Technology

BIG DATA
BEGINS TO MAKE A
BIG IMPACT

An industry park in Southwest China has become the nerve center of the burgeoning sector, as **Yang Wanli** and **Yang Jun** report from Guiyang, Guizhou.

Last year, after he completed a bachelor's degree in computer science in the Inner Mongolia autonomous region in the north of China, 22-year-old Song Jian made a decision that sent him in a different direction to his classmates. He headed south and landed a job in Chengdu, capital of Sichuan province.

"The city is famous for beauties, and I thought I would definitely find someone to love there," he said, with a laugh.

Song did fall in love, but not with a person. Instead, his affections were engaged by big data — a concept that is spreading nationwide but hasn't yet been put into widespread practical use — through his work in the Chengdu branch of Youedata, a tech company headquartered in Beijing.

Early this year, Song moved again, this time to the company's offices in Guiyang, capital of Guizhou province. Although he has left the bright lights behind by relocating to a third-tier city, he believes the transfer will provide a promising future.

The Guizhou government has taken the initiative to promote poverty relief through the use of big data. In the past three years, the mountainous province has been transformed into an innovation hub by the arrival of leading companies, including Apple, Alibaba and Hyundai Motors.

In the first half of the year, the money generated by data utilization in the province was 5.26 billion yuan ($794 million), a jump of 64 percent compared with the same period last year. It was first time the local sector had registered double-digit growth, according to statistics provided by the provincial government.

Guian New Area, an hour's drive from Guiyang, is a 1,795-square-kilometer industrial technology park that is home to more than 400 companies in the big data industry.

"The park concentrates the world's top enterprises in one place, which will provide more convenience for cooperation and the development of business opportunities. It also provides more possibilities for the future," Song said.

Driving force

With the support of the National Information Center, Youedata is responsible for the operation of six State-owned big data centers across the country, including one in Guiyang, and more than 100 big data companies have started operations in them.

Since its establishment in December last year, Guiyang Youedata has

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become a driving force in the city's big data sector, cooperating with local public sector companies to explore and use data resources. At present, the company is mainly focused on data-cleaning work.

"It's a process of desensitization; cleaning sensitive, security- and privacy-related items from the original data to produce information that can be further used for behavioral analysis or risk prediction," said Huang Xiaoyin, director of the company's integrated management office.

For example, phone companies have the names, ID numbers and phone numbers of all their customers, along with logs of their calls and text messages. Some of the information, such as consumption preferences or the frequency of phone use can be analyzed via big data to develop business strategies. However, the information must first be "desensitized" — which means all the names, ID numbers and addresses must be erased to protect customers' privacy.

According to Huang, 80 percent of the company's employees are experts in big data research and development, and they are young, mainly ages 22 to 40.

"Big data is bringing opportunities and vitality to this mountainous city, which is attracting more young talent from the province and neighboring cities seeking to further their careers," she said.

Dong Chuanye, deputy director of Guiyang Youedata, said the provincial and municipal governments have played leading roles in big data development, compared with authorities in many other cities.

In addition to special funding support, tax breaks and other policies,

and free use of office space for five years, the government helps to promote business opportunities between the park's big data companies and potential customers through expos and conferences. In August, Guiyang will host the China International Big Data Industry Expo, which will be attended by several leading global businesses, including Microsoft, Intel, Dell, Oracle SAP and Tesla, he said.

The local government also provides strong support for the exchange and use of data, authorizing big data companies to access information collected by the government and other public sector bodies in the city. To date, 15,033 data dictionaries and 243 data sets from 51 sectors have been made available to authorized companies.

"This is crucial to the develop-

A visitor experiences virtual reality technology at the China International Big Data Expo in Guiyang, Guizhou province, in May. The expo was the first in the world to specifically use a big data theme.   PHOTOS BY YANG JUN / CHINA DAILY

Children watch a robot in action at the expo.

ment of the big data industry. Data is the industry's blood. Without it, we couldn't survive, not to mention develop. In many other cities, data barriers still exist between different public sector bodies, but Guiyang has been a pioneer in breaking down those walls," Dong said.

Better integration

To many Chinese, big data is still "high-tech jargon" that barely relates to their daily lives. However, residents of Guiyang have already been given a glimpse of the future, and big data is set to become better integrated with public services.

Illustrations of the uses of big data are displayed at the Guiyang Big Data Application Demonstration Center. For example, when some trucks were reported buried by a landslide in Guiyang after

heavy rain, analysts used traffic flow records and photos taken by cameras along the highway to determine that three vehicles were in trouble, which proved to be the case when the recovery services arrived on the scene.

"Through news reports and free lectures provided by the government in the past two years, nearly all the public sector workers in Guiyang know, more or less, the importance of big data and how it will contribute to social development," said Liu Jun, 38, a local civil servant.

He noted that big data can also be used to satisfy public demand, such as information related to parking.

"If all public parking lots were registered, data analysis could indicate their number and locations on a smartphone app. That's just one way of using big data. I believe the future

possibilities are limitless," he said.

Xu Ke, director of Guizhou Youedata's management department, said the biggest challenge is a lack of talent. "The education resources in Guizhou are limited. To speed up the development of the big data industry, we need more professionals. However, the quality of human resources in the province still lags behind that in metropolises such as Beijing and Shanghai," he said.

Internships

Xu said the company has launched pilot training programs with professionals to provide training for its employees. It also provides internships for students at Guizhou Education University and sends experienced technicians to deliver lectures at the college.

Zuo Yu, dean of the College of Mathematics and Computer Science at the university, said the school launched a major in Big Data Technology and Utilization in 2014, and the first batch of students will graduate in July.

Five junior students are working as interns at Guiyang Youedata, while seven others are with another company in the park.

"Internships in those businesses prior to graduation can better train the students to meet the market demand," Zuo said, adding that the companies will employ nearly all the students placed with them when they graduate.

The major was a secondary choice for most students the first year it was offered, but this year, it was the first choice of every student on the course.

"People understand that the big data industry has a promising future. Next year, we will double the number of students on the course and encourage more talent from other cities and foreign countries to work or study here," he said.

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Province bolstered by domestic chip industry

By CHENG YU and YANG JUN

Guizhou Huaxintong Semiconductor Technology Co has signed a strategic partnership with Guizhou-Cloud Big Data Industry Co to jointly develop a cloud platform based on homegrown chips. The move is part of the local government's efforts to beef up its presence in information technology.

The cloud platform will include chips that use ARM architecture, a design that has the edge over competitors because of its attractive cost and low power consumption. It will offer a full set of cloud-service solutions, including chips, servers, operating systems and cloud applications.

The advanced chip was developed by Guizhou Huaxintong, which is a joint venture between Qualcomm Inc, a leading manufacturer of semiconductors, and the government of Guizhou province.

In recent years, foreign brands have dominated China's semicon-

ductor market, so the founding of Guizhou Huaxintong injected fresh impetus into the development of the domestic industry.

Chips are the "hearts" of power servers, which act as "engines" to drive the flow of data in various industries, including the core business systems of financial companies, along with the telecoms, electricity and energy transmission sectors.

Guizhou Huaxintong has worked hard to develop homegrown chips, and plans to start shipping China-customized server chips next year.

"We want to enable the joint venture to build its own capability and be capable of taking our technology and developing its own chip systems for the China market," said Derek Aberle, Qualcomm's president.

Earlier this year, Qualcomm and the Guizhou government poured 1 billion yuan ($144 million) into the company, bringing the total investment to 2.85 billion yuan, in a bid to strengthen the chip sector.

1 billion yuan

The amount Qualcomm and the Guizhou government invested in the joint-venture semiconductor company Guizhou Huaxintong earlier this year. The total investment is 2.85 billion yuan.

"The intensified efforts to develop homegrown chips is of great importance to help upgrade Guizhou's traditional industries with information technologies because internet data centers have mushroomed and triggered demand for server chips," said Ouyang Wu, chairman of Guizhou Huaxintong.

Qualcomm is not the only company that Guizhou has attracted. International outfits such as Apple, Alibaba and Hyundai Motors have moved in, resulting in the province being transformed into an innovation hub where information technologies have fueled economic growth.

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Trading center provides data services for city's newly established pillar industry

By YANG WANLI and YANG JUN

In 2015, the Guiyang Global Big Data Exchange — the world's first center for the trade in big data — was established in Guiyang, capital of Guizhou province. By October, the revenue generated by the center had reached 100 million yuan ($15 million).

In some developed countries, such as the United States and the United Kingdom, the data industry is long established, which means providers and customers can conduct business with ease, according to Tang Chen, the center's marketing manager.

The center was launched to provide data trading services because big data has been introduced as a pillar industry in Guiyang. Tang said the center originally expected to generate revenue via a commission model.

"However, we quickly discovered that big data was such a new industry that many of our customers had no

idea of the kinds of data they needed or how the information could be used," he said.

Now, the center is making money from providing services, such as analyzing customers' needs, helping them to find the right data providers and standardizing the information for further processing and analysis.

"Purchasers pay for the use of the data they require, instead of buying data properties," Tang said.

Initially, data providers were categorized into different industries, such as finance, construction, medicine or transportation. "But later, we noticed that utilization always overlapped with different areas," he said.

For example, insurance companies may require meteorological data, which will contribute to the annual adjustments to insurance coverage in different cities or provinces.

At present, the center's top three clients are financial, transportation and medical companies.

Making laws to govern big data property rights is proving a chal-

lenge, according to Tang, who pointed out that China has no laws covering the field. In response, the center has worked with experts to draft the nation's first legislation on the use and collection of big data.

"The biggest obstacle to the development of the industry is the data barrier between different public sector bodies and different regions. The data trade is still new to many departments," Tang said. "In addition to concerns about security, data providers are also reluctant to open up their databases because they may be subject to taxes in cities in which the center is registered."

Although the provinces of Guangzhou, Guizhou and Fujian have becoming increasingly open, it is still difficult to obtain big data from public sector bodies in other regions, according to Tang.

The center has 11 branches in different provinces, which are helping to break barriers and promote cross-departmental and cross-regional use of information.