Enhancing Local Development with Big Dataand Smart Management in Developing Areas

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***ABSTRACT.** This study aims at innovation in local development, covering transportation, medical and health service, tourism, and high education in Guiyang city, with the help of Big Data and smart management. In the first part of this thesis, the author focus on the background of this study, including brief introduction of Guiyang city, present economic situation and development of Guiyang. Secondly, city security, detail present technology update in the construction of transportation, and smart management in transportation, medical and health service and tourism, along with economic results brought from these changes of technology and smart management. To summarize, some limitations of this presentation, and the expectation of learning from other nations to perfect the innovation in the development of Guiyang will be commented. Through information collection from Internet service, library research, case investigation, case interview and so forth, the author obtains relevant data and proof materials of Guiyang city's transition from traditional city to innovative city..*

1. Introduction

1.1 Background

Guiyang, a provincial capital in developing areas and a traditional city, is now a right place to develop into a hi-tech centre and an emerging startup hub now because of its location,culture,present climate, hackers and nerds, government's support, the investors from home and abroad

Guiyang, with a history of more than 400 years and a total population of about 4.5 million people., is located in the southwest of China. It is the political, economic, scientific, technological, educational and cultural center of Guizhou Province and the important transportation and communication hub, industrial base and business and tourism center of Southwest China.

Guiyang is now a state-level big data industry hub,a leading national

demonstration base for big data technology innovation and application services. Guiyang is the country's first global public free WiFi city, the world's first large-scale data public platform, the country's important call center and service outsourcing cluster, the country's first big data trading center, and the country's important data center cluster.

1.2 Guiyang present economic situation

Guiyang's economic growth rate ranks among the top provincial capital cities in the country for four years in succession because of innovation of technology. We achieved a total GDP of 358.8 billion yuan last year, an increase of 11.5 %. The total number rose to fifth place in the Western provincial capitals. Growth continues to rank first in the country's capital cities.First, Guiyang overall economic performance is stable. Second, the quality of development has steadily improved. High-tech manufacturing is on the rise. Science and technology, the Internet, software and information technology services have grown rapidly. Third, growth of green economy is rapid.

Guiyang has achieved shifting from a traditional city to an innovative city based on hi-tech. The innovation of city security and high education is now taken as an example to illustrate what we are doing to promote the economic development of our city by hi-tech.

2. Big Data and Smart management to improve the Development of the City

2.1 Smart management of city security in Guiyang

Too many large communities are the notable features of Guiyang city. The comprehensive management of public security at the base level is a big problem of Guiyang public security lake area in Guiyang City, Guizhou province. How to do a good job in the comprehensive management of social security at the grassroots level? According to local conditions, the Guanshan Lake Branch of Guiyang Public Security Bureau explored the application of big data technologies such as "smart access ban", "small Skynet", "Internet of Things+", and brought new changes to the comprehensive management of public security. In this picture, this is the first Guiyang Public Security Bureau Block Big Data Command Center--One Center and Three Platform. 110 police service desk is an example.

2.2 Smart Transportation Construction and Management in Guiyang City under Big Data Environment

Guiyang introduced the cantilevered tunneling machine for tunnel excavation for the first time in the field of rail transit, the application of regenerative braking energy feedback for long-distance ramps, an advanced bow net monitoring system above electric buses, and a composite ventilation air-conditioning system. Operating

mode can be adjusted according to seasonal changes. To save electricity, Guiyang City focuses on "a set of systems, a center, and three major platforms" to build Guiyang Public Transport Intelligence, make full use of Internet of things perception technology, space information technology, and mobile communication technology, and further improve the means of collecting information on bus operations. Through RFID terminals, two-dimensional codes, mobile APPs, wireless communication networks and other technical means, Guiyang achieved dynamic monitoring and operation management of data. A set of systems refers to the bus integrated operation monitoring system, one center refers to the bus group big data resource center, and the three major platforms refers to the bus operation service management platform, management decision analysis platform and public travel service platform. Relying on the ring city high-speed and ring city express railways, with highways, passenger and freight hubs, and airports as the fulcrum,based on the urban road network and with rail transit and expressway as the backbone, a comprehensive and open transportation system on Guiyang is constructed, forming the "five rings and eighteen shots" backbone road network system.

2.3 Getting rid of congestion with the help of Big Data

In Guiyang, congestion is a big pain point that has long plagued people's travel, and it is also a major difficulty in urban traffic management. However, with the extensive and in-depth use of large data means, Guiyang is gradually getting rid of congestion.

According to the "Traffic Analysis Report of China's Major Cities in the First Quarter of 2019", Guiyang's peak congestion delay index ranked 22nd in the country, 16 places lower than the 2018 annual ranking.With the contribution of big data, Guiyang separated from the country's top ten blocking cities.

With the help of big data, Guiyang Traffic Operation Monitoring and Emergency Dispatching Center has added traffic overview functions, travel situation analysis functions, urban migration status analysis functions, and historical analysis functions to analyze traffic flow data and public gathering areas. The center can adjust the speed of the city's peak traffic, count the number of daily trips and the mode of travel, showing the overall trend of traffic conditions this month, road congestion rankings and other information, so that the public can reasonably choose the travel section, making the traffic operation more intelligent.

Through large-scale data simulation, the Guiyang traffic control department uses the data of the previous year as a reference for each holiday day to analyze and predict the traffic flow in the city and highways, and finally infer the road sections where congestion may occur to provide the public with the most comprehensive travel information., suggest how to avoid blocking.

Using the large data method and combined with the optimal control of signal lights, Guiyang also carried out a comprehensive and comprehensive upgrade of 499 traffic lights across the city in response to the low green light traffic efficiency during the peak period, driving the time-space integration of the organization,

facilities, and timing schemes of the trust-controlled intersections to improve the efficiency of public travel and traffic congestion.

Now, with the help of big data, Guiyang people are picking up speed and sprinting to the happy end of efficient travel. It can be foreseen that with the development of big data, Guiyang will gradually move away from the label of "Block City" and continue to bring more efficient and convenient travel experiences to the public.

2.4 Present Hospital Management System in Guizhou Provincial People's Hospital under High-Tech

(1) Strategies of hospital smart management in Guiyang

As the third batch of pilot cities for comprehensive reform of public hospitals in national cities, Guiyang City has built a population health information cloud platform, which has collected 7.14 million population data. Guiyang Internet Hospital is being operated and Guiyang Internet Hospital Management Co., Ltd. is established. It provides video consultation, appointment registration, health self-test, report inquiry, medication guidance and chronic disease management by using Internet, Internet of Things, big data and cloud computing technology. Intelligent medical and artificial intelligence such as rehabilitation robots, mobile and telemedicine, big data and Internet of Things, wearable devices, 3D printing, VR&AR applications are introduced.Through the telemedicine collaboration network, the unified city, county and township three-level teleconsultation network system is established and perfected, and the public hospitals at or above the county level access the unified reservation registration platform and the provincial electronic medical record sharing platform; and the electronic health records of the poor people are fully covered. We also set up working mechanism with the group ministry to Guizhou doctoral service team, invited experts from the group ministry to Guizhou doctoral service team to participate in the field investigation, discussion and research on the construction of medical and health informationization in our city, and comprehensively upgraded the medical and health technology level of Guizhou Province by means of intellectual assistance, technical assistance, disciplinary assistance and scientific and technological assistance to Guizhou, so as to promote the realization of medical and health undertakings in the whole province.

(2) Big Data and Medical Health Improves the Quality of Health Care Service in Guiyang City

With a mobile phone, residents can inquire about their medical records, residents'health records, community follow-up, and home.

A platform for school psychological teachers to pay attention to students'mental health online and help students overcome negative emotions in time.

In recent years, especially since 2016, Guiyang has been selected as the first national pilot list of healthy cities. Guiyang City has been constantly striving to innovate for power and vitality. It has made good use of large data and block chains

to promote the transformation of health and health services from informationization to data integration.

Nowadays, in Guiyang, big health embraces big data, convenient and high-quality medical and health services become accessible. Aunt Zhao, who lives in Jinhuayuan District of Guanshan Lake District, is not in good health. She runs to the hospital all the year round. There are a lot of medical records and checklists at home. "I have a bag specially, which contains my old medical records and checklists." A few days ago, Aunt Zhao, who had high blood pressure, went to Jinhua Garden Community Health Service Center to see a doctor. Before waiting for her to take out her medical record bag, the doctor had a clear picture of her situation. "Doctors said that they had access to a platform, so long as they had seen a doctor in a municipal hospital, they could see it on this platform." Aunt Zhao said that she did not understand what platform it was, and she knew that she would see a doctor in the future. She would no longer have to take this pile of old medical records that had been rotten.

2.5 Smart Tourism Management in Guiyang City

(1)Strategies of Smart tourism in Guiyang

Guided by big data, we need to speed up the construction of innovative central cities, promote the development of global tourism, optimize the allocation of tourism resources, and promote the upgrading of Guiyang's big data tourism industry. With the development of Guiyang's big data construction, the tourism industry has opened a chapter of wisdom. As the second batch of pilot cities of wisdom tourism in China, Guiyang has built the first platform of supervision and emergency command for wisdom tourism operation in the whole province. A comprehensive service system of wisdom tourism based on "one center, one window, one network and three systems" has been initially built.

(2)With Big Data, Guiyang promotes the construction of smart tourism in Guiyang

"Tickets and parking spaces can be booked on mobile phones. Intelligent robots provide tourism consultation services at the entrance of scenic spots." On May 2, Guan Bo, a self-driving tourist from Chongqing, raised his thumb on Guiyang's wisdom tourism in Tianhetan scenic spot.

Promoting the level of tourism service, management and marketing and making tourists more comfortable is the original intention of promoting the construction of Intelligent Tourism in Guiyang. In December 2012, Guiyang City was designated as the second batch of "pilot cities of national intelligent tourism" by the State Tourism Administration; in 2016, Guiyang cooperated with Baidu Tourism, Tencent Tourism, Sina, Tongcheng Network and Ctrip Network, and Guiyang's "intelligent tourism" has taken shape; since 2017, a batch of Intelligent Cloud platforms, mobile apps and tourism network services have emerged, and an intelligent tourism network has emerged. Unicom's scenic spots... Big data endow Guiyang with the "wisdom brain" of global tourism, which makes Guiyang go faster and more steadily on the road of building a world famous tourism city with ecological characteristics.

"Wisdom Brain" is installed in Scenic Spots.

3. Findings and discussion

we can see that the rapid development of Guiyang city mainly depends on the technical renewal.The economy continued to grow at a high rate in recent years.The growth rate of the economy is in the forefront in terms of the country. During the 11 years from 2003 to 2013, the city's total economic output maintained a double-digit high growth rate, an average annual increase of 14.7 %, which is faster than the National economic growth rate of 7.7 % in 2013; The average annual GDP growth rate per capita is 15.2 %. In 2013, the per capita GDP growth rate was 9.5 %. Among them, the per capita GDP growth rate in 2012 was the highest, reaching 23.9 %. In terms of the growth rate of the major industries that make up the regional GDP, the growth rate of the secondary and tertiary industries is relatively fast, with annual growth rates of 16.2 % and 14.1 % respectively, while the growth rate of the primary industries is relatively slow, with an average annual growth rate of 7.1 %. We can see that in the coming period, Guiyang's economic growth is entering the advanced stage of industrialization. The potential for the development of the secondary and tertiary industries is huge, the industrial development is maturing, and the related institutional mechanisms are improving. And See tabe 1

Table.1 Guiyang City 2003-2013Annual economic growth rate(in %)

ear	AGDP	PIGR	SIGR	TIGR
2003	11.8	6.7	14.8	11.8
2004	15.7	7.6	15.6	12.3
2005	17.7	7.6	16.2	13.9
2006	14	7.6	16.7	13.6
2007	14.9	8.2	16.3	16.2
2008	5.5	7.2	12.1	15
2009	10.6	8.1	12.6	14.5
2010	17.7	8	15.1	14.5
2011	18	2,8	21.3	15.2
23.9	23.9	8.5	18.8	14.1
2013	17.3	6.3	18.6	14.6

(AGDP-Annual GDP A GDP SI-average GDP speed increase PIGR-Primary industry growth rate SIGTIGR- Secondary industry growth rate TIGR-Third industry growth rate)

To continue to develop, Guiyang must adhere to the high and new technologies based on industrial transformation and upgrading.

4. Conclusion

4.1 Guiyang economic growth ranked first in the country's provincial capital for four years in succession.

In the past five years, the economic growth rate of Guiyang City in Guizhou

Province has ranked first in the country for four consecutive years. The main goal of Guiyang's economic and social development in the next five years is to lead the construction of an innovative central city with big data(Information obtained at the first meeting of the 14th People's Congress of Guiyang City on February 16, 2017).

At the meeting, Liuwenxin, deputy secretary of Guiyang Municipal Party Committee and mayor, said that the past five years have been one of the fastest and best periods of Guiyang's economic and social development. In the continuous improvement of Guiyang's actual development path, many hard-won development achievements have been achieved.

Economic and social development has maintained a rapid momentum of growth. In 2016, Guiyang's GDP reached 315.77 billion yuan, an increase of 11.7 %. The economic growth rate ranks first among the provincial capital cities for four consecutive years.

4.2 Guiyang still has many constrains in social and economic development

Guiyang is a Western city where remote ethnic minorities gather, and there are many constraints on the social-economic development of Guiyang. For example, Guiyang has a good ecological environment but is very fragile, insufficient investment and lack of capital elements; Transportation construction still needs to be strengthened. The leading industrial chain is short and the added value is low. The high-quality labor force is scarce and the urban system is not perfect. Civilization needs society to follow the law of development and grasp strategic deployment accurately.To follow the law of development and grasp strategic deployment accurately, we must grasp the essence of "innovative central city". We need to make full use of the opportunities and advantages we have gained in the development of big data, continue to work on big data, and promote comprehensive innovation with big data as the core. We will speed up the creation of innovative central cities.

The data and information channels available in this paper are limited to library collection, conference materials and Internet collection, and lack of reliable first-hand materials. The author hopes that through the initial study of Guiyang's urban development, more scholars will be able to conduct more in-depth research on urban development.

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