Research on the Trinity Innovation Model of Retail Business Based on Big Data

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Abstract: The arrival of the big data era brings both opportunities and challenges for retail business. The big data-based transformation and upgrading of retail business is an inevitable trend in the development of the retail industry today. This paper analyzes the practical application value and necessity of big data in retail business, and then proposes the business innovation model of big data-driven retail business that integrates value proposition, commodity circulation, and relationship networks based on the basic theories of business models and big data-related theories. Through the innovation of the various elements of the business model, the entire retail business model innovation is finally achieved.

1. Introduction

After a long period of development, traditional retail business has formed a mature business model. [1] However, with the vigorous development of information network technology, big data has gradually become an essential production factor. [2] Under the impact of big data-driven e-commerce, the traditional retail business model faces enormous challenges. Its main drawbacks are mainly due to the lack of big data sharing mechanisms; the traditional business model of retail business cannot meet the diversified and personalized needs of customers, and cannot respond quickly to consumer needs. [3] Therefore, retailers need to use big data to innovate their business models in order to promote reform and innovation. [4] However, the current research on big data and the retail business is only one-sided for the customer value proposition or for a certain link. It is not comprehensive; there is no innovation from the business model as a whole.

2. The Practical Application Value of Retail Business in Big Data Era

Compared with the traditional retail model, Big Data enables retailers to enter the market more extensively, making their business closer to consumers, thereby enhancing their insight and helping companies make effective decisions. [5] The main role of big data in the development of retail business is reflected in the following four aspects: customers, sales, stores and commodities.

2.1. Customers

With the help of big data, real-time analysis of multiple consumer behaviors of customers can be used to collect consumer preferences for retailers. At the same time, according to customer purchase records, purchase behavior and spending habits, the customer group is divided into related categories, and then introduce product to customers according to their preferences. In addition, big data can also monitor social media and timely respond to customers' product or service reviews.

2.2. Sales

With the help of big data, the supervision of sales data and real-time inventory data of retail business can be realized, thus providing a reference for the timely deployment of corporate goods. Based on big data, various data models can be established to realize multi-channel cross-selling, turn complex data into decision-making guidance, and improve the operational efficiency of retail business. Big data can be used to accurately simulate the customers' buying behaviors and habits, and accurately locate the prospective customers to achieve targeted marketing.

2.3. Stores

With the help of big data, we can effectively analyze major offline store promotions and best-selling products, thus providing reference for product production and distribution. Firstly, track the purchase path of customers in stores, optimize sales and goods distribution through big data; secondly, analyze all hot-selling products and promotions of stores; thirdly, optimize the store site selection by using data such as visitors flow rate, traffic flow and per capita consumption.

2.4. Commodities

First of all, big data can provide sales volume, predict product sales, and formulate loss prevention plans and performance tracking every day for single item in a store. Second, big data can help companies set price and adjust price. In addition, big data can analyze data such as inventory, purchases, complaints, and returns for single item so that companies can make relevant decisions.

3. Construction of Big Data-Driven Retail Business Model

Big data has changed the operation mode of retail business. It is a challenge also an opportunity. In such circumstances, reforms must be carried out in traditional retail business in order to keep up with the times. The impact of big data is everywhere. For traditional retail, its impact not only affects all elements of the model, but also affects the entire model. This research combines the above-mentioned content, and uses big data as a platform to innovate retail business models in terms of value proposition, commodity circulation, and relationship networks. The specific innovation path is shown in Figure 1.
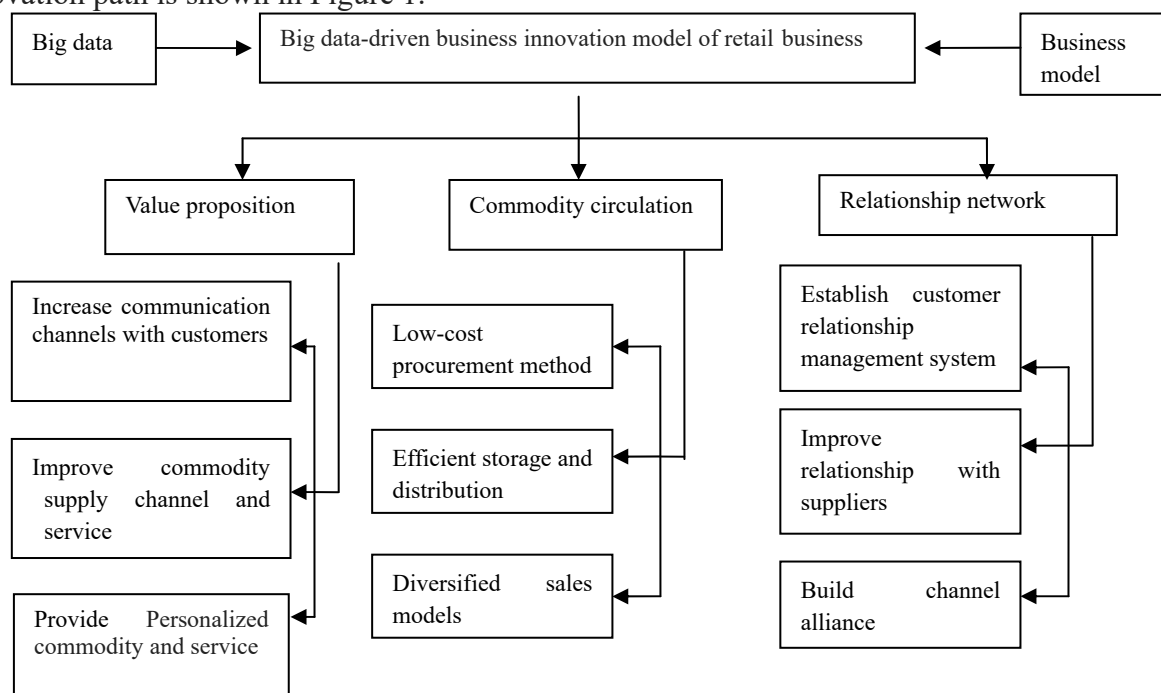
Figure 1 Big data-driven business innovation model of retail business

3.1. Customer-centered value proposition innovation

Value proposition is the concrete manifestation of the actual demand of customers, and also the value generated in the process of providing services or selling products to consumers. The company's revenue lies in constantly improving customer dependence and satisfaction and expanding the number of audiences. If the customer value proposition is clarified, its changing, personalized needs for products and services can be met. The more unique the commodities and services an enterprise can provide, the more competitive its value proposition will be.

3.1.1. Effective communication channels

The application and update of Internet tools build a bridge for real-time communication between companies and consumers. Consumers can use them to express their needs and give feedback while companies can also understand consumer behavior or intentions, increase customer loyalty, and effectively deliver company's value proposition.

3.1.2. Diversified supply channels

Diversified supply channels have a close bearing on customers' satisfaction. With big data, customer buying habits can be obtained in detail. Companies can improve their work according to results, from product display to environment and services, so as to increase customers' satisfaction and create larger profits space for company.

3.1.3. Personalized commodity service

Through big data analysis, companies can easily extract information related to target customers from mass consumption information, including consumption levels, habits, and preferences. The network platforms often recommend various consumer combinations or shopping choices for users. Its rationale lies in consumer behaviors recorded and screened by e-commerce. E-commerce companies can make targeted promotion plans through big data management and in-depth application, and then push it to targeted customers.

3.1.4. Dynamic price adjustment

With big data, retailers can analyze the effectiveness of factors such as market demand, competitors' prices, consumer demand, etc., and sell the same product to different consumers or different regions at best prices in a timely manner to achieve price dynamic management and maximize price competitiveness.

3.2. Innovation of commodity circulation process

The process of commodity circulation reflects the way that retail companies create value. As a link between suppliers and consumers, the main role of retail business is the commodity circulation, that is, to provide commodities and services for consumers. The main links include procurement of commodities, inventory management, logistics and distribution, product sales and after-sales. With the help of big data, the above-mentioned key processes will be innovated, and the operational efficiency, internal management level and competitive advantage of retail business will be greatly enhanced.

3.2.1. Save sales cost

The rise of online retailing gradually shifted the business of retail companies to online channel. The continuous growth of total Internet retail sales also means that it is feasible for retail companies to continue to reduce the number of entity stores and marketers. Depreciation of equipment, site rental and other sales and management costs can also be significantly reduced.

3.2.2. Reduce procurement cost

The selection of suppliers by retailers is a complicated process, but with the rise of large-scale B2B online trading platforms, the process becomes open, and transparent, and has been greatly optimized. The modern commercial market is an information-based market. Under this environment, the market search expenditures of retail business are greatly reduced, and the risk of supplier selection will be more controllable.

3.2.3. Reduce inventory cost

With sales performance data, inventory management can create a scientific and reasonable dynamic model to meet both supply requirements and cost reduction. The Internet operating model can further optimize other retail business operations and reduce its management costs.

3.3. Relationship Network Innovation

The retail company's relationship network involves customers, suppliers, and other partners. Big data management and bilateral market theory have their unique advantages and characteristics, which also has a positive impact on retail business network structure.

3.3.1. The establishment of customer relationship management system

In the era of big data and cloud computing, in order to improve the relationship between enterprises and customers, retail enterprises can combine data processing methods such as communication technologies and Internet technologies to promote the synchronization of bilateral relations and information technology to meet changing customer needs. First, advances in technology have created new communication tools including short messages, e-mails, web pages, and terminal software. These new tools will improve the development of customer relationship management systems and the speed of information transmission, making communication between companies and customers more timely and effective. This all-weather interactive approach enables customers and businesses to connect anywhere and anytime. Customers can not only feedback their needs to enterprises conveniently, but also make timely evaluation of products and services. Enterprises can not only maintain good customer relations, but also reduce their management costs. Second, on-line analytical processing and data mining technology is widely used in customer data analysis. Retail enterprises can collect and predict the buying habits of different customers, so as to implement personalized sales strategies, assist the decision-making of the upper level of enterprises, finally meet the basic needs of customers.

3.3.2. Strengthening cooperation with suppliers

In order to strengthen the cooperation between enterprises and suppliers, data sharing between retail enterprises and suppliers should first be realized. Retail companies should not only report their sales data back to corporate executives, but also should feedback to suppliers, help them adjust production plan according to the market, save resource costs, and realize accurate supply of retail enterprises. At the same time, enterprises can also focus on major suppliers through the classification management method. Suppliers can manage the prices, marketing strategies and sales areas of commodity portfolios according to market demand, enterprise planning, consumer behavior and other relevant data. Commodity category management can not only reduce the management and decision-making costs of retail business, but also demonstrate the former's trust in suppliers and accelerate the formation of strategic alliances.

3.3.3. Build channel alliance

The development of science and technology has a huge impact on consumers' purchase behaviors and consumers can collect information from various channels. In this situation, the sales channels and marketing functions of retail companies will also change. Retail business can seek cooperation with banks, online e-commerce companies, logistics companies, insurance companies and other organizations with sales intention according to their business objects. Through the cooperation in the procurement, sales and other businesses to build inter-agency channel alliance, enterprises can provide customers with online payment, logistics distribution, product insurance and other related services. In addition, customers can also use this channel alliance to facilitate shopping and improve the overall efficiency of the supply chain.

4. Conclusion

From the big data-driven perspective, the author conducts an innovative research on the business model of traditional retail business and proposes a trinity big data-driven retail business innovation model, then carries out in-depth analysis and interpretation of this model. However, there are many limitations. First, when proposing the innovation of retail business model in the era of big data, the research is biased towards the innovation of the three elements respectively, and lacks the innovative research on the relationship between the three elements. Second, the research is limited

to building a business innovation model driven by big data, which is short of further case studies and empirical studies.

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