

Research on the Construction of Logistics Information Platform Based on Cloud Computing under Mega Data Background

Jinhua Luo

Logistics Research Institute of CNOOC Energy Logistics Co., Ltd, China

Abstract

With the development of science and information technology in China in recent years, the application of Internet of Things and mega data in computer technology has become increasingly mature. Mega data and cloud computing technologies have experienced initial contact period, gradual penetration period and extensive application period in the logistics field, and supported the upgrading of traditional logistics to intelligent logistics, thus realizing the fundamental requirements of reducing costs and increasing efficiency in today's logistics industry. Compared with traditional data, mega data has faster propagation speed, more data modes and greater value. Mega data technology can effectively control and predict the development direction of logistics distribution services. This paper starts with the related concepts of smart logistics, combs the development trends of smart logistics based on mega data cloud computing, and based on the key technologies of smart logistics, analyzes the existing problems of smart logistics mode, systematically discusses the reconstruction of smart logistics development mode under mega data cloud computing system, and creates a logistics information platform which is the core part of smart logistics.

Keywords

Smart logistics, Mega data, Cloud computing, Information platform.

1. Introduction

The application of mega data technology promotes the development of logistics and makes smart logistics an important direction of its development. The construction of mega data information platform has become the main goal of intelligent logistics development [1]. In the era of mega data informatization, data is not only a carrier for simply recording information, but a data system with economic and social value that accurately records consumers' behaviors, habits and information [2]. With the rapid development of social economy and mobile Internet technology, a large number of logistics information platforms with vehicle cargo information matching as the main function have emerged in China [3]. At the same time, after fierce market competition and capital pursuit, different logistics information platforms have been precipitated in different segments. As a data set with many types, large quantity, complex structure and coexistence of commercial value and application value, mega data provides a new type of intellectual resource [4]. It collects, calculates, analyzes, stores, indexes and queries massive data based on cloud computing architecture, helps enterprises capture, manage and sort out data, and generates data resources required by enterprises. With the gradual maturity of Internet of things and cloud computing information technology, mega data can be applied to the logistics industry to realize information sharing and collaborative operation in all links of today's logistics industry, improve efficiency, and promote the transformation of the logistics industry to intelligent logistics mode [5].

Mega data and cloud computing technology have experienced initial contact period, gradual penetration period and wide application period in the logistics field, supported the upgrading

of traditional logistics to intelligent logistics, and realized the fundamental requirements of cost reduction and efficiency increase in today's logistics industry [6]. The rapid development of information technology provides important technical support for the development of logistics industry and promotes the development of logistics industry. With the help of mobile Internet technology and capital market, logistics information platforms show a good development trend. However, with the intensification of homogeneous competition between platforms, some logistics information platforms enter the recession stage when they fail to reach the critical user scale [7]. The logistics industry should make full use of the advantages of mega data, cater to the characteristics of market development, and build a smart logistics information platform based on mega data. Smart logistics can realize information sharing, collaborative operation and resource allocation optimization, making logistics operation and management more transparent, convenient, high-quality and efficient [8]. The application of smart logistics can realize the sharing of resource information, optimize relevant resource allocation, and then improve the efficiency of logistics operation and management, which is completely presented in front of the public [9]. Starting with the relevant concepts of smart logistics, this paper analyzes the characteristics of smart logistics and the key to the construction of information platform, and then discusses the construction of information platform based on Internet of things, mega data and cloud computing.

2. Collection and analysis of logistics mega data

2.1. Collection of logistics mega data

The data in logistics mega data all come from the Internet, Internet of Things, sensors, mobile devices, etc., and relevant data are collected through various channels. Then analyze these data in real time, and then apply the beneficial knowledge. The data and information of logistics mega data come from the network, and the relevant data and information are collected through a wide range of channels, and then the collected data and information are analyzed in depth, so that the value of these data and information can be brought into full play and used. When collecting data, Internet log collection is mainly obtained by analyzing the log information data generated in relevant platforms. Social networks on the Internet generate a lot of data such as words and pictures every minute. At the same time, when users conduct consumption operations on the e-commerce platform, they will produce certain browsing and purchase records, and even evaluation messages of commodities. The conceptual model of cloud computing mode and urban logistics system is shown in Figure 1.

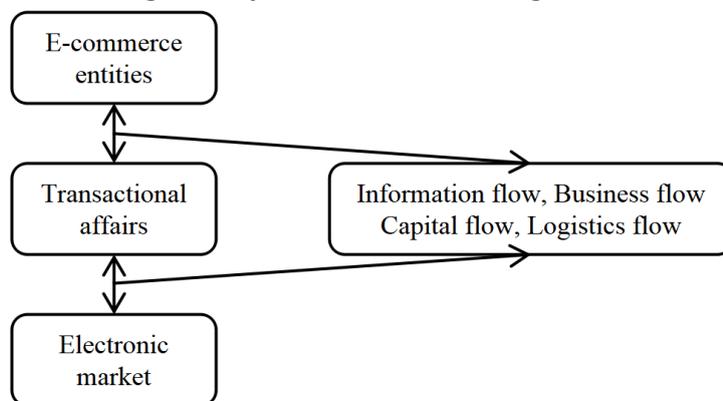


Figure 1 Cloud computing model and conceptual model of urban logistics system

Mega data mainly comes from internet, internet of things, sensors and mobile devices. There are many channels to collect logistics mega data, the most common of which are log data collection, sensor data collection and Web data collection. When sensors collect data, they collect and acquire the time, place and environment on the corresponding sensors in real time,

so that mega data can only be monitored in logistics distribution. Web data collection is the valuable data obtained by computer users in the process of summarizing and sorting the data [10]. Internet, Internet of Things, Internet of Vehicles, sensors and mobile devices are all important sources of logistics mega data. Therefore, firstly, data is obtained through multiple channels, and then, through real-time analysis of data, useful information can be grasped and utilized. In the data collection of network information, it is mainly obtained by analyzing the data information in the corresponding platform. Social networks always produce a large number of data information such as words and pictures. Moreover, in the process of trading on the trading platform, a large number of browsing data and purchase data are also produced, as well as the use evaluation of some commodities.

2.2. Analysis of logistics mega data

Traditional logistics research model belongs to shallow level and low model configuration. With the rapid development of mega data, many Internet companies have developed more complex data processing models, which can analyze data information more effectively. The analysis of mega data is to sort out, analyze and solve the related logs and data generated in social networks and e-commerce platforms. With the development of mega data era, many network companies have designed more complex data processing models in order to adapt to the development of the times, so the research on traditional logistics is no longer applicable to the development of today's society. Therefore, it is necessary to study it systematically and deeply and analyze the data at different levels effectively. In the analysis process, the distributed database system is the most frequently used one, which is large in scale and high in application time, and only needs to scan the required data during the use period, which can reduce the number of visits to the disk, thus exerting the maximum efficiency. Then there is the depth of knowledge computing mining. After analyzing a large amount of data information efficiently, it is necessary to select knowledge information with certain value and build a network system that can analyze and calculate data. If you want to analyze mega data effectively, you need to select valuable data from the collected data effectively, and then build a network system that can analyze and calculate data. Thereby effectively improving the selection of relevant routes of logistics distribution and the analysis of road conditions, thereby reducing logistics costs. In the period of logistics distribution, the best distribution route is calculated, thus reducing the logistics transportation cost. What's more important is that social computing promotes cognition. At present, the problem of fragmentation of new media data and information in society is quite serious, and virtual networks are gradually transformed into real networking. In order to enhance the visualization of logistics data, people's networking should be deeply explored.

3. Visual transformation of logistics mega data

At present, the society has entered the Internet age. In order to develop and manufacture a powerful country, it is necessary to realize the integrated management of the supply chain. In order to ensure the rapid development of China's social economy, logistics enterprises also need to formulate a clear Internet action plan, and integrate intelligent logistics into the manufacturing industry, so as to guide the logistics industry to transform to the intelligent direction. The visual data information platform of logistics mainly uses the technology of database to classify different businesses to different degrees, so that it can timely and effectively process the data information correctly, and effectively promote the common development of different businesses. The user layer of the system is also the presentation layer, which is applied to the client. Therefore, system users can access related applications and give instructions by using various browsers. At the same time, the relevant business functions can be realized by running the instructions of the system. In order to establish mega data system, the staff need to

integrate the information on the Internet, Internet of Things, sensors and mobile devices, use cloud computing to filter data, realize data visualization and establish a perfect logistics data information platform. At the same time, search and query should be opened to provide customers with information such as commodity logistics, equipment leasing and logistics services. The intelligent logistics management center is an auxiliary function for implementing intelligent and information-based management of the logistics park, while the financial service center is its functional value-added area. According to the logical framework of logistics finance and financial services, its management and analysis are intelligent.

With the support of multi-dimensional data analysis, it can strengthen enterprises' thinking about the future application and development of logistics intelligent marketing, and realize the trend prediction at a deeper level. The logistics mode positioning is shown in Figure 2.

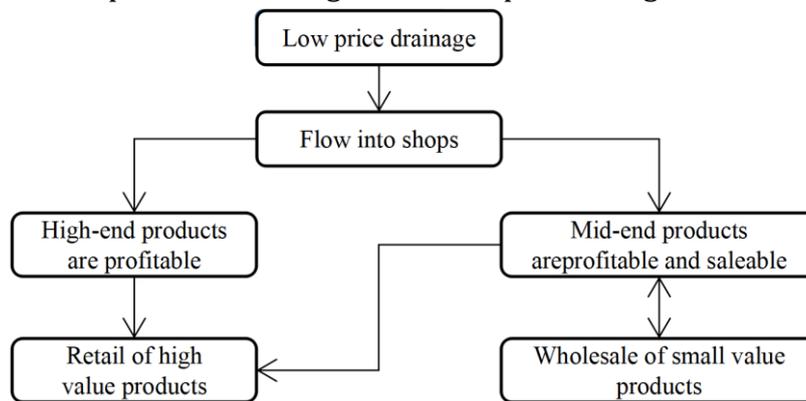


Figure 2 Product model positioning

The expansion area of the intelligent logistics information platform function is mainly the public information center, which is to ensure the seamless connection between various systems. The application layer mainly calls and outputs information from the application support layer and presentation layer to provide information data to users. The data of pledge, supply chain and finance received by the distributed data warehouse should be processed through the computer distributed framework and transmitted to the data processing center, so as to facilitate the mining and calling of data information. By using the processing functions of self-configuration and decision support of the support layer, the huge amount of data in intelligent logistics business is analyzed in warehousing, transaction, transportation, management and finance, so as to intuitively obtain optimization schemes such as carpooling, route, automatic sorting and inventory. Enterprises should provide a unique logistics distribution mode, transform the supply and demand mode of goods such as cars into the supply and demand mode of goods such as cars, effectively predict and control the actual needs of consumers, and realize the efficient operation of e-commerce economies and transport entities, thus achieving a win-win situation of efficiency and benefits. The central database in the system provides the function of data storage for the whole logistics visualization platform, and at the same time, it also analyzes and integrates the relevant data, which is convenient to update the logistics information in time.

4. Conclusion

Under the background of mega data's development, the development of logistics industry needs to always focus on customers. By analyzing, controlling and forecasting mega data, it can effectively promote the development of logistics enterprises and the related ability of decision-making. Mega data technology is used to construct the information platform of intelligent logistics, which can realize the functional modes of intelligent logistics such as intelligent analysis, intelligent perception, efficient execution and optimized decision. Under the background of mega data, the construction of intelligent logistics information platform should

pay attention to the effective application of mega data technology, Internet of Things technology and cloud computing technology, and provide participants with safe, reliable and dynamic intelligent logistics services. Mega data is applied in logistics, and through the mode of division of labor and cooperation, logistics services can be innovated and upgraded to improve the efficiency of logistics, thus promoting the development of the whole logistics service and making the operation of logistics ecological chain more intelligent. Enterprises should provide a unique logistics distribution mode, transform the supply and demand mode of goods such as cars into the supply and demand mode of goods such as cars, effectively predict and control the actual needs of consumers, and realize the efficient operation of e-commerce economies and transport entities, thus achieving a win-win situation of efficiency and benefits.

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