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Contents

Research on Intelligent Modularization of Logistics System

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Abstract: Based on the analysis of the background of intelligent modularization of logistics system, the necessity of intelligent modularization of logistics system is studied. The dimensions of intelligent modularization, such as intangible assets, tangible worst, short-term competitiveness and long-term competitiveness, are put forward. Some suggestions are provided for the measurement of these dimensions. The modularization of these dimensions is studied.

Keywords: Logistics system; Intelligent modularization; Dimension measurement; Manufacturing industry

1. Introduction

The modern logistics system is gradually demand-oriented and the change is accelerated. This requires better flexibility in the logistics system. Modularization is an important method to improve the flexibility of logistics system. Whether Harvard University in the United States or Tokyo University in Japan, modularization has been one of the research contents in the past few decades. However, the application research of specific methods of modularization in enterprises is not enough. Especially the research and application of intelligent modularization has just started. The author aims at the intelligent modularization of logistics system, and carries on the corresponding research. Because of the complexity of intelligent modularization, some experts put forward the necessity of intelligent modularization. In addition, the research dimension and research level of intelligent modularization have a new development. In this paper, the above problems are studied and discussed.

2. Research on the Necessity of Intelligent Modularization of Logistics System

Modern logistics system is complex and changeable, and the construction of intelligent modularization is more difficult. Traditional modular management, for many enterprises or industries have not yet a good grasp. The idea of modularization is gradually being applied to the strategic management of modern enterprises. The rapid bringing of the era of intelligence has brought new requirements to modularization. Intelligent modularization belongs to the field of intelligent management. Intelligent management for many enterprises has not yet implemented the basis. However, intelligent management has rapidly become the

development trend of some enterprises, and has also become the research focus of the business community.

The flexible management of logistics system requires the introduction of intelligent management based on modularization. Only intelligent management can realize the rapid application of modularization. The decomposition and combination of modularization need the support of artificial intelligence. Otherwise, the efficiency of modularization is too low to meet the needs of enterprises. Especially when the modularization management is implemented, the determination of the boundary of the module is a vague method. This kind of fuzzy boundary analysis often needs a lot of data mining. This process of data mining and knowledge search needs the support of artificial intelligence. Artificial neural network, big data technology, fuzzy analysis, intelligent game and other tools belong to the field of artificial intelligence. Therefore, the author thinks that the intelligent modularization of logistics system is necessary, and this kind of characteristic will become more and more obvious with the technological progress.

3. Dimension Analysis of Intelligent Modularization of Logistics System

At present, the optimization of logistics system has broken through the scope of efficiency. Logistics system as an existing asset, including intangible assets and tangible assets. The capabilities of the logistics system include long-term and short-term capabilities. The concept of intangible assets and the concept of long-term ability go beyond the category of efficiency.

The intelligent modularization of logistics system can be optimized from two directions: asset and ability. The optimization of assets should consider the comprehensive optimization of intangible assets and tangible assets. The optimization of ability should be based on the comprehensive optimization of long-term

ability and short-term ability. The intelligent modularization of logistics system can be analyzed from four dimensions: intangible assets, tangible assets, long-term capabilities and short-term capabilities. At present, the research on the modularization of logistics system is less studied from the intangible assets of logistics system modularization, and the modularization of logistics system is studied less by using the concept of asset evaluation. In view of this research blank, the author begins a series of research.

Intelligent and modular logistics system should not only improve efficiency, but also realize the increment of intangible assets. Special is the brand, goodwill cultivation and integration. This requires the design of intelligent modular system from the theory of asset evaluation. When a single asset is added up, its value is not equal to the value of the whole, whether tangible or intangible. This is a principle of enterprise value evaluation. From the point of view of asset evaluation, the design and operation of intelligent modularization will be of great value to enterprises. It will also make the whole society have more value.

The long-term ability of intelligent modularization is a research direction of supply chain management, which reflects the core competitiveness of supply chain. This needs to be measured from the aspects of economies of scale, speed economy, scope economy, asset economy and so on. This has formed a new research space.

4. Research on the Integration of Intelligent Modularization of Logistics System

The intelligent modularization of logistics system can improve the speed and effect of modularization process. However, the modular measurement of multiple dimensions has different vectors and can not be simply added or subtracted. In particular, intangible assets and long-term capacity are difficult to accurately measure the concept. This requires the measurement of more of these dimensions to provide methods. In this paper, a method of weighted balance between different vectors is proposed. By manually setting the weighted parameters, artificial intelligence is allowed to carry out machine learning and constantly optimize the weighted parameters. Through intelligent management to optimize the modularization of logistics system. This will make the logistics system produce more overall value and long-term competitiveness.

5. Research on the Technical Path of Intelligent Modularization of Logistics System.

At present, there are many related technologies of intelligent logistics system, the more popular technologies are big data technology, Internet of things technology, block chain technology.

Big data's role is to open up a data-driven way of thinking. This approach reduces the personal prejudice of managers and has a more objective and impartial observer status. Sometimes, big data technology can establish a more perfect data warehouse, which can provide useful space for artificial intelligence. Data mining technology is constantly developing and has a strong dependence on artificial intelligence tool technology. The development of data mining technology is positively related to the development of artificial intelligence technology. Data mining technology has a good application prospect in many processes of logistics modularization. Data mining technology can be applied to modular recognition process. Modular object recognition is fuzzy and progressive. That is to say, the mutual recognition between modules is a process of gradual understanding, and the mining of data is very difficult. Fuzzy mathematics and grey theory are used here. This is the combination of mathematical methods and computer theory. The core of computer technology is artificial intelligence technology. Modularization has strong fuzziness and adaptability to its own optimization problems. The adaptability here has the characteristics of artificial intelligence technology. The process of modularization is constantly optimized, and the construction and judgment of core assets and core competencies are also based on random perceptual data. These random data are usually obtained through the boundary of the module. In this way, big data has a more in-depth application in many aspects of modularization.

The Internet of Things technology is of practical significance for the intelligent modularization. In theory, the supply chain management method needs the Internet of Things technology. The real-time tracking and management link in the supply chain management requires the material information on the supply chain to be kicked off by the Internet of Things technology. The Internet of Things technology can provide effective data for supply chain management in time and space. So that the time consumption and the space consumption of the materials are reduced, and the cost is directly reduced. Internet of Things technology has become the platform technology of supply chain management. IoT technology is also a platform technology of modular management. The basic maritime computer technology of the Internet of Things technology. Internet of Things is a natural link with artificial intelligence. The rapid development of the Internet of Things technology provides the basic conditions for the modular management plant. The modular management of the manufacturing industry is the main area of the application of the modular theory. The Internet of Things technology is directly applied in the manufacturing industry, and there are good examples.

These all reduce the risk of the integration of the IoT technology with the modular technology.

Block chain technology is rapidly applied to all fields of social production. Block chain technology not only manages the material information well, but also integrates the financial and financial information. Blockchain technology has more comprehensive information management ability. Block chain technology increases the security of modular management, especially the security of funds. Block chain technology makes intelligent modular management achieve a leap in technology and management.

Big data technology is the basis of intelligent modularization. The technology of Internet of things in the modular management includes some large-scale data technology, and the block-chain technology in the modular management includes big data technology and some Internet of things technology. There is a certain relation among the three, but it has different application levels.

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