The C919, China's homegrown large passenger plane, makes its maiden flight on May 5 from Shanghai Pudong International Airport. YIN LIQIN / FOR CHINA DAILY

First Chinese airliner puts aviation on global map

National strategy creates new competition for Airbus, Boeing duopoly, **Huang Zhiling** reports.

China's homegrown large passenger plane, the C919, had its maiden flight on May 5 in Shanghai.

After 79 minutes of flying, the twin-engine C919 landed safely at the Shanghai Pudong International Airport at 3:20 pm, signaling China's entry into the global aviation market.

In 2007, the State Council, China's central government, approved plans to develop a Chinese-built large passenger jet. Eight years later, the first C919 jet rolled off the assembly line.

The "C" in the aircraft's name stands for both China and Commercial Aircraft Corp of China (COMAC). The number 9 symbolizes "forever" in Chinese and 19 represents its 190 seats at maximum capacity.

With a standard range of 4,075 kilometers and maximum range of 5,555 kilometers, the narrow-body jet is comparable with updated Airbus 320 and Boeing's new-generation 737 planes, according to American aviation experts.

Made by the COMAC, the C919 is hailed as a notable achievement in the development of China's civil aviation industry.

Brian Foley, president of a New Jersey-based aviation consultancy in the United States, said that the C919 could compete with the current Boeing and Airbus duopoly, particularly if it became the preferred airliner of Chinese domestic airlines.

Technicians at the AVIC Chengfei Commercial Aircraft in Chengdu assemble a windshield for the nose of the C919. LIU KUN / XINHUA

Sichuan-made parts

Many parts of the C919 are made in Southwest China's Sichuan province, including its nose, avionics system, recreation equipment in its cabin, interior lighting and radio, according to the Sichuan provincial government information office.

Located in the Sichuan provincial capital of Chengdu, CETC Avionics was set up by China Electronics Technology Group (CETC) with an investment of 1 billion yuan ($145 million) in 2009 to make the communication and navigation, data chain, cabin core, airborne entertainment and information systems.

The communication and navigation system is at the core of the plane's avionics, taking charge of the air-ground conversation during take-off and landing, as well as voice and data communication inside the plane and radio navigation.

According to Liu Tianhua, an engineer of CETC Avionics, the C919 is not the first domestically made big plane project involving the company.

CETC Avionics made the communication and navigation system for the AG600, which is China's first large amphibious aircraft.

The AG600, the largest amphibious aircraft in the world, will have its maiden flight in the first half of this year, according to the Sichuan provincial government's information office.

Sichuan Jiuzhou Electric Group in Mianyang, the second-largest city in Sichuan, is also involved in the C919.

It is the first time that Sichuan Jiuzhou Electric Group has participated in the development of a large plane, as it made the cabin core system.

According to Li Yixun, a staff member of the research group from Sichuan Jiuzhou Electric, the cabin core system consists of passenger broadcasting, cabin interphone and self-inspection.

280
billion yuan
output value of Sichuan's military-civil integration sector in 2016

Sichuan Jiuzhou Electric also made the lighting equipment for the cabin of the C919. The main lighting equipment is the so-called LED wall washer, which gives off a light that resembles water gently washing the surface of a wall.

The nose of the C919 is made by AVIC (the Aviation Industry Corporation of China) Chengfei Commercial Aircraft.

According to Chen Yong, a senior technician at AVIC, the noses of both the ARJ21, which is China's self-designed regional jet liner, and the AG600, are made by the company.

Military-civil integration

All the above-mentioned companies are in the military industry and engaged in the manufacturing of products for civilian use.

Sichuan has many military companies with a competitive technological edge.

The Chinese government has included the integration of military and civil industries in its national strategy.

At a panel discussion with lawmakers from Sichuan during the annual session of the National People's Congress in Beijing in early March, President Xi Jinping called for the acceleration of the integration of military and civil industries, adding that a high-tech industry base should be built for military-civil integration.

Sichuan is one of China's first eight experimental zones for all-round innovation and reform, and is home to the country's first zone making use of deep integration of military and civil industries to push forward all-round innovation and reform.

According to Chen Xinyou, head of the Sichuan Provincial Economic and Information Commission, the output value of Sichuan's military-civil integration sector surpassed 280 billion yuan in 2016, up nearly 8 percent over the previous year.

Sichuan has signed agreements with 12 military group companies under the central government to make use of their technological know-how to serve the civil sector, he said.

In August 2016, a program related to the accelerated implementation of military-civil integration was announced in Sichuan. The province aims to nurture 10 big companies over the next five years, each with an annual output value of more than 10 billion yuan, Chen said.

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Province focused on transforming research into profit

By **ZHUAN TI**
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> **We have confidence in the Tianfu New Area, which boasts ... up-to-date facilities and considerate government services."**
> **Gao Wensheng,** executive president of the Tsinghua University Energy Internet Research Institute

Zhai Wanming, a chair professor at Xinan Jiaotong University in Chengdu, capital of Southwest China's Sichuan province, is going through procedures to determine his research and development team's share of a special technology's intellectual property rights.

Zhai, who is also an academician of the Chinese Academy of Sciences, and his team have contributed the new technology to construction of the world's first new energy suspension railway.

Although Germany and Japan own the technology to suspension railways, their railways are powered by the grid system. The new energy railway made by his team is powered by a lithium battery pack instead of high-tension electricity. It is the world's first, he said.

Zhai's team is expected to own 70 percent of the technology and team members' ownership of the technology can be calculated into shares in a private company in Chengdu, according to a new regulation stimulating innovation made by Xinan Jiaotong University in January 2016.

To spur the enthusiasm of scientists and technicians in institutions of higher learning for innovation and entrepreneurship, Sichuan has formulated policies allowing them to turn their technology and fruits of their scientific research into shares in companies, said a source from the Sichuan provincial government information office.

In January 2016, Xinan Jiaotong University announced policies to divide ownership of technology between the university and R&D teams.

Since then, the ownership of 160 inventions made by R&D teams has been divided between the university and the teams.

As team members are employees of the university and are paid by the university, the university owns a certain percentage of the intellectual property rights of inventions. In the case of the technology of Zhai's team, the university is expected to own 30 percent of the rights.

Sichuan's policies of dividing the ownership of technology are a win-win solution as institutions of higher learning, R&D teams and companies can work together to turn new technology into market products.

Since January 2016, R&D teams at the university have used the fruits of their research to set up seven high-tech firms.

The Tianfu New Area in Sichuan, China's 11th national-level development area, has lured a great number of top-notch universities in China and other parts of the world to conduct scientific research and turn the results of that research into marketable products.

Tsinghua University established the Energy Internet Research Institute in the Tianfu New Area on March 18, 2016, following the signing of an energy cooperation agreement between the university and Sichuan a year before.

Gao Wensheng, executive president of the institute, said: "We have confidence in the Tianfu New Area, which boasts a beautiful environment, up-to-date facilities and considerate government services."

The introduction of the institute marked the Tianfu New Area's unremitting efforts in achieving innovation by cooperating with institutions of higher learning.

This year, the Tianfu New Area will adopt more policies to introduce talented personnel, stimulate the shift of scientific research results into marketable products and achieve innovation with the cooperation of institutions of higher learning, according to its decision-makers.

Staff members adjust equipment at Sichuan Energy Internet Research Institute of Tsinghua University. PROVIDED TO CHINA DAILY

Business and innovation center supports EU-China trade growth

By **ZHUAN TI**

The Business & Innovation Centre for China-Europe Cooperation (CCEC) formally started operation in the Chengdu Hi-Tech Industrial Development Zone in Chengdu, capital of Southwest China's Sichuan province, on May 10.

Covering about 210,000 square meters, the center has attracted investment of about 3 billion yuan ($435 million). It includes a display and transaction area for European commodities and an area for the transaction of Chinese and European technologies.

The center serves as a platform for the western part of China to cooperate with Europe in trade, investment and technology.

It is also home to a theater, a gallery for international art and a Chinese-European entrepreneur's association.

Hans Dietmar Schweisgut, European Union ambassador to China, was present at the formal opening ceremony of the Business & Innovation Centre for China-Europe Cooperation on May 10.

He hailed the center as a good platform for international cooperation.

He said he hopes that it can become a home for small and medium-sized companies from Europe, and that more of them will come to China, and Chengdu in particular.

The Business & Innovation Centre for China-Europe Cooperation is located in the Chengdu Hi-Tech Industrial Development Zone. GAO WUHUI / FOR CHINA DAILY

The EU Project Innovation Center (EUPIC), which is in charge of operations at the Business & Innovation Centre for China-Europe Cooperation, has cooperated with the European Union for many years.

210k
square meters
land area of CCEC in the Chengdu high-tech zone

3
billion yuan
investment attracted by CCEC

Thanks to the EUPIC, the business and innovation center will create more cooperation and development opportunities for small companies from China and Europe, Schweisgut said.

The EUPIC is a non-profit organization established in Chengdu in 2006 under the Asia Invest II Project, an EU initiative promoting and supporting business cooperation between the EU and Asia.

Chengdu is promoting environmentally friendly development, stressing the green growth model and technology, while companies in the EU are strong in these fields, Schweisgut said.

He said that both sides could cooperate in green energy, technology and transportation as well as sustainable urban development and environmentally friendly building materials.