Research on the application of big data in regional industrial supply chain

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Abstract: Taking Artemisia industry, the pillar industry of Qichun County as an example, this paper studies the role of big data in the construction of regional industrial supply chain, and uses big data technology to analyze the application of modern information technology in the industry, such as the system of county industrial supply chain, product structure and e-commerce. The main problems of the industrial supply chain in Qichun County are: insufficient application of big data technology in the whole supply chain, low application of big data technology in the traditional manufacturing industry, low application of big data in the tourism and health industry, and low intelligence of the logistics system. It is proposed to use big data and other information technology to optimise the supply chain upgrade of the county industry and establish a complete industrial chain of smart manufacturing, smart logistics, smart tourism and artificial intelligence + big health.

1. Introduction
In recent years, big data, Internet, e-commerce and other modern information technologies are more and more widely used in the county industrial chain. In 2016, seven counties in Hubei Province were rated as the national comprehensive demonstration counties of e-commerce into rural areas, and Qichun County is one of them. In 2018, Qichun County was awarded the title of "national Pilot County for e-commerce of agricultural products out of villages" by Provincial Department of agriculture and Department of Commerce. Artemisia industry is a traditional pillar industry in Qichun County. Big data technology has played an important role in the development of manufacturing, trade circulation, e-commerce and other industries, driving the development of county industrial supply chain. Qichun has gradually formed a whole industrial chain of planting, processing, health care and tourism.

2. Big data promotes the upgrading and development of industrial supply chain
At present, the application of big data in planting industry has achieved accurate planting. The county leading enterprises have established standardized planting bases, and some bases have implemented electronic intelligent monitoring of planting process.

Big data technology has promoted the upgrading of Artemisia processing and manufacturing base, and established an industrial supply chain integrating "production processing sales", with complete chain, large-scale production and standardization. Up to now, the whole industrial chain of Artemisia has driven 100000 people to work, with an industrial output value of more than 5 billion Yuan and a brand value of more than 10 billion Yuan.

Big data promotes the development of e-commerce industry
This paper uses big data technology to investigate Li Shizhen's pharmaceutical big health industry
cluster, and investigates 45 tmall stores and 7000 micro stores. By using selenium and JavaScript, we crawled the relevant data of Artemisia products. Through integration and screening, 10 representative Taobao stores are selected (as shown in Table 1 below).

| Production companies | Flagship store name             | Number of people concerned /thousand |
|----------------------|---------------------------------|--------------------------------------|
| Qichun Li Shizhen genuine Chinese Artemisia Medicine Co., Ltd | Qi zhenge flagship store         | 22.1                                 |
| Qinhe(Qichun) Biotechnology Co., Ltd | Qierge flagship store         | 12.3                                 |
| QichunChutian Yangshengtang Artemisia Products Co., Ltd | Daming Guai flagship store          | 116.0                                |
|                         | Guoxintang flagship store          | 155.0                                |
|                         | Zhifutang personal care flagship store | 137.0                              |
| Hubei Artemisia tang Technology Co., Ltd | Shizhengyan personal care flagship store | 31.2                              |
| Hubei Heaiai Products Co., Ltd | Aicai flagship store          | 27.0                                 |
| Qichun Pengtong Health Technology Co., Ltd | Pengtong flagship store          | 20.3                                 |
| Nanyang Xianao Pharmaceutical Co., Ltd | Aunt Qi flagship store          | 677.0                                |
| Qichun MingDama Artemisia Products Co., Ltd | Ming Aunt Flagship Store       | 58.0                                 |

3. Problems in the application of big data in County Industrial Supply Chain

3.1. The level of big data application in enterprises is poor
Big data is not applied enough in enterprise production decision-making, sales analysis, product type analysis and customer information analysis. Enterprises lack of professional information technology talents. In this paper, crawler technology is used to crawl the sales data of some Tmall flagship stores (as shown in Table 2).

It is found that the product structure is unreasonable. Primary industry and low-end products account for a large proportion, such as moxa stick, moxibustion apparatus, etc., while other high-end technology products such as essential oil of Artemisia leaf and moxa grass disinfectant only account for a very small number. At the same time, it is found that the product homogeneity of each enterprise is serious, and the vicious competition is very serious.

| Flagship Store Name | Series Monthly Sales Items | Footbath Series Monthly Sales Items | Moxa Moxibustion Monthly Sales Items | Moxibustion Appliances Monthly Sales Items | Others |
|---------------------|---------------------------|-----------------------------------|-------------------------------------|-----------------------------------------|--------|
| Qizhenge Flagship Store | 492                       | 345                               | 2494                                | 912                                      | 0      |
| Qierge Flagship Store  | 132                       | 1123                              | 1979                                | 133                                      | 0      |
| Daming Guai Flagship Store | 641                      | 727                               | 14140                               | 5814                                     | 271    |
| Guoxintang Flagship Store | 609                      | 500                               | 2649                                | 1319                                     | 88     |
| Zhifutang Personal Care Flag Shop | 1642                  | 421                               | 3885                                | 4389                                     | 93     |
| Shizhengyan Personal Care Flag Shop | 1025                  | 82                                | 1515                                | 1436                                     | 25     |
3.2. Low level of integration of big data technology with tourism and recreation industry

First of all, the application level of the third-party tourism platform is low. For example, the utilization rate of e-commerce tourism platforms such as Crip and Feizhu in Qichun County is very low. Compared with the franchising of various characteristic products such as Zhibao Gegen and Mao yanmei tea in Zhangjiajie scenic spot, Qichun's rich and colorful health preserving cultural tourism products and characteristic health preserving restaurants are not promoted in these e-commerce tourism platforms. Qichun County focuses on four excellent tourism routes of "slow Tour", "dynamic Tour", "Happy Tour" and "free tour". However, according to the survey, there are no more than two tourism routes promoted by tourism e-commerce platforms. There are few special tourism activities such as tea party, peach blossom party, Longquan flower season and Liuhe folk culture festival.

Secondly, the self-built tourism platform of Qichun County government is not perfect. Qichun County started to build smart tourism platform in 2018, which is still in its infancy. The construction of smart tourism platform in some famous scenic spots has been mature, and Qichun County has lagged behind most areas, which is the lag of marketization and intellectualization of tourism information.

3.3. The application degree of big data in logistics system is low

As early as 2017, 430 administrative villages in Qichun County have realized e-commerce logistics into villages and households, among which 229 villages have Alibaba rookie logistics distribution points. In this year, business radiation rate is 74.2%. And the coverage rate is also increasing year by year. So far, the infrastructure has been improved, but there are still some restrictions on the development of e-commerce in Qichun County. First, the level of Qichun highway network is not high. Only provincial roads and some county roads in Qichun county are class III or above highways, accounting for only 21% of the regional highways. The traffic in some areas is extremely underdeveloped, which makes the transportation speed far from meeting the requirements. Second, people generally use the traditional means of transportation with smaller vehicles, which leads to the further reduction of transportation speed and makes them at a disadvantage in the relevant competition.

4. Application strategy of big data in County Industrial Supply Chain

4.1. Implement the mode of "e-commerce + big data" to promote the integrated development of Artemisia industry

One is to use e-commerce big data to adjust and optimize the industrial structure. Through big data, cloud computing and other technologies, we can find out which products are more popular with consumers and the sales volume of products in different periods of time, and conduct data collection and analysis, so as to achieve accurate production and marketing. Achieve precise production and marketing, production and marketing interaction, forming a good cycle. At the same time, relying on the exclusive e-commerce platforms of AIDU cloud business and Ailian cloud business, the e-commerce modes of enterprise retail, farm direct supply, consumer customization, order agriculture, online and offline are promoted. The local e-commerce platforms deepen cooperation and promote each other, so as to expand more space for Artemisia market, promote the synchronous growth of deep processing, and guide the direction of high-quality planting. The second is to strengthen cooperation with various tourism e-commerce sites. According to the big data of electronic commerce, the
characteristic tourism products are put on the popular tourism websites, and the characteristic agricultural products are put on the major online shopping platforms for sale. In addition, the scenic spots gradually achieve integrated marketing, integrated services, and unified management, so that tourists can obtain relevant tourism information resources, but also access to relevant tourism product information, service information and supporting resources to improve the team tourism e-commerce platform has to be utilized.

4.2. Increase the application of big data technology in logistics supply chain
Through data analysis and data sharing, the regional supply chain system is established, and the County Township Village three-level logistics system is established. Using Internet, cloud computing and other information technology in the enterprise production, procurement, transportation, storage, distribution, sales and other aspects of agricultural products logistics, to achieve collaborative and integrated way to complete the logistics process. Through accurate information of agricultural product chain, the service efficiency of the whole supply chain is improved, the loss of intermediate links is reduced, and the efficient logistics service is promoted.

4.3. Building Intelligent Tourism Information Platform
Build intelligent tourism platform and rural intelligent tourism information platform. By using the Internet and big data, we can develop intelligent and humanized service standards, and provide online services and e-commerce application functions for travel agencies and tourists. Tourists can have a panoramic view of all kinds of tourism information, such as ticket prices, special activities, special food and so on, anytime, anywhere through mobile phones and other intelligent communication devices. To realize the information sharing of traditional Chinese medicine hospital and acupuncture and moxibustion Museum and other health care industry, meet the diversified needs of tourists, improve the service quality of tourism, and then realize the transformation and upgrading of rural tourism industry.

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