Analysis of the Empowering Strategy of Artificial Intelligence for Retail Enterprises- Take Sam's Club for an Example

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Abstract. The development trend of the application of artificial intelligence in retail enterprises is evolving towards personalized, intelligent and efficient direction now. An increasing number of retailers are leveraging artificial intelligence to maximize customer service and increase sales profits. So, the development of the retail business enabled by artificial intelligence is one of the key research topics today. Therefore, through literature review and analysis of Sam's relevant data such as Walmart's Sam's official website, this paper explores and answers relevant research questions on how Sam's Club uses AI to enable supply chain management, member management and customer experience, as well as forward warehouse strategy. The study found that, in the process of Sam's Club constantly adapting to market changes, there are still certain AI application problems and possible development directions. AI technology can not only enable Sam's Club to provide customers with more intelligent and personalized shopping experience but also helps Sam's Club expand its competitive advantage in the market and provide more opportunities for future development.

Keywords: Artificial intelligence, competitive advantage analysis, supply chain management, member management and customer experience, forward warehouse strategy.

1. Introduction

In the context of the digital transformation of the global retail industry, Artificial Intelligence (AI) has become an important force driving change in the industry. The rapid development of the digital economy, along with advancements in intelligent and interconnected technologies, has created a closer connection between enterprises and consumers. Traditional enterprises now recognize that relying solely on previous business models is insufficient to meet the evolving needs of the market and consumers [1]. The new retail model, i.e. the integration model of "online + offline + logistics", can provide consumers with a richer and more convenient shopping experience, and promote consumption upgrading and market structure transformation.

In recent years, the digital economy and the real economy have been rapidly integrating, and digital-real integration has become the focus of development, with all industries actively undergoing digital transformation. The rise of new retail responds to the challenges faced by traditional retail, such as insufficient product innovation, increased competition and the obsolescence of consumer experience [2]. By integrating online and offline channels and utilizing digital technologies such as big data and artificial intelligence, the new retail model provides consumers with personalized services and enables efficient logistics and distribution.

Sam's Club has been steadily growing and aggressively expanding its market with its core philosophy of cost-effective, high-quality merchandise as well as service that exceeds expectations. This transformation has brought not only an increase in market share, but also new opportunities for sustainable corporate development.

Based on the above background, this study will explore how AI is applied in transforming Sam's Club's new retail model. It will also analyze the impact of AI on enterprise value. The goal is to provide practical insights. These insights can help traditional retail enterprises in their digital transformation process.

2. Analysis of Potential Areas of Artificial Intelligence Empowerment

Sam's Club is a high-end membership store owned by Walmart. In 1996, the first Sam's Club entered the Chinese market and opened the first membership supermarket in the Chinese supermarket industry. As of 2024, Sam's Club has shown a positive and steady development momentum. It has seen the population dividend in China, and has stationed in 14 provincial administrative regions, with more than 5 million paying members and an annual consumption of 13,000 yuan per member.

With increased competition in the business world and the proliferation of smart devices, the retail industry is experiencing a wave of digital transformation [3]. The gradual saturation of the retail market and changes in consumer consumption habits have prompted retail enterprises to actively use artificial intelligence (AI) to improve operational efficiency and enhance customer satisfaction in order to effectively respond to market changes. Overall, AI is driving retail businesses to become more intelligent and data driven. For instance, Amazon uses AI to analyze consumers' browsing history and purchase data to recommend personalized products for each customer. Fast-fashion clothing brand Zara uses AI technology to predict which items will be popular in a given region, so it can adjust production and distribution plans and reduce inventory overruns. Various precise sales management strategies combined with artificial intelligence can not only significantly improve the response speed and adjustment speed of retail merchants to changes in market consumer demand, but also optimize customer experience, enhance customer loyalty, make customer shopping experience smoother, and realize commercial value and sustainable development.

If the retail enterprises represented by Sam’s Club lack the support of AI in the marketing process, will be likely to face a series of challenges, which mainly show in inaccurate inventory management, a market responds slowly, overall business performance is lacking, and so on. Nowadays there has been a developing trend that Sam’s Club is actively using AI. Sam’s Club combined with mobile devices to announce a new artificial intelligence about enable to enhance the customer checkout speed[4], and put into use in more than 120 stores across the United States. Since then, customers in those stores have left the store an average of 23 percent faster.

Considering the current development situation, Sam’s Club has the potential to apply AI in three areas. They are supplying chain management, member management and customer experience, and forward warehouse strategy. Maybe Sam’s Club can learn from the experience in applying AI in the future. Then it would establish a big data analysis platform to provide new development ideas for the above three aspects through further refined analysis.

3. Competitive Analysis

3.1. Porter's Five Forces Model

The model breaks down the factors affecting a company's competitive advantage into five forces: supplier bargaining power, customer bargaining power, threat of substitutes, threat of new entrants, and competition within the industry.

3.1.1. Supplier bargaining power

Relying on Walmart's global sourcing network, Sam's Club has a strong supply chain advantage. It still relies on specific suppliers for high-end imported goods and specific local goods, especially the producers of its own brand, Member's Mark, so they have some bargaining power. However, Sam's Club has established an intelligent supply chain management system through digital technology that achieves information sharing between suppliers and retailers. This improves the transparency and efficiency of the supply chain, thereby reducing the bargaining power of suppliers.

3.1.2. Customer bargaining power

Sam's Club uses big data and artificial intelligence technology to deeply analyse consumer needs and provide personalized recommendations and customized services. As its main customers are paying members, customers have high expectations for high-quality goods and services. This gives

customers higher bargaining power to a certain extent. Sam's Club needs to better serve customers and improve member experience through digital and intelligent technologies.

3.1.3. Threat of substitutes

The threat of substitutes to Sam's Club comes mainly from e-commerce platforms and other premium membership retailers of the same type, such as Costco and Metro. Metro entered the Chinese market earlier and has the advantage of localization in food and catering supply, but its global sourcing capabilities and brand resources are weaker than Sam's Clubs. Costco is similar to Sam's Club in terms of its global supply chain management, but it entered the Chinese market later and is not yet as localized as Sam's Club. Nonetheless, these competitors are competing for market share through differentiated products, service innovation and member experience optimization. They all have some brand recognition, so the threat level of substitutes is still high.

3.1.4. Threat of new entrants

Among the potential new entrants in the field of new retail industry, as a German supermarket that has just entered the Chinese market for a few years, ALDL accurately grasps the essence and meaning of retailing and competes with Sam's Club by virtue of its unique brand positioning and strong supply chain system [5]. ALDL has introduced an intelligent management system, which has achieved a high degree of automation from merchandise procurement to inventory management. It is also actively involved in digital transformation and strives to provide customers with a new shopping experience both online and offline, so that they can enjoy convenient services no matter where they are. The threat of new entrants is still significant and reflects the importance of AI technology in the competition in the retail industry.

3.1.5. Competition within the industry

Analyzing other competitors in the retail industry, it is clear that Sam's Club is facing a high level of competition. The core competence of Sam's Club is based on the strength of its supply chain and its digitalization. Therefore, Sam's Club needs to further expand its supply chain strengths and innovation by applying AI technology to improve service quality and competitive advantage.

3.2. SWOT Analysis

Sam's Club's strengths lie mainly in its strong supply chain system, good brand reputation and large membership base. It is able to leverage Walmart's global supply chain to provide cost-effective goods, as well as enhance distribution efficiency through its forward warehouse strategy and efficient logistics network, which better meets the needs of consumers. Meanwhile, Sam's Club is currently the longest-opened and most representative warehouse-type membership shop in mainland China, and its membership system has been stable [6]. The weakness of Sam's Club is mainly reflected in the fact that the high-end membership retail model requires a lot of investment, especially in the front-loading warehouse, supply chain and logistics, with high operating costs. Moreover, Sam's Club's geographical distribution in China is limited, and the number of its shops is not large enough. However, with the development of digitalization and globalization, Sam's Club has the opportunity to make a breakthrough. Sam's Club can make use of AI technology, big data and intelligent technology to optimise its forward warehouse, supply chain and customer service to improve operational efficiency and reduce costs, as well as expand its consumer base through online operations. In terms of threats, Sam's Club is mainly facing fierce market competition and possible changes in retail policies, while fluctuations in the economic environment can also affect members' desire to spend. These are all factors that Sam's Club needs to take into consideration.

4. The solution

4.1. Supply Chain Management

Supply chain management is at the heart of the retail industry and is especially critical for large membership retailers like Sam's Club. The traditional commodity channel is: producer - wholesaler or agent - retail - customer. Such sales channels often rely on manual operations, and because of the frequency of transactions, this results in high commodity prices. Suppliers cannot be based on the retailer's collection of market information to provide the highest degree of cooperation. It is also susceptible to uncertainties such as fluctuations in demand and delays in logistics, which can lead to backlogs of inventory or shortages of goods. However, with the development of AI technology, Sam's Club can introduce AI technology for more efficient and intelligent supply chain management. Research has shown that big data analytics capabilities have a positive impact on the sustainable competitive advantage of retailers, especially in responding to fluctuations in market demand and optimizing inventory management [7]. The analysis of sales data by AI technology, using machine learning and big data analytics, can predict market trends and help optimize the replenishment cycle, reducing the likelihood of inventory backlogs and out-of-stock occurrences. The use of AI technology can improve operational efficiency, reduce the risk due to uncertainty, and bring about a more flexible and smarter supply chain management solution.

4.2. Membership Management and Customer Experience

Member management and customer experience are the key elements that differentiate Sam's Club from its competitors, and by introducing AI technology, both of these aspects can be greatly improved. AI technology can help identify the commonalities and differences among members. It can summarize the consumption preferences and user loyalty of each group. This information allows for identifying the most valuable and potential member groups for precision marketing and personalized recommendations. AI, as intelligent customer service, can reduce labor costs by understanding the member's demands before manual customer service intervenes. This allows for a quicker response to the member's needs and the provision of accurate solutions. It also helps reduce the member's waiting time, thus improving the quality of customer service.

4.3. The Combination of Forward Warehouse Strategies and AI Technology

4.3.1. Real-time forecasting and intelligent replenishment

By analysing information such as inventory levels, historical sales data and market trends, AI technology is able to predict product demand in real time and trigger the replenishment process. Such forecasts are highly accurate and can be updated in real time according to market changes, helping companies to better organize their production schedules. In addition, AI technology can also classify inventory into different categories based on factors such as product characteristics, sales and inventory turnover, and adopt different management strategies for different categories of inventory. For example, a more frequent replenishment strategy can be adopted for high-turnover items, while inventory levels can be appropriately reduced for low-turnover items. All these measures can help to effectively solve the problems of out-of-stock of best-selling items and high inventory of slow-moving items [8].

4.3.2. Route planning and vehicle scheduling

Traditional route planning is often based on static data and empirical judgement, which makes it difficult to cope with complex traffic changes. AI technology can collect and analyse real-time data from vehicles, pedestrians, signal lights and other aspects to predict the traffic conditions in the coming period and guide drivers to avoid congested roads. AI can also combine warehouse location and customer distribution to plan the optimal driving route for logistics vehicles, reducing transport time and cost. At the same time, AI can reasonably dispatch vehicles and personnel according to real-time order information and vehicle location to ensure that the goods can be delivered on time.

4.3.3. Automatic sorting system

The impact of AI technology on automatic sorting systems is mainly in terms of improving sorting efficiency, reducing error rates, enhancing flexibility and improving customer satisfaction, etc. Despite the large initial investment in automatic sorting systems, the cost savings that AI technology brings to sorting are significant in the long run. Firstly, there is a significant reduction in labour costs, which is especially advantageous in high wage areas or where there are labour shortages. Additionally, Sam's Club has been able to reduce losses and waste caused by sorting errors due to lower error rates and increased efficiency. Finally, the efficient operation of automated systems also helps to shorten the order processing cycle and speed up the return of funds.

5. Conclusion

Sam's Club uses AI technology to significantly improve customer experience and operational efficiency. Through the analysis of member profiles and shopping behaviours, Sam's Club is able to recommend accurate products for customers, which improves shopping efficiency. The optimisation of both supply chain management and forward warehouse strategy by AI technology has also greatly improved the intelligence of product supply and the timeliness of product transportation. AI technology enables Sam's Club to provide customers with more intelligent and personalized shopping services. Expanded supply chain advantages and increased customer stickiness are the main sources of Sam's Club's competitiveness in the retail industry. The application of AI technology in Sam's Club has strengthened its competitive advantage and provided more opportunities for its future development.

AI technology will be applied to more aspects of retail enterprises in the future. The wide application of AI technology will help enterprises improve operational efficiency and optimize user experience. It can also be combined with other technologies to promote the comprehensive intelligence of the retail industry and drive innovation and transformation in the retail industry. The retail industry will take a positive approach to AI technology and apply it widely, considering how it can be used to expand the diversity of its business. In conclusion, the application of AI technology in the retail industry has a broad prospect.

Authors Contribution

All the authors contributed equally and their names were listed in alphabetical order.

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