

波音

Partners in flight

Fast-growing China aviation market presents opportunities for both Boeing and China



By Eric Fetters-Walp

People in China have sought ways to soar in the skies for millennia, beginning with the world's first known kites more than 2,000 years ago. By the 13th century, Chinese military leaders were using rockets.

And when the age of flight dawned in the early 20th century, Chinese-born Feng Ru gained nationwide attention in the United States by testing a powered airplane in 1909, just a year after the Wright Brothers' first powered flight. When Bill Boeing sought the first aeronautical engineer for his company in 1916, he hired Wong Tsoo, who helped to design the Model C seaplane, Boeing's very first production airplane.

From that storied history, China's aerospace industry and airlines are propelling fast into the future, with Boeing poised to provide airplanes, manufacturing capability and quality and aviation services. President Hu Jintao of China has called Boeing a household name in that country, and it needs to remain such as competition grows, said Shep Hill, president of Boeing International.

"We have to make sure that even though China is familiar with Boeing and recognizes a legacy of cooperation, that we continue to look forward together."

— Shep Hill, president of Boeing International

PHOTO: Symbolic of the close partnership between Boeing and China, an Air China Next-Generation 737 flies over China's Great Wall.

PHOTO ILLUSTRATION: BRANDON LUONG/BOEING; **AIRPLANE PHOTO:** JIM COLEY/BOEING; **GREAT WALL PHOTO:** SHUTTERSTOCK.COM



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– David Wang, president of Boeing China

“We have to make sure that even though China is familiar with Boeing and recognizes a legacy of cooperation, that we continue to look forward together,” Hill said.

China’s potential importance to Boeing is difficult to overstate. “The numbers speak for themselves,” Hill said. “It has more people than any other country in the world. The economy in the last 20 years has grown faster than any other developed or emerging nation in the world. Even in this time of global recession, its economy has grown about 9 percent this year.”

“It’s the largest market outside the U.S. for commercial airplanes, period,” added John Bruns, Boeing Commercial Airplanes vice president of China Operations. “The potential growth in demand for air travel as China’s economy grows is staggering—it’s huge.”

Consider that of the 850 airplanes Chinese airlines have ordered from Boeing since President Richard M. Nixon’s historic visit to China in 1972, more than 60 percent of those orders have come

since 2000. In the past nine years, the commercial airline fleet in China has more than doubled, to more than 1,300 airplanes. The number of commercial airline passengers soared from 83 million to 202 million during that same period, according to the International Civil Aviation Organization.

But the future need for airplanes presents even greater potential for Boeing and competitors. Chinese airlines are expected to need 3,770 airplanes between now and 2028—with a market value of \$400 billion—according to Boeing’s latest Commercial Market Outlook. Randy Tinseth, Commercial Airplanes vice president of Marketing, calls it the “most dynamic aviation market in the world.” About 53 percent of the commercial jetliners flying in China are Boeing models; 36 percent are from Airbus.

Because of China’s huge demand for airplanes, it’s easy to focus on China as the next big market. But Bruns said that’s a one-dimensional approach. “We don’t view China just as a market,” he said.

中国

China at a glance

PHOTO: (BELOW) China’s Beijing National Stadium was built for the 2008 Summer Olympics. It was nicknamed the Bird’s Nest because of the structure of steel beams.
SHUTTERSTOCK.COM

Formal name: People’s Republic of China

Location: Eastern Asia, bordering Russia, Mongolia, North Korea, Vietnam, Laos, Myanmar, India, Bhutan, Nepal, Pakistan, Afghanistan, Tajikistan, Kyrgyzstan and Kazakhstan

Area: More than 3,700,000 square miles (9,600,000 square kilometers), similar in size to the United States

Population, 2008: 1.32 billion people; ranked first in the world

Capital: Beijing

Other major cities: Shanghai, Tianjin, Chongqing, Guangzhou and Hong Kong

Gross domestic product, 2008: RMB 30,067 billion (U.S. \$4.4 trillion); ranked fourth worldwide

GDP growth rate, 2008: 9 percent

Largest export partners in 2008: European Union, United States and Japan

Sources: Chinese government Web sites, World Bank



"It's a lot more than that. We're looking to broaden and deepen our relationship with China."

Boeing and China already have long-standing ties on several fronts, with supplier contracts dating back to the mid-1970s. All of Boeing's commercial airplane lines, from the 737 to the 787 Dreamliner, now incorporate parts made in China. Since the 1980s, Boeing has purchased Chinese aviation hardware and services worth \$1.5 billion, and that procurement total is expected to double in the coming years. Boeing remains the largest single customer of China's aviation industry.

China also is home to the first conversion facility for the 747-400 Boeing Converted Freighter. Additionally, Boeing is involved in several Chinese joint ventures providing airplane parts and services.

Overall, there are 150 Boeing employees in China, with more than 6,100 employed in joint ventures and subsidiaries. And those numbers are growing, said David Wang, president of Boeing China. In recent years, the company's office in Beijing has added its own Human Resources staff and programs to address ethics, university relations and technology. Its communications and Global Corporate Citizenship programs also have expanded, Wang said.

"Not only in the number of people but also in the number of functions, we have grown significantly," Wang said. "The most important thing is, we've grown local employees much more than expatriots. So we have some good local leadership here."

Developing talented local employees, Wang said, will assist Boeing as competition between airplane makers heats up in China. In May, the first Airbus A320 assembled in a new joint venture plant in Tianjin took to the air. Airbus has been as active as Boeing in courting orders from Chinese airlines. Additionally, China's aerospace industry is preparing to produce its own commercial airplanes, starting with a 737-size model, in the next half-decade.

"That's going to happen. We have to find a way in China to both partner and compete," Tinseth said. "I'm confident we can find a way through that."

Wang said Boeing can benefit by talking more to the Chinese public about how Boeing's presence and programs across the nation have real value.

"Boeing still is very much a household

PHOTO: An employee of Shanghai Aviation Manufacturing Corp. installs a fastener on a 737 horizontal stabilizer.

YONG HE



name,” he said. “But we need to work hard to be not just a household brand, but to be known as the superior brand in China.”

To accomplish that, Wang said, the marketing efforts in China are focused on what sets Boeing apart from its competitors. That includes the company’s biofuels initiative, which has garnered attention among media, government and industry officials there.

Boeing’s services also can differentiate the company from competitors. In addition to providing airplanes to China, Boeing has played a large role in modernizing the country’s commercial aviation infrastructure, Tinseth said. Since 1993, Boeing and its subsidiary, Boeing Training & Flight Services, formerly Alteon, have trained more than 37,000 aviation professionals in the country as part of an initiative undertaken with the Civil Aviation Administration of China. The two also have worked on improving air traffic systems as the nation’s airline routes grow quickly, especially in the eastern half of China. With Boeing’s assistance in training and safety, the country’s commercial airline system today boasts a safety record rivaling that of the United States and Europe.

As China’s airlines grow and change with the market, Boeing has worked to keep strong customer relationships with them. Xiamen Airlines, one of China’s most profitable airlines, has succeeded with an all-Boeing fleet, and five Chinese airlines are on the 787 launch team. Tinseth said Chinese airlines remain strong Boeing customers, despite the Dreamliner program’s setbacks.

“With the 787 delays, it’s challenged our relationship. The only thing we can do to repair that is to deliver. I’m confident we can build back our credibility, but we have to perform,” Tinseth said.

In the meantime, Boeing has distinguished itself by supporting China’s emerging aircraft financing and leasing community. As the country looks to turn its considerable intellectual and capital resources into profit opportunities in jetliner financing, Boeing Capital Corp. has shared its expertise for mutual benefit.

BCC’s Asia-based financing team has worked to draw Chinese bankers to regional financiers’ events. With China’s support, it brings executives to Seattle to



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– John Bruns, Boeing Commercial Airplanes vice president of China Operations

learn the intricacies of airline planning and aircraft leasing. During the past year, Boeing actively began introducing non-Chinese airlines to local bankers seeking foreign investments. Additionally, BCC President Walt Skowronski signed cooperative agreements with China’s four leading banks working in aviation.

“In Asia, you need to demonstrate that you are part of the community,” said Foster Arata, BCC vice president and managing director for Asia Pacific and Greater China. “Unless you demonstrate that you’re willing to establish yourself and participate in the community, you won’t become a trusted, reliable partner. And people in China communicate how appreciative they are for what Boeing is doing.”

Those running Boeing’s businesses in China say it’s hard to convey, to those who have not witnessed it, how fast China has changed in one generation. And doing business there requires an ever-changing knowledge of how industry and the government interact.

“But Chinese culture doesn’t change, and in order to work in China, you need to

have an understanding of the history and culture,” Bruns added.

The company’s history with China and expanding links with Chinese airlines, manufacturing partners and financial institutions give Boeing a solid platform from which to build. But increasing competition in China means Boeing can’t depend solely on its past successes, Wang said. Instead, Boeing must continue to grow China’s role as both a customer and supplier.

“We must be successful in China. There’s no alternative,” Wang said. “It’s so important to our future.” ■

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PHOTO: (RIGHT) The blue and white livery of Xiamen Airlines matches the sky overhead as a Next-Generation Boeing 737 awaits delivery ceremonies in Seattle.

JIM ANDERSON/BOEING



Flying high

With an all-Boeing fleet, Xiamen Airlines charts a course for success

Xiamen Airlines is a prime example both of the vibrant, forward-thinking Chinese aerospace industry and the potential for Boeing in the dynamic Asian aviation marketplace.

With its strategy of operating an all-Boeing fleet—including 54 Next-Generation 737s, with another 60 on order—Xiamen Airlines has earned a profit for 22 consecutive years, one of the most consistently successful financial performances in the Chinese aviation industry. Xiamen is a domestic carrier, operating more than 150 routes in the regional markets of Fujian and East China. It also flies a select number of regional international routes and recently opened an office in Taipei to support the cross-straits traffic.

“The capacity of the Next-Generation 737 perfectly matches Xiamen Airlines’ operations, market position and route network,” said Xiamen Airlines President Che Shanglun. “The aircraft’s high reliability and low operations and maintenance costs are crucial factors in our market advantage.”

“Xiamen Airlines is a key Boeing partner in China,” noted Rob Laird, vice president, China/East Asia Sales, Boeing Commercial Airplanes. “We are very proud of its decision to build an all-Boeing fleet based on the Next-Generation 737.”

Xiamen executives describe the company as a “high-quality,” rather than a “low-cost,” airline, targeting mainly mid- and high-level business travelers. The carrier’s business model is designed to optimize revenue by retaining adaptability to a wide range of markets, including leisure and family travelers. Customer service

is at the heart of its market approach, with special emphasis on punctuality and convenience, and of course safety.

In June 2009, the International Air Transport Association, one of the airline industry’s leading international trade groups, recognized Xiamen Airlines with an award for its safety record.

Its domestic focus has helped Xiamen Airlines weather the global financial downturn. The domestic Chinese airline market has been less affected by the financial crisis than other sectors of the global industry, helping Xiamen to remain profitable.

The airline also credits Boeing products, services and support for helping build its marketplace success. “Boeing has provided real vision and comprehensive services through the years,” Che said.

With a solid track record of marketplace success, Xiamen Airlines is looking to become “the airline with the best investment value in China” by 2020. The carrier plans to add routes to its East China-based network, connecting the Chinese mainland with Hong Kong, Macao and Southeast Asia. Airline executives point out that more routes mean the need for more Boeing airplanes.

Airline executives also look forward to a continued successful partnership with Boeing. “For more than two decades, we have worked together with mutual trust and shared knowledge and skills,” Che pointed out. “It is a model that is exemplary in the aviation industry and the world.”

— Patrick Summers

飞机

airplanes

China's



Air China Group

Headquarters: Beijing

Fleet: 237 airplanes, including 108 737s and Next-Generation 737s, 20 747s, 13 757s, 10 777s, and seven 767s, as well as BAe and Airbus airplanes. It also is a launch-team customer for the 787 Dreamliner. Air China Cargo flies nine 747 freighters.

China Eastern Airlines Group

Headquarters: Shanghai

Fleet: 229 airplanes, including 58 737s and Next-Generation 737s, three 767s, and nine MD-90s, as well as Airbus and smaller regional models. It also is a 787 customer.

China Southern Airlines Group

Headquarters: Guangzhou

Fleet: A customer on the 787 launch team, this airline's fleet of nearly 300 airplanes includes 98 737s and Next-Generation 737s, two 747s, 18 757s, and a dozen 777s, in addition to two DC-9s and 13 MD-90s. The airline also flies Airbus and Embraer airplanes.

Hainan Airlines

Headquarters: Haikou

Fleet: As the largest privately owned airline in China, Hainan's fleet of 95 jetliners includes 80 737s and Next-Generation 737s, three 767s, and several Airbus models. Hainan also is a 787 customer.

PHOTO: Xiamen Airlines Boeing 737s and 757s await early morning departures. XIAMEN AIRLINES

major airlines



Shanghai Airlines

Headquarters: Shanghai

Fleet: 55 airplanes, including 32 Next Generation 737s, 10 757s, seven 767s, one Hawker 800 and five CRJ-200s. Shanghai Airlines is also a 787 launch-team customer.

Shenzhen Airlines

Headquarters: Shenzhen

Fleet: 81 airplanes, including 43 Next-Generation 737s and nine 737s, as well as Airbus models.

Shandong Airlines

Headquarters: Jinan

Fleet: 38 airplanes, including 31 737s and Next-Generation 737s and regional jets.

Sichuan Airlines

Headquarters: Chengdu

Fleet: 43 airplanes, all Airbus and Embraer models.

Xiamen Airlines

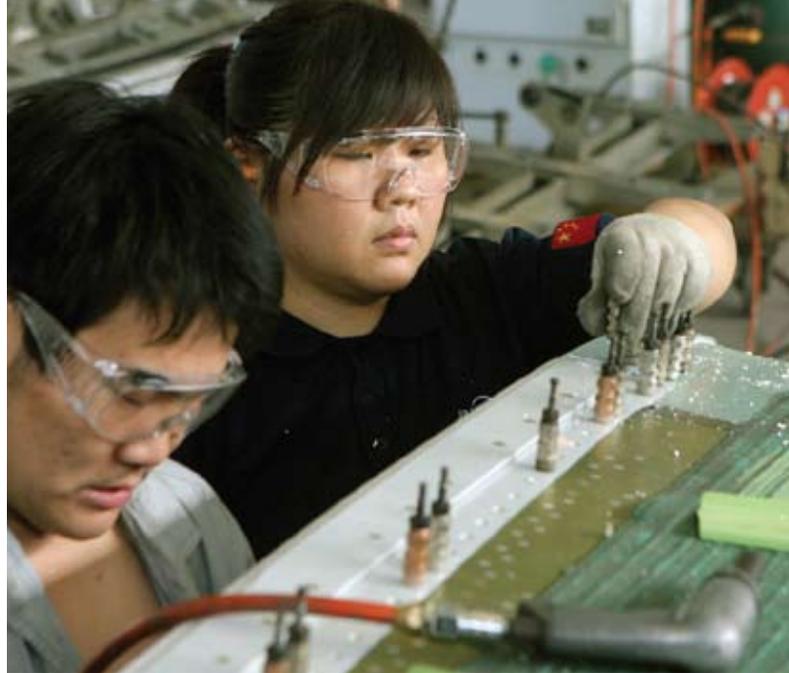
Headquarters: Xiamen

Fleet: All-Boeing fleet of airplanes consists of 737s, Next-Generation 737s and 757s.

Other Chinese passenger and cargo airlines include China Cargo Airlines, China Postal Airlines, China United Airlines, Chongqing Airlines, Deer Jet, Donghai Airlines, East Star Airlines, Grandstar Cargo, Great Wall Airlines, Jade Cargo International, Juneyao Airlines, Kunpeng Airlines, Lucky Air, OK Air, Spring Airlines, Tianjin Airlines, United Eagle Airlines and Yangtze River Express.

Sources: All airlines listed above and Boeing

Part of the 团队 team



Chinese suppliers are a vital link in Boeing aircraft production

Chinese aerospace firms are producing parts for Boeing's newest airplanes, the 787 Dreamliner and 747-8, but China's role as a supplier is not new.

Since shortly after Boeing sold its first airplanes to China in the early 1970s, the nation has grown as a vital supplier for all of the company's airplanes. Additionally, Boeing now has a stake in several joint ventures, such as Boeing Tianjin Composites Co. (BTC), that produce aircraft components.

"Boeing partnerships in China are strategically chosen for long-term benefits to all," said Kenneth Yata, vice president, Business Development, Boeing China. "The company works on projects that help Chinese partners gain technical and manufacturing experience, which enables the delivery of aviation products with superior quality and value."

As of today, 5,700 Boeing jetliners—about 60 percent operating around the globe—include parts from Chinese manufacturers. Major parts and assemblies made by partners and suppliers in China include:

- For the Next-Generation 737, Shanghai Aviation Manufacturing Corp. makes horizontal stabilizers; vertical fins come from

Xi'an Aircraft International Corp.; 737 tail section modules are produced by Shenyang Commercial Aircraft Co.; and 737 doors come from Chengdu Commercial Aircraft Co.

- For the 787, Chengdu is building composite rudders; the leading edge for the 787 vertical fin comes from Shenyang; and Hafei Aviation Corp. is making various composite panels and components.
- For the 747-8, Chengdu is producing ailerons and spoilers; Xi'an is building wing parts, including the 747-8's inboard flaps, the single largest piece of aircraft structure that Boeing purchases from China.

Boeing Tianjin Composites is undergoing a \$21 million factory expansion and has a long roster of customers in addition to Boeing. Other joint ventures include TAECO in Xiamen, which plays the largest role in converting 747s into the new 747-400 Boeing Converted Freighter. This fall, Boeing Shanghai Aviation Services plans to open its new modification, maintenance, repair and overhaul service hangar at Shanghai's Pudong International Airport.

Additionally, key Boeing partners such as General Electric, Pratt & Whitney, Goodrich, Rolls-Royce and Vought all buy components from China or have aerospace manufacturing facilities there. Boeing and its supplier partners have active contracts with the Chinese aviation industry valued at more than \$2.5 billion.

David Wang, president of Boeing China, said these supplier and manufacturer relationships demonstrate to the Chinese government, industry and people that Boeing wants to be a big part of the nation's aerospace sector, providing training and jobs for the long term. That, in turn, helps to maintain Boeing's competitiveness in selling airplanes to China's airlines.

— Eric Fetters-Walp



"Boeing partnerships in China are strategically chosen for long-term benefits to all."

— Kenneth Yata,
vice president,
Business Development,
Boeing China

PHOTO: (ABOVE) Workers at Shanghai Aviation Manufacturing Corp. assemble a 737 horizontal stabilizer. **YONG HE**

桥 Bridge to better business

Local hire brings cultural expertise to Boeing's China Support Organization

Steven Jiang's value as an employee of Boeing China goes well beyond his many years of experience in aerospace. He is one of his group's most knowledgeable people on Chinese culture, language and business practices.

He's a local hire, the first Chinese citizen hired by the company's China Support Organization. Born Jiang Guoquan, he uses the name Steven on the job for the convenience of his English-speaking colleagues.

"In 2000, the China Support Organization included seven or eight expats [expatriates]—no local people," Jiang said. "They needed a bridge, someone to help them discuss technical information with Chinese aerospace people and regulators. Now we have seven local hires—three working in maintenance, three working in flight operations and an office administrator."

As a senior technical specialist, Jiang, 48, is an important link in providing technical support to Chinese airline personnel and the Civil Aviation Administration of China (CAAC). He also assists Commercial Aviation Services colleagues in conducting seminars, workshops and other activities. This includes handling logistics, schedules, liaison activities and the translation of technical information.

"My background is in maintenance and engineering, and part of my job is conducting evaluations of airlines' maintenance processes," he said. "The evaluation itself takes about two weeks and involves four to six people. After that, we write a report and hold a debrief session for the airline's senior management."

For example, Jiang led the Boeing team that evaluated how Chinese air carriers maintain mature airplanes, contributing to the recent completion of the mature airplane support project for CAAC. Another task involved assisting Air China in adapting Airplane Health Maintenance systems it recently purchased from Boeing.

Before joining Boeing, Jiang worked at the CAAC's Aviation and Technical Center as deputy director of airworthiness engineering and information services. His primary responsibility was Boeing fleet airworthiness management for all Chinese airlines.

Boeing and its airplanes have long been part of Jiang's career. In addition to his Boeing fleet responsibilities for the CAAC, he began his career as an airplane mechanic, working on Boeing 707, 747, 737 and 767 airplanes. He believes his years as a



"They needed a bridge, someone to help them discuss technical information with Chinese aerospace people and regulators."

— Steven Jiang, Boeing senior technical specialist, China Support Organization

mechanic were essential in preparing him for later career opportunities, including his work at Boeing China.

A program co-sponsored by Boeing and the CAAC in 1985 made Jiang one of the first Chinese aerospace professionals to receive a U.S. Federal Aviation Administration Airframe and Powerplant mechanic's license. He was one of four students selected to go to the United States to take the final examination in San Jose, Calif.

Although he spoke some English in 1985, Jiang's two years with the program greatly improved his knowledge and use of the language.

After becoming the first student to enroll in the Civil Aviation University of China (CAUC), Jiang graduated with a degree in aviation mechanical engineering. He also holds a master's degree in business administration from Rutgers University in New Jersey. In addition to working for Boeing, Jiang is also an honorary professor at CAUC, where he conducts classes for professors and advanced students on airline maintenance and engineering processes.

— Bill Seil

Working together 携手

Boeing liaison engineer keeps production, communications lines flowing



In 1989, a young Boeing engineer working in Washington state applied for a long-term assignment in Japan. He thought the experience would be an excellent opportunity to improve his interview skills.

When an interviewer asked Steve Morse if he'd ever been outside the country, he said that a month earlier he had visited Victoria, British Columbia, just north of Seattle.

To his surprise, Morse got the job, and it turned out to be a life-changing event.

Over the past 20 years he has held Boeing positions in Japan, Spain, Indonesia (where he also was responsible for Singapore, India and Pakistan) and twice near Xi'an, China.

"I grew up around airplanes," said Morse, 48. "My dad was a Marine Corps fighter pilot. I knew before I got my

engineering degree that I wanted to work for Boeing, but I never dreamed I'd be leaving Seattle, let alone living overseas."

Morse is the Boeing site leader and liaison engineer at Xi'an Aircraft International Corp. (XAIC), located just outside Xi'an. The Chinese aerospace company currently manufactures 737 vertical fins, 747-8 fixed trailing edge ribs and floor beams for converted 747 freighters.

As a liaison engineer, Morse offers technical and manufacturing support, and helps to resolve problems.

A sign posted prominently in Morse's office states, "Focus on the solution, not the problem." He works closely with his XAIC colleagues and believes their work ethic embraces this principle.

"I meet with the general manager once a week and we candidly share any issues we

may have," Morse said. "Some of these issues can be resolved in five minutes, while others may take days or even weeks. But there's always open communication. I also let him know when I see someone doing a particularly good job and [who] is deserving of recognition."

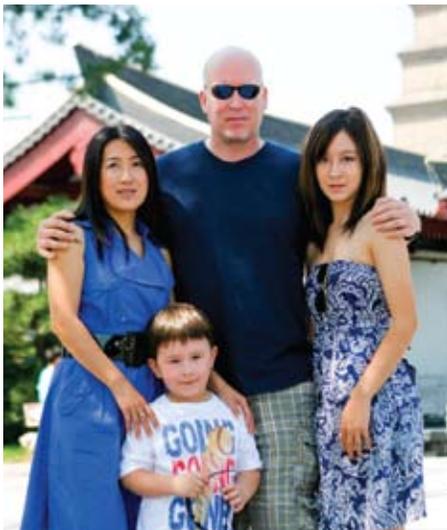
Morse said he is proud of the advancements XAIC has made, particularly in Lean manufacturing. Over the years the company has produced nearly 2,000 737 vertical tail fins.

Morse met Grace, his wife, in 1993, in downtown Xi'an. Two months later he moved on to an assignment in Indonesia, but they kept in touch. They were married in 1996 and moved back to Xi'an in 1997. They now have a daughter, Marlin, 12, and a son, Samuel, 4.

In Xi'an, they have frequent opportunities to visit Grace's family. They recently returned to the Seattle area on home leave and spent time in Morse's hometown outside of Seattle.

"I want my kids to understand and appreciate their unique American-Chinese heritage and hopefully become ambassadors for these two important countries in the future," he said.

— Bill Seil



"I want my kids to understand and appreciate their unique American-Chinese heritage and hopefully become ambassadors for these two important countries in the future."

— Steve Morse, Boeing site leader and liaison engineer, Xi'an Aircraft International Corp.

PHOTOS: (ABOVE) Steve Morse, Boeing's engineering liaison and site leader at the Xi'an Aircraft International Corp. plant, inspects a part in the 737 vertical fin assembly area. **(LEFT)** Morse (center) with his wife, Grace (left), daughter Marlin (right) and son Samuel. YANG BOWEN

Helping communities soar 飞翔

Boeing education projects excite students about math and science

To be successful in China, Boeing needs to see the nation not just as a promising market but also as a place to develop suppliers and invest in the country's people and their communities, according to David Wang, president of Boeing China.

Boeing Global Corporate Citizenship has stepped up its effort to demonstrate that, most notably with "Soaring with your dream," a technology and engineering-oriented school program launched in China a year ago.

Boeing worked with Chinese educational agencies to design a new aviation science curriculum to be used in 100 Beijing elementary schools this year, Wang said. The project could be expanded beyond Beijing in the coming years to other major cities in China.

Cao Yan, a science teacher at Dongguantou Primary School in Fengtai District of Beijing, is one of those teachers who went through the training course. A tutor to that school's model airplane club for the past eight years, Yan said the training has further advanced his aviation knowledge.

"Under the guidance of senior experts with years of experiences in the field, we learnt to make model planes, test and fly them. We are so happy to see the planes we made flying in the sky," Yan said in an appreciation letter to Boeing.

Wang said "Soaring with your dream" is just the latest of several education projects Boeing's been involved with in China over the past five years. In addition to helping the young people of this emerging country, the programs have raised Boeing's visibility in an important new market.

"This program is aligned with China's objectives and meets its education needs, while leveraging Boeing's strong reputation in aviation technology leadership and our sense of citizenship," Wang said.

The project also supports GCC's focus on education, which is one of five strategic focus areas that contribute to sustaining a community's well-being. The others are health and human services, arts and culture, civic awareness, and the environment.



"Investing in enhanced training opportunities for educators who work with children of all ages is one way that we can make a significant impact on how children learn and how they ultimately use their skills in the future," said Anne Roosevelt, vice president, GCC. "Our hope is that a positive early learning experience with programs such as 'Soaring with your dream' will translate into positive attitudes about applied learning; the pursuit of careers in math, science and technology; and an inspired community."

— Eric Fetters-Walp

PHOTOS: Captain Rici Johnson, a Boeing instructor pilot based in Beijing, joins Chinese school children tossing small wooden gliders during an event sponsored by Boeing Global Corporate Citizenship. WANG JIANHUA