

Research on innovation and development of logistics supply chain supported by big data technology

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Abstract: The application of big data makes great changes in the field of logistics in our country, the innovation of the traditional logistics supply chain, makes it gradually present the development trend of intelligence and wisdom, improve the logistics supply chain to a certain extent. This paper mainly analyzes the application of big data in the field of logistics, aiming to explore the path of big data innovation logistics supply chain with agricultural product transportation.

Key words: Big data technology; Logistics supply chain; route

The traditional logistics industry has the problems of low logistics efficiency and large transportation sharing. Faced with the application of big data technology, the value density and transmission speed of logistics transportation can be improved, so that the supply chain can obtain all kinds of effective information in the first time, which is convenient for the flexible application of logistics industry and realize the transformation of business model. The practical application of big data technology can effectively optimize the supply chain management, help improve the market competitiveness of enterprises, achieve various optimization of resource allocation, and ensure the best economic benefits for enterprises. Therefore, it is necessary to pay great attention to the innovation impact of big data technology on the logistics supply chain, and carry out certain research.

1. The impact of big data technology on logistics supply chain

(1) Intelligence

In the past, the logistics supply chain was mainly designed from the aspects of manpower and mechanical equipment, such as the user operation interface or the setting of related programs, and the control of mechanical equipment was very simple. With the help of artificial intelligence, intelligent systems can be used to control various equipment in logistics, and reasonable planning of various paths, complete identification work and so on. Highly integrated systems can also make independent decisions, in the process of practical operation, can not exist the practical experience of people, should move towards the direction of intelligence. With the continuous development of intelligent technology and the maturity of unmanned logistics operation technology, various systems have obtained faster reaction speed and decision-making speed, which helps to reduce the influence of human factors in the supply chain. Avoid the errors in the operation process, ensure the stability of the supply chain, all logistics operation mode is more scientific and efficient, but also to realize the traffic planning route, terminal distribution, warehouse management and other aspects of the network intelligent layout, to ensure that commodity circulation and logistics can be more coordinated, to ensure the integration of the supply chain effect.

(2) Co-biochemistry

Through the implementation of industrial symbiosis, we can effectively save raw materials, and effectively exploit by-products, improve industrial value, so as to save resources, environmental protection, improve the quality of economic operation. At the same time, through the use of big data technology, more attention will be paid to the implementation of sustainable development, the realization of sharing economy and other methods, so as to achieve a higher level of economic benefit growth. In order to ensure the long-term development of enterprises, we should pay attention to their life cycle and strive to realize their sustainable development to bring more social welfare to the industry. Adopting a symbiotic model can not only effectively reduce the inventory of the industry, but also use advanced management techniques to enhance market share, curb operating costs, further improve brand image and enable consumers to obtain comprehensive services.

Industrial symbiosis will be based on waste, by-products, economic coordination of the supply chain management model, to achieve the purpose of sustainable development. In the symbiotic supply chain model, it can promote the cooperation among enterprises, region-wide, government agencies and enterprises, build a symbiotic value system between enterprises and society, ensure sustainable symbiosis, and use information technology to disseminate and integrate the network system of the supply chain to ensure that each node of the supply chain establishes an interdependent relationship. The management of supply chain can make use of the advantages of industrial symbiosis, the market mechanism of industrial symbiosis network and community relations, and the vision of multi-party common development to realize supply chain cooperation, strengthen the integration and coordination between supply chains, promote the efficient operation of supply chain, improve the processing speed of information network, and ensure the operational efficiency of the system. From the perspective of supply chain management, brand new suppliers can also be introduced to build a cooperative supply network.

(3) Short-chain

With the progress of technology, the modern supply chain is developing in the direction of simple and fast, which not only helps to greatly reduce the turnaround time of goods, but also helps to achieve fast and fine logistics distribution services, so that the profits of enterprises, operators, customers and other aspects can be maximized. With the popularization of the short-chain logistics system, the total daily handling of goods in the logistics distribution process has been greatly reduced, and with the improvement of warehousing and distribution services, the intermediate links have become extremely simple, and some products can even be quickly transported directly

from manufacturers or distribution agencies to users without going through any complex links. To realize fast, efficient, economical and safe completion of orders. In addition, through continuous improvement of the local warehouse network, the time and space distance between goods and users is greatly reduced, further speeding up the delivery process, and effectively saving transportation costs.

Using big data analysis technology, we are better able to use automated technology to perform various tasks and be able to process massive amounts of data quickly. In this way, we can better grasp the time of procurement, production and commissioning, and can better optimize the entire process. In addition, this technology can also enable product information to be quickly transmitted to the logistics system, thereby preventing information delay or data loss caused by too long a time span. In addition, it can help us better grasp the flexibility of the supply chain and be able to better meet the needs of the market. For example, many companies will choose to build a simpler supply chain when they set up a food supply chain or other similar supply chain. With advanced supply chain management systems, we can achieve real-time monitoring of food growth and consumption, which greatly reduces the tracking time.

(4) Be smart

In the Internet era, the mode of supply chain management has changed from the traditional virtualization system to a more intelligent model, which can realize the comprehensive monitoring of the logistics system through the use of intelligent hardware and the Internet of Things, and further achieve accurate control, and further achieve the needs of users, to achieve more effective services. The use of leading information science and technology, such as artificial intelligence, big data analysis, the sensor network, sensor network, network connection and so on together, making the logistics system become visible, intelligent, and then help to improve the warehouse, freight yard, user management, greatly enhance the economic benefits of the enterprise, for the enterprise has brought huge economic benefits. Through the use of big data technology, we can build an efficient and reliable logistics supply chain system.

2. Examples of logistics supply chain established by big data technology

(1) The process control of agricultural product supply chain is refined

Most agricultural products are not easy to save, but with the increase of population, the current food demand is increasing, we must improve the logistics efficiency. On the other hand, the climate environment is constantly changing, in order to more quickly achieve the storage and transportation of agricultural products, it is necessary to use the Internet of Things big data, cloud computing and other technologies to quickly complete the construction of the logistics supply chain. You can set sensors in vehicles, arable land, soil and other locations to obtain real-time data, collect a large number of real-time data, the system will analyze and integrate all kinds of data, and then analyze the quality of the land, the use of reasonable methods to solve the current problems and shortcomings, improve operational efficiency remote with the increase in consumer demand for dietary health and healthy food, through the agricultural products Flow monitoring can strengthen the supervision of farmers' compliance with laws and regulations, ensure the implementation of various laws and regulations, and avoid the excessive use of pesticides and pesticides in food production, and can also accurately analyze the information provided by agriculture to help farmers solve problems efficiently.

(2) Establish a green and interoperable supply chain for agricultural products

The quality of agricultural products is affected by environmental factors. If proper fertilization techniques are not adopted or effective management measures are lacking, the quality of agricultural products may decline, thus damaging the value of the industrial chain of agricultural products and reducing their competitiveness in the market. In order to solve this problem, we must use big data technology to drive the supply chain innovation of agricultural products, so as to help improve the mobility of agricultural products, realize the health and safety of agricultural products, and ensure the sustainable development of agricultural products industry. In order to ensure the safety and effectiveness of agricultural products, we need to build a set of sound quality management mechanism, as well as a strict inspection mechanism to ensure their overall quality. In addition, by taking effective logistics control measures, we can effectively reduce the cost of agricultural products. At the same time, we should actively use big data technology to achieve accurate identification of agricultural products, so that every participant in the entire industrial chain can collect beneficial information about environmental friendliness, health, safety and other aspects of agricultural products. In order to effectively guide farmers' business activities, to achieve green and sustainable development. By submitting some image information about pests and weeds to the system, the system can realize the accurate detection of pests by analyzing these images, so as to effectively improve the resistance of crops to disease, and provide support for the long-term stable growth of crops.

(3) Promoting the value innovation of agricultural products supply chain

In the traditional agricultural supply chain, due to the existence of multiple links such as logistics, storage and transportation, there are great uncertainties in the input, management and profit of energy, raw materials and labor resources in these parts, which jointly affect the normal operation of the whole supply chain. In addition, due to the lack of accurate management, the input of these parts often cannot meet the requirements of customers, which means that the economy of the whole supply chain is affected. In order to solve this problem, measures have been taken to use big data technology, which can not only improve the overall management level of agriculture, but also provide enterprises with more flexibility, reduce investment, and enhance their competitiveness. Through the introduction of big data technology, the traditional information isolation can be completely changed, thus greatly improving the operating conditions of agriculture. In addition, through the real-time monitoring of the soil environment, the current situation can be more accurately grasped, so as to better realize the unified management of crops, greatly saving labor costs, and at the same time, it can meet different market demands and achieve higher returns. In addition, through the implementation of the crop transportation path tracking, can better achieve timely and accurate tracking of

goods, so as to better meet the requirements of customers, but also can save resources, to achieve higher economic benefits.

(4) Improving the supply chain of agricultural products

With the development of science and technology, traditional agricultural production is no longer limited by natural conditions, and the entire production process is more centralized, more orderly, and easier to meet the requirements of scale. The application of big data analysis technology has made agricultural production more standardized, so as to better serve consumers. Through the data interaction of machines and software, it can help farmers make more accurate decisions and improve the efficiency of consumers to obtain agricultural product information. At the same time, it can also form a set of management system that can realize the whole traceability through food monitoring, logistics vehicle networking and other information, so as to better protect the rights and interests of consumers. In order to ensure the quality of agricultural products, we must adopt standardized production in order to meet the needs of consumers. In addition, we must quickly, accurately and efficiently collect and analyze information on agricultural products in the market, and optimize the types of agricultural products to meet consumers' needs. At the same time, we must set up a sound logistics system so that consumers can buy agricultural products with greater confidence.

(5) Strengthen technological innovation

With the rapid progress of science and technology, big data technology has become an important part of today's society. However, there are still some limitations in the practical application of big data technology. Therefore, the government must increase investment and speed up the innovation of big data technology, so as to tap the potential of big data technology and integrate it into the supply chain system to balance low-cost labor, inventory, cost and other factors, and ultimately achieve more efficient supply chain management and control. In addition, the government should also encourage the adoption of automation technology to achieve automated logistics, and combine new technologies with traditional warehouse scheduling to buffer the supply and demand relationship, and with the help of autonomous driving technology to achieve more flexible logistics services, in order to promote the healthy development of the market.

3. Conclusion

In short, the application of big data technology promotes the construction of supply chain, so the establishment of big data processing system should be combined with market demand, and the state and relevant departments should also give policy support, so that more logistics enterprises are willing to actively invest in the application of big data technology, willing to share relevant data, and further improve the construction of supply chain.

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