Application of big data technology in intelligent logistics

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ABSTRACT

In the age of big data, logistics management must transformed from traditional mode to intelligent logistics management mode to solve the weakness of the traditional management mode. The reasonable appliance of big data technology in intelligent logistics proposition could be capable of raise the service standard of intelligent logistics, using data to support decision making, so as to further improve the general management system of intelligent logistics. In view of the assessment of the appliance of big data technology in intelligent logistics, this paper proposes the improvement countermeasures of smart logistics in the age of big data.

Keywords: Big data technology, smart logistics, application countermeasures

1. BIG DATA AND INTELLIGENT LOGISTICS

The appliance of big data technology in intelligent logistics can be used as the most basic data support of smart logistics and provide certain technical support for its corresponding decision-making. For instance, smart distribution and problem solving in smart logistics rely on big data technology. Data analysis technology based on big data can push forward the rapid progress of the logistics industry, use the data of the logistics industry to produce economic value, in the meantime it can effectively enhance the service and social satisfaction of smart logistics[1]. Similarly, the appliance of big data in intelligent logistics improves the data value of the logistics industry. In the old days, the logistics industry did not process and analyze its huge data streams, resulting in little economic benefit. Nowadays, when big data technology is applied to the data analysis of smart logistics, data can be properly sorted out and the effective value can be extracted, finally through screening and processing to provide convenient and swift data information for smart logistics managers and users. Besides, the appliance of big data technology in the field of smart logistics could be capable of improve the market competitiveness of logistics enterprises, help them master and analyze the detailed data of smart logistics, extract the local valuable information for the logistics enterprises of relevant decision support, not only to satisfied the individual demands of clients, but also to actively reply the intense marketplace competitive edge, which has a major influence on the management, decision-making and brand development of logistics companies.

2. APPLICATION OF BIG DATA TECHNOLOGY IN INTELLIGENT LOGISTICS

The development of smart logistics must be based on data analysis and application, while big data technology in the logistics system mostly involves four links: Sensing end, transmission end, store end and application end.

2.1 Sensing end

Overall perception of logistics information is the basic function of intelligent logistics system. For the sake of better realize this system function, the sensing end of intelligent logistics applies big data technology to accurately collect logistics data, including basic information of customers, information of goods to be transported, means of transportation, transportation time and other information. The main technology of big data which is applied including database techniques, image recognition technology, big data sensing technology, etc., and then collected data storage to wisdom logistics system in the database, to the corresponding query and intelligence distribution, intelligent transportation provide premise condition, can also be used for subsequent analysis of the cloud computing and the wisdom to provide information support to decision making[2].

2.2 Transmission end

The transfer end is mainly responsible for connected with the sensing end and store end of logistics data information, and

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the collected information data is sent to the corresponding storage end through the transmission end. The data transmission of intelligent logistics must be carried out in the network, and all kinds of access devices are connected to the wireless network. Logistics data can be transmitted at high speeds over wireless network channels and classified and preliminarily processed at the transmission end. Then data are processed to intelligent logistics perception, and information can be timely and accurately transmitted to the intelligent logistics storage server through the transmission channel, forming various storage clouds. Due to the complex net circumstances and the large amount of logistics message, the logistics information transmission needs to be supported by advanced network technology, and the application of big data technology in the establishment of transmission channel can provide a good dredge bridge for the intelligent logistics data perception and data store, and can realize the effective transmission of logistics data.

2.3 Store and computational analysis end

The key to the appliance of big data in intelligent logistics lies in storage and calculation and analysis, which determines whether the construction goals and requirements of intelligent logistics can be achieved[3]. Main part which is the perception of the acquisition and the transmission side transmission to the data storage and calculation analysis, logistics trade links with other each link to be able to produce large amounts of data, which cause some pressure to intelligent logistics data storage, with such a huge amounts of data, traditional way of storage has been unable to meet, cloud storage technology is needed to implementation the cloud storage of huge amounts of data, and the use of cloud computing technology to achieve massive data calculation, processing and assessment, and big data technology has such a powerful storage ability and computing ability, can provide massive store and computational resources for the intelligent logistics system. Firstly, unified data processing method and data storage format are used to format and store logistics data, and then the logistics data are stored in each server of the intelligent logistics network in a certain way, providing data support for the intelligent logistics service and application. Big data technology is the central technique support for the message handle, integration and appliance of various information in the storage cloud. Through relevant information collected and transmitted by the sensing end and transmission end of intelligent logistics, customized services are provided for smart logistics users and processing efficiency is improved.

2.4 Application end

The appliance of big data technology in intelligent logistics mainly through data gather, transmission, store and analysis to achieve smart manipulate of the application side. The appliance of big data technology can implementation the technical implementation and analysis of vast amount of data, and the applying of relevant intelligent technology such as DM enables implementation the comprehensive intelligent control of intelligent logistics[4]. Similarly, big data technology might also be applied to intelligent logistics service platform. The benign operation is a significance support for realizing smart logistics system.

3. DEVELOPMENT COUNTERMEASURES OF INTELLIGENT LOGISTICS IN THE AGE OF BIG DATA

3.1 Digital upgrade of intelligent logistics

The ability to collect and use big data is an inexorable demand for the improvement of industry informatization construction level. For the development of smart logistics, the important value of big data collection, analysis and processing technology should be fully recognized, and the proper put into use big data technology could advance the good running of logistics enterprises. Therefore, the development of smart logistics needs the support of cloud platform to realize the collection, store and analysis of big data, coordinate all aspects of logistics operation and strengthen the cooperation between logistics enterprises. For logistics enterprises, logistics information sharing can be well realized through the cloud platform, which can not only record, plan and track the logistics service, but also forecast, analyze and prepare for the next logistics service in advance. Simultaneously, the cloud platform can provide valuable and shareable data information for all members of the logistics enterprise alliance, so as to intensify the control and governance of the overall business of the logistics industry, allocate logistics resources more scientifically, and promote the continuous optimization, integration and healthy development of intelligent logistics[5].

3.2 Establish logistics enterprise alliance

At present, China's logistics enterprises are characterized by a large number of enterprises but small scale. Few logistics enterprises can independently construct the entire operation network system, and the construction cost of this is high. If each enterprise has independent supervision, it will also cause a waste of social resources. Accordingly, for the sake of

cut the line operation costs of small and middle-sized logistics businesses, the formation of logistics enterprise alliance is a feasible choice, which can realize resource integration and benefit sharing. The alliance of logistics enterprises can raise funds for joint operation, select scientific sites, achieve the layout of warehousing and distribution centers, and come true the maximum use value of warehousing and distribution centers. In the meantime, the development of smart logistics must also pay attention to the effect of logistics enterprise alliances. By establishing vertical integration, horizontal integration or the combination of the two modes of logistics enterprise alliances, it can cope with the shortcoming of individual logistics enterprises. The appliance of the big data technology could not only realize the establishment of the regional logistics enterprise alliance, and also make it possible to cross regional logistics enterprise alliance building[6], because through storage and distribution center and resource sharing of logistics information platform, logistics enterprise partners to exchange, complementary advantages, reduce the cost of exchange and reduce the risk of default.

3.3 Perfect relevant regulatory documents

The establishment and perfect of laws and regulations can guide the standardized and scientific progress of the logistics industry, so that it can grasp the new opportunities, constantly overcome development problems, standardize the market order, increase of operation rate of modern information technology, and the smart logistics supply chain can be built as soon as possible. National policy according to the situation in China, combined with the logistics industry development situation and logistics development requirements, the wisdom from the practice experience of developed countries, deal with the existing laws and regulations to supplement and improve the information standard, power wisdom logistics platform construction, coordinating the relationship between the relevant industry, will give the depth of the cooperation between logistics industry and other industries create favorable situation. Local governments should also well supervision and management, make use of the smart logistics platform to monitor logistics management activities dynamically in real time, respond quickly to various matter during the operation of smart logistics, and further optimize the logistics management process. Shall strengthen safety management in the meantime, to ensure the security of data, to avoid message leakage and the risks brought by the unauthorized tampering, logistics enterprises to develop wisdom must follow the data security of the era of large data management requirements, to strengthen protection consciousness, to take protective measures, strengthening data security management system[7].

3.4 Strengthen data personnel training

The development of smart logistics needs a large number of inter-disciplinary talents who are not only good command of modern information technology, but also acquaint with the basic procedure of modern logistics operation, meanwhile have a sharpened awareness of innovation and service consciousness[8]. Although the arrival of the data age has promoted the grow of smart logistics, the corresponding professional talent guarantee is obviously insufficient. The number of universities offering the major of big data in China is small at the moment. Although the cultivation of data professional talents cannot only rely on universities, colleges should play a leading role in this aspect. Of course, the cultivation of data talents still needs the joint promotion of all sectors of society. It is suggested to adopt the joint training mode of government, universities, enterprises and industries to realize the high-quality output of data professionals as soon as possible. This requires the government to introduce relevant policies for talent training, universities to formulate scientific talent training programs, enterprises and industries to actively participate in the construction of talent.

4. CONCLUSION

As logistics becomes more and more intelligent, big data becomes more and more important. In the logistics enterprise of warehousing, transportation, distribution, circulation processing, electric business logistics emerged a mass of data every day, in the face of huge amounts of data, logistics enterprises to increase investment data analysis, not just as a data analysis technology, more and more enterprises take big data as a strategic resource. By using cloud computing and big data, it could strengthen the ability of data collection and analysis, and the real value hidden behind data can be mined, which can bring more opportunities for the evolving of companies and enhance the comprehensive core competence of enterprises. In the development of intelligent logistics, continuously introducing application of big data technology can promote wisdom logistics become more intelligent, meanwhile, it can also integrate and innovate the logistics industry, to improve people's life more convenient logistics service, also reduce logistics costs, decrease the input of resources, is the escort for the healthy development in the field of intelligent logistics industry.

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