Research on the Management of Shaanxi Smart Ports

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Abstract: With the development of economic globalization and "Internet +", the role of ports as the intersection of various modes of transportation is becoming more and more important in the comprehensive transportation system. In order to expand and improve the service function of the port and adapt to the development of the modern logistics industry, all countries pay special attention to the construction of the port information platform. Through the construction of the port information platform based on the Internet of Things, it can speed up the customs clearance and logistics speed of port trade, promote the development of export-oriented economy in port cities, expand exports, and promote the economic development and prosperity of the entire port city.

1. Introduction

With the globalization of the economy and the development of the "Internet +", the port has become more and more important in the comprehensive transportation system as a meeting point for various modes of transportation. At the same time of rapid development of the logistics industry, the port has developed from a transportation hub to a higher-level, more connotative comprehensive logistics center. The functions undertaken have been continuously expanded and gradually developed into a comprehensive value-added service center. In order to broaden the value-added service function of the port and adapt to the modernization of logistics, all countries in the world pay special attention to the construction of the port information platform. The logistics information platform based on the Internet of Things has become an important part of the development of the logistics industry. The information platform based on the Internet of Things can accurately and quickly transmit information in real time, so that enterprises can respond to changes in the market in a timely manner, become the central nervous system of modern logistics, and thus the activities in macro-control. Due to the high cost of the port to build its own logistics information system, the port urgently needs the support of the information platform, and the port information platform based on the Internet of Things is the development direction of the port informationization in the future. Through the platform, resources can be effectively integrated to realize various ports. The sharing of data fundamentally changes the status of decentralized operation of ports, reduces logistics costs, and maximizes profits.

Since the 1990s, after the reform and opening up, a number of inland port cities in China have risen rapidly, occupying an important position in China's foreign trade and promoting the further development of China's foreign trade. Xi'an is a typical representative in recent years. Since the reform and opening up, it has achieved great economic benefits in foreign trade. Xi'an is located in the Guanzhong Plain. It is the central city of China's western region. It has good conditions and development foundation, and it is the vanguard and main breakthrough of China's western development. The opening of the new Eurasian Continental Bridge and the strategy of "One Belt, One Road" are making Xi'an a crossroads across the whole line, and at the same time giving Xi'an a higher strategic mission. Therefore, this paper starts from the construction of Xi'an inland ports, analyzes the current situation of Xi'an's foreign trade structure, and proposes innovations in the concept of traditional inland port urban development. Through data analysis and field investigation, and drawing on the experience of domestic and foreign exporting cities and industrial structure adjustment, the research content of this paper is determined as the following two aspects: exploring the future development of inland port cities and making them more suitable for modern urban construction.

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2. Analysis of the status quo of port management in Shaanxi Province

At this stage, it is a crucial period for the transformation and upgrading of Shaanxi's economic structure and the comprehensive promotion of export-oriented economy. It is the initial stage for the construction of an inland open economy strategic highland and a new starting point for the Silk Road Economic Belt. Under the background of the country's continuous expansion to the west and the promotion of the “One Belt, One Road” strategy, Shaanxi's foreign trade is facing unprecedented opportunities for development; Xi'an has been approved as a cross-border e-commerce pilot city and a national-level Internet backbone direct-point city, Shaanxi Province E-commerce will enter a period of rapid development; with the entry of large enterprises such as Samsung, the opening of the “Changan” freight class, the approval of chilled aquatic products, meat and grain import ports, and the declaration and construction of Xi’an Free Trade Zone The gradual development will certainly further promote the opening up of Shaanxi Province, and at the same time put forward new and higher requirements for the level of trade facilitation in Shaanxi Province. With the rapid growth of finance, the continuous improvement of science and technology, the popularity of the Internet, and the strengthening of the coordination of port work and the establishment of the joint port system, the provincial government has also provided strong support for the “single window” construction in Shaanxi Province. And security.

In recent years, with the continuous and rapid growth of foreign trade in Shaanxi Province, the volume of inbound and outbound goods and personnel have risen sharply, and the services, capabilities and development needs of customs, inspection and quarantine and border defense departments are not suitable; marketization of logistics, transportation and warehousing enterprises The degree of specialization is low, the sense of service is not strong; the social service capability and service awareness of local government departments are weak, and the market-oriented operation and management mechanism is imperfect, which have become the bottleneck restricting the development of trade facilitation.

The customs clearance process in Shaanxi Province involves customs, inspection and quarantine, border defense, port, railway, airport, civil aviation and other departments. All departments are generally in a strong vertical management, weak horizontal integration mode, and the level of data sharing and cooperation between departments is relatively low. The completion of the customs clearance process requires multiple round-trip operations, which is time-consuming and labor-intensive; and the customs clearance procedures are serial, and delays in any one link may lead to delays in the entire customs clearance process. The “series-type” and “multi-station” customs clearance modes have extended the detention time of goods and personnel at the port and increased customs clearance costs.

The business platforms and service windows of various departments are not uniform, and there is no unified management mechanism and standards for “information exchange, supervision and mutual recognition, law enforcement and mutual assistance”. The relevant regulatory departments require that the reported data items be complicated, and no unified data resource management standards are formed. The network infrastructure environment and business release window, the international trade data simplification and standardization needs to be improved, and the degree of information exchange and sharing is low.

3. Intelligent Port Information Platform Based on Internet of Things

Provide basic information of the port, port business process, service guide, business procedures and other information. In addition, on this basis, establish a logistics enterprise integrity management database and enterprise credit evaluation system. Provide basic information of the port, port business process, service guide, business procedures and other information. In addition, on this basis, establish a logistics enterprise integrity management database and enterprise credit evaluation system. Focusing on the various aspects of port production management, the company carries out the intelligence, informationization and automation of port production operation management, including port guard and bulk cargo transportation management, unmanned gate management of

container terminals, intelligent yard management, intelligent city management, etc. . The port intelligent transportation system establishes a GPS, RFID electronic tag for road container transport vehicles, and establishes a perceptual identification network covering containers, cargo, and transportation vehicles in ports, ports, logistics parks, and yards to realize the perceptual collection of logistics information at port terminals. Data sharing and exchange, the system is based on the public platform of IoT logistics information. The system draws on the international construction concept of “single window”, explores the application demonstration of technologies such as cloud computing and Internet of Things, expands the application scope of the whole process of port logistics supply chain, and broadens the electronic business services of electronic ports.

The port intelligent security management system mainly includes intelligent video surveillance analysis, port geographic information service, and restricted area alarm management. The intelligent logistics management system utilizes intelligent integration technology to make the logistics system imitate human beings, and has the ability to sense, learn, think, reason, judge, and automatically solve problems in logistics. The system acquires information based on RFID technology, analyzes information and makes decisions, and enables goods to be managed in real time from the source, realizing the flow of information faster than real logistics. Through the Internet, the data center integrates data with port terminals, port units and management agencies to improve the intelligent collection, analysis, processing and decision support of logistics, trade, customs clearance, insurance, and finance.

The Internet of Things port is the fifth stage after the port has experienced the traditional logistics, distribution logistics, integrated logistics, supply chain and other stages, in order to meet the current requirements, with the rise and development of the Internet of Things. The Internet of Things port refers to the use of Internet of Things technology in the planning and construction of ports to build a port logistics information platform, thereby improving the information level of ports and improving the efficiency of port operations and reducing costs. The Internet of Things port aims at the smart port, and realizes the interconnection as the development direction. Based on RFID technology, sensing technology and application, it cooperates with wireless and wired transmission technologies to promote the construction of port Internet of Things, realize port production operation and warehouse management. Intelligent management such as real-time tracking and customs supervision to build a highly intelligent and high-level IoT port.

As an important industry application of Internet of Things technology, the Internet of Things port uses various sensing technologies, RFID technology, video surveillance, GPS positioning and other technologies to collect port logistics information, and port terminal operations, logistics equipment, and yard storage through the Internet of Things. The logistics systems such as operations, passenger and cargo transportation are organically integrated to provide various production and regulatory information for Hong Kong-based enterprises and port management departments. The Internet of Things port has the following characteristics: (1) Intelligent. Through the extensive use of sensing technology and RFID technology to collect the information of the perceived object, the information is transmitted to the background for information processing, and timely feedback, thereby achieving intelligence. Therefore, it can be said that only by realizing the intelligentization of port logistics, the ultimate goal that the IoT port is expected to achieve is truly realized. (2) Networking. The Internet of Things port relies on the network to realize the transmission of data and information, improve the port production capacity, and thus improve the social service function of the port. (3) Mobility. The IoT port needs to be transferred to the human initiative to achieve the "smart" level. (4) Informatization. The Internet of Things port has the characteristics of high informationization, that is, the information technology is applied deeper and wider to port construction, thus improving the information level of the port. (5) Modernization. The modernization of the IoT port is mainly reflected in the application of various technologies, such as EDI technology, RFID technology, GPS technology, Web services technology, and middleware technology.

The Internet of Things port has pointed out the direction for the further development of the port and is of great significance. (1) Promote the adjustment of local industrial structure and provide a reliable public relations application platform for Internet of Things technology. At the same time,

the government departments provide auxiliary decision-making basis for the management and organization planning of the logistics industry and ports. (2) Relying on the particularity of the port industry, it provides unlimited extension space for the transmission perception between objects, making bold attempts for the commercial application of the Internet of Things, and opening up new applications for the development of the Internet of Things technology. (3) Provide a broad technology platform for public perception, understanding and application logistics. (4) Provide remote management and personalized services for port logistics enterprises, improve enterprise management level, promote logistics supply chain management, reduce operating costs, provide support for enterprises to intensive and large-scale development, and provide materials for regional logistics development. Network support.

4. Conclusion

The intelligent port information platform based on the Internet of Things is an important way to expand and extend the logistics information management system based on multi-level intermodal transportation, to realize the necessary information of port logistics information, to improve the core competitiveness of the port, and to improve the efficiency of port logistics. To strengthen effective means of government monitoring. Therefore, the construction of the intelligent port information platform based on the Internet of Things has important practical significance.

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