

Research on Intelligent Supply Chain Management Mode under the Background of Industry 4.0

--Taking Hong Kong as an Example

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Abstract. The production mode in Industry 4.0 era, different from the traditional mode, pays more attention to the use of information technology and intelligent technology, which meets the requirements of intelligent development of product design, technology, manufacturing, inspection and logistics in the whole life cycle in the new era. The current competition has gradually developed into fierce competition between supply chains. In this context, the management mode characterized by traditional and single service can no longer meet the diversified needs of the market. In this regard, taking Hong Kong as an example, this paper studies the intelligent supply chain management mode under the background of Industry 4.0. Li & Fung is the largest export trading company in Hong Kong. Industry 4.0 will inject new vitality into supply chain management and put forward new requirements for supply chain management. Li & Fung Company put forward the product requirements for customers. They started from the draft design, investigated the market, found out suitable raw materials, conceived to produce samples, and planned and controlled the production of the factories with which they had business contacts to ensure quality and timely delivery.

Keywords: Industry 4.0, Intelligent supply chain, Management model.

1. Introduction

The search for new growth points in the global economy and the transformation of the manufacturing industry are important topics of common concern for all countries. Industry 4.0 has strategic significance for the global economic layout and structure. This article conducts research on the intelligent supply chain management model in the context of Industry 4.0. The current competition is gradually developing into fierce competition between supply chains. Many enterprises pay attention to the creation of brand products, and on this basis, they can make their brand products become direct suppliers to customers. In addition to international brands such as NIKE and Hong Kong "Li Feng", domestic brands such as Li Ning and Metersbonwe Bang Wei have also provided us with models of successful operation. In this context, the management model characterized by traditional and single services can no longer meet the diverse needs of the market, let alone provide more development space for enterprises. Therefore, implementing effective supply chain management is increasingly becoming a necessary path and important strategy for enterprises to grow and strengthen [1-2]. Taking Hong Kong as an example, Li&Fung Company is the largest export trading company in Hong Kong. The company was founded in 1906 and its main products include toys, clothing, accessories, travel bags, etc. Hong Kong enterprises have accumulated expertise in business connections and management knowledge over decades, and 40% of the 300000 small and medium-sized enterprises in Hong Kong are already engaged in cross-border operations. Therefore, Hong Kong should be positioned as an excellent supply chain manager in the trade industry, managing a supply chain network spanning China, even Asia [3]. After 30 years of reform and opening up, China's Comprehensive National Power has been greatly enhanced, and foreign trade has entered a new stage of development. As an import and export trade enterprise, it is very beneficial to earnestly learn the experience of "Li Feng" transformation, and clarify the development strategic objectives of the enterprise, so as to accelerate the transformation of foreign trade growth mode and ensure the sustainable development of enterprises [4]. Under the background of Industry 4.0, the scientific demand forecasting mechanism can provide guidance for the development of demand environment-

related work. In the forecast, the past data and related information can be analyzed to fully tap its value, and the future development can be scientifically predicted based on the actual situation. In the context of the Industry 4.0 era, Li&Fung Company has raised product requirements for customers. They start from design drafts, conduct market research, identify suitable raw materials, conceive production samples, and plan and control the production of factories with business connections to ensure quality and timely delivery [5]. Due to the fact that Japan's zippers and buckles are the best, and most of them are produced in mainland China, it can directly order zippers from its factories in mainland China, and then transport yarn and zippers to Thailand, which produces the best clothing, to produce clothing. In the era of Industry 4.0, by producing globally, decomposing the value chain, and optimizing each step, we can shorten delivery cycles and reduce costs, achieve supply chain management, and drive business development [6].

2. Industry 4.0 analysis

Industry 4.0 is an intelligent supply chain, which is based on the information and physical integration system integrating electronics, machinery and software. With the help of the Internet of Things and the Internet, people, machines and organizations can connect and interact, but they can operate independently, from product design to raw material procurement to manufacturing production to logistics transportation to terminal sales, breaking the barriers of traditional roles, forming an integrated intelligent supply chain and providing intelligent manufacturing and intelligent services. Pay attention to the application of technical automation management, reduce work mistakes by reducing human intervention, and create an intelligent manufacturing model of "people, machines, materials, energy and trust" output finished products through dialogue between products, machines and people [7-8].

3. Changes in Supply Chain Management under Industry 4.0

3.1 The transformation of supply mode first involves changes in demand and products

The relevant departments should issue the "Guidance on the Development of Big data Smart Supply Chain" and incorporate it into the supply side reform at intervals to provide support for meeting people's needs, the development needs of Hong Kong Li&Fung Group and the national economic development. Companies with a professional product management foundation should develop towards the creation and management of industrial supply chains. Hong Kong Li&Fung operates its enterprise with a supply chain philosophy and has accumulated rich practical experience. Li&Fung aims to provide consumers around the world with suitable, timely, and affordable products, focusing on customer needs and providing high-level product supply services[9]. In the face of customized needs, core enterprises can guide customers by combining their high professional abilities, and on the other hand, demand forecasting is more reliable and demand transmission is more effective [10]. This not only improves the efficiency of meeting demand, but also reduces the total cost of the value chain.

3.2 Procurement and supplier management reform

Only by establishing a modern global supply chain management system, coordinating countless processes, regions and enterprise organizations and implementing efficient supply chain management can we ensure that all kinds of orders are completed on time and in good quality, and customers can get better quality, cheaper and diversified goods. Supply chain management plays a vital role in Li & Fung's rapid development. If Hong Kong can provide more value-added services, it may further become a base for multinational corporations to manage mainland business. The arrival of China will attract a large number of multinational companies who have never set foot in the Chinese market. Their understanding of the complexity of the mainland market still needs to be mastered, and Hong Kong's understanding of the mainland will be an important consideration for multinational companies

when choosing to operate their headquarters in the Asia Pacific region. "Li & Fung" Trade concentrates the financial management of global business in the headquarters to ensure the standardized use of funds. This can not only protect the interests of enterprises and customers, but also improve the management efficiency of enterprises.

3.3 Intelligent Production and Intelligent Logistics Management

In intelligent production, products and technological processes can be identified by information technology, so that the same or similar production links of products can be switched efficiently, reducing frequent line changing, logistics time in the factory and waste of waiting resources. Through the Internet, Internet of Things, sensor technology, product identification and other technologies and characteristics, the whole logistics business of receiving, sending, storing and selling is more intelligent, efficient and visual. It is almost impossible to complete such a complicated task according to the traditional management mode in the past to ensure that all raw materials distributed in different regions are smoothly transported to the production places and garments produced in different production places are delivered on time as if they were from the same factory.

4. Construction and Development of Intelligent Supply Chain

4.1 Intelligent supply chain construction

The intelligent supply ability of intelligent supply chain is an obvious feature of the Industry 4.0 era, and the supply chain is a functional network chain structure that integrates production and sales around the core enterprises. Many enterprises pay attention to the creation of brand products, and on this basis, they can make their brand products become direct suppliers to customers. In addition to international brands such as NIKE and Hong Kong "Li Feng", domestic brands such as Li Ning and Metersbonwe Bang Wei have also provided us with models of successful operation. Under the background of Industry 4.0, the scientific demand forecasting mechanism can provide guidance for the development of demand environment-related work. In the forecast, the past data and related information can be analyzed to fully tap its value, and the future development can be scientifically predicted based on the actual situation. In this paper, the construction of intelligent supply chain is further studied, which is divided into four aspects, as shown in Figure 1.

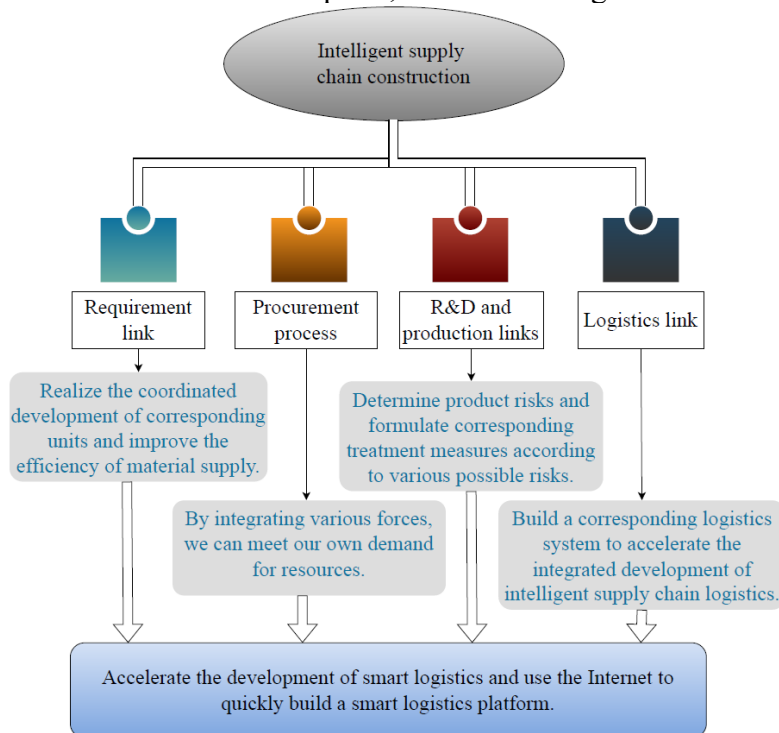


Figure 1. Intelligent Supply Chain Construction

In the era of Industry 4.0, from the macro perspective of Hong Kong, enterprises in different industries have similar workflow in supply chain management. Enterprise orders may vary in size, but they all operate under the management of Hong Kong companies, so Hong Kong companies will become value-added coordinators in the supply chain. Moreover, when implementing such development plans, it is bound to be accompanied by considerable human and financial investment and time cultivation. In this regard, the managers of Hong Kong Li & Fung Group must be fully prepared.

4.2 Strategies for the Development of Intelligent Supply Chain

If Hong Kong can provide more value-added services, it may further become a base for multinational corporations to manage mainland business. The arrival of China will attract a large number of multinational companies who have never set foot in the Chinese market. Their understanding of the complexity of the mainland market still needs to be mastered, and Hong Kong's understanding of the mainland will be an important consideration for multinational companies when choosing to operate their headquarters in the Asia Pacific region. The relevant departments should issue the "Guidance on the Development of Big data Smart Supply Chain" and incorporate it into the supply side reform at intervals to provide support for meeting people's needs, the development needs of Hong Kong Li&Fung Group and the national economic development. Companies with a professional product management foundation should develop towards the creation and management of industrial supply chains.

The more people invest in each link of the supply chain in the context of Industry 4.0, the stronger the irreplaceable advantage, the greater the value of its survival, and the stronger the bargaining power. In the process, third-party supply chain logistics enterprises should play a role in conducting business, integrating resources, and improving supply chain processes. Establish an intelligent supply chain development framework and continuously promote the development of the supply chain. Through the analysis of the above content, this article establishes the development strategy of intelligent supply chain, as shown in Figure 2.

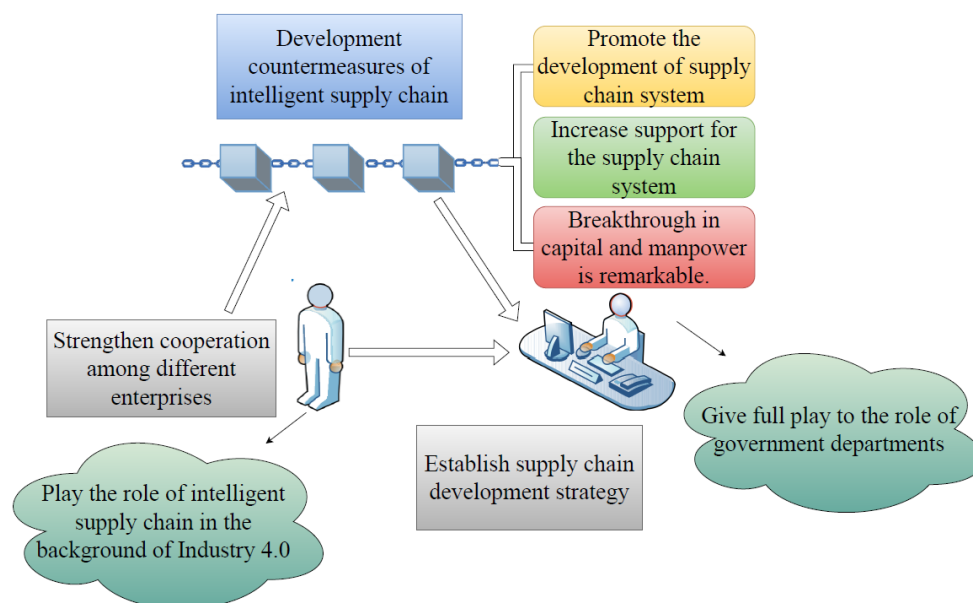


Figure 2. Development Countermeasures of Intelligent Supply Chain

The Pearl River Delta has a high degree of marketization and great economic vitality. In recent years, its development has changed with each passing day, and it has become an important light industry manufacturing center in the world. If these advantages can be combined with Hong Kong's advantages in service industry and financial industry, the "Greater Pearl River Delta Region" will become the driving force for regional export and business activities.

5. Conclusions

With the gradual improvement of the market economy system and the further improvement of laws and regulations in trade management in China, the drawbacks of agency business mainly relying on single settlement will gradually be exposed. The current competition is gradually developing into fierce competition between supply chains. In the era of Industry 4.0, from the macro perspective of Hong Kong, enterprises in different industries have similar workflow in supply chain management. Enterprise orders may vary in size, but they all operate under the management of Hong Kong companies, so Hong Kong companies will become value-added coordinators in the supply chain. Moreover, when implementing such development plans, it is bound to be accompanied by considerable human and financial investment and time cultivation. In this regard, the managers of Hong Kong Li & Fung Group must be fully prepared. In this context, the management model characterized by traditional and single services can no longer meet the diverse needs of the market, let alone provide more development space for enterprises. Therefore, implementing effective supply chain management is increasingly becoming a necessary path and important strategy for enterprises to grow and strengthen. However, due to the further refinement of social dividends, a considerable number of manufacturers will outsource their overseas sales business, which brings a true market foundation for commodity agency business to trading companies. This article takes Hong Kong as an example and conducts research on the intelligent supply chain management model in the context of Industry 4.0. Li&Fung Company is the largest export trading company in Hong Kong. For example, integrate possible macro business model changes, new technology applications, and uncertainty factors into the strategic planning of the enterprise as much as possible to enhance its market adaptability. Implementing a decentralized production strategy in the context of Industry 4.0, integrating and sharing external resources and information of enterprises, coordinating various enterprises and business links in the supply chain, is a new breakthrough in Li&Fung's supply chain management.

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