developed as a gateway to and from Japan and South Korea. Other supporting airports will be Jinan, Fuzhou, Nanchang, Hefei and the new airport in Jiuhuashan, currently under construction.

Hefei will finish construction of the Xinqiao International Airport and, as the provincial capital of Anhui, will begin planning for smaller airports within the province. **Jinan** will push forward with the expansion of its international airport terminal by adding better facilities for cargo handling and passenger services. **Nanjing** will complete the second phase of Nanjing Lukou Airport, while the airports of Liuhe, Daxiao and Tushan are being redeveloped. Nanjing is encouraging companies with technology related to navigation control systems to establish themselves in the area. **Nantong** is speeding up the development of Xindong Airport; due to improved road links to Shanghai Pudong, the aim is for Nantong to be an auxiliary passenger and cargo airport to Shanghai. As stated above, **Qingdao** will focus on the development of links to

Japan and South Korea. To facilitate this, a new airport will be constructed with larger facilities for maintenance and engineering. **Weihai**, another Shandong city, is expanding its existing airport to handle international services to Hong Kong, Japan and South Korea. **Wenzhou**, **Wuxi**, **Quanzhou** and **Yantai** will all expand runways and new terminal buildings. **Xiamen** plans to further develop its position as an aircraft maintenance service centre for large commercial aircraft, encouraging new high-tech companies in R&D and manufacturing. It will also open a second international airport.

The Central Airport Group:

The centre of this group, a major international aviation hub, is Guangzhou Baiyun Airport. The provinces covered will be in the Pearl River Delta (Guangdong), Hunan, Guangxi, Hubei, Henan and Hainan. Regional hubs will be operated from Shenzhen, Wuhan, Zhengzhou, Changsha, Nanning and Haikou. Sanya and Guilin will be developed to promote tourism in these regions. Other supporting airports will include Bose in Guangxi Province and Hengyang in Hunan Province, which require development.

Wuhan will complete the third phase of Tianhe Airport, opening new international and domestic services. It will also encourage companies involved in the development of low-altitude aircraft to establish themselves

Tianjin is the location of the first Airbus final assembly line to operate outside of Europe. The production site for A320 aircraft is a joint venture between Airbus, Tianjin Free Trade Zone (TJFTZ) and China Aviation Industry Corporation (AVIC). This facility currently delivers two A320 a month with anticipated production rising to four a month by the end of 2012.

Harbin Hafei Airbus Composite Manufacturing Centre is an eco-efficient joint venture located in Harbin that will produce composite parts for the new-generation A350 XWB jetliner.

The Chinese supply chain includes **Shenyang** Aircraft Corporation which produces and assembles the emergency exit doors and manufactures fixed leading edges, wing interspar ribs, cargo doors and skin plates for the A320. **Chengdu** Aircraft Corporation supplies the rear passenger door and parts of its nose sections.

Xi'an Aircraft Company produces electronic bay doors for the

A320 and A330/A340, as well as the fixed trailing edges on wings for the A320 and the brake blades and medium air ducts for the A330/A340. Also in **Xi'an**, Hong Yuan Aviation Forging & Casting produces titanium forging parts to mount power plants on to wings. Guizhou Aviation Industrial Group produces maintenance jigs and tools for Airbus aircraft.

The Airbus Beijing training centre set up in 1998 houses two full simulators, one for the A320 and one for the A330/A340. The centre trains maintenance engineers, cabin crew and pilots, many of whom come from outside China.

Also in Beijing is the Airbus customer support centre, which stocks approximately 25,000 spare parts available for dispatch to airlines in the Asia-Pacific. In addition, more than 20 European and American vendors supporting Airbus customers operate out of the centre, which also has a dedicated avionics repair workshop.

Rolls-Royce recognises that the market outlook for China is excellent as Chinese airlines are forecast to double their share of international air traffic to 16 per cent in the next 20 years. They already supply all of China's major airlines including Air China, China Eastern, China Southern, HNA Group (Hainan), Sichuan Airlines and Xiamen Airlines.

The Trent 700 engine, which powers the Airbus A330 is particularly successful in China as the fuel efficiency, whether deployed in long or short haul routes, make it an ideal solution to China's increasing number of international and domestic routes.

A symbol of Rolls-Royce's strong relationship with the Chinese aviation industry is the training facility in **Tianjin** operated by Rolls-Royce and CAAC. It was opened in 1997 for the training of technicians, engineers and managers.

Xian XR Aerocomponents is a high-tech joint venture with the Xian Aero Engine Company. XR Aerocomponents casts and machines turbine nozzle guide vanes (NGV) for use in the BR710 for the Gulfstream V and Bombardier Global Express, and the BR715 for the Boeing 717, and the Tay engine powering the Gulfstream IV and Fokker 100. Xi'an Aero Engine is also an approved classified parts supplier to Rolls-Royce.

Sichuan ChengFa Aero Science and Technology in **Chengdu** is a strategic supplier to Rolls-Royce for rings, sheet metal and fabrications. Beijing Aero Lever Precision Limited produces VSV levers for Trent, V2500 and BR700 series engines. **Shenyang** Liming Aero-Engine Group Corporation produces heat shield rings for the BR700 series.

in the city. Changsha and Nanning will extend airport facilities and open new domestic routes to facilitate their position as transport hubs.

The Southwest Airport Group:

The three cities of Chengdu, Chongqing and Kunming will form the centre of this group, with emphasis on Kunming as an international route to Southeast Asia. The provinces covered will be Chongqing, Sichuan, Yunnan, Guizhou and Tibet. Supporting airports will include Lhasa and Guiyang, with development required for Tengchong in Yunnan Province and Daocheng in Sichuan Province.

Chengdu, already a major centre of aviation development and manufacture, aims to

further develop R&D and manufacturing in the city for both key components to supply Airbus and for the aircraft industries. Guiyang plans to complete the reconstruction and expansion of Longdongbao Airport.

The Northwest Airport Group:

The two cities of Xi'an and Urumqi will form the centre of this group, with an emphasis on strengthening Tianshui (between Xi'an and Lanzhou) as an economic zone and supporting the development needs of Xinjiang Province. Urumqi will also act as a gateway to and as a gateway to and from central and southern Asian countries such as Pakistan and Kazakhstan. The provinces covered will be Shaanxi, Gansu, Qinghai, Ningxia and Xinjiang. Supporting airports

will include Lanzhou, Yinchuan and Xining. The Xinjiang airports of Korla in Bayingol, Kashgar, and Shihezi all require upgrades, as does Yushu in Qinghai.

Xi'an will complete the construction of the third terminal and second runway at Xianyang Airport. This is required to meet the expansion of direct international flights to Europe and North America. Urumqi will complete a fourth terminal and second runway at Diwobao International Airport and start plans for a second airport. Lanzhou will start work on the expansion of Zhongchuan Airport to increase routes within China and international services to Japan, South Korea and Hong Kong.



TRAINING

The importance of training for China's aviation industry cannot be underestimated. The number of skilled pilots, cabin crew, engineers, and experts in communications, logistics, safety and catering is lagging behind the growth of the industry. Airbus and Rolls-Royce recognised this very early on and established training centres with their Chinese partners. China's first low budget airline Spring Airlines has recently stated that as part of their expansion of

routes to Japan and South Korea, they will enjoy the added benefit of being able to recruit overseas pilots. **Qingdao** and **Nantong** are two cities which have specified the development of training centres across all relevant fields within their next Five-Year Plan.

The UK has a long history of implementing the highest standards for training in the industry. These are talents which can be transferred to the developing Chinese market.

CONSTRUCTION AND DESIGN

Terminal 3 at Beijing International Airport was designed by architects Foster+Partners and built by the engineering group Arup. Arup were also involved in the design & construction of Shenzhen Bao'an Airport. With such a high profile example of UK expertise and with the number of airport construction projects under development in China, there are opportunities for many more UK architectural firms and engineering companies to be involved in the development of China's airport expansion plan.

SUPPLY CHAIN

Integration into the local supply chain provides opportunities, be it with multinationals such as Boeing, Airbus, Bombardier (Shenyang) or Embraer (Harbin) or with divisions of China's AVIC and COMAC. A localised presence is a factor in gaining and maintaining sales. This can be either through Joint Venture with a local partner or as a Wholly Owned Foreign Enterprise.



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